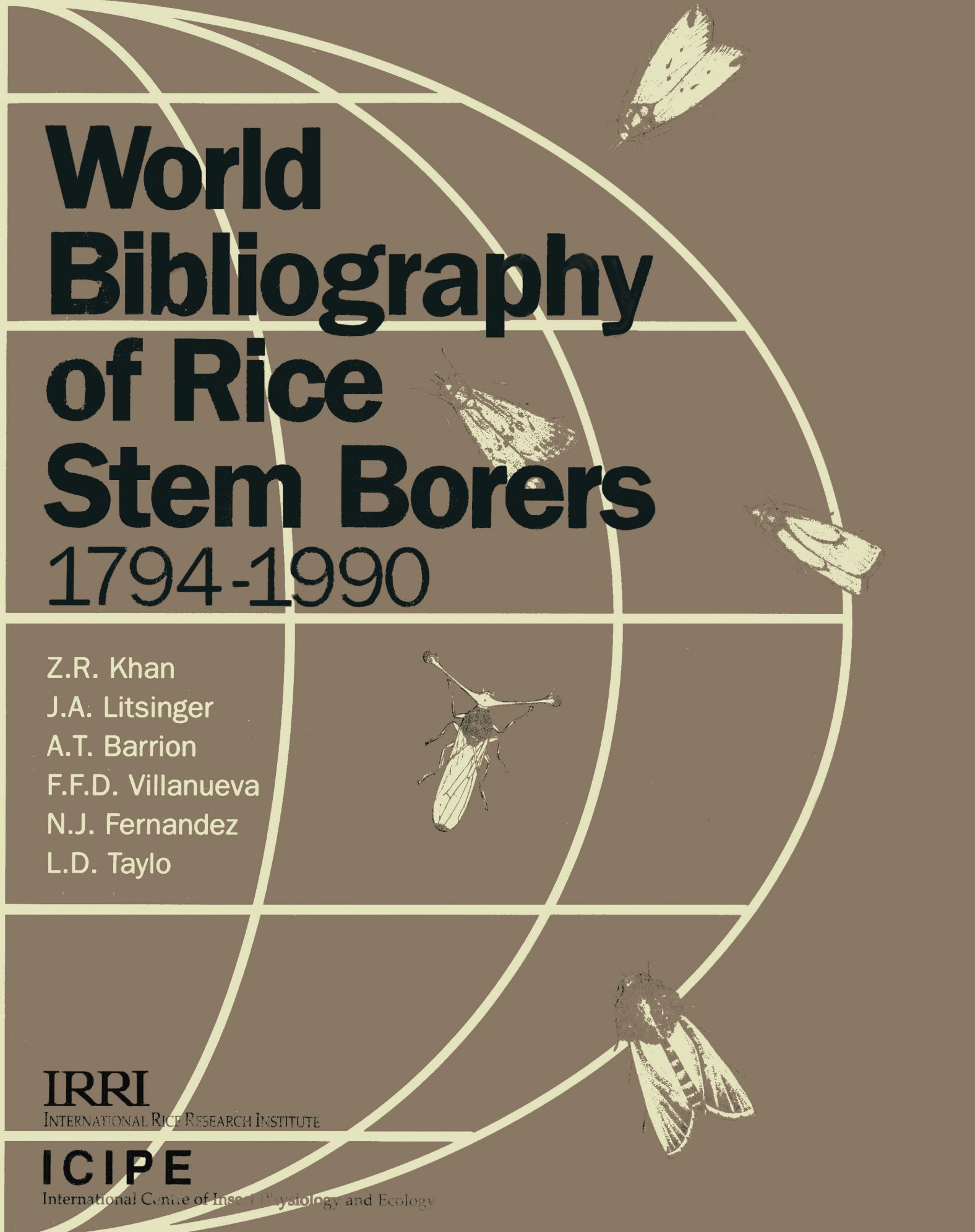


World Bibliography of Rice Stem Borers 1794-1990



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Contents

Foreword	
Preface	
World bibliography of rice stem borers	1
Description of species	2
Identification key	10
Life history	13
Adults	13
Eggs	14
Larvae	14
Pupae	16
Damage	16
Seasonal occurrence and factors of abundance	17
Varietal resistance	18
Biological control	19
Crop cultural practices	20
Chemical control	20
Economic threshold	21
Pest management	21
Table 1—Stem borers of rice worldwide	23
Table 2—Alternate host plants of rice stem borers	27
Table 3—Rice varieties resistant to stem borers	66
Table 4—Wild rices resistant to stem borers	98
Table 5—Natural enemies of rice stem borers worldwide	102
References	177
Index	387
References classified by stem borer species	388
References classified by countries	396
References classified by subjects	404

Foreword

This comprehensive bibliography is the first of its kind on stem borers, an important pest of rice and a major cause of yield losses and lower production.

The authors have accomplished a monumental task. The stem borers that infest rice all over the world belong to a complex comprising at least twenty lepidopterous and two dipterous species. Until now, no compilation of literature on any of them was available. Also, the voluminous literature on stem borers is scattered.

This volume lists all references to stem borers that could be found in the world rice literature. It also provides

descriptions and an identification key of the different species, explains the life history of stem borers, and discusses pest occurrence, crop damage, host plant resistance, and methods of control.

An important section is the key word index. That will enable users of the bibliography to locate background on specific topics quickly. All of the nearly 3,700 references listed are available at IRRI, through the Library and Documentation unit of the Information Center.

Publication was handled by the Communication and Publications unit of the Information Center.

Klaus Lampe
Director General

Preface

Stem borers are major pests in all rice ecosystems. Most of the 50 known species are widely distributed, and have been studied for many years. The result is a large number of scientific papers published in a wide array of journals and reports. Because many of those reports are both unknown and unavailable to many entomologists working in national rice research programs, costly duplication of research and delay in the advancement of knowledge on rice stem borer biology and development of control tactics occurs.

IRRI has been active since its founding in assembling the world's literature on rice. The Institute annually publishes bibliographies of the latest rice literature. Those bibliographies include a section on the insect pests of rice. The bibliographies begin with literature citations from 1950. IRRI's Entomology Division has searched even further back in time, and has indexed more comprehensively the content of the literature on rice pests. This effort has reached a point that we are confident that most of the relevant literature on rice stem borers is now available at IRRI. This bibliography is the record of that literature. All the references listed here are in the Entomology Division files and have been scanned for their subject matter content. The goal of this literature compilation is to accelerate the advancement of rice science, in order to develop knowledge for reducing yield losses caused by stem borers, so that rice production can be increased. This bibliography is more than an extensive list of references on rice stem borers. We have synthesized the information contained in the references, because we realize that much of the stem borer literature will not be available to most researchers. We have included a taxonomy of rice stem borers that provides information on their geographical distribution, biology, ecology, and control tactics. This information is summarized in tables on stem borer taxonomy, natural enemies, alternate plant hosts, and resistant rice cultivars and wild rices.

The bibliography lists 3,719 papers on stem borers published and unpublished from 1794 to August 1990.

The references are arranged alphabetically by name of first author and numbered. Each entry is followed by a set of keywords that identifies the article according to stem borer species, the country where the work was done, and its content. Most of the articles listed concern irrigated wetland rice, but other rice environments and cultural types are identified.

We assumed that species of arthropods and weeds mentioned in the articles were correctly identified by the original authors; it was impossible to verify each one. We ask readers and users of the bibliography to notify us of any errors or omissions, and to send reprints or citations of new references, to add to the database, for inclusion in any future supplement.

We are indebted to Dr. Klaus J. Lampe, Director General of IRRI, for authorizing publication of this large undertaking. Many people were involved in producing this bibliography. We are indebted to N. P. Castilla, A. D. Tan, and M. A. Austria for their help in compiling the references and tables; to A. Lewvanich for the *Scirpophaga* literatures; to K. Moody for validating the scientific names of weeds and to D. A. Vaughan for those of *Oryza* spp.; to R. Ikeda and M. Yamauchi for Japanese translations; to L. R. Pollard and T. Rola for editing; to D. Amalin for the illustrations and E. Panisales for the graphs; and to C. M. Barba and C. F. Reyes for typing the manuscript.

Our efforts will be richly rewarded if this book proves useful to rice entomologists throughout the world.

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IRRI, November 1990

World bibliography of rice stem borers

Stem borers are ubiquitous pests of rice worldwide (Figs. 1 and 2). The insects infest rice crops throughout their growth, from the seedling stage to maturity. No matter which continent, ecosystem, or type of crop culture, a field of rice is usually infested by more than one stem borer species.

Fifty species in three families—Pylalidae, Noctuidae (Lepidoptera), and Diopsidae (Diptera)—have been found to attack rice crops (Table 1). The pylalids are the most successful family, with 35 of the 50 known stem borer species.

Chilo suppressalis (Walker) is perhaps the most widespread species, extending from Asia and Oceania into the Middle East and Europe. The most prevalent species in Asia are *Scirpophaga incertulas* (Walker), *C. suppressalis*, *Scirpophaga innotata* (Walker), and *Sesamia inferens* (Walker). *Chilo agamemnon* Bleszynski occurs in the Middle East and North Africa. *Maliarpha separatella* Ragonot is the most prevalent species in Africa (which is also home to the exotic dipterous stalk-eyed stem borer *Diopsis* spp., usually a mixture of *Diopsis macrophthalma* Dalman and *Diopsis apicalis* Dalman).

In North and South America, *Diatraea saccharalis* (Fabricius) is the most widespread species, followed by *Elasmopalpus lignosellus* (Zeller) and *Rupela albinella* (Cramer). North America also is home to *Chilo plejadellus* Zincken, which attacks wild rice *Zizania aquatica* Linnaeus as well as *Oryza*. *S. innotata* is most prevalent in Australia; *C. suppressalis* and *S. inferens* are most prevalent in Oceania.

Four stem borer species are generally monophagous to *Oryza*: *S. incertulas*, *S. innotata*, *M. separatella*, and *R. albinella*. The reason monophagy is not indicated for these species in Table 2 is possibly due to misidentification of species and host plants.

Many host range records do not take into account how the plant-host association was determined. In nature, an insect locates a host plant through a sequence of behavioral responses. In the laboratory, force feeding a larva in a test tube ignores this natural filtering process and only measures the insect's acceptance of the plant as food.

Also, increasing evidence indicates that the host ranges of most insects are dynamic, and often location- and time-specific. For example, brown planthopper *Nilaparvata lugens* (Stål) is considered to be monophagous to *Oryza*. But a sympatric population in the Philippines feeds only on the weed *Leersia hexandra* Swartz.

Among the stem borers, *E. lignosellus* is the most polyphagous: it is a pest not only of rice and other cereals, but also of legumes.

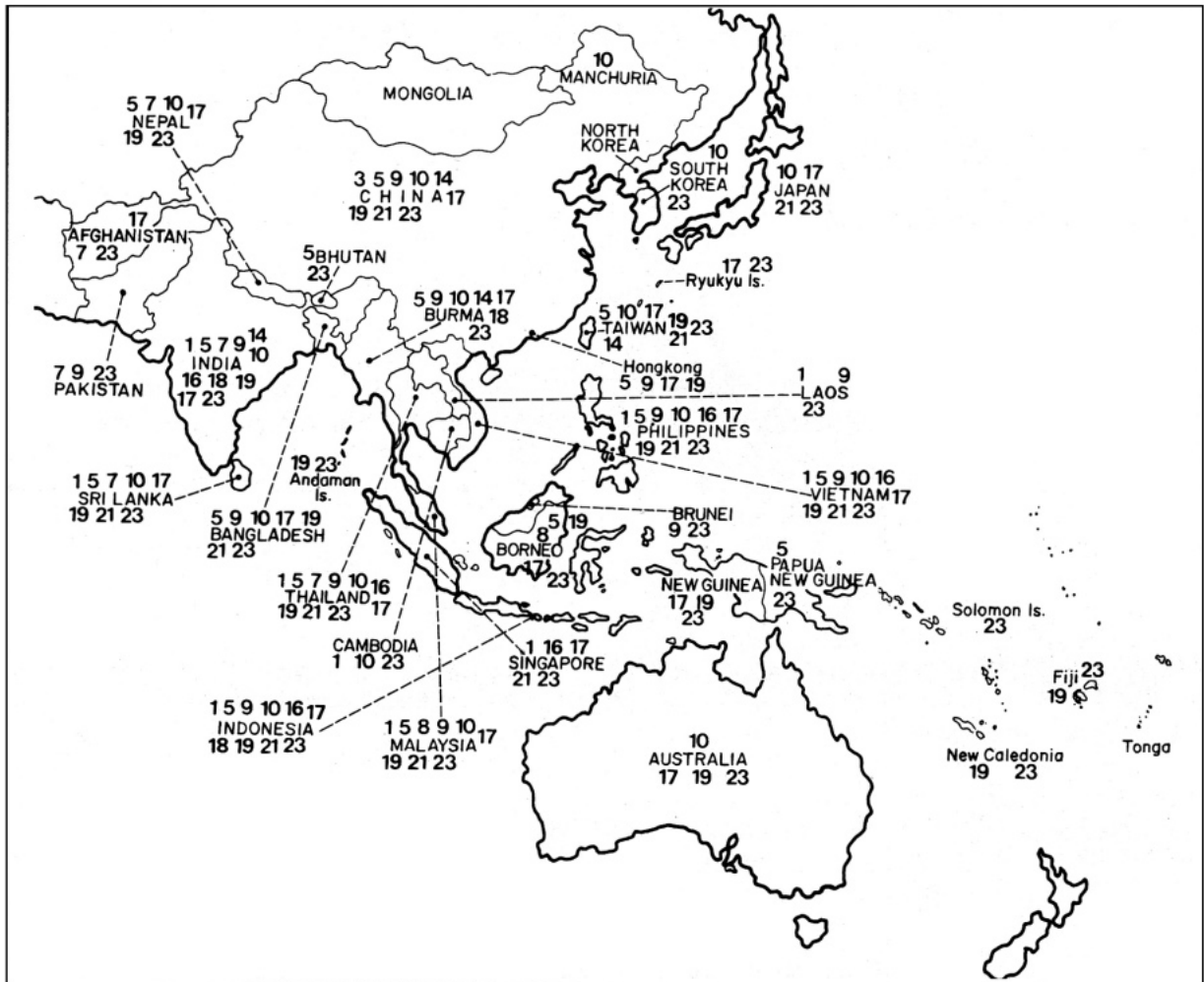
Rice stem borers often show preference for different climates and ecosystems. *S. incertulas* is adapted to the aquatic rice-growing environments of the tropics, where it causes the highest annual yield loss of all insect pests. Although it rarely causes damage as extensive as does a brown planthopper epidemic, it is a chronic pest, prevalent in field after field, crop after crop, year after year. Complete yield loss to stem borers is rare, but an infestation of *S. innotata* in Indonesia totally destroyed more than 13,000 ha of rice in 1990.

S. innotata is adapted to tropical climates that have a distinct dry season. It aestivates (goes into dormancy) in the stubble after a single wet season crop of rainfed lowland rice. *S. incertulas* also can aestivate over a dry season, but is less adapted to this condition.

S. incertulas, an aquatic species, is the only stem borer able to survive submergence. Larvae hatch and enter the stem, sealing off the entrance hole to develop in the stem under water. Submerged larvae and pupae of other species would drown, because their entrance holes remain open. Periodic flooding of irrigated ricefields ensures the supremacy of *S. incertulas* in tropical Asia. It is also an important pest of deepwater rice.

C. suppressalis occurs in the tropics, but is more adapted to temperate regions, where it hibernates over winter.

E. lignosellus is a purely upland-adapted stem borer. All stem borers, however, can survive well in the uplands, and that ecosystem typically harbors many species. Stem borers with broad host ranges also are likely to be found in the uplands, because they prefer maize, sorghum, or sugarcane to rice.



1. Distribution of rice stem borers in Asia, Australia and Oceania. The numbers after each country represent a stem borer species according to its serial number in the text under the Chapter "Description of Species".

Fewer than half the species identified are common on rice, and more intensive host range studies may show that some identifications are inaccurate. The less common species may prefer hosts other than rice, and only attack rice incidentally.

Misidentification of the stem borer species is also a possibility. The gross morphological characters commonly used for identification can be poor indicators of different species (Figs. 3, 4, and 5). A brief description and the key used to identify species in the reference collection at IRRI are given below. Other morphological characters, such as genitalial features, that separate different stem borer species, are also given in the identification key.

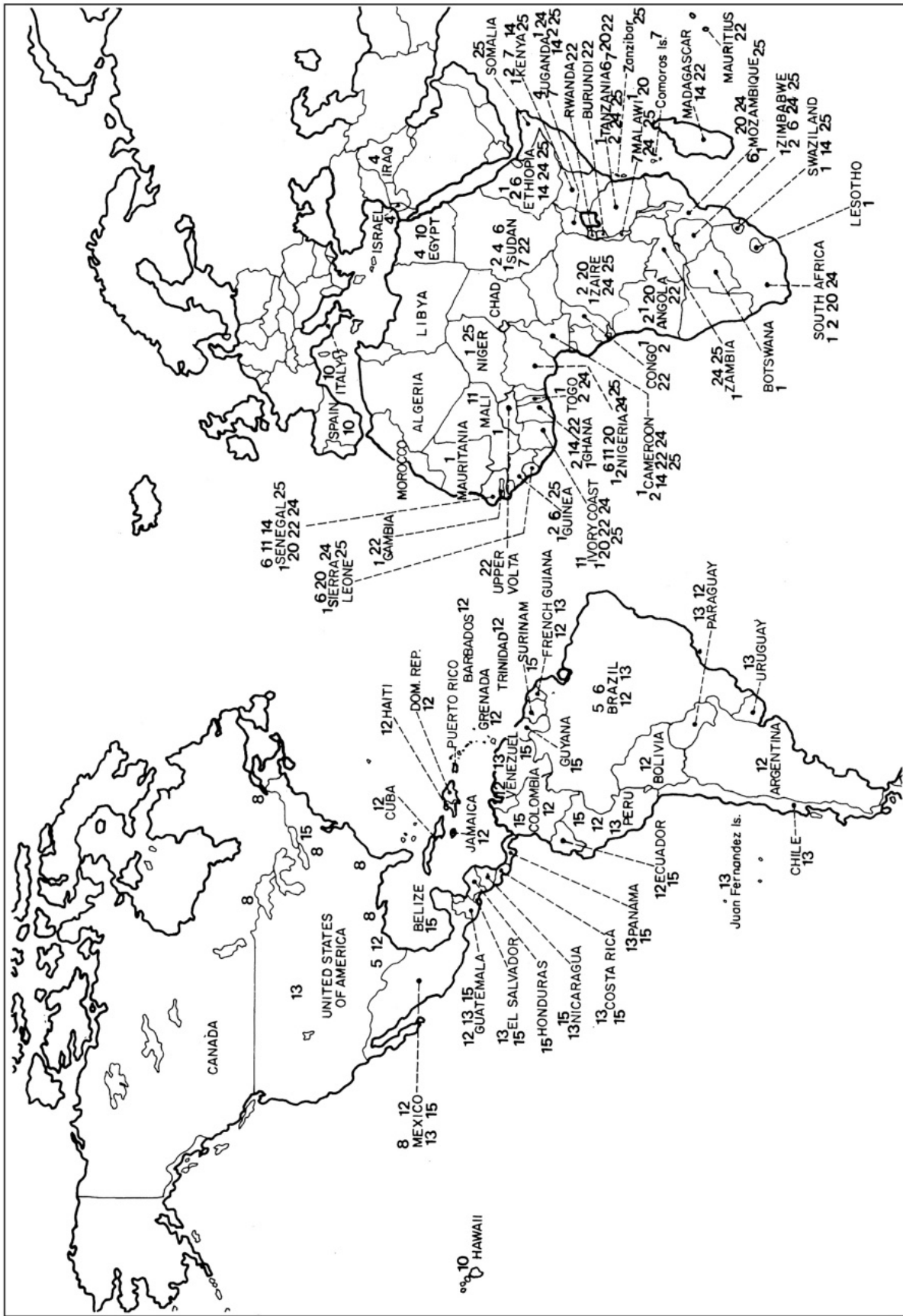
Description of species

1. *Ancylolomia chrysographella* (Kollar) (Fig. 3a)
= *Chilo chrysographellus* Kollar, 1848. Hoeg. Kasch iv (2): 494.

= *Ancylolomia chrysographella* (Kollar) Warren, 1888. Proc. Zool. Soc. London 1888: 337.

A. chrysographella, often referred to as false borer, is a member of the subfamily Crambinae. It is a minor pest of rice with a distribution range that extends from Africa, Saudi Arabia into Pakistan, India, Sri Lanka, Myanmar, China, Korea, Japan, Taiwan-China, Philippines, and Indonesia. The report of its occurrence in Malaysia needs confirmation (Figs. 1 and 2).

Diagnostic description: Medium-sized moth with a wing span of 25-30 mm in the female and 20 mm in the male. Generally straw-colored in the thorax and abdomen. Abdomen with transverse white bands. Forewings moderately dark yellow brown with small black dots arranged in 8 longitudinal rows of uneven length running from the antemedial to the submarginal area. Discal spot present between the two subapical dot lines. Subterminal area with vertical, wavy pink to dark brown and white bands, and black spots near white wavy band before margin. Wing termen indented or concave midmedially. Hindwings whitish with yellowish veins. In males, the



2. Distribution of rice stem borers in Middle East, Europe, Africa and in Americas. The numbers after each country represent a stem borer species according to its serial number in the text under the Chapter "Description of Species".

forewings are smaller with only 4 longitudinal dotted lines but 7 subterminal black dots.

2. *Busseola fusca* (Fuller) (Fig. 3b)

= *Sesamia fusca* Fuller, 1901. First Rep. Gov. Entomol. 1899-1900, Pietermaritzburg: 45.

= *Busseola fusca* (Fuller) Tams and Bowden, 1953. Bull. Entomol. Res. 43(4): 656-657.

B. fusca, commonly called the maize stem borer, is a major pest of *Zea mays* L. that occurs occasionally on rice. It is widespread in the Ethiopian region of Africa, particularly from West to East and South Africa. This noctuid moth has been recorded in Angola, Cameroon, Congo, Ethiopia, Ghana, Guinea, Kenya, Nigeria, Rhodesia, Somalia, South Africa, South Sudan, Tanzania, Togo, Uganda, and Zaire (Fig. 2).

Diagnostic description: Medium-sized moth with a wing span of 26-34 mm. It is dark smoky gray-brown with head and thorax light to dark brown, slightly mottled pale yellow to white. Crested thorax with hair-like scales. Forewings dark brownish black obscured with brown to black streaks towards base and with three dark brown wavy transverse lines. Hindwings whitish clouded with pale yellowish white or grayish brown tinge.

3. *Catagela adjurella* Walker (Fig. 3c)

= *C. adjurella* Walker, 1863. Cat. Lep. Het. Br. Mus. 27:191.

Very little information is available about *C. adjurella*; it has been identified as synonymous to *S. incertulas* (Shibuya 1928). This borer has been reported only in China (Fig. 1).

Diagnostic description: Moderately small moth with a wing span of about 24 mm. Generally dull brown to straw-colored except whitish gray hindwings and abdomen. Forewings with 3 black spots forming a wide V-shape (triangle when moth is at rest) in the discal area and a dark brown longitudinal band above it towards the costal margin. Submarginal band diagonal and dark brown parallel to minute black terminal dots. Costal margin dull dark brown to light brown.

4. *Chilo agamemnon* Bleszynski (Fig. 3d)

= *C. agamemnon* Bleszynski, 1962b. Acta Zool. Cracov. 7: 119.

C. agamemnon, commonly referred to as the small purple-lined borer, has a restricted distribution in the Ethiopian region, particularly in the Near East: Israel, North Egypt, Sudan, and Uganda. It has been misidentified as *Chilo simplex* Butler (now *C. suppressalis*) for a long time in this region. *C. suppressalis* (Walker), however, does not occur in the Near East. The range of distribution of *C. agamemnon* overlaps with that of *C. diffusilineus* (J. de Joannis) in Sudan (Fig. 2).

Diagnostic description: Moderately small moth with a wing span of 16-19 mm. Face broadly rounded but

partially protruded frontally beyond compound eyes.

Corneous point and ventral ridge not visible; ocelli prominent; labial palpi 3-4 times eye diameter. Forewing R_1 free, ground color dull yellow to pale yellow brown; brownish subterminal line more prominent in the male than in the female, weakly dentate and excurved; discal and terminal dots present. Hindwings lustrous cream grayish to silky white.

5. *Chilo auricilius* Dudgeon (Fig. 3e)

= *C. auricilia* Dudgeon, 1905. J. Bombay Nat. Hist. Soc. 16: 405.

= *C. auricilius* Dudgeon, Bleszynski, 1965. Microlep. Palaearctica 1: 113.

C. auricilius, the gold-fringed borer, is an important pest of sugarcane and rice in the Oriental region, particularly Southeast Asia: India, Nepal, Taiwan-China, Philippines, Thailand, Malaysia, and Indonesia. The distribution range of *C. auricilius* overlaps with that of its look-alike *C. polychrysus* (Meyrick) in Indonesia, Thailand, and India. The species can be distinctly differentiated by their genitalia (Fig. 1).

Diagnostic description: Wing span 16-26 mm. Face smooth, protruded forward with a small point. Labial palpi 3-4 times eye diameter. Forewing R_1 confluent with Sc , ground color yellow brown mottled with brown silvery scales; discal dot visible; subterminal line close to termen with a row of metallic scales; median line similar to the subterminal line in color; middle of wing with few silvery specks; terminal dots very prominent; marginal fringe shiny golden. Hindwings light brown.

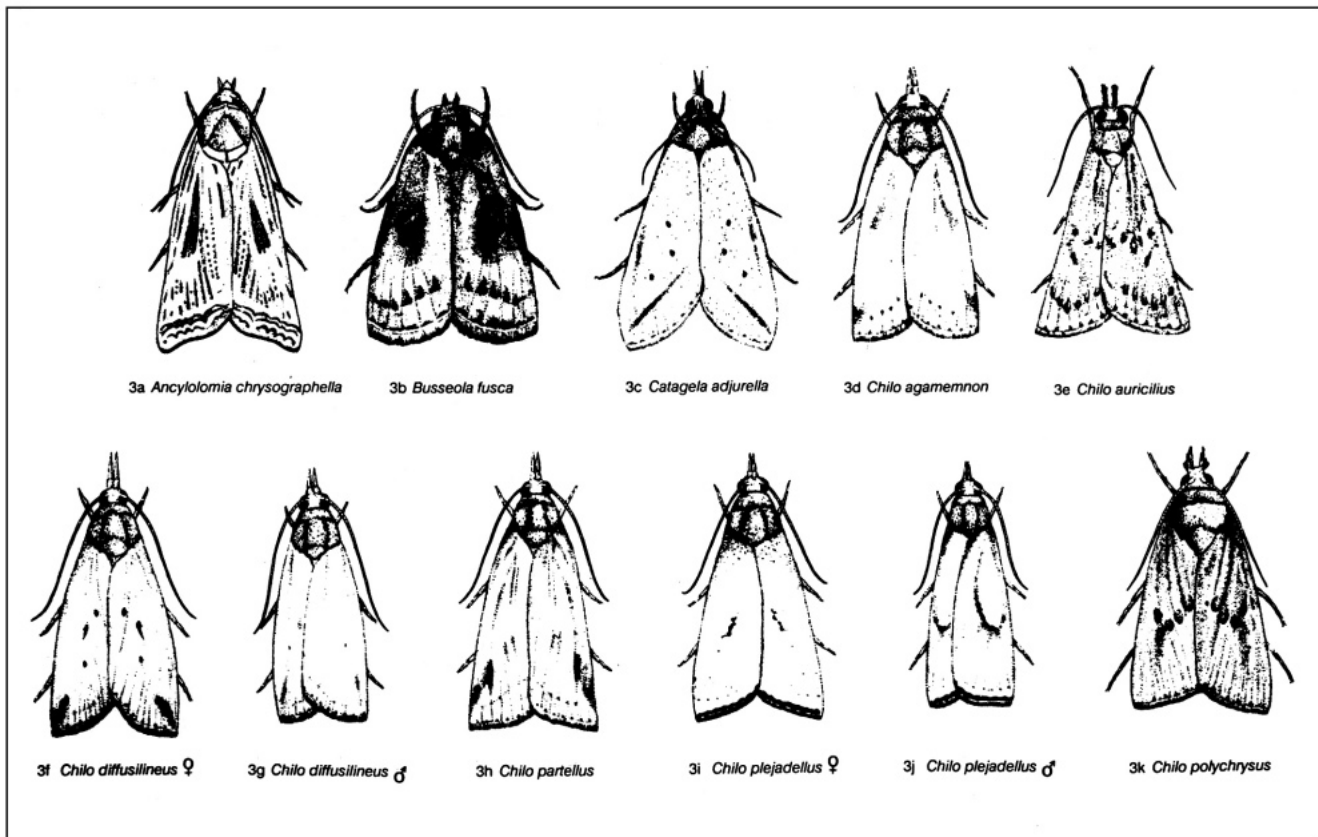
6. *Chilo diffusilineus* (J. de Joannis) (Figs. 3f and 3g)

= *Diatraea diffusilinea* J. de Joannis, 1922. Bull. Soc. Entomol. Fr. 1932: 194.

= *Chilo diffusilineus* (J. de Joannis) Bleszynski, 1963. Acta Zool. Cracov. 8:113.

C. diffusilineus is confined in the Ethiopian region of Africa; it has been reported in Sudan, Ethiopia, Zimbabwe, Tanzania, Mozambique, Guinea, Senegal, Nigeria, and Sierra Leone. *C. phaeosoma* Martin, 1950, the rice borer in Zimbabwe, is synonymous to *C. diffusilineus* (Fig. 1).

Diagnostic description: *C. diffusilineus* is very similar to its allied species *C. agamemnon* and *C. zacconius*, but is easily differentiated by the genitalial characters of both sexes. Wing span 16-26 mm. Face broad and rounded, protruded slightly forward beyond eye and with well-developed ocelli. Ventral ridge and corneous point absent. Labial palpi 3-4 times eye diameter. Forewings ground color orange yellow to dirty yellow, R_1 free. Subterminal line reduced in the female but distinct in the male; terminal dots present. Hindwings cream grayish to silky white with luster.



3. Stem borers of rice.

7. *Chilo partellus* (Swinhoe) (Fig. 3h)
 = *Crambus zonellus* Swinhoe, 1884. Proc. Zool. Soc.
 Lond. 1884: 528.
 = *Chilo partellus* (Swinhoe) Bleszynski & Collins, 1962.
 Acta Zool. Cracov. 7: 243.

C. partellus, popularly known as the maize or sorghum stem borer or the spotted stem borer, is the most notorious pest of graminaceous crops such as sorghum, sugarcane, maize, and rice in Africa (Sudan, Tanzania, Uganda, Malawi, Kenya, and Comoro Islands) and in Asia (Afghanistan, Sri Lanka, India, Nepal, Pakistan, and Thailand). Its range has not reached the Philippines, Malaysia, and Indonesia yet, notwithstanding the availability of suitable hosts in these areas (Figs. 1 and 2).

Diagnostic description: Wing span 20-25 mm. Moth with yellowish brown and moderately slender body. Face conical with a prominent corneous point and slight ventral ridge. Ocelli well-developed. Labial palpi 3-3.5 times eye diameter. Forewings pale ochreous without metallic scales, veins darker with free R_1 , distal areas with 1-2 transverse rows of small dark brown dots, median line poorly developed and discal dot present. Hindwing dirty white or gray with marginal fringes.

8. *Chilo plejadellus* Zincken (Figs. 3i and 3j)
 = *C. plejadellus* Zincken, 1821. Mag. Entomol. Halle 4:
 251.

C. plejadellus, the American rice stem borer, is confined to North America. It has been recorded in Canada (Ontario and Quebec), the USA, (Pennsylvania, Georgia, Louisiana, and Wisconsin) and Mexico (Fig. 2).

Diagnostic description: Wing span 18-30 mm. Face strongly projected anteriorly beyond the eyes with a distinct point but without a ventral ridge. Labial palpi 4 times eye diameter. Forewings dull yellow tinged with brown scales, median line with some shiny golden brown scales, subterminal line formed by series of glossy metallic golden scales, terminal dots highly visible, and fringes strongly shiny golden. Hindwings white.

9. *Chilo polychrysus* (Meyrick) (Fig. 3k)
 = *Diatraea polychrysa* Meyrick, 1932. Exot. Microlep.
 Marlborough 4: 321.
 = *Chilo polychrysus* (Meyrick) Bleszynski, 1970. Bull.
 Br. Mus. (Nat. Hist.) Entomol. 25(4): 140-142.

C. polychrysus, the dark-headed stem borer, is an important pest of rice and maize in the Oriental region and the Indo-Malayan subregion. Its distribution range extends from India, Malaysia, and Indonesia to South China. The ranges of *polychrysus* and *auricilius* overlap in Thailand, Indonesia, and India. A reported occurrence of *C. polychrysus* in the Philippines has not been confirmed (Fig. 1).

Diagnostic description: Wing span 13.4-15 mm. Face same as in *C. auricilius*. Forewing R₁ running together with Sc; ground coloration varies from whitish yellow variably clouded with ochreous brown scales; distinct median line oblique, ochreous brown with glossy silvery scales; discal dot not prominent; whitish subterminal line weak with very few silvery scales; area between both transverse lines blackened with ochreous brown below costa; subterminal area darkened; terminal dot poorly defined; and fringes moderately glossy. Hindwings white to dirty cream except apical area suffused with darker color and fringes white.

10. *Chilo suppressalis* (Walker) (Figs. 4a and 4b)
= *Crambus suppressalis* Walker, 1863. List Specimens Lep. Ins. Br. Mus. 27: 166.
= *Chilo suppressalis* (Walker) Hampson, 1896a. Proc. Zool. Soc. Lond. 1895: 957.

C. suppressalis, the striped stem borer or Asiatic rice borer, is regarded as one of the most important rice pests in East Asia, India, and Indonesia. This rice borer is widespread in the Oriental region and its distribution range extends eastward to the Palearctic region. It has been found in Australia, Malaysia, Indonesia, the Philippines, Thailand, Vietnam, Taiwan-China, Cambodia, Myanmar, Bangladesh, India, Sri Lanka, Japan, mainland China, the Hawaiian Islands, Italy, and Spain (Fig. 1).

Diagnostic description: Wing span 20-35 mm. Face distinctly projected forward beyond eyes producing a prominent corneous point and a ventral ridge. Labial palpi 3-3.5 times eye diameter. Forewing R₁ free, general coloration dull, straw-colored (dirty white to yellow brown) with scattered gray-brown scales; metallic scales absent; subterminal line almost absent, median line oblique, often pale brown. Hindwings white to yellow brownish.

11. *Chilo zacconius* Bleszynski (Fig. 4c)
= *C. zacconius* Bleszynski, 1970. Bull. Br. Mus. (Nat. Hist.) Entomol. 25(4): 149-150.

C. zacconius is confined to Africa and has been bred from rice in Senegal, Mali, Ivory Coast, and Nigeria. The range of *C. zacconius* overlaps that of *C. diffusilineus* in West Africa (Fig. 2).

Diagnostic description: Wing span 20-24 mm. Face well-rounded without a corneous point and ventral ridge. Labial palpi approximately 3-4 times eye diameter. Ocelli small but distinct. Forewing R₁ runs together with Sc, ground coloration and maculation ochreous yellow, very similar to *C. diffusilineus*.

12. *Diatraea saccharalis* (Fabricius) (Fig. 4d)
= *Phalaena saccharalis* Fabricius, 1894. Entomol. Syst. 3(2): 238.
= *Diatraea saccharalis* (Fabricius) Fernald, 1888. Entomol. Am. 4: 120.

D. saccharalis, known as the American sugarcane borer, is restricted in the Nearctic and Neotropical regions, and is widely distributed in southern USA (South Carolina, Georgia, Louisiana, Kansas), Central America (Mexico and Puerto Rico), the Caribbean (Jamaica, Dominican Republic, Grenada, Barbados, and Trinidad), and South America (Colombia, Venezuela, Guyana, Surinam, Brazil, Paraguay, Argentina, Peru, Bolivia, and Ecuador) (Fig. 2). This borer is a major pest of sugarcane, maize, sorghum, and rice.

Diagnostic description: Wing span 18-39 mm. Head, antennae, palpi, and thorax pale ochreous yellow. Frons convex, slightly bulging forward but not produced into a point at the apex. Forewings straw colored with darker venular and intervenular lines; one discal and seven terminal black dots; two oblique brown lines parallel to each situated between the discal spot and terminal area; fringes concolorous with the rest of the wing parts. Hindwings dull whitish yellow to dirty white.

13. *Elasmopalpus lignosellus* (Zeller) (Fig. 4e)
= *Pempilia lignosella* Zeller, 1848. Isis: 883.
= *Elasmopalpus lignosellus* (Zeller) Sauer, 1939. Arq. Inst. Bioi. S. Paulo 10: 199-206.

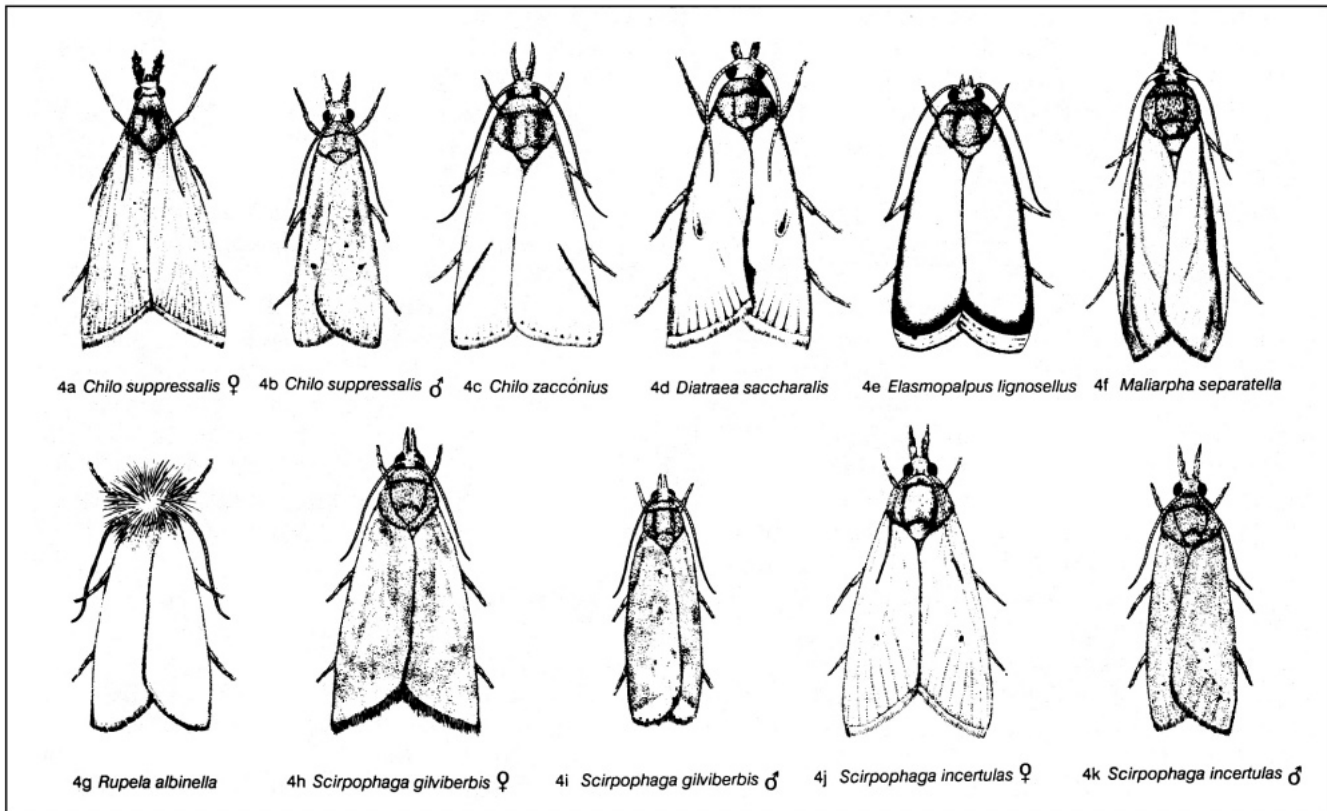
The lesser corn stalk borer *E. lignosellus* is a polyphagous pest that damages rice, maize, and legumes in the Nearctic and Neotropical regions (Maine, Southern USA, Central America, and South America) (Fig. 2).

Diagnostic description: Wing span 15-25 mm. Antenna with a large scale tuft. Palpi long and more oblique. Forewings smoothly scaled with strigose and broken markings. Female blackish, sometimes with a yellow band on the disc. Male ochreous yellow to light straw-brown, costa and outer to inner margins tinged with fuscous brown and dusted with white dots, borders erased at the base of the wing; antemedial and postmedial lines with few dots, lower discal dot prominently black. Hindwings translucently white except fuscous borders.

14. *Maliarpha separatella* Ragonot (Fig. 4f)
= *M. separatella* Ragonot, 1888. Nouv. Gen. et Esp. de Phy. et Gall. Paris: 48.

M. separatella is widely distributed and has been reported in Africa (Ghana, Senegal, Zambia, Malawi, Cameroon, Kenya, Uganda, Tanzania, and Madagascar) and Asia (Myanmar, India, Taiwan-China, and mainland China). So far, it has been reared as a rice pest only in Africa (Fig. 2).

Diagnostic description: Wing span 40-50 mm. Forewings pale yellow with a moderately broad longitudinal reddish brown band below costal margin running from wing base to apex. Fore- and hindwings without vein M₃ and only three veins arise from median nervures. Hindwings white with metallic glossiness and fringed with long hairs.



4. Stem borers of rice.

15. *Rupela albinella* (Cramer) (Fig. 4g)
 = *Phalaena albinella* Cramer, 1782. Pap. Exot. 4: 163.
 = *Scirpophaga albinella* (Cramer) Zeller, 1863. Monogr. Chilo. et Cramb. 2.
 = *Rupella albinella* (Cramer) Dyar, 1913. Insecutor Inscit. Menstr. 7: 102-106.

The South American white borer *R. albinella* is a serious pest of rice that attacks from ground level and feeds upward in the stem. It is found in the Nearctic and Neotropical regions from New York and New Jersey and Southern USA, Mexico to Peru and across northern South America from Colombia to Surinam (Fig. 2).

Diagnostic description: Wing span 25 mm. Palpi upturned and loosely held. Thorax with loose soft hair. Forewings immaculate white, vein R_2 shortly stalked with veins R_3 and R_4 . Vein R_1 anastomose shortly with Sc. Hindwings with M_2 and M_3 branched, M_1 long stalked with Sc+R.

16. *Scirpophaga gilviberbis* Zeller (Figs. 4h and 4i)
 = *Scirpophaga gilviberbis* Zeller, 1863. Monogr. Chilo et Cramb. 2.

S. gilviberbis is a rare pest of rice in the Oriental region, notably in India, Myanmar, Thailand, Vietnam, Singapore, and Indonesia (Fig. 1).

Diagnostic description: Wing span 23-35 mm in the female and 20-22 mm in the male. Female moth white

with white fore- and hindwings suffused pale yellow. Frenulum single-bristled. Anal tuft whitish gray to dark gray. Male moth dark yellow with brown tinge and sparsely dark brown scales, underside dark brown. Hindwings white except costal area and apex yellow brown.

17. *Scirpophaga incertulas* (Walker) (Figs. 4j and 4k)
 = *Chilo incertulas* Walker, 1863a. Cat. Lep. Het. Br. Mus. 28: 143.

= *Scirpophaga incertulas* (Walker) Leuvanich, 1981. Bull. Br. Mus. (Nat. Hist.) (Entomol.) 42(4): 243-246.

S. incertulas, commonly known as the yellow stem borer, is the most destructive rice borer in the Oriental region. It has been reported in Afghanistan, Nepal, India, Sri Lanka, Bangladesh, Myanmar, Vietnam, Thailand, Malaysia, Singapore, Indonesia, the Philippines, Hongkong, Taiwan-China, mainland China, and Japan (Fig. 1).

Diagnostic description: Wing span 20-33 mm in the male and 24-36 mm in the female. Labial palpi light yellow ochreous. Anal tuft of the abdomen light ochreous white. Forewings of the female pale yellow to dark yellow towards tip or yellow with pale orange tinge, discal spot black and prominent. Hindwings white with yellowish shades in the costal half. Frenulum double-bristled. Male forewings ochreous with fuscous underside or dorsally light brown with darker dots or patches

throughout, blackish brown dot in the center near discal cell, series of five larger black dots along subterminal band and 8-9 dots near wing edges. Hindwings pale straw, nearly transparent with major veins traceable.

18. *Scirpophaga innotata* (Walker) (Fig. 5a)
= *Tipanaea innotata* Walker, 1863b. List Specimens Lep. Ins. Br. Mus. 28: 523.
= *Scirpophaga innotata* (Walker) Van der Goot, 1925. Meded. Inst. Plantenziekten. 66: 1-308.

S. innotata, the oriental rice white stem borer, is a major pest of the genus *Oryza* in the Oriental and Australian regions. It has been reported in Australia, New Guinea, Indonesia, Borneo, and the Philippines (Fig. 1).

Diagnostic description: Wing span 22-33 mm in the female and 18-22 mm in the male. Female forewings, head, thorax, and abdomen white. Pale ochreous suffusion present in the forewing, its underside white. Hindwings white. Frenulum double-bristled. Anal tuft glossy white. Male light ochreous white with fuscous undersides. Hindwings white except costal half suffused with pale ochreous pattern and stronger/darker in the underside. Labial palpi of male about 2 times diameter of the compound eyes.

19. *Scirpophaga nivella* (Fabricius) (Figs. 5b and 5c)
= *Tinea nivella* Fabricius, 1794. Entomol. Syst. 3(2): 296.
= *Scirpophaga nivella* (Fabr.) Shibuya, 1928. J. Fac. Agric. Hokkaido Univ. 22(1): 61.

S. nivella is widely distributed in the Oriental region, Northern Australia, and South Pacific islands. It has been confused with *S. excerptalis* and the male of *S. incertulas*. The true *S. nivella* occurs in ricefields and is a pest of rice in India, Bangladesh, Borneo, and Thailand; it attacks *Scirpus* and *Cyperus* in India, *Eleocharis* sp. in Hongkong, and *Cladium* and *Eleocharis* in Australia. *S. nivella* occurs in Sri Lanka, Nepal, Andaman Islands, Vietnam, Taiwan-China, mainland China, Malaysia, the Philippines, Indonesia, New Guinea, New Caledonia, and Fiji (Fig. 1).

Diagnostic description: Wing span 24-40 mm in the female and 21-31 mm in male. Female moth white including fore- and hindwings except the upperside of the forewing suffused with pale ochreous; frenulum double-bristled. Anal tuft ochreous yellow. Male moth yellowish brown including forewings with four fuscous spots, three on the submedian fold at about one-fifth, half, and three quarters, the fourth at lower angle of cell; an oblique irregular fuscous line extends inward from costa near apex running to the third spot on fold; termen with a series of small fuscous neural dots and fuscous underside. Hindwings white except costal area and basal half of dorsal and underside side yellowish brown. Labial palpi 1.3 times eye diameter.

20. *Scirpophaga occidentella* (Walker) (Fig. 5d)
= *Rupela occidentella* Walker, 1863b. Tort. & Tin. Br. Mus. 28: 524.
= *Scirpophaga occidentella* (Walker) Hampson, 1895. Proc. Zool. Soc. Lond. 1895: 913.

S. occidentella is a widespread African white stem borer occurring in ricefields in Senegal, Sierra Leone, Ivory Coast, Nigeria, Zaire, Tanzania, Angola, Mozambique, South Africa, and Malawi (Fig. 2). Very little information is available on its biology.

Diagnostic description: Wing span 20-30 mm in female and 16-22 mm in male. Female moth is immaculate white including the dorsal and uppersides of fore- and hindwings. Frenulum single-bristled. Anal tuft hairs pale yellowish brown to white. Male moth similar to the female in coloration except fuscous underside of both wings. Labial palpi about 1.3 times eye diameter.

21. *Scirpophaga virginia* Schultze (Fig. 5e)
= *Scirpophaga virginia* Schultze, 1908. Philipp. J. Sci. (A) 3:34.

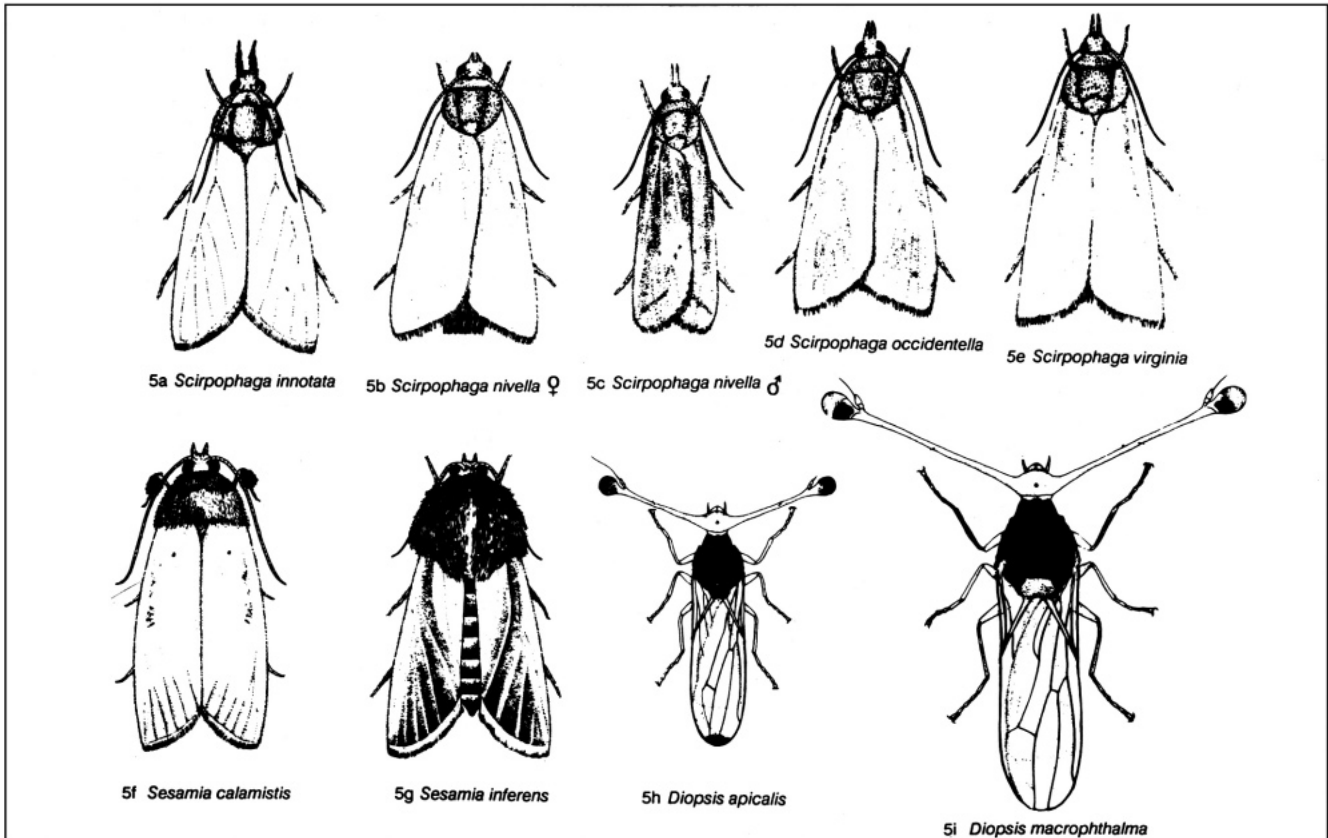
S. virginia is a small white moth very similar to *S. fusciflua* Hampson. The distribution range of *S. virginia* overlaps that of *S. fusciflua* in Sri Lanka, Thailand, and Taiwan-China. *S. virginia* also has a wider distribution in Bangladesh, Malaysia, Singapore, Indonesia, the Philippines, Vietnam, mainland China, and Japan (Fig. 1).

Diagnostic description: Wing span 16-22 mm in female and 13-17 mm in male. Female moth white including fore- and hindwings. Frenulum single-bristled. Anal tuft pale yellow brown or grayish white. Male moth as in *S. fusciflua* except for smaller size, light yellowish brown to ochreous white. Forewings white to ochreous white with fuscous underside. Hindwings white, underside of costal area suffused with light brown tinges. Labial palpi about the same diameter of the compound eyes.

22. *Sesamia calamistis* Hampson (Fig. 5f)
= *Sesamia calamistis* Hampson, 1910. Cat. Lep. Phal. Br. Mus. 9: 235.

S. calamistis, popularly known as the African pink borer, is a polyphagous noctuid moth that attacks wild and cultivated graminaceous crops in the savanna and dry tropical zones Angola, Burundi, Cameroon, Congo, Gambia, Ghana, Ivory Coast, Madagascar, Mauritius, Reunion, Rwanda, Senegal, Sudan, Tanzania, and Upper Volta (Fig. 2).

Diagnostic description: Wing span 23-30 mm in the male and 24-36 mm in the female. Head and thorax with thick hair tuft, light ochreous-buff streaked with fuscous brown; antennae and labial palpi largely infuscate. Forewings light cartridge-buff irrorated with fuscous and suffused with fuscous along termen, a longitudinal fuscous black band from base along lower margin of cell



5. Stem borers of rice.

partially within and without extension to the termen; apex of cell with a fuscous black spot; dentate.

23. *Sesamia inferens* (Walker) (Fig. 5g)
 = *Leucania inferens* Walker, 1856. Cat. Lep. Het. Br. Mus. 9: 105.
 = *Sesamia inferens* (Walker) Moore, 1884-87. Lep. Ceyl. 3: 3.

The Asiatic pink stem borer *S. inferens* is an extremely polyphagous, widely spread species that attacks various graminaceous crops in the Oriental region and eastward to the Palearctic region (Fig. 1).

Diagnostic description: Wing span from 28 mm in the male to 35 mm in the female. Moderately robust noctuid moth with pale yellow brown body; head and thorax with thick brown hair tuft. Forewings fawn to light brown with some darker brown spots scattered throughout the wings, faint purplish red band radiates from wing base to the apical wing margin and bordered by light stripes. Hindwings whitish with light yellow scales along major veins.

24. *Diopsis apicalis* Dalman (Fig. 5h)
 = *Diopsis apicalis* Dalman, 1817. K. Svensk. Vetensk. Acad. Handl. 38: 211.

D. apicalis is one of the diopsid stalked-eyed borers that damaged rice in Africa. It has been reported in Sierra

Leone, Senegal, Togo, Nigeria, Cameroon, Zaire, Ethiopia, Uganda, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe, South Africa, and Ivory Coast (Fig. 2).

Diagnostic description: Wing span 8-12 mm. Relatively small diopsid with head and abdomen brown and thorax black. Eyes on tip of the long stalk, distance between eyes about as long as body length. Face with a pair of frontally projected spines, space in between spines without whitish hairs. Scutellum blackish brown, scutellar spines brown except blackish tip. Apex of wing with a brown subglobular band.

25. *Diopsis macrophthalma* Dalman (Fig. 5i)
 = *Diopsis macrophthalma* Dalman, 1817. K. Svensk. Vetensk. Akad. Handl. 38: 5.

D. macrophthalma is the most important diopsid stalked-eyed borer in the wet zones of Africa. A major outbreak of *D. macrophthalma* was first observed in January 1971 in the Likangala Rice Scheme, Chilwa Plain, Malawi. Like *D. apicalis*, it is widely distributed in Africa: Senegal, Niger, Guinea, Sierra Leone, Ivory Coast, Nigeria, Cameroon, Zaire, Somalia, Ethiopia, Uganda, Kenya, Tanzania, Zanzibar, Zambia, Malawi, Mozambique, and Zimbabwe (Fig. 2).

Diagnostic description: Wing span 14-15 mm. Moderately large diopsid with head and abdomen brown and thorax black except brownish scutellum and brownish

yellow scutellar spines. As in *D. apicalis*, distance between eyes one-third longer than body length. Face with short whitish hairs between facial spines projected forward. Apex of forewing without band or spot.

Identification key

- 1 Wing with scales and opaque, fore- and hindwings normal; eyes close to each other and not borne on a stalk2
- Wing transparent without scales, hind wings knoblike; eyes far from each other and borne on a stalk [Diopsidae]30
- 2(1) Thorax usually without thick hair tuft and hairlike scales, not crested; hindwings with vein Sc+R₁ free from vein R₅ before middle of cell, sometimes close to or nearly touching it, or fused for a short distance near angle of cell [Pyralidae]3
- Thorax clothed with thick hairs and hairlike scales, with or without crest. Hindwing with vein Sc+R₁ fused to R₅ for a short distance before middle angle of cell [Noctuidae] 28
- 3(2) Proboscis absent; hindwing with a simple (not pectinate) median nerve on the upper side [Schoenobiinae] 4
- Proboscis present; hindwing with a pectinate median nerve on the upper side 17
- 4(3) Palpi upturned and loosely held; thorax with white loose soft hairs; forewings with vein R₂ shortly stalked with R₃ and R₄, R₁ anastomose shortly with Sc. M₂ and M₃ of hindwings stalked, M₁ long stalked with vein Sc and R; common name, American white stem borer *Rupela albinella* Cramer
- Palpi porrect, beaklike; thorax with soft compact hairs; forewings with vein R₁ curved toward Sc, sometimes coincident with it or R₁ usually not anastomosing with Sc; R₂ usually free; moth whitish or yellow 5
- 5(4) Male 6
Female 11
Both sexes with 3 black dots in slant L-shaped arrangement in the median area of forewing; dark ochreous along costal zone, light ochre band above 3 dots and dark

- yellow brown subterminal band oblique *Catagela adjurella* Walker
- 6(5) Subteguminal process spinelike; dorsal sclerotized thickening of tegumen slightly triangular; two adjacent unequal curved cornuti present 7
- Subteguminal process plate or lobelike 8
- 7(6) Forewings white, underside fuscous; hindwings white, costal half suffused with pale yellow brown; subteguminal process a single curved spine; labial palpi 2 times eye diameter *Scirpophaga innotata* (Walker)
- Forewings yellow brown with a darker brown diagonal band before wing apex; subteguminal process with a bifid spine; labial palpi 3 times eye diameter *Scirpophaga incertulas* (Walker)
- 8(6) Anellus lined with strong spines; dorsal sclerotized thickening (DST) of tegumen x-shaped 9
- Anellus without strong spines; DST of tegumen rectangularly shaped 10
- 9(8) African white stem borer; labial palpi about 1.3 times eye diameter; both pairs of wings white, fuscous underneath but lighter in the hindwing; wing span 16-22 mm; uncus broad, tapering, constricted abruptly near apex; subteguminal process largely bilobed *Scirpophaga occidentella* (Walker)
- Asian species; labial palpi as long as eye diameter; moth pale ochreous white including forewings except fuscous marks underneath forewing; hindwings white except costal area suffused dark brown underneath; subteguminal process rounded *Scirpophaga virginia* Schultze
- 10(8) Moth pale yellow; labial palpi about 1.3 times eye diameter; forewings pale yellow with 4 dark brown spots, 3 on submedian fold at about one-fifth, half, and three-quarters, the fourth at lower angle of cell; irregular oblique line runs inward from costal subapex to the third spot on fold; a series of minute dots present along termen; hindwings whitish except ochreous basal half and costal area;

	wing span 21-31 mm; subteguminal process large, flattened, with sinous margin		and ductus seminalis strongly sclerotized near ostium bursae
	.....<i>Scirpophaga nivella</i> (Fabricius)		..... <i>Scirpophaga virginia</i> Schultze
	Moth dark yellow, labial palpi roughly 1.5 times eye diameter; forewings ochreous with sparse dark brown scales; hindwings white, costal part and apex pale yellow; wing span 20-22 mm; subteguminal process rounded, flattened, with smooth margin	16(13)	Wing span 14-40 mm; fore- and hindwings white with upper side of forewing sometimes yellow brown; anal hair tuft ochreous yellow; corpus bursae globular with slender ductus bursae, wrinkled and lined uniformly with minute spines
	.....<i>Scirpophaga gilviberbis</i> Zeller		..... <i>Scirpophaga nivella</i> (Fabricius)
11(5)	Pale to dark yellow moth with a black spot in the forewings at lower angle of the cell; hindwings white with yellowish ochreous tinge in the costal half; frenulum double-bristled; anal hair tuft pale yellowish white		Wing span 22-33 mm; forewings tinged pale yellow brown but white underside; hindwings white; anal tuft white; corpus bursae elongate, roundish and minutely spined in the basal three-quarters
	..... <i>Scirpophaga incertulas</i> (Walker)		..... <i>Scirpophaga innotata</i> (Walker)
	White moths	12	
	12(11) Tergal plate VIII not produced ventrolaterally; ductus bursae generally membranous	13	17(3) Forewing with R ₅ (vein 7) absent (Phycitinae)
	13		18
	Tergal plate VIII produced ventrolaterally with a group of setae; ductus bursae sclerotized	16	Forewing with R ₅ present (Crambinae)....
	16		19
13(12)	Frenulum single-bristled	14	18(17) Proboscis well-developed; M ₃ (vein 4) present in both pairs of wings; forewings with smooth scales, without any reddish brown longitudinal band below costal area, markings hispid and broken, costa and outer and inner margins shaded fuscous brown, dusted white; ante- and postmedial lines represented with a few dots, only lower discal dot distinctly black; Cu sometimes narrowly shaded with powdery fuscous; hindwings translucent white
	Frenulum double-bristled	16	..... <i>Elasmopalpus lignosellus</i> (Zeller)
14(13)	African species; fore- and hindwings white on both surfaces; anal tuft pale yellowish white; wing span 20-30 mm; corpus bursae membranous		Proboscis poorly developed; fore- and hindwings without M ₃ and only 3 veins arise from median nervure; forewings pale yellow without a prominent reddish brown longitudinal band between costal and radial veins and a brown area along costal vein (usually darker in male); hindwings white with metallic luster, fringed with long hairs
	..... <i>Scirpophaga occidentella</i> (Walker)		..... <i>Maliarpha separatella</i> Ragonot
	Asian species	15	
15(14)	Wing span 23-35 mm; white fore- and hindwings shaded yellow brown; anal hair tuft whitish gray to dark gray; corpus bursae subglobular with small spines, denser in basal two-thirds; ostium bursae broad and membranous; ductus bursae without antrum, area between ductus seminalis and ostium bursae bear sclerotized U-shaped plate		19(17) Subterminal area of forewings with pale yellow and white transverse, zigzag bands, wing termen indented before middle, and most of the inner part lined with broken black longitudinal dots; R ₅ (vein 7) of forewings stalked R ₄ and R ₃ ; M ₁ (vein 6) of hindwings poorly developed
	..... <i>Scirpophaga gilviberbis</i> Zeller		..... <i>Ancylolomia chrysographella</i> (Kollar)
	Small moth, 16-22 mm wing span; both wings white without yellow brown suffusions; anal hair tuft grayish white; corpus bursae elongate-ovate, membranous, and without small spines; ostium bursae narrow; ductus bursae		Entirely not as above
			20

20(19)	Frons convex without ocelli, subrounded but produced forward; wing span not exceeding 42 mm; forewing veins R ₁ anastomosed with Sc, with the first oblique line nearly continuous and irregularly wavy, second line reduced to separate dots or short marks on the veins; hindwings without a dark-shaded submarginal band; widespread in the Americas <i>Diatraea saccharalis</i> (Fabricius)		pars basalis absent, aedeagus with long hairy, apically pointed ventral arm; cornuti absent; female genitalia with one very prominent, narrow elongate signum, about half-length of corpus bursae <i>Chilo plejadellus</i> Zincken
	Frons with ocelli with or without a corneous point; veins 11 (R ₁) and 12 (Sc) confluent or free 21		African species; forewings without metallic scales; subterminal and median lines only visible in the male, often reduced or absent in the female; hindwing glossy cream grayish to silky white; face broadly rounded, slightly porrect beyond eye; male genitalia: par basalis distinct, pointed, and minute tooth; aedeagus distinctly curved, bulbose basal projection present, ventral arm absent; row of minute cornuti present; female genitalia without signum and ostial pouch bowl-shaped <i>Chilo agamemnon</i> Bleszynski
21 (20)	R ₁ (vein 11) of forewing free 22		
	R ₁ (vein 11) of forewing coincident with Sc (vein 12) 25		
22(21)	Face conical with a produced point 23	25(21)	Forewings with metallic scales 26
	Face rounded without a produced point..... 24		Forewings without metallic scales 27
23(22)	Frons projected forward and sharply pointed (note: remove scales to see structure), ventral margin of frons ridgelike; vein M ₁ of hindwings arises from R _s beyond angle of cell; forewings subterminal line ill-defined, brown medial line oblique; and discal dots poorly developed; costal margin of harpe of male genitalia without a blunt projection; dorsal margin of juxta of male genitalia prominently enlarged and tapers toward apex but loose basal projection of aedeagus absent; signum of female genitalia narrow and slitlike with a median ridge <i>Chilo suppressalis</i> (Walker)	26(25)	Terminal dots and subterminal line not distinct; subterminal line whitish with few silvery scales; median line distinct, oblique, and pale yellow brown; discal dot highly reduced; fringe slightly glossy; hindwings whitish to dirty cream; male genitalia: pars basalis heavily sclerotized and notched, aedeagus slightly longer than valva, ventral arm bifurcate into two long narrow arms, each arm with subbasal flap and minute subapical dentation; female genitalia: ostial pouch lightly sclerotized, armed with small sclerite at either side; signum absent <i>Chilo polychrysus</i> (Meyrick)
	Frons projected forward but not sharply pointed, ventral margin of frons without a ridge; vein M ₁ of hindwings arising from R ₂ before angle of cell; subterminal line of forewings a delicate brown line; median line ill-defined; discal dot present; costal margin of harpe with a blunt projection; juxta-plate with a large central plate, projected caudad, and notched twice basally; bulbose basal projection present; signum of female lamellate with median ridge <i>Chilo partellus</i> (Swinhoe)		Terminal dots large; subterminal line represented by a row of metallic scales and close to the apical margin; median line metallic like the subterminal; discal dot visible; fringe shiny golden; hindwings light brown; male genitalia: pars basalis absent; aedeagus with distinct subapical conical projection; ventral arm long and apically notched; female genitalia: ostial pouch moderately to heavily sclerotized; signum absent or reduced to a patch of scobinations <i>Chilo auricilius</i> Dudgeon
24(22)	North American species; forewings with at least a few metallic scales, median line with lustrous golden brown scales; subterminal line a series of golden metallic scales; hindwings white; face strongly porrect beyond eye, conical with distinct point; male genitalia:	27(25)	Vein R ₁ of forewings free; ground color of moth orange-yellow to dirty yellow; aedeagus with curved basal part, bulbose basal projection varying in size, and very short ventral arm; juxta-plate with symmetrical arms, each

arm with a subapical tooth and several short hairs; female genitalia: ostial pouch heavily sclerotized, produced as a long hard rod into ductus bursae or as a distinct, lateral, thornlike projection
 *Chilo diffusilineus* (J. de Joannis)

Vein R₁ of forewings confluent with Sc; ground color light brownish yellow; aedeagus without ventral arm, bulbous basal projection distinct with a subapical thorn on a long base; juxta-plate slightly asymmetrical; female genitalia: ostial pouch broad, partly heavily sclerotized and with a twisted ductus bursae
 *Chilo zacconius* Bleszynski

28(2) Thorax crested prominently in the tegulae, clothed with hairs and hairlike scales; head and thorax fuscous black, lightly streaked with light ochreous to white; forewings fuscous black to black with some ochreous suffusion at base and obliquely from apex to inner margin, veins 3 to 5 white from cell, veins 2 to 10 white at termen; male genitalia: large toothlike projections in the clasper; cornutus of vesica scobinate and blunt tooth at apex; female genitalia: signum of bursa copulatrix narrow and finely scobinate; sclerotized plate of ostium broad and rectangular
 *Busseola fusca* (Fuller)

Thorax not crested, clothed with hairs only; bursa copulatrix of female without signum and ostial segment with a membranous pad before ostium 29

29(28) African pink stem borer; forewings more ochreous, strongly irrorate with fuscous and with a distinct longitudinal fuscous fascia along lower margin of cell, pectinations of antenna less than twice the width of antennal shaft, base narrow but well rounded apically; mania of aedeagus not spinose; uncus small, valve with sacculus and cucullus separate; costal spine short, straight, with a small tooth subapically; female genitalia: bursa copulatrix with signum, short and rounded; ductus bursae short and broad; ostium broad and slightly sclerotized
 *Sesamia calamistis* Hampson

Asian pink stem borer; head and thorax whitish to dark straw color, without dark hairs; termen of forewings distinctly and continuously dark brown; male antennal pectinations short but broad at base; manica

of aedeagus with spines; uncus relatively large; costal spine absent; harpe of male genitalia with a strong furcated projection at basal part of costa; female genitalia: bursa copulatrix without signum and subrounded; ductus bursae relatively broad with swellings in the ductus seminalis area; ostium bursae narrow and lightly sclerotized
 *Sesamia inferens* (Walker)

30(1) Wing apex with large black spot; wing span 8-12 mm; scutellar spines brown except blackish apical half and scutellum blackish brown; distance between eyes on the stalk about half of body length
 *Diopsis apicalis* Dalman

Wing apex without any spot; wing span 14-15 mm; scutellum and spines brownish yellow; distance between eyes one-third longer than body length
 *Diopsis macrophthalma* Dalman

Life history

Adults

The role of the adult stem borer female is to lay eggs and to ensure survival of the next generation by locating a crop that will not be harvested before stem borer development reaches at least the last-instar larva. Adults of lepidopterous stem borers are nocturnal; diopsid flies are diurnal. Lepidopterous stem borer moths seek humid vegetation during the day, either ricefields or grassy border areas where they can hide from bird and dragonfly predators. They become active shortly after sunset, when they mate and lay eggs. Diopsids rest in the shade when not actively flying.

The synchrony of stem borer generations within a given rice-growing area is dependent on the synchrony of planting within the dispersal range (10-20 km) of the moths. If a rice-growing area is a mosaic of fields sown at different times, there will be many oviposition periods, leading to overlapping generations.

Moths have two types of dispersal flights. One is long distance, by moths emerging near crop maturity. This generation probably is triggered to disperse by biochemical changes that occur in the plant during ripening. Emerging moths will seek new rice-growing areas many kilometers away. The moths are strongly phototactic and are particularly attracted to ultraviolet light. They are readily collected in light traps during this dispersal period. Succeeding generations after colonization of a rice crop do not fly far and are not readily detected in light traps. Dispersals are trivial, mainly to seek mates before oviposition.

There are three trivial flights: 1) mating flights, when males leave daytime shelter vegetation to seek females emitting pheromones; 2) oviposition flights by the females; and 3) flights returning to daytime shelter vegetation. Flight activity is minimal during periods of a full moon, rainy weather, and night temperature below 15 °C.

Lepidopterous stem borer females use pheromones to attract males. The pheromone of *C. suppressalis* is the best known. It involves three chemicals, some attract at long distances, others attract at shorter distances. Only mating flights would be detected by pheromone traps. Mating precedes long distance dispersal flights. *Scirpophaga* mate only once; *Chilo* and *Sesamia* mate more than once. *C. suppressalis* has mated as often as eight times in laboratory tests. The method diopsid flies use to locate mates has not been determined.

Eggs

Lepidopterous stem borers lay eggs in masses; diopsid flies lay isolated eggs. Lepidopterous females can lay eggs 1-2 d after emergence. No more than one egg mass is deposited per night, and 1-3 egg masses can be laid within five nights from emergence. However, *C. suppressalis* and *S. incertulas* could lay 1-3 egg masses per night. Oviposition takes about 0.5 h per egg mass. Egg masses usually contain 50-80 eggs, and a female can lay 100-200 eggs. Diopsid females lay about 30 eggs each in a span of about 2 wk. Eggs of both species are scattered within a field, usually in a binomial distribution. Pyralids oviposit openly on the leaf blades, noctuids oviposit behind leaf sheaths. *Scirpophaga* spp. and *R. albinella* females cover their egg masses with a mat of their anal hairs, *Chilo* spp. and *Maliarpha* spp. do not. A secretion from *M. separatella* females causes the leaf to fold around each egg mass. The location of eggs depends on the growth stage of the plant and the hairiness of the leaves.

The threshold temperature for development in temperate species *C. suppressalis* is 10-12 °C; that in tropical species *S. incertulas* starts at 13 °C. In both species, the incubation period decreases with increasing temperature, up to 30-35 °C. At 35 °C, although embryonic development can be completed, the larvae succumb within the chorion. The nervous system has been formed about 60 h after oviposition. Cholinesterase-inhibiting insecticides are effective as ovicides on eggs only at this stage of embryonic development. Duration of egg development in diopsids is 2-3 d; that in lepidopterous moths is 5-9 d.

Optimum hatching temperature varies by stem borer species: 21-23 °C for *C. suppressalis*, and 24-29 °C for *S. incertulas*. Most species require high humidity; mortality below 70% relative humidity is high. Most

species hatch in the early morning, with a small peak in the evening. *R. albinella*, however, preferentially hatches in the evening. The time of hatching has evolved to coincide with periods of favorable humidity, low winds, less rainfall, and minimal predator activity.

Larvae

The role of the larva is to grow in size, build up energy reserves, and disperse from plant to plant. Large larvae become large moths, which lay more eggs. In lepidopterous stem borers, the first-instar larval stage is the period for interplant dispersal. All the eggs within a mass hatch within minutes. Neonate larvae linger around the egg mass waiting for the majority to hatch. This simultaneous hatching ensures some survival from predators.

The neonate larvae are negatively geotropic and crawl in mass upward, toward the tip of the plant. Some spin a silken thread to suspend themselves and dangle in the wind, to be blown onto another plant. Those that fall into water can swim because of an air layer around their bodies. Those remaining on the plant that did not spin silk, or those that did but were blown back to the mother plant, descend toward the base, and crawl between the leaf sheath and stem. They congregate behind the leaf sheath and enter the stem through a common hole bored by one of them.

A critical period of survival occurs between eclosion and penetration into the plant. High rainfall will wash larvae from plants. Small larvae are easy prey for spiders and other predators. The next obstacle is their ability to chew a hole in the rice plant. The rice plant deposits silica in its epidermis, thus hardening the tissues. A first-instar larva cannot easily chew through the silica barrier to penetrate the leaf sheath or stem. But if one larva is successful, others will follow into the zone of safety.

The plant is vulnerable to penetration during elongation, when new tissue is developed without the protective silica. The taller the variety, the more it has to elongate. The more it has to elongate, the longer it is susceptible to stem borer larvae. Deepwater rice elongates the most (it grows 1-2 m tall over a period of months) and is therefore susceptible for a longer time. This is why stem borer infestations are high in this crop. Tall traditional varieties are more susceptible than semidwarfs because they elongate for weeks. More fertilizer makes the plants grow taller, and thus more susceptible to stem borers. When a plant is elongating, a larva can penetrate in 15 min to 1 h. The entry period is extended with less elongation and denser silica deposits, subjecting the small larvae to greater exposure to predators or to the effects of adverse weather.

On older plants, the first-instar larvae feed on the leaf sheath tissues for about a week to gain size and molt into a second-instar large enough to bore into the stem, mostly through the nodal regions at the point the leaf sheath is attached to the stem.

C. suppressalis larvae live gregariously during the first three instars and disperse during later instars. If the early instar larvae are isolated from each other, they suffer high mortality. During the later instars, crowding is detrimental and results in high mortality, slower rate of growth, smaller size, and reduced fecundity of the emerging female moths.

Larvae hatching on a more mature crop normally enter one of the third to fourth leaf sheaths without moving to the plant tip. They live there together for about a week before migrating to adjoining plants. Early migration of first-generation larvae is probably an adaptation to the limited food available on young plants rather than a reflection of inherent behavioral differences between generations.

S. incertulas larvae rarely feed gregariously, but their initial orientation and establishment for feeding are much the same as those of *C. suppressalis* larvae. Unlike other stem borers, *S. incertulas* larvae seal themselves within a rice tiller with silk webbing that is impervious to water; this allows them to maintain an air chamber even underwater. On a 30-d-old plant, it takes about 30 min after hatching for the larvae to migrate to the leaf sheath. Although some 75% of these larvae bore in, only 10% reach the adult stage.

The larvae seldom enter seedlings, but if they do, boring takes longer because the stems are more solid, and survival is low. This is why applying insecticide to the seedbed is a questionable practice since high mortality occurs naturally, particularly if young seedlings are transplanted.

During the plant's vegetative phase, the larvae generally enter the basal parts, usually 5-10 cm above the water level. On older plants, they bore through the upper nodes and tunnel through the nodal septa toward the base. On a crop at the heading stage, boring usually occurs at the peduncle node and whiteheads will form even with slight larval feeding. The larvae cause maximum damage during this stage.

S. incertulas larvae from second instar on can make a tubular leaf case. The larva severs a leaf at the tip, that naturally rolls into a tube which is then secured by silk. The larva encases itself in this tube and detaches it from the leaf so that it falls on the water. The case protects the larva from most predators, although encased larvae are vulnerable to fish and aquatic beetle larvae. The larva stays within this case, with its head and thorax protruding, and swims to another rice plant. There it attaches the case perpendicularly to a tiller slightly above the water level and bores into the plant.

S. inferens larvae hatched from eggs laid between the leaf sheath and stem generally bore into the stem or leaf sheath without coming to the surface of the plant. They usually do not feed in groups.

The threshold temperature for development of *C. suppressalis* larvae ranges from 10.5 to 12 °C, but the

larvae show optimum development between 22 and 33 °C. *S. incertulas* larvae require a minimum threshold temperature of 16 °C. When reared at 12 °C, second- and third-instar larvae cannot molt. The rate of larval development is correlated positively with temperatures between 17 and 35 °C.

S. incertulas larvae usually undergo four to seven larval stadia before pupation. Five stadia occur during optimal environmental conditions and nutrition. At high temperatures (29-35 °C), maturation is accelerated and a minimum of four stadia can occur. However, with poor nutrition, the number of stadia increases. Under adverse conditions, as many as nine stadia have been recorded in *C. suppressalis*. Various workers consider the width of the mandibles of stem borers a better criterion for identifying larval instar than the width of the head capsule because the range of head capsule widths in different instars overlap. In lepidopterous and diopsid species, the total larval period usually lasts 20-30 d.

Most stem borer species can pass an unfavorable period in dormancy. Drought during the larval period can induce a temporary slowing down of body metabolism to prolong the developmental period. But because the stress was not anticipated, fat body energy storage was not increased, and only a few weeks of unfavorable conditions can be tolerated.

A more profound physiological change to enable insects to live for months in suspended development is called diapause. Diapause can be either hibernation (overwintering in temperate climates) or aestivation (dry season dormancy in the tropics). *S. incertulas* and *S. innotata* hibernate or aestivate. Depending on the location, *S. innotata* is more prone to diapause than *S. incertulas*, particularly in the tropics.

Diapause is activated in the life cycle of the individual stem borer by changes in daylength, temperature, or host plant before the stress occurs. Stem borers, including diopsids, diapause as last instar larvae. Some diopsids diapause as adults, in swarms.

Larvae prepare for diapausing by increasing their fat body content which is used for body metabolism over an unfavorable period of as much as six months or longer. The metabolism rate in diapausing larvae is reduced to the point that they do not drown under submergence. This is why flooding a ricefield to control larvae in the stubble does not kill them until diapause is broken.

Hibernation is broken with warm weather and longer daylengths, aestivation is broken with rainfall or flooding. Not all individuals within a population enter or terminate diapause at the same time. This adaptation protects the population in case of unusual changes in climate or cultural practices. In an irrigated region with multiple rice crops per year, diapausing larvae would be plowed under during land preparation for the off-season crop and a nondiapausing population would evolve. In the Philippines, with multiple rice crops, *S. incertulas* is nondia-

pausing; in Pakistan, with only a wet season crop, it overwinters in the rice stubble. In Indonesia, *S. innotata* does not aestivate in double cropped irrigated areas. Upon hatching at dawn, diopsid larvae move down the stem and behind the leaf sheath on a film of dew. The eggs are dispersed so normally, one larva per tiller occurs.

Pupae

Pupation in lepidopterous rice stem borers usually takes place in the stem, straw, or stubble. Diopsids pupate within the stem. Noctuids such as *S. inferens* can pupate between the leaf sheath and stem. Before pupating, the full-grown larvae cut exit holes in the internodes through which the emerging moths escape. Usually the external openings of these exit holes are covered with silk and cannot be easily detected before the moths have escaped. Diopsid pupae are normally found in rotting tissues, where the fly can easily emerge. While *Chilo* spp. pupae are without cocoons, those of *Scirpophaga* spp., *R. albinella*, and *M. separatella* are covered with whitish silken cocoons. The anterior extremity of these cocoons is tubular and attached to the exit hole; often one or two horizontal septa are webbed by a larva in this tubular area to make the cocoon waterproof.

Because the full-grown larvae of *Scirpophaga* spp., *R. albinella*, and *M. separatella* have a tendency to feed in the basal parts of the plants, all the larvae are usually left in the stubble of a harvested crop. *Chilo* larvae are mostly removed with the straw.

Prior to diapause, larvae in the stubbles move down into the plant base. Most stay 2-4 cm below ground level. *S. innotata* larvae move into the crown of the plant and construct tunnels up to 10 cm deep. When conditions are optimal, pupation occurs and the moths emerge.

C. suppressalis also pupate in harvested straw. Straw may be more insulated than stubble, as it may be stocked outdoors or in a shelter where temperatures may be warmer; this can cause earlier emergence than that of *C. suppressalis* individuals in the stubble.

Duration of the pupal period in lepidopterous and diopsid species is 9-12 d. Threshold temperatures for pupal development are 10 °C for *C. suppressalis* and 15-16 °C for *S. incertulas*. The rate of pupal development for *C. suppressalis* increases linearly from 15 to 30 °C, but slows beyond 35 °C, when the pupae suffer high mortality and emerging moths are often deformed. When pupae that had been kept at a constant temperature of 20-36 °C for 2-4 h a day were exposed to low temperature near the developmental threshold (12-15 °C), the development rate was faster. When *C. suppressalis* pupae were exposed to continuous illumination, pupation accelerated. Continuous darkness delayed and reduced pupation. Even a minimum exposure to 30 min of daylight was adequate to mask the effect of continuous darkness.

Damage

The initial boring and feeding by neonate lepidoptera larvae in the leaf sheath causes broad longitudinal, whitish discolored areas at feeding sites, but only rarely results in wilting and drying of the leaf blades. About a week after hatching, larvae from the leaf sheaths bore into the stem and, staying in the pith, feed on the inner surface of the stem walls. Such feeding frequently results in severing the apical parts of the plant from the base. When this kind of damage occurs during stem elongation, the central leaf whorl does not unfold, turns brownish, and dries out, although the lower leaves remain green and healthy. This condition is known as "deadheart." Affected tillers dry out without bearing panicles. Sometimes deadhearts are caused by larval feeding above the primordia. If no further damage occurs, the severed portions get pushed out by new growth.

During panicle exertion, severing of growing plant parts from the base results in the drying of panicles. Panicles may not emerge at all, and those that have already emerged do not produce grain. The empty panicles become very conspicuous in a field because they remain straight and are whitish. They are called "whiteheads." Shrivelled grains can be found when the panicles are cut off at the base after grain formation is partially completed.

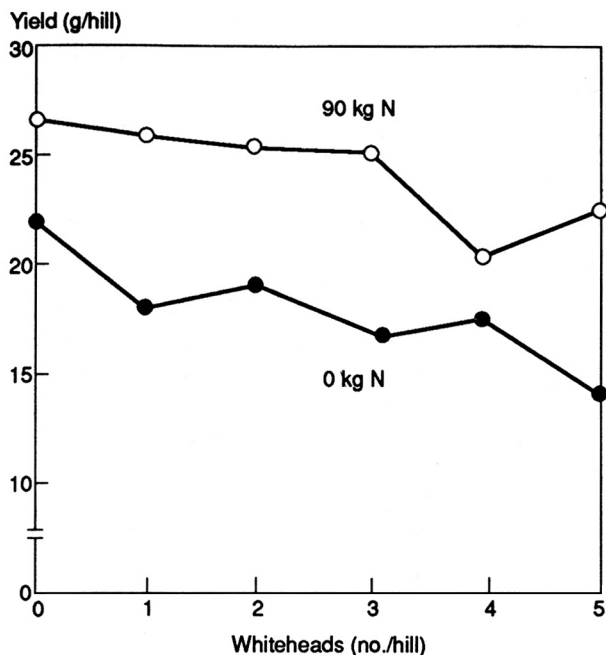
Although stem borer damage becomes evident only as deadhearts and whiteheads, significant losses also can be inflicted by larvae that feed within the stem without severing the growing plant parts. Such damage, more common in deepwater rice, results in reduced plant vigor, fewer tillers, and many unfilled grains.

The damage potential is related to the inner diameter of the stem in relation to the diameter of the larvae. If the tiller is relatively wider than the larva, then damage is less. There may be differences among species in this regard. Although high levels of infestation can occur with *R. albinella* and *M. separatella*, recorded yield loss is minimal.

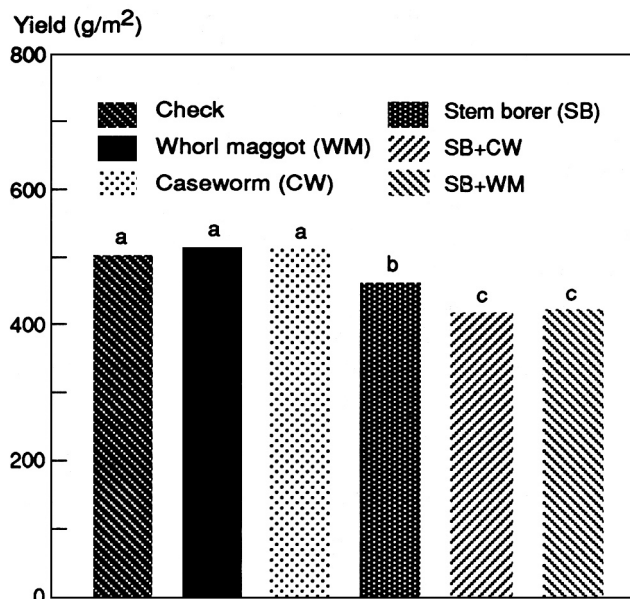
Diopsid larvae, because of their small mouthparts, can only penetrate a young tiller and only one generation usually develops per crop. The larva cuts through the tiller at a slanting angle about 10 cm above the ground and the leaf sheath is not cut. After the deadheart develops and the tiller rots, the larva disperses to another tiller. On average, one larva can damage three tillers.

Whiteheads are seldom caused by diopsids. The synchrony of emergence of the flies with the onset of the wet season concentrates the attack on a newly planted crop. Damage from succeeding generations is more spread out over time.

Plant type, crop vigor, and the pest complex can play a large role in determining eventual yield loss. Low-tillering varieties have less opportunity to compensate for deadhearts than high-tillering varieties. A high-tillering



6. Greater tolerance of stem borer whitehead damage at 90 kg N/ha in Zaragoza, Nueva Ecija, Philippines, 1989 DS.



7. Yield loss from combination of three rice insect pests. IRRI greenhouse, Philippines, 1983.

variety can produce a replacement tiller for a deadheart. A vigorous, well-nourished crop can tolerate higher levels of deadhearts and whiteheads than can a stressed crop. In a field experiment at IRRI, a nitrogen-stressed crop showed yield loss at 1% whiteheads; a well-fertilized crop was able to compensate for 3% whiteheads. Instances of no yield loss with 80% deadhearts from diopsids have been recorded (Fig. 6). Crop compensation will be less if

other pests also cause damage. In a greenhouse test at IRRI, equal numbers of *S. incertulas*, rice whorl maggot (RWM) *Hydrellia philippina*, and rice caseworm (RCW) *Nymphula depunctalis* were infested onto plants as single species and in paired combinations. Yield loss occurred from *S. incertulas* alone, but even greater yield loss occurred with stem borer in combination with other pest species (Fig. 7).

Seasonal occurrence and factors of abundance

In general, stem borers are polyvoltine, but the number of generations in a year depends on environmental factors (primarily temperature, rainfall, and crop availability). In different geographical areas, the borers hibernate, aestivate, or remain active throughout the year, and occur in different seasonal patterns. In areas with short optimal environmental conditions such as those in northern Japan, they appear in only one generation; in central Japan and Korea, they occur in two generations; and in most comparatively warm places with a single rice cropping season, in three to four generations.

The moths of different generations are frequently referred to as respective broods. During periods when there is no rice crop and temperatures are not optimal for larval development, the full-grown larvae undergo dormancy or diapause. But where two or more rice crops are grown in a year, the borers remain active year-round, undergoing only a temporary quiescent stage or weak diapause in the last larval instar during brief periods of nonavailability of host plants. This is apparently true for most of the tropical rice areas; moths have been caught throughout the year in light traps. Often populations peaks have been misinterpreted as different broods. A critical evaluation of the data shows that the peaks in light trap catches are reflections of major planting seasons and brief environmental variations, rather than distinct seasonal effects.

In temperate areas and in the tropics where only one rice crop is grown in a year, the borers undergo aestivation or hibernation. The hibernation of *C. suppressalis* has been investigated in detail. Full-grown larvae undergo diapause, which is a hormonal reaction. In Japan, two distinct ecotypes—'Shonai' in the north, 'Saigoku' in the southwest, and a possible third, 'Tosa' ecotype of *C. suppressalis* from the Kochi Prefecture—have been recorded. Diapause intensity is weak in the 'Shonai' ecotype, which is more tolerant of low temperature than the 'Saigoku' ecotypes. The stem borer population between the areas occupied by these distinct ecotypes is intermediate in character.

Temperature, daylength, and the growth stage of the host plants are the principal factors inducing diapause. *C. suppressalis* larvae hatching from eggs incubated at

temperatures below 22 °C usually undergo diapause. The temperature exposure during advanced embryonic development is particularly effective. Although total darkness or continuous illumination does not effect diapause, exposure to short daylengths (8-14 h) induces it; long daylengths (14.5-16 h) prevent it. Such effects are more evident during the larval than during the egg stage. Various ecotypes show sensitivity to daylength, depending on conditions existing in their area of occurrence. Under total darkness, high temperature (33 °C) prevents diapause and low temperature (28 °C) induces it.

C. suppressalis and *S. incertulas* larvae fed on mature plants tended to enter diapause. However, the number of generations of both species is largely governed by the number of crops grown in a particular area, particularly in the tropics, and the role of mature plants in inducing diapause is somewhat uncertain. The diapause of *R. albinella* and *S. innotata* ends with higher rainfall.

In places having distinct stem borer generations, the first generation usually appears when rice plants are in the nursery or shortly after they are transplanted. The population increases in subsequent broods and the second or later generations are the ones that build up to cause serious damage. This is the reason borers are more destructive to a late-planted crop or to a second crop. In addition to seasonal fluctuations, distinct annual fluctuations in stem borer populations also have occurred. The factors responsible for such fluctuations are not fully understood.

In general, mortality of stem borer larvae during winter is low. In Japan, where the temperature in winter is much lower than in most other rice-growing regions, mortality of *C. suppressalis* and *S. incertulas* is normally low. *C. suppressalis* is more tolerant of low temperatures than is *S. incertulas*. In years of high precipitation during autumn, a higher percentage of the larvae hibernates. If the winter or spring is warmer than normal, more of them pupate and emerge as adult moths. But these conditions also accelerate pupation and emergence, so that oviposition occurs early, on seedlings where larvae suffer high mortality. The population is thus reduced. However, if spring is late and somewhat cooler, delaying moth emergence, or if the rice crop is planted slightly earlier, the population builds up rapidly and heavy damage may occur.

Warm weather is essential for population buildup because moths in cool areas are usually smaller and lay fewer eggs than large moths do. If the weather remains warm during the rest of the rice cropping seasons, the larvae develop rapidly and the total number of generations may increase. The problem is particularly exacerbated in asynchronous cropping areas. Frequent claims that larvae suffer high mortality on seedlings have been published. In Japan, some workers attributed this to high water temperature. Increased larval mortality was recorded when the average temperature of irrigation water ex-

ceeded 35 °C for any five days during July. Subsequent measurements of water temperature and temperature within the rice stem suggested that temperature itself was not directly lethal but it might have reduced larval vitality, thereby increasing the vulnerability of stem borers to bacterial diseases or other natural hazards.

It has also been reported that larvae mass reared on seedlings have high survival, making it unlikely that greater larval mortality in early planted fields is due to nutritional deficiency. However, early instar larvae feed gregariously. The food available on seedlings is limited and they are forced to migrate to other plants much earlier, probably resulting in higher mortality from weather and natural enemies. In double-cropped areas, the seedlings of the second crop carry a heavy load of eggs, leading to high mortality. Such regulation of the population may not be operative, however, where planting seasons are not distinct.

In tropical and subtropical regions, stem borer populations have been reported to decline drastically during the summer months after the second crop has been harvested. This has frequently been attributed to high temperature, but high mortality often occurs from burning the straw and plowing the stubble during harvest.

The age and variety of the host plants and the level of soil fertility have a definite effect on the size of the stem borer population. The availability of extended periods of host plants at more attractive stages should encourage a population increase. In general, rice plants in the vegetative and early heading stages receive more eggs than do those nearing maturity.

Stem borer moths prefer ricefields receiving high rates of nitrogenous fertilizers for oviposition. Rice plants containing higher levels of nitrogen show increased feeding rate, larval size, and survival.

Observations have shown more intense stem borer problems in several areas of soil silica deficiency. In both field and laboratory studies, larval survival is significantly reduced when silica is applied. It has also been demonstrated that high silica in the soil renders rice plants less attractive to the insect. The silica particles in the plant interfere with larval feeding, often causing excessive mandible wear. A similar effect of silica on stem borer larvae was recorded when larvae were reared on varieties containing different percentages of silica. Silica level is also significant in lodging and disease incidence. Less silica is deposited during periods of drought because it is taken up by the roots in water soluble form.

Varietal resistance

Distinct differences in the susceptibility of rice varieties to stem borers have been recorded. In laboratory and field experiments, several varieties have not been preferred by moths for oviposition. On several resistant

varieties, larvae suffer high mortality, are smaller in size, and have a slower rate of growth due to antibiosis. Several tolerant varieties have been identified, with yield not significantly reduced in spite of high infestation levels.

During the last 25 yr, extensive screening of local and introduced rice germplasm and wild rices for resistance to stem borers has been done in several countries and sources of resistance have been identified (Tables 3 and 4). At IRRI, more than 17,000 rice varieties have been screened for resistance to *C. suppressalis* and more than 39,000 varieties to *S. incertulas*. TKM6, Chianan 2, Taichung 16, Ptb10, Su Yai 20, and WC1263 have been identified as resistant to *C. suppressalis* and *S. incertulas*. Several varieties from Asia and Africa (IR523-1-218, IR579-160-2, C5565, DNJ171, Iguape Cateto, ITA6-22-2-BPp1, Leuang-28-1-64, Huang Sengoo, TD10A, Magioti) are reported to be resistant to *D. macropthalma*. However, varieties resistant to one stem borer species are not necessarily resistant to other species.

Differences in resistance to stem borers among varieties are only quantitative. Very high levels of resistance have not been found, and there is continuous variation for this trait among rice varieties, from highly susceptible to moderately resistant. Even varieties classified as resistant suffer some damage under high insect populations. However, several wild rices have high levels of resistance to stem borers. Genetic analysis has shown that the resistance is polygenic in nature.

The nature of resistance to *C. suppressalis* has been studied in detail and a general association between several morphological and anatomical characteristics of the rice plant and resistance to the stem borers has been recorded. In general, tall varieties with long wide leaves and large stems are more susceptible. Varieties containing more layers of lignified tissue, a greater area under sclerenchymatous tissue, and a large number of silica cells have been found to be more resistant. Although each of these characteristics appears to contribute to borer resistance, none by itself appears to be the main cause of such resistance.

A rice plant biochemical "Oryzanone" (p-methylacetophenone) was identified as an attractant to ovipositing moths and larvae. The resistance of TKM6 and other varieties to *C. suppressalis* is mostly due to the production of an allomone which inhibits oviposition and disturbs the insect's growth and development. This biochemical resistance factor, coded as Compound A', has recently been identified at IRRI as a pentadecanal. But differences in nonpreference for oviposition by *S. incertulas* are not distinct in screenhouse tests. However, larvae feeding on resistant varieties were smaller, had low survival, and caused lower percentages of deadhearts than those feeding on susceptible varieties.

Research on breeding for resistance to *C. suppressalis* was started at IRRI in 1965. Selected resistant

varieties have been used in a hybridization program to improve their resistance to striped stem borers and to incorporate their resistance into plants with desirable agronomic characters. TKM6 has been extensively used in breeding for borer resistance in several countries.

IR20, the first borer-resistant, improved plant type variety, was developed by crossing TKM6 with Peta/TN1. It has moderate resistance to *C. suppressalis* and *S. incertulas*; resistance to the green leafhopper *Nephotettix virescens* (Distant), tungro virus, and bacterial leaf blight; and tolerance for several adverse soil conditions. Subsequent studies on breeding for resistance to *C. suppressalis* involved diallel crosses using seven rice varieties with moderate resistance. Three generations of this selective crossing system have produced progeny distinctly more resistant than any parent.

The breeding program for *S. incertulas* resistance was initiated at IRRI after 1972. Three improved plant types—IR1721-11, IR1917-3, and IR1820-52-2—were found resistant. A series of multiple crosses was made to accumulate resistance from several breeding lines. The breeding lines that emanated from this system (e.g., IR4791-80 and IR4791-89) had higher resistance than IR1820-52-2. A new approach to upgrade the level of *S. incertulas* resistance was adopted in 1980, using a male sterile-facilitated recurrent selection scheme. Genetic male sterile IR36 was used as female parent in crosses with 26 resistant donor parents.

The rice breeding programs of many countries aim at incorporating genes for resistance to *C. suppressalis* and *S. incertulas* from many different donors into their improved germplasm. However, none of the rice varieties developed so far has more than a moderate level of stem borer resistance. There is also little cross resistance; varieties resistant to *C. suppressalis* are not necessarily resistant to *S. incertulas*. Some wild rices *O. officinalis* Wall. ex Watt and *O. ridleyi* Hook. f. have very high resistance to stem borers. That resistance could be transferred to cultivated rice using appropriate wide hybridization techniques.

Breeding for plant type has probably had a greater impact on reducing stem borer incidence than breeding for other characters associated with resistance. Endemic areas of high stem borer damage occur where long-duration, tall cultivars are planted. Photoperiod-insensitive cultivars mature early, and that reduces population buildup. A new stem borer generation occurs every 30-40 d, and theoretically each generation brings about an exponential increase in abundance. When the crop is harvested before a generation is completed, mortality in a stem borer population is heavy. Breeding for photoperiod-insensitive cultivars has reduced the time that allowed population buildup. Stem borer populations are often lower when two short-duration crops replace a single long-duration crop. Breeding for short stature has reduced the time of stem elongation and the period of plant susceptibility.

Biological control

Once stem borer eggs have been deposited in a crop, the factors that will most reduce the stem borer population are parasites, predators, and pathogens. Because of their fecundity, stem borer populations will increase even if 90% of the population dies during the crop season. For a population to decline, as many as 99% or more of the eggs laid must fail to reach adulthood. Conservation of natural enemies is key to successful stem borer management. The most vulnerable stages are the eggs and neonate larvae. Although more than 100 species of stem borer parasites have been identified (Table 5), most are recorded from the larval stage and most occur at very low levels. The egg parasites are more important; they often achieve above 90% control. The three most important egg parasite genera whose species specialize in stem borers are *Telenomus*, *Tetrastichus*, and *Trichogramma*. *Telenomus* wasps locate the female stem borer moths, possibly by the sex pheromone, before egg masses are laid and covered by hair. The small wasp attaches itself to the tuft of anal hair near the female ovipositor and waits to parasitize the stem borer eggs while the moth is ovipositing.

After oviposition, the hair mat covering stem borer egg masses protects them against all but the larger or more specialized predators. *Tetrastichus* wasps have elongated ovipositors; they can deposit their eggs in stem borer eggs even if the eggs are covered with a mat of hair. The wasp larvae emerge from the stem borer eggs and consume unhatched eggs. The long-horned grasshopper *Conocephalus longipennis* (de Haan) feeds voraciously on eggs of *S. incertulas*. Smaller orthopteran predators, such as crickets *Metioche vittaticollis* (Stål) and *Anaxipha longipennis* (Serville), feed only on eggs of *C. suppressalis* and species without hair cover. The predatory mirid *Cyrtorhinus lividipennis* Rueter also attacks uncovered eggs.

A wide range of predatory species attack the small larvae of stem borers before the pests enter the rice plant stem. Some important predators of stem borer larvae include coccinellid beetles *Micraspis crocea* Mulsant and *Harmonia octomaculata* (F.), and carabid beetles such as the *Ophionea* spp. When young larvae fall into the water, they are preyed on by *Microvelia douglasi atrolineata* Bergroth and *Mesovelia vittigera* (Horváth) as well as by fish and aquatic beetles. Ants and a dozen other predators also prey on young stem borer larvae.

Parasitization of older larvae and pupae is low, in spite of the many species of parasites. Adult stem borer moths are attacked by spiders while resting on foliage or are caught in webs while flying. Dragonflies and birds also are effective daytime predators; bats are active at dusk.

Several species of fungi can infect a stem borer larva at the base of the stem when it is about to pupate. The fungus *Cordyceps* sp. grows long, noodlelike arms on the body of stem borer larva. Pathogen activity is greatest against larvae resting over winter or summer, particularly when the stubble has decayed and moisture has entered. Epizootics during the crop are rare because the larvae are protected and, for the most part, solitary.

Crop cultural practices

Crop cultural practices have a profound effect on rice stem borers. Some methods are only effective if carried out through community wide cooperation, others are effective on a single field. The community wide practices act to prevent colonization, and have the greatest potential to minimize infestation. China and prewar Indonesia developed cultural practices with great effect, often in combinations that isolate the rice crop through time and space. Crop varieties are chosen for even crop maturity and short stature. The more susceptible long-duration and tall cultivars are avoided. Planting time is chosen to minimize stem borer abundance. Usually, seedbed planting is delayed until after moth emergence from over winter or summer. This leads to suicidal flights of the pest, particularly if the stem borer species is monophagous. Plantings are synchronized within an irrigation system so that all fields are planted within the time of one stem borer generation (3-4 wk). This prevents an exponential increase in stem borer abundance. After thorough tillage to break up the rice stubbles, the ricefields may be flooded to drown stem borer larvae after diapause is broken. Seedbed trap crops are established throughout the area, and egg masses are removed manually or the beds plowed under. Harvesting at ground level removes larvae in the stubble. Plowing the fields immediately after harvest kills larvae and pupae in the stubble so they cannot emerge as moths to infest nearby crops. Planting more than two rice crops a year in the same fields prevents the break between crops needed for stem borer buildup.

Practices that can be carried on a single field include using optimal rates of nitrogen fertilizer in split applications. (High rates of nitrogen increase crop duration and susceptibility to borers.) Applying slag increases the silica content of the crop, making it more resistant. Burning the straw is effective, as is spreading it out in the sun as mulch.

Other practices are inefficient. Burning the stubble is not effective because most larvae are below the ground where the stubble is largely incombustible. Clipping the tops of seedlings to remove egg masses only has merit if old seedlings are being transplanted. Handpicking egg masses is laborious and often unnecessary: young plants already cause high larval mortality. Light traps collect only a small proportion of a stem borer moth population.

Chemical control

Stem borers are difficult to control with insecticides. After hatching, the larvae are only exposed for a few hours before they penetrate a tiller or enter the plant behind a leaf sheath. Successful control involves repeated foliar applications with spray volumes more than 400 liters/ha. In temperate climates, stem borer populations are more synchronized and well-timed applications have a greater degree of control than in the tropics where generations overlap. The decline in stem borer abundance in Japan and Korea is attributed to the frequent use of insecticides over many years, even though the stem borers have developed insecticide resistance.

Foliar sprays act on the larvae and on the adult moths and eggs. But sprays also come into greater contact with natural enemies. Cases of stem borer resurgence are not evident, although secondary pest outbreaks have been reported in areas where heavy insecticide usage is directed against stem borers.

Granular formulations, particularly gamma BHC and diazinon, give higher control than foliar sprays or dusts, particularly in high rainfall environments. Granules broadcast into the irrigation water are particularly effective in preventing deadhearts in a young crop. Gamma BHC has a fumigant action that kills resting moths. The insecticide is partly dissolved in the water and moves by capillary action between the leaf sheath and stem to contact with young larvae: the nonsystemic insecticide granules act as though they were systemic. The limitation to using granules is cost: they are more expensive to transport. Stable water supply and deep water levels also are necessary for high levels of control. As the water level falls, the capillary activity progressively declines. If the field dries out, insecticide efficacy ceases. Flooding from heavy rains also washes the insecticide out of the field. Dosage levels have declined consistent with the relatively higher costs of insecticides.

Systemic granules have an advantage in that the chemical can enter the plant even with low water levels. The chemical percolates into the soil and is taken up by the roots. From the roots, the chemical is transmitted through the xylem tissues into the stems and eventually to the tips of the leaves. Carbofuran exudes in droplets of water from leaf hydrotodes and evaporates into the air. If systemic granules are broadcast into the irrigation water, high dosages are necessary because much of the chemical is absorbed into the soil. The dosage needed also is higher as plant biomass increases. If granules are broadcast during the last harrowing or leveling operation before planting, dosages can be cut in half. Effectivity lasts more than a month because the granule is protected from rapid degradation. Heavy use of granules, however, can lead to microbial degradation. Several species of soil bacteria respond, and rapidly consume the insecticide,

rendering it ineffective. The process can be slowed by using lower dosages in rotation with foliar sprays. The problem with applying insecticides through soil incorporation before planting is that the stem borer population cannot be assessed: it might not be large enough to warrant control.

A combination of sex attractant (pheromones) and chemosterilant also could be a promising control tactic. The occurrence of high moth populations in overlapping generations, however, and the difficulties involved in mass rearing some stem borer species are major limitations to the mass release of artificially irradiated sterile male moths as a control measure. Exploratory experiments on mass rearing have shown that, when provided with 1% tepa, apholate, or tretamine or 20% hempa as food, the moths mated normally but deposited 50% fewer eggs. Of the eggs deposited, 20% of those laid by moths exposed to tepa and apholate were sterile.

Economic threshold

Economic injury levels are useful in setting economic or action thresholds on which to have decisions on borer control—usually through applying insecticides, but possibly through release of natural enemies.

Usually, insect pest assessment cannot predict a stem borer population more than a week in advance. A rice crop is vulnerable during tiller elongation, 3-4 wk after transplanting.

Different characters have been used in establishing economic thresholds for rice stem borers—moths, egg masses, damaged tillers, larvae-infested tillers, deadhearts, and whiteheads. Whiteheads are obviously not a timely character. Deadhearts have been used widely. With deadhearts, however, it should be remembered that only late instar larvae that had entered a tiller several weeks earlier can sever the tiller. Damaged and infested tillers present the same problem: assessment is too late unless systemic insecticides are used, but normally the active rates are not economical. Thresholds based on moth counts would be timely, but there is a danger of overreaction—often natural enemies can prevent population buildup, with no need for chemical application.

A more logical economic threshold would be based on egg masses. Egg masses are even more timely than moths, but are more difficult to detect. The presence of moths could be an early warning signal to look for eggs. Pheromone traps could also forecast the time for egg counting. Moths per square meter or per hill can be counted. The masses could be held in containers to assess the presence of egg parasites. If a large proportion of the egg masses are parasitized, chemical application would not be needed. If egg parasite activity is low, then the time of egg hatch would dictate the time to apply insecticides to kill young larvae.

Pest management

No one insect control method will maintain stem borer numbers below economic injury levels. The combination of control tactics that are effective is highly dependent on site characteristics.

If a farming community is organized, a number of powerful cultural control methods can be used to decrease egg laying in the field, thereby preventing stem borer buildup. The larger the area where cultural control methods are used, the greater is the chance of isolating stem borers in time and space.

Early- to medium-duration varieties are chosen and crop planting is timed to avoid mass flights of moths emerging from the stubble, particularly after dormancy is broken. Fields are planted in synchrony within a period less than the length of one stem borer generation. After harvest, the rice straw is managed to kill resident stem borer larvae and the stubble is plowed up. If the stem borer population in the stubble is high, then the fields can be flooded before land preparation for the next crop and kept submerged up to a week to kill resident larvae.

Varieties planted should have some level of resistance to the prevalent species of stem borers, if possible. Varieties should be bred with combinations of various components of resistance—nonpreference, antibiosis, and tolerance. Nonpreference for oviposition is a better choice for protecting a crop from infestation.

Varieties and management practices should be selected to shorten the tiller elongation period. This can be achieved by choosing short-statured varieties. Nitro-

gen fertilizer should be applied at optimal rather than maximum levels, in split applications.

Varieties and management practices also should enhance the rice plant's ability to compensate for damage. If possible, select high-tillering varieties. The crop should be planted at the higher range of crop density recommendations.

Parasites and predators should be conserved by judiciously applying petroleum-based pesticides. Microbial insecticides are not highly effective against stem borers, for the simple reason that contact between the pathogen and the larvae is minimal: the larvae quickly enter the rice plant stem. New developments in genetic engineering could overcome that problem by transferring the genes of an insect pathogen such as *Bacillus thuringiensis* Berliner into the genome of the rice plant. Then the cells of the rice plant would produce the toxic crystal, and stem borer larvae would be exposed when they consume any tissue.

Economic injury levels should be developed for each rice-growing region within a country. The injury levels should consider the crop growth stage, and monitoring should focus on two periods of susceptibility: during tiller elongation and during panicle exertion. Forewarning of egg density could be achieved by flushing moths from the field or field borders, or by using counts from pheromone traps.

Stem borer management practices should be as harmonious among themselves as is practical. In addition, they should be compatible with economical pest control practices and crop production practices.

TABLE 1

Stem borers of rice worldwide

Order	Family	Species	Distribution
Lepidoptera	Pyralidae	<i>Acigona ignefusalis</i> (Hampson)	Africa
		= <i>Coniesta ignefusalis</i> Hampson	
		= <i>Chilo pyrocaustalis</i> Hampson	
		<i>Acigona loftini</i> (Dyar)	North America
		= <i>Chilo loftini</i> Dyar	
		<i>Adelpherupa flavescens</i> Hampson	Africa
		<i>Ancylolomia chrysographella</i> (Kollar)	Asia
		= <i>Chilo chrysographella</i> Kollar	
		= <i>Jartheza chrysographella</i> (Kollar)	
		<i>Catagela adjurella</i> Walker	China
		<i>Chilo agamemnon</i> Bleszynski*	Middle East/North-East Africa
		= <i>Chilo simplex</i> (Butler)	
		<i>Chilo aleniellus</i> (Strand)	Africa/Asia
		= <i>Diatraea aleniella</i> Strand	
		= <i>Chilo aleniella</i> (Strand)	
		<i>Chilo auricilius</i> Dudgeon*	Asia
		= <i>Chilo auricilia</i> Dudgeon	
		= <i>Diatraea auricilia</i> (Dudgeon)	
		= <i>Chilotraea auricilia</i> (Dudgeon)	
		= <i>Chilo popescugorji</i> Bleszynski	
		<i>Chilo diffusilineus</i> (J. de Joannis)*	Africa
		= <i>Diatraea diffusilinea</i> J. de Joannis	
		= <i>Chilo phaeosema</i> Martin	
		<i>Chilo luniferalis</i> Hampson	Africa
		<i>Chilo mesoplalalis</i> (Hampson)	Africa
		= <i>Diatraea mesoplalalis</i> Hampson	
		<i>Chilo partellus</i> (Swinhoe)	West Asia/Africa
		= <i>Crambus zonellus</i> Swinhoe	
		= <i>Crambus partellus</i> Swinhoe	
		= <i>Chilo simplex</i> (Butler)	
		= <i>Diatraea calamina</i> Hampson	
		= <i>Argyria lutulentalis</i> Tams	
		= <i>Chilo zonellus</i> (Swinhoe)	
<i>Chilo plejadellus</i> Zincken*	North America		
= <i>Jartheza sabulifera</i> Walker			
= <i>Crambus plejadellus</i> (Zincken)			
= <i>Diphryx prolatella</i> Grote			
= <i>Chilo oryzeellus</i> Riley			
<i>Chilo polychrysus</i> (Meyrick)*	Asia		
= <i>Diatraea polychrysa</i> Meyrick			
= <i>Proceras polychrysa</i> (Meyrick)			
= <i>Chilotraea polychrysa</i> (Meyrick)			
= <i>Chilo polychrysa</i> (Meyrick)			
<i>Chilo psammathis</i> (Hampson)	Africa		
= <i>Angyria psammathis</i> Hampson			
= <i>Diatraea perpulverea</i> Hampson			
= <i>Chilotraea psammathis</i> (Hampson)			

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Table 1 continued

Order	Family	Species	Distribution
		<i>Chilo sacchariphagus indicus</i> (Kapur) = <i>Diatraea venosata</i> Fletcher & Ghosh; Gupta; Isaac & Rao; Isaac & Venkatraman = <i>Proceras indicus</i> Kapur = <i>Chilo indicus</i> Bleszynski; Kapur	Asia
		<i>Chilo superalis</i> (author not traced)	South America
		<i>Chilo suppressalis</i> (Walker)* = <i>Crambus suppressalis</i> Walker = <i>Jartheza simplex</i> Butler = <i>Chilo boxanus</i> E. Hering = <i>Chilo simplex</i> (Butler) = <i>Chilo oryzae</i> Fletcher = <i>Chilo oryzae</i> (Fletcher)	Europe/Middle East/Asia/ Oceania
		<i>Chilo zacconius</i> Bleszynski*	Africa
		<i>Diatraea lineolata</i> (Walker) = <i>Zeadiatraea lineolata</i> (Walker) = <i>Leucania lineolata</i> Walker = <i>Chilo culmicolellus</i> Zeller = <i>Chilo neuricellus</i> Zeller = <i>Diatraea angustella</i> Dyar	Central/South America
		<i>Diatraea saccharalis</i> (Fabricius)* = <i>Phalaena saccharalis</i> Fabricius = <i>Diatraea sacchari</i> Guiling = <i>Chilo obliteratedellus</i> Zeller = <i>Chilo crambidoideus</i> Grote = <i>Diatraea obliteratedella</i> Zeller = <i>Diatraea striatalis</i> Swollen	North/South America
		<i>Elasmopalpus lignosellus</i> (Zeller)* = <i>Pempilia lignosella</i> Zeller	North/South America
		<i>Eldana saccharina</i> Walker	Africa
		<i>Maliarpha separatella</i> Ragonot* = <i>Anerastia pallidicosta</i> Hampson = <i>Enosima vectiferella</i> Ragonot = <i>Rhinaphe pallidicosta</i> (Hampson) = <i>Rhinaphe vectiferella</i> (Ragonot)	Africa/West Asia
		<i>Niphadoses palleucus</i> Common	Australia
		<i>Rupela albinella</i> (Cramer)* = <i>Tinea albinella</i> Cramer = <i>Rupela nivea</i> Walker = <i>Scirpophaga albinella</i> (Cramer)	North/South America
		<i>Scirpophaga aurivena</i> (Hampson) = <i>Schoenobius aurivena</i> Hampson = <i>Scirpophaga aurifera</i> Walker	Asia
		<i>Scirpophaga fusciflua</i> Hampson = <i>Scirpophaga gilviberbis</i> Hampson	Asia
		<i>Scirpophaga gilviberbis</i> Zeller = <i>Niphadoses gilviberbis</i> (zeller)	Asia
		<i>Scirpophaga incertulas</i> (Walker)* = <i>Chilo incertulas</i> Walker = <i>Catagela ? admotella</i> Walker = <i>Catagela admotella</i> Walker = <i>Schoenobius punctellus</i> Zeller = <i>Schoenobius minutellus</i> Zeller = <i>Tipanaea bipunctifera</i> Walker = <i>Chilo gratiosellus</i> (Walker) = <i>Chilo incetellus</i> Walker = <i>Apurima gratiosella</i> (Walker) = <i>Schoenobius bipunctifera</i> (Walker) = <i>Schoenobius bipunctiferus</i> (Walker) = <i>Schoenobius incertulas</i> (Walker) = <i>Schoenobius bipunctifer</i> (Walker)	Asia/Australia

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Table 1 continued

Order	Family	Species	Distribution
		= <i>Schoenobius incertellus</i> (Walker)	
		= <i>Schoenobius bipunctifer</i> ab. <i>quadripunctellifera</i> Strand	
		= <i>Tryporyza incertulas</i> (Walker)	
		<i>Scirpophaga innotata</i> (Walker)*	East Asia/Australia
		= <i>Tipanaea innotata</i> Walker	
		= <i>Scirpophaga pericea</i> Snellen	
		= <i>Tryporyza innotata</i> (Walker)	
		<i>Scirpophaga lineata</i> (Butler)	Asia
		= <i>Apurina lineata</i> Butler	
		= <i>Schoenobius lineatus</i> (Butler)	
		<i>Scirpophaga nivella</i> (Fabricius)	Asia/Australia/Oceania
		= <i>Tinea nivella</i> Fabricius	
		= <i>Crambus niveus</i> (Fabricius)	
		= <i>Scirpophaga chrysorrhoea</i> Zeller	
		= <i>Scirpophaga auriflua</i> Zeller	
		= <i>Scirpophaga brunnescens</i> Moore	
		= <i>Scirpophaga butyrota</i> Meyrick	
		= <i>Schoenobius celidias</i> Meyrick	
		= <i>Schoenobius brunnescens</i> (Moore)	
		= <i>Crambus nivella</i> (Fabricius)	
		= <i>Apurina nivella</i> (Fabricius)	
		= <i>Scirpophaga euclastalis</i> Strand	
		<i>Scirpophaga occidentella</i> (Walker)*	Africa
		= <i>Rupela occidentella</i> Walker	
		= <i>Topeutis occidentella</i> (Walker)	
		<i>Scirpophaga subumbrosa</i> Meyrick*	Africa
		<i>Scirpophaga Virginia</i> Schultze	Asia
	Noctuidae	<i>Bathytricha truncata</i> (Walker)	Australia
		= <i>Leucania truncata</i> Walker	
		<i>Busseola fusca</i> (Fuller)	Africa
		= <i>Sesamia fusca</i> Fuller	
		= <i>Busseola surghicida</i> Thureau	
		= <i>Calamistis fusca</i> Hampson	
		<i>Sesamia botanephaga</i> Tams & Bowden*	Africa
		<i>Sesamia calamistis</i> Hampson*	Africa
		= <i>Sesamia vuteria</i> Hampson	
		= <i>Sesamia mediastriga</i> Bethune - Baker	
		<i>Sesamia cretica</i> Lederer	Africa/Europe/Middle East
		<i>Sesamia vuteria vuterioides</i> Strand	
		= <i>Sesamia cretica rufescens</i> Schawerda	
		= <i>Sesamia vuteria</i> Mariani	
		= <i>Sesamia pecki</i> Tams	
		<i>Sesamia epunctifera</i> Hampson	Africa
		<i>Sesamia inferens</i> (Walker)*	Asia/Australia/Oceania
		= <i>Leucania inferens</i> Walker	
		= <i>Nonagria inferens</i> (Walker)	
		<i>Sesamia nonagrioides</i> (Lefebvre)*	Africa
		= <i>Cossus nonagrioides</i> Lefebvre	
		= <i>Nonagria hesperica</i> Rambur	
		= <i>Nonagria sacchari</i> Wollaston	
		= <i>Tapinostola gracilis</i> Rebel	
		= <i>Sesamia vuteria</i> Hampson	
		= <i>Sesamia calamistis</i> Turati	
		<i>Sesamia penniseti</i> Tams & Bowden	Africa
		<i>Sesamia uniformis</i> Dudgeon	Asia
Diptera	Diopsidae	<i>Diopsis apicalis</i> Dalman*	Africa
		= <i>Diopsis tenuipes</i> Westwood	
		<i>Diopsis circularis</i> Macquart	Africa
		= <i>Diopsis macquartii</i> Guerin - Meneville	
		= <i>Diopsis aries</i> Hendel	
		= <i>Diopsis globosa</i> Curran	

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Table 1 continued

Order	Family	Species	Distribution
		<i>Diopsis ichneumonea</i> Linnaeus	Africa
		<i>Diopsis macrophthalma</i> Dalman*	Africa
		= <i>Diopsis longicornis</i> Macquart	
		= <i>Diopsis thoracica</i> Westwood	
		= <i>Diasemopsis macrophthalma</i> Eggers	
		<i>Diopsis servillei</i> Macquart	Africa
		= <i>Diopsis affinis</i> Adams	

*Species commonly occurring on rice

TABLE 2
Alternate host plants of rice stem borers

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Acigona ignefusalis</i> (Hampson)	Poaceae	<i>Andropogon</i> sp.		Nigeria	Jerath (1968)
		<i>Paspalum</i> sp.		Nigeria	Jerath (1968)
		<i>Pennisetum</i> sp.		Nigeria	Jerath (1968)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Gold Coast	Jepson (1954)
		<i>Zea mays</i> L.	Maize	Kenya	Seshu Reddy (1983, 1966)
<i>Acigona loftini</i> (Dyar)	Poaceae	<i>Cymbopogon citratus</i> (DC.) Stapf	Lemon grass	Nigeria	Jepson (1954)
		<i>Hordeum sativum</i> Jess.	Barley	Mexico	Osborn and Phillips (1946)
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum iyphoides</i> (Burm. f.) Stapf and C. E. Hubb.]	Pearl millet, bulrush millet, bristle grass	USA	Osborn and Phillips (1946)
		<i>Saccharum officinarum</i> L.	Sugarcane	USA	Osborn and Phillips (1946)
				Mexico	Van Zwaluwenburg (1926), Osborn and Phillips (1946). Jepson (1964). Kapur (1967)
				USA	Osborn and Phillips (1946). Kapur (1967)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Mexico	Osborn and Phillips (1946). Kapur (1967)
		<i>Sorghum halepense</i> (L.) Pus.	Johnson grass	Mexico	Van Zwaluwenburg (1926), Osborn and Phillips (1946). Jepson (1954)
		<i>Sorghum vulgare</i> Pers. var. <i>sudanense</i>	Sudan grass	USA	Osborn and Phillips (1946)
		<i>Zea mays</i> L.	Maize	USA	Osborn and Phillips (1946). Kapur (1967)
				Mexico	Van Zwaluwenburg (1926). Osborn and Phillips (1946). Jepson (1954). Kapur (1967)
		<i>Ancylolomia chrysographella</i> (Kollar)	Poaceae	<i>Imperata cylindrica</i> (L.) Raeuschel		India	Fletcher (1914). Jepson (1954), Kapur (1967)
<i>Paspalum dilatatum</i> Poir.	Golden crown grass, dallis grass, caterpillar grass			India	Fletcher (1914), Jepson (1954). Kapur (1967)
<i>Busseola fusca</i> (Fuller)	Poaceae	<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	Kenya	Seshu Reddy (1983)
		<i>Hyparrhenia rufa</i> (Nees) Stapf		Uganda	Ingram (1958)
		<i>Lepturus repens</i> (Forst. f.) R. Br.		Uganda	Ingram (1958)
		<i>Panicum maximum</i> Jacq.	Guinea grass	Kenya	Seshu Reddy (1983)
				East Africa	Jepson (1954)
		Kenya	Seshu Reddy (1983)		
		Nigeria	Hams (1962)		
		Uganda	Tams and Bowden (1953), Ingram (1958)		

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubh.]	Pearl millet, bulrush millet	Kenya Uganda	Seshu Reddy (1983) Ingram (1958), Seshu Reddy (1985)
		<i>Pennisetum purpureum</i> K. Schumach.	Napier grass, elephant grass	Kenya Nigeria Uganda	Seshu Reddy (1983) Harris (1962) Tothill (1940), Jepson (1954), Tams and Bowden (1953), Ingram (1958)
		<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton [= <i>Rottboellia exaltata</i> L. f.]		Gold Coast	Tams and Bowden (1953)
		<i>Saccharum officinarum</i> L.	Sugarcane	Kenya Nigeria	Seshu Reddy (1983) Harris (1962), Jerath (1968), Seshu Reddy (1985)
				South Africa	Van den Merwe (1937), Jepson (1954)
				Tanzania	Ritchie (1927), Jepson (1954)
				Uganda	Ingram (1958), Seshu Reddy (1985)
		<i>Sorghum arundinaceum</i> (Desv.) Stapf		Kenya	Seshu Reddy (1983)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Africa East Africa	Smith (1980) Harris (1944), Jepson (1954), Seshu Reddy (1985)
				Kenya	Nye (1960), Ho and Seshu Reddy (1983), Seshu Reddy (1983)
				Nigeria	Jepson (1954), Harris (1962), Seshu Reddy (1985)
				South Africa	Wahl (1930), Jepson (1954), Seshu Reddy (1985)
				Tanzania	Nye (1960)
				Uganda	Ingram (1958), Nye (1960), Seshu Reddy (1985)
		<i>Sorghum verticilliflorum</i> (Steud.) Stapf		Uganda	Ingram (1958)
		<i>Vossia cuspidata</i> (Roxb.) W. Griff.		Uganda	Ingram (1958)
		<i>Zea mays</i> L.	Maize	Africa Ethiopia Gold Coast	Smith (1980) Tams and Bowden (1953) Jepson (1954), Seshu Reddy (1985)
				Kenya	Wilkinson (1939), Jepson (1954), Nye (1960), Seshu Reddy (1983, 1985)
				Nigeria	Kaufmann (1983)
				South Africa	Wahl (1930), Jepson (1954), Seshu Reddy (1985)
				Rhodesia	Chorley (1946), Jepson (1954), Seshu Reddy (1985)

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Table 2 continued

Stem borer	Host plant			Country/continent	References	
	Family	Scientific name	Common name			
<i>Chilo auricilius</i> Dudgeon	Poaceae	<i>Hemarthria compressa</i> (L. f.) R. Br. [= <i>Roetboellia compressa</i> L. f.]	Jove grass	Tanzania	Ritchie (1927), Harris (1944), Jepson (1954), Nye (1960)	
				Uganda	Ingram (1958), Nye (1960), Seshu Reddy (1985)	
		<i>Oryza latifolia</i> Desv.	<i>Saccharum arundinaceum</i> Retz	Kanra	Malaysia	Corbett (1930b)
					India	Fletcher (1918)
		<i>Saccharum fuscum</i> Roxb.		Ikri	India	Fletcher (1918), Fletcher and Ghosh (1920), Banerjee and Pramanik (1967)
		<i>Saccharum officinarum</i> L.		Sugarcane	Bangladesh	Fletcher and Ghosh (1920), Fletcher (1928), Kapur (1967), Catling et al (1977)
					India	De Joannis (1913), Fletcher (1917), Fletcher and Ghosh (1920), Khare (1921), Chopra (1928), Husain (1930), Gupta (1940), Isaac and Rao (1941), Kapur (1950, 1967), Banerjee and Pramanik (1967), Rao and Nagaraja (1969), Ghai et al (1979)
					Malaysia	Pagden (1932), Yunus (1967)
		<i>Saccharum spontaneum</i> L.		Kans	India	Fletcher and Ghosh (1920), Banerjee and Pramanik (1967)
		<i>Sacciolepis myosuroides</i> (R. Br.) A. Camus			Malaysia	Corbett (1930b)
		<i>Sacciolepis myurus</i> (Lam.) A. Chase [= <i>Hymenachne myurus</i> (Lam.) Beauv.]			Malaysia	Corbett (1930b)
		<i>Setaria pumila</i> (Poir.) Roem. and Schult. [= <i>Setaria rubiginosa</i> (Steud.) Miq.]			Malaysia	Corbett (1930b)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Andropogon sorghum</i> (L.) Brot.] [= <i>Sorghum vulgare</i> Pers.]		Sorghum	India	Fletcher (1917), Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967), Banerjee and Pramanik (1967), Ghai et al (1979)
		<i>Sorghum halepense</i> (L.) Pers.		Johnson grass	India	Fletcher (1919), Gupta and Avasthy (1956), Gupta and Kulshreshtha (1957), Banerjee and Pramanik (1967), Nagarkatti and Rama Chandran Nair (1973)

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Table 2 continued

Stem borer	Host plant			Country/continent	References	
	Family	Scientific name	Common name			
<i>Chilo diffusilineus</i> (J. de Joannis)	Poaceae	<i>Zea mays</i> L.	Maize	India	Rao and Nagaraja (1969), Talgeri (1969), Ghai et al (1979)	
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.]	Pearl millet, bulrush millet	Malaysia	Pagden (1930), Yunus and Hua (1980)	
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Andropogon sorghum</i> (L.) Brot.] [= <i>Holcus sorghum</i> L.] [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Burkina Faso	Bonzi (1982), Seshu Reddy (1985)	
		<i>Zea mays</i> L.	Maize	Burkina Faso	Bonzi (1982), Seshu Reddy (1985)	
<i>Chilo partellus</i> (Swinhoe)	Poaceae	<i>Cenchrus ciliaris</i> L.	African foxtait grass, blue buffalo grass, buffel grass	Kenya	Seshu Reddy (1983)	
		<i>Chionachne koenigii</i> (Spreng.) Thus. [= <i>Polytoca barbata</i> Roxb.]	Burgrass, burgur	India	Trehan and Butani (1949), Singh et al (1961), Banerjee and Pramanik (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982)	
		<i>Coix lachryma-jobi</i> L.	Job's tears	India	Fletcher and Ghosh (1920), Trehan and Butani (1949), Jepson (1954), Singh et al (1961), Banerjee and Pramanik (1967), Kapur (1967), Talgeri et al (1970), Rajagopal and Channa Basavanna (1975), Neupane (1982)	
		<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Barnyard grass	Pakistan	Carl (1962), Kapur (1967), Neupane (1982)	
		<i>Echinochloa frumentacea</i> Link [= <i>Panicum frumentaceum</i> Roxb.]	Sema	India	Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967)	
		<i>Echinochloa haploclada</i> Stapf		Kenya	Seshu Reddy (1983)	
		<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	India	Fletcher and Ghosh (1920), Trehan and Butani (1949), Jepson (1954), Singh et al (1961), Banerjee and Pramanik (1967), Kapur (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982), Seshu Reddy (1985)	
				Kenya Uganda	Seshu Reddy (1983,1985) Ingram (1958), Kapur (1967), Neupane (1982), Seshu Reddy (1985)	
			<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	India	Fletcher and Ghosh (1920), Kinoshita and Kawada (1932), Gupta (1940), Jepson (1954), Kapur (1967)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Uganda	Ingram (1958), Kapur (1967)
		<i>Euchlaena mexicana</i> Schrad.	Teosinte	India	Pant et al(1962), Neupane (1982)
		<i>Hemarthria compressa</i> (L. f.) R. Br. [=Rottboellia compressa L. f.]	Jove grass	Uganda	Ingram (1958), Neupane (1982)
		<i>Hyparrhenia rufa</i> (Nees) Stapf		Uganda	Ingram (1958), Neupane (1982)
		<i>Ischaemum aristatum</i> L.		India	Talgeri et al (1970)
		<i>Lepturus repens</i> (Forst. f.) R. Br.		Kenya	Seshu Reddy (1983)
		<i>Panicum maximum</i> Jacq.	Guinea grass	Kenya	Seshu Reddy (1983)
				Uganda	Ingram (1958), Kapur (1967), Neupane (1982)
		<i>Pennisetum glaucum</i> (L.) R. Br. [=Pennisetum typhoides (Burm. f.) Stapf and C.E. Hubb]	Pearl millet, bulrush millet	India	Fletcher and Ghosh (1920), Isaac (1946), Trehan and Butani (1949), Jepson (1954), Singh et al (1961), Kapur (1967), Banerjee and Pramanik (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982), Seshu Reddy (1985)
				Kenya	Nye (1960), Seshu Reddy (1983, 1985)
				Tanzania	Nye (1960), Seshu Reddy (1985)
				Uganda	Ingram (1958), Nye (1960), Kapur (1967), Neupane (1982), Seshu Reddy (1985)
		<i>Pennisetum purpureum</i> (K.) Schumach.	Napier grass, elephant grass	Kenya	Seshu Reddy (1983)
				Uganda	Ingram (1958), Kapur (1967), Neupane (1982)
		<i>Saccharum officinarum</i> L.	Sugarcane	Africa	Smith (1980)
				India	Barlow (1903), Isaac (1934), Despande (1937), Pruthi and Narayanan (1938), Gupta (1940), Isaac and Venkatraman (1941), Trehan and Butani (1949), Kapur (1950, 1967), Jepson (1954), Butani (1961), Singh et al (1961), Banerjee and Pramanik (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982), Seshu Reddy (1985)
				Kenya	Seshu Reddy (1983, 1985)
				Uganda	Ingram (1958), Kapur (1967), Jerath (1968), Neupane (1982), Seshu Reddy (1985)
		<i>Saccharum bengalense</i> Retz. [=Saccharum sara Roxb.]	Sarkada	India	Vishakantaiah and Gowada (1972), Neupane (1982)
		<i>Sorghum arundinaceum</i> (Desv.) Stapf		Kenya	Seshu Reddy (1983)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.] [= <i>Andropogon sorghum</i> (L.) Brot.]	Sorghum	Africa India Iraq Kenya Tanzania Uganda	Smith (1980) Fletcher and Ghosh (1920), Rahman (1945), Trehan and Butani (1949), Singh et al (1961), Banerjee and Pramanik (1967), Kapur (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982) Wimshurst (1920), Jepson (1954), Kapur (1967) Jepson (1954), Ingram (1958), Nye (1960), Mathez (1972), Neupane (1982), Ho and Seshu Reddy (1983), Seshu Reddy (1983, 1985) Nye (1960) Ingram (1958), Nye (1960), Kapur (1967), Neupane (1982), Seshu Reddy (1985)
		<i>Sorghum halepense</i> (L.) Pers.	Johnson grass	India Pakistan	Trehan and Butani (1949), Singh et al (1961), Banerjee and Pramanik (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982) Carl (1962), Kapur (1967), Nagarkatti and Ramachandran Nair (1973)
		<i>Sorghum sudanense</i> (Piper) Stapf <i>Sorghum verticilliflorum</i> (Steud.) Stapf		Pakistan Uganda	Carl (1962), Kapur (1967) Ingram (1958), Kapur (1967), Neupane (1982)
		<i>Sorghum vulgare</i> Pers. var. <i>sudanense</i>	Sudan grass	India	Fletcher and Ghosh (1920), Trehan and Butani (1949), Singh et al (1961), Banerjee and Pramanik (1967), Rajagopal and Channa Basavanna (1975), Neupane (1982)
		<i>Sporobolus marginatus</i> auct. mult. non Hochst. ex A. Rich. <i>Vossia cuspidata</i> (Roxb.) W. Griff.		Kenya Uganda	Seshu Reddy (1983) Ingram (1958), Kapur (1967), Neupane (1982)
		<i>Zea mays</i> L.	Maize	Africa India	Smith (1980) Fletcher and Ghosh (1920), Gupta (1940), Rahman (1945), Trehan and Butani (1949), Kapur (1950, 1967), Jepson (1954), Ingram (1958), Butani (1961), Singh et al (1961), Banerjee and Pramanik, (1967),

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
					Talgeri (1969), Saxena and Roy (1970), Rajagopal and Chama Basavanna (1975), Neupane (1982)
				Indochina	Duport (1919a), Jepson (1954), Kapur (1967)
				Kenya	Nye (1960), Mathez (1972), Ho and Seshu Reddy (1983), Seshu Reddy (1983, 1985)
				Malawi	Smee (1944), Jepson (1954), Kapur (1967)
				Sri Lanka	Vinson (1942), Jepson (1954), Kapur (1967)
				Sudan	Siddig (1972), Neupane (1982)
				Tanzania	Nye (1960), Seshu Reddy (1985)
				Uganda	Ingram (1958), Nye (1960), Kapur (1967), Seshu Reddy (1985)
<i>Chilo plejadellus</i> Zincken	Poaceae	<i>Spartina cynosuroides</i> (L.) Roth		USA	Jones and Bradley (1924), Douglas and Ingram (1942), Grist and Lever (1969)
		<i>Zizania aquatica</i> L.		USA	Jones and Bradley (1924), Douglas and Ingram (1942), Grist and Lever (1969)
		<i>Zizaniopsis miliacea</i> (Michx.) Doell and Aschers.		USA	Jones and Bradley (1924), Douglas and Ingram (1942), Grist and Lever (1969)
<i>Chilo polychrysus</i> (Meyrick)	Cyperaceae	<i>Coelorachis glandulosa</i> (Trin.) Stapf ex Ridl. <i>Cyperus digitatus</i> Roxb.		Malaysia	Pagden (1932)
				Malaysia	Lever (1955a), Wyatt (1957), Yunus (1967), Grist and Lever (1969), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		<i>Scirpus grossus</i> L: f.		Malaysia	Pagden (1930, 1932), Meyrick (1932), Jepson (1954), Lever (1955a), Nair (1958), Koyama (1964), Banerjee and Pramanik (1967), Yunus (1967), Kapur (1967), Grist and Lever (1969) Singh (1971)
	Poaceae	<i>Brachiaria distachya</i> (L.) Stapf [= <i>Panicum distachyon</i> L.]		Malaysia	Koyama (1964)
		<i>Echinochloa colona</i> (L.) Link	Jungle grass, jungle rice	Malaysia	Yunus (1967), Kok (1968), Singh (1971)
		<i>Echinochloa crus-galli</i> (L.) P. Beauv. [= <i>Panicum crus-galli</i> L.]	Barnyard grass	India	Nair (1958), Kapur (1967), Banerjee and Pramanik (1967)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Malaysia	Wyatt (1957), Grist and Lever (1969), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	Malaysia	Kok (1968)
		<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Malaysia	Yunus (1967), Kok (1968), Singh (1971)
		<i>Eriochloa procera</i> (Retz.) C. E. Hubb. [= <i>Eriochloa annulata</i> Kunth]		Malaysia	Pagden (1932), Yunus (1967), Singh (1971), Yunus and Hua (1980)
		<i>Hymenachne acutigluma</i> (Steud.) Gilliland [= <i>Panicum amplexicaule</i> Poir. (teste Beauv.) ex Kunth] [= <i>Hymenachne pseudointerrupta</i> C. Muell.]		Malaysia	Grist and Lever (1969), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		<i>Ischaemum timorense</i> Kunth		Malaysia	Yunus (1967), Singh (1971)
		<i>Oryza latifolia</i> Desv.		Malaysia	Pagden (1932), Jepson (1954), Lever (1955a), Kapur (1967), Yunus (1967), Singh (1971)
		<i>Oryza minuta</i> J. C. Presl ex C. B. Presl		Malaysia	Yunus and Hua (1980)
		<i>Oryza rufipogon</i> Griff.		Bangladesh	Catling and Alam (1977)
		<i>Panicum auritum</i> Presl ex Nees		Malaysia	Yunus (1967), Singh (1971)
		<i>Panicum repens</i> L.		Malaysia	Yunus (1967), Singh (1971)
		<i>Paspalum punctatum</i> Burm.		Malaysia	Yunus (1967), Singh (1971)
		<i>Paspalum scrobiculatum</i> L. [= <i>Paspalum commersonii</i> Lam.] [= <i>Paspalum orbiculare</i> Forst.]	Kodo millet, kodra millet	Malaysia	Yunus (1967), Kok (1968), Singh (1971)
		<i>Pennisetum purpureum</i> K. Schumach.	Napier grass, elephant grass	Malaysia	Kok (1968)
		<i>Saccharum officinarum</i> L.	Sugarcane	Bangladesh Malaysia	Catling and Alam (1977) Koyama (1964), Grist and Lever (1969), Singh (1971)
		<i>Saccharum</i> sp.		Malaysia	Van Vreden and Ahmadzabidi (1986)
		<i>Sacciolepis myosuroides</i> (R. Br.) A. Camus		Malaysia	Pagden (1932), Jepson (1954), Kapur (1967), Yunus (1967), Grist and Lever (1969), Singh (1971), Yunus and Hua (1980)
		<i>Sacciolepis myurus</i> (Lam.) A. Chase [= <i>Hymenachne myurus</i> (Lam.) Beauv.]		Malaysia	Pagden (1932), Jepson (1954), Lever (1955a), Wyatt (1957), Kapur (1967), Yunus (1967), Singh (1971)
		<i>Sacciolepis</i> sp.		Malaysia	Yunus and Hua (1980)
		<i>Setaria gracilis</i> H. B. K. [= <i>Setaria geniculata</i> (Lam.) P. Beauv.]		Malaysia	Jepson (1954), Lever (1955a), Kapur (1967)

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Table 2 continued

Stem borer	Host plant			Country/continent	References	
	Family	Scientific name	Common name			
		<i>Setaria italica</i> (L.) P. Beauv.	Italian millet, foxtail millet, Indian millet	Bangladesh India Malaysia	Catling and Alam (1977) Ghai et al (1979) Grist and Lever (1969), VanVreden and Ahmadzabidi (1986)	
		<i>Setaria pumila</i> (Poir.) Roem. and Schantz. [= <i>Setaria rubiginosa</i> (Steud.) Miq.] [= <i>Setaria pallide-fusca</i> Poir.]		Malaysia	Yunus (1967), Grist and Lever (1969), Singh (1971)	
		<i>Vetiveria odorata</i> Virey		Malaysia	Yunus (1967), Singh (1971)	
		<i>Zea mays</i> L.	Maize	India Indonesia Malaysia	Ghai et al (1979) Kalshoven (1950), Jepson (1954) Pagden (1930), Meyrick (1932), Nair (1958). Koyama (1964), Kapur (1967), Banerjee and Pramanik (1967), Kok (1968), Grist and Lever (1969), Yunus and Hua (1980)	
		<i>Zea</i> sp.		Malaysia	Singh (1971), Van Vreden and Ahmadzabidi, (1986)	
	<i>Chilo sacchariphagus indicus</i> (Kapur)	Poaceae	<i>Andropogon muricatus</i> L. f.	Vetiveria	Mauritius	Moutia (1934)
			<i>Cymbopogon nardus</i> (L.) Rendle [= <i>Andropogon nardus</i> L.]	Serch	India	Fletcher and Ghosh (1920). Jepson (1954), Kapur (1967)
			<i>Euchlaena mexicana</i> Schrad.	Teosinte	Guatemala	Kapur (1967)
			<i>Panicum maximum</i> Jacq.	Guinea grass	Mauritius	Moutia (1934)
			<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.]	Pearl millet. bulrush millet	India	Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967)
<i>Saccharum fuscum</i> Roxb.			Ikri	India	Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967)	
<i>Saccharum officinarum</i> L.			Sugarcane	India Indonesia Madagascar Mauritius	Ghosh (1921, 1925), Isaac (1940), Kapur (1950, 1967), Jepson (1954) De Joannis (1913) Frappa (1935) Moutia (1934)	
<i>Saccharum spontaneum</i> L.			Rahri, batri	India	Fletcher and Ghosh (1920), Kapur (1950, 1967), Jepson (1954)	
<i>Zea mays</i> L.			Maize	Costa Rica El Salvador Guatemala Mauritius Mexico Netherlands Nicaragua West Indies	Box (1956), Kapur (1967) Box (1956), Kapur (1967) Box (1956), Kapur (1967) Moutia (1934) Box (1956), Kapur (1967) Box (1956), Kapur (1967) Box (1956), Kapur (1967) Kevan (1943, 1944), Kapur (1967)	

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Chilo suppressalis</i> (Walker)	Araceae	<i>Colocasia antiquorum</i> Schott [= <i>Colocasia esculenta</i> (L.) Schott] [= <i>Caladium esculenta</i> Vent.]	Taro	Japan	Kiritani and Oho (1962)
	Cruciferae	<i>Brassica campestris</i> L. <i>Raphanus sativus</i> L. var. <i>acanthiformis</i>	Chinese cabbage Garden radish	Japan Japan	Kiritani and Oho (1962) Kiritani and Oho (1962)
	Cyperaceae	<i>Cyperus digitatus</i> Roxb. <i>Scirpus grossus</i> L. f.	Sedge	Malaysia Malaysia	Lever (1955a) Lever (1955a), Singh (1971)
	Poaceae	<i>Coix lachryma-jobi</i> L.	Job's tears	Iran Japan Malaysia	Rezwany and Schahosseini (1977) Kuwana (1929) Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Coix lachryma-jobi</i> var. <i>aquatica</i> Roxb.		India	Fletcher (1920)
		<i>Coix</i> sp.		Philippines	Gabriel (1975)
		<i>Echinochloa colona</i> (L.) Link		Malaysia	Singh (1971)
		<i>Echinochloa crus-galli</i> (L.) P. Beauv. var. <i>cruspavanis</i>	Barnyard grass	Hawaii-USA	Illingworth (1928)
		<i>Echinochloa crus-galli</i> (L.) P. Beauv. [= <i>Panicum crus-galli</i> L.]	Barnyard grass	Iran	Rezwany and Schahosseini (1977)
		<i>Echinochloa</i> sp.		Hawaii-USA	Van Zwaluwenberg (1926), Djamin (1966), Banerjee and Pramanik (1967), Kung (1971)
		<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Malaysia	Singh (1971)
		<i>Eriochloa procera</i> (Retz.) C. E. Hubb. [= <i>Eriochloa annulata</i> Kunth]		Malaysia	Singh (1971)
		<i>Ischaemum rugosum</i> Salisb. [= <i>Ischaemum alkoense</i> Honda]		Malaysia	Entomology Division, Department of Agri- culture. Sarawak (1966)
		<i>Ischaemum timorense</i> Kunth		Malaysia	Singh (1971)
		<i>Miscanthus sinensis</i> Anders.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Oryza latifolia</i> Desv.		Philippines Japan	Gabriel (1975) Tanaka (1928), Jepson (1954), Kapur (1967), Kung (1971)
				Malaysia	Grist and Lever (1969), Kapur (1967), Van Vreden and Ahmadzabidi (1986)
		<i>Oryza minuta</i> J. C. Presl ex C.B. Presl		Malaysia	Grist and Lever (1969), Singh (1971)
		<i>Oryza ridleyi</i> Hook. f.		Malaysia	Van and Goh (1959), Grist and Lever (1969)
		<i>Panicum auritum</i> Presl ex Nees <i>Panicum miliaceum</i> L.	Kibi, proso, broomcorn millet, common millet, hog millet	Malaysia China Japan	Singh (1971) Kung (1971) Kuwana (1929), Jepson (1954), Djamin (1966), Banerjee and Pramanik (1967), Kapur (1967), Kung (1971), Torii (1971b), Van Vreden and Ahmadzabidi (1986)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Malaysia	Grist and Lever (1969)
				Taiwan-China	Torii (1971b)
		<i>Panicum repens</i> L.		Malaysia	Singh (1971)
		<i>Paspalum punctatum</i> Burm.		Malaysia	Singh (1971)
		<i>Paspalum scrobiculatum</i> L.	Kodo millet,	Malaysia	Lever (1955a), Grist and
		[= <i>Paspalum commersonii</i> Lam.]	kodra millet		Lever (1969),
		[= <i>Paspalum orbiculare</i> Forst.]			Singh (1971)
		<i>Pennisetum glaucum</i> (L.) R. Br.	Pearl millet.	Philippines	Gabriel (1975)
		[= <i>Pennisetum typhoides</i> (Burm. f. Stapf and C. E. Hubb.)]	bulrush millet	India	Lefroy (1906)
		<i>Phragmites australis</i> (Cav.) Trin.	Common reed.	Japan	Kuwana (1929), Jepson
		[= <i>Phragmites communis</i> Trin.]	bogreed, giant		(1954), Djamin (1966),
		[= <i>Phragmites vulgaris</i> (Lam.) Crep.]	reed		Banerjee and
				Malaysia	Pramanik (1967), Kapur
					(1967), Kung (1971),
					Torii (1971b)
				Taiwan-China	Kuwana (1929), Jepson
					(1954), Djamin (1966),
					Banerjee and Pramanik
					(1967), Kapur (1967),
					Kung (1971)
		<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	Millet, markat	Malaysia	Grist and Lever (1969)
		[= <i>Arundo karka</i> Retz.]			
		<i>Pleioblastus simoni</i> (Carr.) Nakai	Medake bamboo	Japan	Kiritani and Oho (1962)
		<i>Polygonum Reynoutria</i> Makino		Japan	Fukaya and Kamano (1967)
		<i>Saccharum arundinaceum</i> Retz.	Kanra	India	Fletcher (1918)
		<i>Saccharum fuscum</i> Roxb.	Ikri	India	Fletcher (1918), Fletcher
					and Ghosh (1920),
					Kapur (1967), Kung
					(1971)
		<i>Saccharum officinarum</i> L.	Sugarcane	China	Kung (1971)
				India	Lefroy (1906), De Joannis
					(1913), Ghosh (1921),
					Ghai et al (1979)
		<i>Sacciolepis myosuroides</i> Ridl.		Malaysia	Singh (1971)
		<i>Setaria gracilis</i> H. B. K.		Malaysia	Lever (1955a), Singh
		[= <i>Setaria geniculata</i> (Lam.) P. Beauv.]			(1971)
		<i>Setaria pumila</i> (Poir.) Roem. and Schult.		Malaysia	Singh (1971)
		[= <i>Setaria rubiginosa</i> (Steud.) Miq.]			
		<i>Sorghum bicolor</i> (L.) Moench	Sorghum	India	Lefroy (1906), De Joannis
		[= <i>Andropogon sorghum</i> (L.) Brot.]			(1913), Fletcher (1917),
		[= <i>Sorghum vulgare</i> Pers.]			Jhaveri (1921),
					Ghai et al (1979)
				Spain	Seshu Reddy (1985)
		<i>Triticum vulgare</i> Villars	Wheat	Taiwan-China	Seshu Reddy (1985)
		<i>Vetiveria odorata</i> Virey		China	Kung (1971)
		<i>Zea mays</i> L.	Maize	Malaysia	Singh (1971)
				China	Kung (1971)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Zea</i> sp.		India	Lefroy (1906), De Joannis (1913), Fletcher (1916c, 1917), Ghai et al (1979), Fletcher (1917)
		<i>Zizania aquatica</i> L.		Malaysia	Lever (1955a), Grist and Lever (1969), Singh (1971)
				Philippines	Gabriel (1975)
				Spain	Seshu Reddy (1985)
				*Taiwan-China	Seshu Reddy (1985)
				Malaysia	Van Vreden and Ahmadzabidi (1986)
		<i>Zizania latifolia</i> (Griseb.) Turcz. ex Stapf	Water oat, makomo	China	Kuwana (1929), Kung (1971)
				Japan	Kuwana (1929), Jepson (1954), Djamin (1966), Banerjee and Pramanik (1967), Kapur (1967), Kung (1971)
				Malaysia	Grist and Lever (1969)
				Japan	Kiritani and Oho (1962), Torii (1971b), Hachiya (1981)
	Solanaceae	<i>Lycopersicon lycopersicum</i> (L.) Karsten [= <i>Lycopersicon esculentum</i> (L.) Mill.] [= <i>Solanum lycopersicum</i> (L.)]	Tomato	Taiwan-China	Torii (1971b)
		<i>Solanum melongena</i> L.	Eggplant	Iran	Ebert (1973)
	Typhaceae	<i>Typha latifolia</i> L.	Cat-tail, great reedmace	Japan	Tanaka (1928), Kuwana (1929), Jepson (1954), Djamin (1966), Kapur (1967), Banerjee and Pramanik (1967), Kung (1971), Torii (1971b)
				Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
<i>Chilo zacconius</i> Bleszynski		<i>Echinochloa pyramidalis</i> (Lam.) Hitchc. and A. Chase		Taiwan-China	Torii (1971b)
		<i>Panicum maximum</i> Jacq.	Guinea grass	Southern Ghana	Sampson and Kumar (1986a)
		<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton [= <i>Rottboellia exaltata</i> L. f.]		Southern Ghana	Sampson and Kumar (1986a)
		<i>Saccharum officinarum</i> L.	Sugarcane	Southern Ghana	Sampson and Kumar (1982, 1986a)
		<i>Zea mays</i> L.	Maize	Southern Ghana	Sampson and Kumar (1982, 1986a)
<i>Diatraea saccharalis</i> (Fabricius)	Cyperaceae	<i>Cyperus distans</i> L. f.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Cyperus luzulae</i> Rottb. ex Willd.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Cyperus rotundus</i> L.	Coco grass	Venezuela	Paredes and de J. Angeles (1966)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Eleocharis geniculata</i> (L.) Roem. and Schult. [= <i>Eleocharis caribaea</i> (Rottb.) S. F. Blake]		Haiti	Myers (1932)
		<i>Scirpus grossus</i> L. f.		Malaysia	Pagden (1932)
		<i>Scleria bracteata</i> Cav.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Scleria pterota</i> Presl		Venezuela	Paredes and de J. Angeles (1966)
	Poaceae	<i>Andropogon glomeratus</i> (Walt.) B. S. P.	Broom sedge, bushy beard grass	USA	Jones and Bradley (1924), Douglas and Ingram (1942), Kapur (1967)
		<i>Andropogon muricatus</i> L. f. [= <i>Vetiveria zizanioides</i> (L.)] Nash ex Small	Vetiveria	Venezuela USA	Myers (1932) Holloway et al (1928), Myers (1932), Jepson (1954), Kapur (1967)
		<i>Andropogon schoenanthus</i> L. [= <i>Cymbopogon schoenanthus</i> Spreng.]	Lemon grass	Venezuela Cuba	Myers (1932) Plank (1929a), Myers (1932), Jepson (1954), Kapur (1967)
		<i>Andropogon sorghum</i> var. <i>sudanense</i> (Piper) Hitchc.	Sudan grass	French Antilles Venezuela USA	D' Aguilar and Bonfils (1962) Myers (1932) Holloway et al (1928), Douglas and Ingram (1942)
		<i>Andropogon</i> sp.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Axonopus capillaris</i> (Lam.) Chase		Venezuela	Box (1931), Myers (1932)
		<i>Axonopus compressus</i> (Sw.) P. Beauv.	Bermuda grass	Brazil West Indies	Myers (1932) Box (1935b), Jepson (1954), Kapur (1967)
		<i>Brachiaria mutica</i> (Forssk.) Stapf [= <i>Panicum purpurascens</i> Raddi] [= <i>Brachiaria purpurascens</i> (Raddi) Henr.] [= <i>Panicum barbinode</i> Trin.]	Para grass	USA	Jones and Bradley (1924), Holloway et al (1928), Myers (1932), Douglas and Ingram (1942), Jepson (1954), Kapur (1967)
		<i>Brachiaria plantaginea</i> (Link.) Hitchc.		Venezuela	Myers (1932), Angeles et al (1960), Paredes and de J. Angeles (1966)
		<i>Cenchrus echinatus</i> L.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Cenchrus</i> sp.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Chloris polydactyla</i> (L.) Sw.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Coix lachryma-jobi</i> L.	Job's tears	Puerto Rico Venezuela	Quintana-Muniz and Walker (1970a,b) Box (1931), Myers (1932), Kapur (1967)
		<i>Cymbopogon citratus</i> (DC.) Stapf	Lemon grass	Puerto Rico Venezuela	Quintana-Muniz and Walker (1970a,b) Paredes and de J. Angeles (1966)
		<i>Cymbopogon nardus</i> (L.) Rendle	Serch	Puerto Rico	Quintana-Muniz and Walker (1970a,b)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Diectomis fastigiata</i> (Sw.) Kunth		Venezuela	Paredes and de J. Angeles (1966)
		<i>Digitaria microbachne</i> (Presl) Henr. [= <i>Digitaria horizontalis</i> Willd. <i>non</i> Ohwi]		Venezuela	Paredes and de J. Angeles (1966)
		<i>Echinochloa colona</i> (L.) Link	Jungle grass, jungle rice	Cuba	Plank (1929a), Myers (1932), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932), Angeles et al (1960), Paredes and de J. Angeles (1966)
		<i>Echinochloa crus-pavonis</i> (H. B. K.) Schult.		South America	Myers (1935b)
		<i>Echinochloa pyramidalis</i> (Larn.) Hitchc. and A. Chase		Surinam	Hummelen (1974)
		<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Cuba	Plank (1929a), Myers (1932), Jepson (1954), Kapur (1967)
				Puerto Rico	Quintana-Muniz and Walker (1970a,b)
				Venezuela	Myers (1932), Paredes and de J. Angeles (1966)
		<i>Eleusine</i> sp.		French Antilles	D'Aguilar and Bonfils (1962)
		<i>Eragrostis maypurensis</i> (H. B. K.) Steud.		South America	Myers (1935b)
		<i>Eriochloa annulata</i> (Fluegge) Kunth		Malaysia	Pagden (1932)
		<i>Gynerium sagittatum</i> (Aubl.) Beauv.		Puerto Rico	Quintana-Muniz and Walker (1970a,b)
		<i>Hackelochloa granularis</i> (L.) O. Kuntze		Venezuela	Paredes and de J. Angeles (1966)
		<i>Holcus sudanensis</i> (Piper) Bailey	Sudan grass	Cuba	Plank (1929a), Jepson (1954), Kapur (1967)
		<i>Hymenachne acutigluma</i> (Steud.) [= <i>Hymenachne amplexicaulis</i> (Rudge) Nees]	Gilliland	Orinoco delta	Myers (1932), Jepson (1954), Kapur (1967)
				Puerto Rico	Quintana-Muniz and Walker (1970a,b)
				Venezuela	Myers (1932), Paredes and de J. Angeles (1966), Kapur (1967)
		<i>Hymenachne auriculata</i> (Wad.) Chase [= <i>Hymenachne donacifolia</i> (Raddi) Chase]		Guyana	Myers (1932), Jepson (1954), Kapur (1967)
				Haiti	Myers (1932), Jepson (1954), Kapur (1967)
		<i>Hymenachne</i> sp.		South America	Myers (1935b)
				Surinam	Hummelen (1974)
		<i>Hyparrhenia rufa</i> (Nees) Stapf		Venezuela	Paredes and de J. Angeles (1966)
		<i>Leptochloa panicea</i> (Retz.) Ohwi [= <i>Leptochloa filiformis</i> (Lam.) Beauv.]	Red sprangletop	USA	Holloway et al (1928), Douglas and Ingram (1942)
		<i>Leptochloa mucronata</i> (Michx.) Kunth		USA	Holloway et al (1928), Myers (1932)
				Venezuela	Myers (1932)
		<i>Leptochloa panicoides</i> Wight ex Steud. [= <i>Arundinella leptochloa</i> (Nees) Hook. f.]		South America	Myers (1935b)
		<i>Leptochloa scabra</i> Nees		Puerto Rico	Quintana-Muniz and Walker (1970a,b)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Leptochloa virgata</i> (L.) Beauv.		Cuba	Plank (1929a), Myers (1932), Jepson (1954), Kapur (1967)
		<i>Luziola spruceana</i> Benth. ex Doell		Venezuela	Myers (1932)
				Haiti	Myers (1932, 1935b)
				South America	Myers (1935b)
		<i>Oryza latifolia</i> Desv.	Wild rice	Venezuela	Myers (1932)
				South America	Myers (1935b)
				Venezuela	Myers (1932), Jepson (1954), Kapur (1967), Paredes and de J. Angeles (1966)
		<i>Oryza perennis</i> Moench		Venezuela	Paredes and de J. Angeles (1966)
		<i>Panicum densum</i> Muhl.		Venezuela	Myers (1932)
		<i>Panicum dichotomiflorum</i> (L.) Michx.		USA	Jones and Bradley (1924), Myers (1932), Douglas and Ingram (1942), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932)
		<i>Panicum elephantipes</i> Nees		South America	Myers (1932, 1935b), Jepson (1954), Kapur (1967)
		<i>Panicum grande</i> Peter		USA	Jones and Bradley (1924), Kapur (1967)
				Venezuela	Myers (1932), Kapur (1967)
		<i>Panicum gymnocarpon</i> Ell.		USA	Jones and Bradley (1924), Myers (1932), Douglas and Ingram (1942), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932)
		<i>Panicum maximum</i> Jacq.	Guinea grass	French Antilles	D'Aguilar and Bonfils (1962)
				Puerto Rico	Quintana-Muniz and Walker (1970a,b)
				Venezuela	Paredes and de J. Angeles (1966)
		<i>Paspalidium geminatum</i> (Forssk.) Stapf [= <i>Panicum geminatum</i> Forssk.]		Haiti	Myers (1932), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932)
		<i>Paspalum densum</i> Poir.		Antilles, Orinoco	Myers (1932), Jepson (1954), Kapur (1967)
				USA	Jones and Bradley (1924), Myers (1932)
		<i>Paspalum fasciculatum</i> Willd. ex Fluegge	Tall grass	South America	Myers (1935b)
				Venezuela	Myers (1932), Jepson (1954), Angeles et al (1960), Paredes and de J. Angeles (1966), Kapur (1967)
		<i>Paspalum paniculatum</i> Walt.		French Antilles	D'Aguilar and Bonfils (1962)
		<i>Paspalum millegrama</i> Schrad.		French Antilles	D'Aguilar and Bonfils (1962)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Paspalum plicatum</i> Michx.		French Antilles	D' Aguilar and Bonfils (1962)
				Puerto Rico	Quintana-Muniz and Walker (1970a,b)
				Venezuela	Angeles et al (1960), Paredes and de J. Angeles (1966)
		<i>Paspalum repens</i> Berg.		Guyana	Myers (1932), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932), Jepson (1954), Kapur (1967)
		<i>Paspalum secans</i>		South America	Myers (1935b)
		Hitchc. and A. Chase		Puerto Rico	Quintana-Muniz and Walker (1970a,b)
		<i>Paspalum</i> sp.		Puerto Rico	Graywood Smyth (1919)
		<i>Paspalum urvillei</i> (Steud.)	Vasey grass	USA	Jones and Bradley (1924), Myers (1932), Douglas and Ingram (1942), Jepson (1954), Kapur (1967)
				Venezuela	Myers (1932)
		<i>Paspalum virgatum</i> L.		French Antilles	D' Aguilar and Bonfils (1962)
				Puerto Rico	Quintana-Muniz and Walker (1970)
				Surinam	Hummelen (1974)
				USA	Jones and Bradley (1924), Myers (1932)
				Venezuela	Myers (1932, 1935b), Angeles et al (1960), Paredes and de J. Angeles (1966)
		<i>Pennisetum latifolium</i> Spreng.		French Antilles	D' Aguilar and Bonifils (1962)
		<i>Pennisetum purpureum</i> (K.) Schumach.	Napier grass, elephant grass	Antigua	Box (1935b), Jepson (1954), Kapur (1967)
				Puerto Rico	Wolcott (1924), Jepson (1954), Kapur (1967), Quintana-Muniz and Walker (1970a,b)
				Venezuela	Paredes and de J. Angeles (1966), Angeles et al (1960)
				Virgin Islands-USA	Box (1935b), Jepson (1954), Kapur (1967)
		<i>Pseudechinolaena polystachya</i> (H. B. K.) Stapf		Guyana	Myers (1932), Jepson (1954), Kapur (1967)
		[= <i>Echinochloa polystachya</i> (H. B. K.) Hitchc.]		South America	Myers (1935b)
				Venezuela	Myers (1932), Jepson (1954), Kapur (1967)
		<i>Rhynchelytrum repens</i> (Willd.) C. E. Hubb.	Natal grass	Cuba	Plank (1929a), Myers (1932), Jepson (1964), Kapur (1967)
		[= <i>Tricholaena rosea</i> Nees]		Venezuela	Myers (1932)
		<i>Saccharum officinarum</i> L.	Sugarcane	Argentina	Myers (1935b), Jepson (1954), Kapur (1967), Hayward (1943)
				Brazil	Rosetto et al (1971)
				French Antilles	D' Aguilar and Bonfils (1962)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Malaysia	Pagden (1932)
				New World	Box (1948), Jepson (1954),
				Tropics	Kapur (1967)
				Peru	Wille (1932)
				Puerto Rico	Graywood Smyth (1919), Quintana-Muniz and Walker (1970a,b)
				Sri Lanka	Vinson (1942)
				Surinam	Hummelen (1974)
				USA	Holloway and Haley (1927), Holloway et al (1928), Douglas and Ingram (1942)
				Venezuela	Paredes and de J. Angeles (1966), Requena and de J. Angeles (1966)
		<i>Sacciolepis</i> sp.		Venezuela	Paredes and de J. Angeles (1966)
		<i>Setaria barbata</i> (Lam.) Kunth		French Antilles	D'Aguilar and Bonfils (1962)
		<i>Setaria pumila</i> (Poir.) Roem. and Schult. [= <i>Setariarubiginosa</i> (Steud.) Miq.]		Malaysia	Pagden (1932)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Andropogon sorghum</i> (L.) Brot.] [= <i>Sorghum vulgare</i> Pers.] [= <i>Holcus sorghum</i> L.]	Sorghum	Argentina	Hayward (1943)
				Brazil	Sauer (1939)
				French Antilles	D'Aguilar and Bonfils (1962)
				India	Seshu Reddy (1983)
				Puerto Rico	Graywood Smyth (1919), Quintana-Muniz and Walker (1970a,b)
				Venezuela	Angeles et al (1960)
		<i>Sorghum halepense</i> (L.) Pen. [= <i>Holcus halepensis</i> L.]	Johnson grass	Cuba	Plank (1929a), Myers (1932), Jepson (1954), Kapur (1967)
				USA	Jones and Bradley (1924), Holloway et al (1928), Myers (1932). Douglas and Ingram (1942)
				Venezuela	Myers (1932)
		<i>Tripsacum doctyloides</i> L.		Puerto Rico	Quintana-Muniz and Walker (1970a,b)
		<i>Tripsacum laxum</i> Nash	Guatemala grass	Argentina	Hayward (1943)
				Puerto Rico	Quintana-Muniz and Walker (1970a,b)
		<i>Triticum vulgare</i> Vill.	Wheat	Peru	Wille (1932), Sauer (1939)
		<i>Uniola paniculata</i> Roth		Venezuela	Paredes and de J. Angeles (1966)
		<i>Volota insularis</i> (L.) Chase	Sour grass	Cuba	Plank (1929a), Myers (1932), Jepson (1954), Kapur-(1967)
				Venezuela	Myers (1932)
		<i>Vetiveria zizanioides</i> (L.) Nash	Vetiver	USA	Holloway et al (1928), Douglas and Ingram (1942)
		<i>Zea mays</i> L.	Maize	Argentina	Hayward (1943), Jepson (1954)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Diopsis macrophthalma</i> Dalman				Brazil	Myers (1935b), D' Aguilar and Bonfils (1962)
				French Antilles	D' Aguilar and Bonfils (1962)
				Guyana	Myers (1935b), D' Aguilar and Bonfils (1962)
				Peru	Wille (1932), Jepson (1954), Kapur (1967)
				Puerto Rico	Graywood Smyth (1919), Quintana-Muniz and Walker (1970a,b)
				Surinam	Hummelen (1974)
				USA	Holloway and Haley (1927), Holloway et al (1928), Douglas and Ingram (1942), Box (1950a), Jepson (1954), Rolston (1955)
				Venezuela	Box (1947), Jepson (1954), Paredes and de J. Angeles (1966), Kapur (1967)
	Zingibe- raceae	<i>Curcuma longa</i>	Turmeric	Venezuela	Requena and de J. Angeles (1966)
	Cyperaceae	<i>Cyperus difformis</i> L.		Nigeria	Alghali (1979), Zan et al (1981)
	Poaceae	<i>Chloris pilosa</i> Schumach.		Cameroon	Descamps (1957a)
		<i>Cymbopogon giganteus</i> (Hochst.)		Cameroon	Descamps (1957a)
		<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nigeria	Alghali (1979), Zan et al (1981)
		<i>Dactyloctenium aegyptium</i> (L.) Willd.		Cameroon	Descamps (1957a)
		<i>Digitaria adscendens</i> H. B. K. Henr.		Cameroon	Descamps (1957a)
		<i>Echinochloa colona</i> (L.) Link	Jungle grass,	Cameroon	Descamps (1957a)
		<i>Echinochloa pyramidalis</i> (Lam.) Hitchc. and A. Chase	jungle rice	Cameroon	Descamps (1957a)
		<i>Echinochloa stagnina</i> (Retz.) P. Beauv.		Cameroon	Descamps (1957a)
		<i>Imperata cylindrica</i> (L.) P. Beauv.		Cameroon	Descamps (1957a)
		<i>Jardinea congoensis</i> Franch. ex Hack.		Cameroon	Descamps (1957a)
		<i>Leersia hexandra</i> Sw.		Cameroon	Descamps (1957a)
		<i>Oryza barthii</i> A. Chev.		Cameroon	Descamps (1957a)
		<i>Panicum repens</i> L.		Cameroon	Descamps (1957a)
		<i>Paspalum scrobiculatum</i> L. [= <i>Paspalum orbiculare</i> G. Forst.]	Kodo millet, kodra millet	Cameroon Nigeria	Descamps (1957a) Zan et al (1981)
		<i>Pennisetum pedicellatum</i> Trin.		Cameroon	Descamps (1957a)
		<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton [= <i>Rottboellia exaltata</i> L. f.]		Sierra Leone	Alghali and Domingo (1982)
		<i>Setaria barbata</i> (Lam.) Kunth		Cameroon	Descamps (1957a)
	<i>Setaria laxispica</i> Stapf		Cameroon	Descamps (1957a)	
	<i>Setaria sphacelata</i> (Schumach.) Stapf and C. E. Hubb.		Cameroon	Descamps (1957a)	
	<i>Setaria verticillata</i> (L.) P. Beauv.		Cameroon	Descamps (1957a)	
	<i>Urochloa lata</i> C. E. Hubb		Cameroon	Descamps (1957a)	

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Elasmopalpus lignosellus</i> (Zeller)	Cruciferae	<i>Brassica oleracea</i> var. <i>capitata</i> L.	Cabbage	Venezuela	Salinas (1976)
		<i>Raphanus sativus</i> L.	Radish	Venezuela	Salinas (1976)
	Cyperaceae	<i>Cyperus esculentus</i> L.		Brazil	Sauer (1939)
	Leguminosae	<i>Arachis hypogaea</i> L.	Peanut	USA	Luginbill and Ainslie (1917)
		<i>Cajanus cajan</i> (L.) Huth	Pigeon pea	Venezuela	Salinas (1976)
		<i>Dolichos lablab</i> L.	Hyacinth bean	Venezuela	Salinas (1976)
		<i>Phaseolus limensis</i> Macf.	Lima bean	Venezuela	Salinas (1976)
		<i>Phaseolus linearis</i> H. B. K.		Venezuela	Salinas (1976)
		<i>Phaseolus lunatus</i> L.		Venezuela	Salinas (1976)
		<i>Phaseolus</i> sp.	Bean	Peru	Wille (1942)
				USA	Isely and Miner (1944), Reynolds et al (1959)
		<i>Phaseolus vulgaris</i> L.	Common bean	Brazil	Schwarz et al (1978)
				USA	Luginbill and Ainslie (1944), Reynolds et al (1959)
		<i>Vigna sinensis</i> Endl.	Cowpea	Venezuela	Salinas (1976)
				USA	Luginbill and Ainslie (1944)
				Venezuela	Salinas (1976)
	Pedaliaceae	<i>Sesamum orientale</i> L. [= <i>Sesamum indicum</i> L.]	Sesame	Venezuela	Salinas (1976)
	Poaceae	<i>Avena sativa</i> L.	Oat	Venezuela	Salinas (1976)
		<i>Axonopus compressus</i> (Sw.) P. Beauv.		USA	Dupree (1964), Grist and Lever (1969)
		<i>Echinochloa crus-galli</i> (H. B. K.) Schult.		Venezuela	Salinas (1976)
		<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Cuba	Plank (1928)
				Trinidad	Box (1950a), Kapur (1967)
				USA	Dupree (1964), Grist and Lever (1969)
		<i>Fagopyrum esculentum</i> Moench		Venezuela	Salinas (1976)
		<i>Hordeum vulgare</i> L.		Venezuela	Salinas (1976)
		<i>Panicum maximum</i> Jacq.	Guinea grass	Venezuela	Salinas (1976)
		<i>Panicum</i> sp.		French Antilles	D' Aguilar and Bontils (1962)
		<i>Pennisetum</i> sp.		French Antilles	D' Aguilar and Bonfils (1962)
	<i>Saccharum officinarum</i> L.	Sugarcane	Brazil	Sauer (1939)	
			Cuba	Plank (1928)	
			French Antilles	D' Aguilar and Bonfils (1962)	
			Jamaica	Metcalfe (1966)	
			USA	Luginbill and Ainslie (1917)	
	<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Venezuela	Salinas (1976)	
			Brazil	Sauer (1939)	
			USA	Luginbill and Ainslie (1917), Reynolds et al (1959), Seshu Reddy (1985)	
	<i>Sorghum halepense</i> (L.) Pers.	Johnson grass	Venezuela	Salinas (1976)	
			USA	Luginbill and Ainslie (1917), Reynolds et al (1959)	
	<i>Sorghum sudanense</i> (Piper) Stapf		Venezuela	Salinas (1976)	

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Table 2 continued

Stem borer	Host plant			Country/continent	References	
	Family	Scientific name	Common name			
		<i>Sorghum vulgare</i> Pers. var. <i>technicum</i> (Koem.)		Venezuela	Salinas (1976)	
		<i>Trichachne insularis</i> (L.) Nees		Venezuela	Salinas (1976)	
		<i>Triticum aestivum</i> L.	Wheat	Brazil	Sauer (1939)	
				USA	Luginbill and Ainslie (1917)	
		<i>Valota insularis</i> (L.) Chase	Sour grass	Cuba	Plank (1928), Sauer (1939)	
		<i>Vigna radiata</i> L.	Cowpea	Malaysia	Grist and Lever (1969)	
				USA	Isely and Miner (1944)	
			Pea	Malaysia	Grist and Lever (1969)	
		<i>Zea mays</i> L.	Maize	Brazil	Jepson (1954), Kapur (1967), Sauer (1939)	
				USA	Luginbill and Ainslie (1917), Isely and Miner (1944), Reynolds et al (1959)	
	<i>Eldana saccharina</i> Walker	Cyperaceae	<i>Kyllingia</i> spp.		Venezuela	Salinas (1976)
					Kenya	Seshu Reddy (1983)
		Poaceae	<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	Kenya	Seshu Reddy (1983)
			<i>Lepturus repens</i> (Forst. f.) R. Br.		Nigeria	Harris (1962)
			<i>Pennisetum glaucum</i> (L.) R. Br.	Pearl millet,	Kenya	Seshu Reddy (1983)
[= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.]			bulrush millet	Kenya	Seshu Reddy (1983)	
<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton				Nigeria	Harris (1962)	
[= <i>Rottboellia exaltata</i> L. f.]				Southern Ghana	Sampson and Kumar (1982, 1986a)	
<i>Saccharum officinarum</i> L.			Sugarcane	Kenya	Seshu Reddy (1983)	
				Nigeria	Harris (1962), Jerath (1968)	
				Southern Ghana	Sampson and Kumar (1982, 1986a)	
				Tanzania	Nye (1960)	
				Uganda	Ingram (1958), Jerath (1968)	
			<i>Sorghum bicolor</i> (L.) Moench	Sorghum	Kenya	Ho and Seshu Reddy (1983), Seshu Reddy (1983)
			[= <i>Sorghum vulgare</i> Pers.]		Nigeria	Harris (1962)
			Uganda	Ingram (1958), Nye (1960)		
	<i>Zea mays</i> L.	Maize	Kenya	Ho and Seshu Reddy (1983), Seshu Reddy (1983)		
			Nigeria	Harris (1962), Kaufmann (1983)		
			Southern Ghana	Sampson and Kumar (1982, 1986a)		
<i>Maliarpha separatella</i> Ragonot	Poaceae	<i>Echinochloa holubii</i> (Stapf) Stapf		Uganda	Ingram (1958), Nye (1960)	
		<i>Sorghum bicolor</i> (L.) Moench	Sorghum	India	Ghai et al (1979)	
				Africa	Harris (1962), Ho and Seshu Reddy (1983), Seshu Reddy (1985)	
				India	Harris (1962), Sandhu and Ramesh Chander (1975), Ho and Seshu Reddy (1983), Ho et al (1983), Seshu Reddy (1985)	
		<i>Oryza barthii</i> A. Chev.		West Africa	Akinsola and Agyen-Sampong (1984)	

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Scirpophaga incertulas</i> (Walker)		<i>Oryza longistaminata</i> Chev. and Roerich		West Africa	Akinsola and Agyen-Sampong (1984)
		<i>Oryza punctata</i> Kotschy ex Steud.		West Africa	Akinsola and Agyen-Sampong (1984)
	Cyperaceae	<i>Saccharum officinarum</i> L.	Sugarcane	Loochoo Islands	Tanaka (1928)
		<i>Cyperus compactus</i> Retz.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus compressus</i> L.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus difformis</i> L.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus dubius</i> Rottb. [= <i>Cyperus kyllingaeoides</i>]		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus elatus</i> L.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus iria</i> L.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Cyperus rotundus</i> L.	Coco grass	India Indonesia	Arvind (1987) Soehardjan and Soegiarto (1975b)
		<i>Cyperus</i> spp.		Philippines	Otanes and Sison (1941)
		<i>Fimbristylis littoralis</i> Gaudich. [= <i>Fimbristylis miliacea</i> (L.) Vahl]		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Scirpus grossus</i> L.f.		Malaysia	Yunus (1967), Singh (1971)
		<i>Scirpus juncooides</i> Roxb.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Scirpus lateriflorus</i> J. F. Gmel.		Indonesia	Soehardjan and Soegiarto (1975b)
	Poaceae	<i>Andropogon odoratus</i> Auct. ex Steud.		India	Kasargode and Despande (1915), Fletcher and Ghosh (1920), Manickavasagar and Miyashita (1959), Banerjee and Pramanik (1967), Zaheruddeen and Prakasa Rao (1983c)
		<i>Axonopus compressus</i> (Sw.) P. Beauv.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Brachiaria miliiformis</i> (Presl) A. Chase		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Brachiaria mutica</i> (Forssk.) Stapf		Indonesia	Soehardjan and Soegiarto (1975b)
	<i>Coix lachryma-jobi</i> L.	Job's tears	India	Kasargode and Despande (1915), Fletcher and Ghosh (1920), Banerjee and Pramanik (1967), Zaheruddeen and Prakasa Rao (1983c)	
	<i>Cynodon dactylon</i> (L. C. Rich.) Pers.	Bermuda grass	India	Arvind (1987)	
			Indonesia	Soehardjan and Soegiarto (1975b)	
	<i>Digitaria sanguinalis</i> (L.) Scop.		Indonesia	Soehardjan and Soegiarto (1975b)	
	<i>Echinochloa colona</i> (L.) Link	Jungle rice	Indonesia	Soehardjan and Soegiarto (1975b)	
			Malaysia	Yunus (1967), Singh (1971)	

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Eleusine indica</i> (L.) Gaertn.		Malaysia	Yunus (1967), Singh (1971)
		<i>Eragrostis unioloides</i> (Retz.) Nees ex Steud.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Eriochloa procera</i> (Retz.) C. E. Hubb. [= <i>Eriochloa annulata</i> Kunth]		Malaysia	Yunus (1967), Singh (1971)
		<i>Ischaemum aristatum</i> L.		India	Kasargode and Despande (1915), Fletcher and Ghosh (1920). Trehan and Butani (1949), Manickavasagar and Miyashita (1959), Banerjee and Pramanik (1967), Zaheruddeen and Prakasa Rao (1983c)
		<i>Ischaemum timorense</i> Kunth		Malaysia	Yunus (1967)
		<i>Leersia hexandra</i> Sw.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Leptochloa chinensis</i> (L.) Nees		Philippines	Catindig et al (1988)
		<i>Leptochloa panicoides</i> (Presl) Hitch.		India	Zaheruddeen and Prakasa Rao (1983b,c,d)
		<i>Monochoria vaginalis</i> (Burm. f.) Presl	Water hyacinth	Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Oryza latifolia</i> Desv.		India	Zaheruddeen and Prakasa Rao (1983a,b,e)
		<i>Oryza glaberrima</i> Steud.		Malaysia	Yunus (1967)
				India	Zaheruddeen and Prakasa Rao (1983a,b,e)
		<i>Oryza nivara</i> Sharma and Shastri		India	Zaheruddeen and Prakasa Rao (1983a,b,e)
		<i>Oryza perennis</i> Moench		Madagascar	Appert (1967b)
		<i>Oryza rufipogon</i> Griff.		India	Zaheruddeen and Prakasa Rao (1983a,b,e)
		<i>Panicum auritum</i> Presl		Malaysia	Yunus (1967), Singh (1971)
		<i>Panicum repens</i> L.	Torpedo grass, panic rampant	Malaysia	Yunus (1967), Singh (1971)
		<i>Paspalum punctatum</i> Burm.		Malaysia	Yunus (1967), Singh (1971)
		<i>Paspalum scrobiculatum</i> L.	Kodo millet,	Indonesia	Soehardjan and Soegiarto (1975b)
		[= <i>Paspalum orbiculare</i> Forst.]	kodra millet		
		[= <i>Paspalum commersonii</i> Lam.]		Malaysia	Yunus (1967), Singh (1971)
		<i>Polytrias amauro</i> (Buse) O. Ktze.		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Saccharum officinarum</i> L.	Sugarcane	India	Ghosh (1921), Fletcher (1928), Ghai et al (1979)
				Malaysia	Yunus (1967), Singh (1971)
		<i>Sacciolepis myosuroides</i> (R. Br.) A. Camus		Malaysia	Yunus (1967), Singh (1971)
		<i>Sacciolepis myurus</i> (Lam.) A. Chase		Malaysia	Yunus (1967), Singh (1971)
		[= <i>Hymenachne myurus</i> (Lam.) Beauv.]			
		<i>Setaria barbata</i> (Lam.) Kunth		Indonesia	Soehardjan and Soegiarto (1975b)
		<i>Setaria pumila</i> (Poir.) Roem. and Schult.		Malaysia	Yunus (1967), Singh (1971)
		[= <i>Setaria rubiginosa</i> (Steud.) Miq.]			

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Tristachya leucothrix</i> Nees [= <i>Anthistiria ciliata</i>]		India	Kasargode and Despande (1915), Fletcher and Ghosh (1920), Manickavasagar and Miyashita (1959), Zaheruddeen and Prakasa Rao (1983c)
		<i>Triticum</i> sp.	Wheat	Myanmar	Shiraki (1917), Banerjee and Pramanik (1967), Manickavasagar and Miyashita (1959)
		<i>Vetiveria odorata</i> Virey		Malaysia	Yunus (1967), Singh (1971)
		<i>Zea mays</i> L.	Maize	Malaysia	Yunus (1967), Singh (1971)
<i>Scirpophaga innotata</i> (Walker)	Cyperaceae	<i>Cyperus rotundus</i> L. <i>Cyperus</i> sp.	Coco grass	India	Arvind (1987)
				India	Ghai et al (1979)
				Indonesia	Grist and Lever (1969)
				Malaysia	Van Vreden and Ahmadzabidi (1986)
	Poaceae	<i>Cynodon dactylon</i> (L. C. Rich) Pers. <i>Oryza australiensis</i> Domin	Bermuda grass	India	Arvind (1987)
		<i>Oryza rufipogon</i> Griff. <i>Saccharum officinarum</i> L.	Sugarcane	Australia	Common (1960), Li (1970), Banerjee and Pramanik (1967). Kapur (1967)
		<i>Imperata cylindrica</i> (L.) Beauv. var. <i>major</i> (Nees) C. E. Hubb [= <i>Imperata arundinacea</i> Cyr. var. <i>indica</i> Anderss.] <i>Ischaemum rugosum</i> Salisb.		India	Ghai et al (1979)
<i>Scirpophaga nivella</i> (Fabricius)	Poaceae	<i>Imperata cylindrica</i> (L.) Beauv. var. <i>major</i> (Nees) C. E. Hubb [= <i>Imperata arundinacea</i> Cyr. var. <i>indica</i> Anderss.] <i>Ischaemum rugosum</i> Salisb.		Indonesia	Grist and Lever (1969)
				Malaysia	Van Vreden and Ahmadzabidi (1986)
				Australia	Li (1970)
				India	Ghai et al (1979)
		<i>Miscanthus sinensis</i> Anderss.		Taiwan-China	Moritsugu (1931), Jepson (1954)
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.] <i>Saccharum arundinaceum</i> Retz.	Pearl millet, bulrush millet	Taiwan-China	Moritsugu (1931), Jepson (1954)
		<i>Saccharum officinarum</i> L.	Sugarcane	India	Fletcher and Ghosh (1920), Jepson (1954)
		<i>Saccharum officinarum</i> L.		China	Chan (1937)
		<i>Saccharum officinarum</i> L.		India	De Joannis (1913), Isaac (1934)
		<i>Saccharum officinarum</i> L.		Indonesia	De Joannis (1913)
		<i>Saccharum officinarum</i> L.		Loochoo Islands	Tanaka (1928)
		<i>Saccharum officinarum</i> L.		Pakistan	Carl (1962)
		<i>Saccharum officinarum</i> L.		Philippines	Matthysse (1957), Uichanco (1928), Jepson (1954)
		<i>Saccharum spontaneum</i> L.		India	Kapur (1950), Jepson (1954)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Sesamia botanophaga</i> Tams and Bowden	Cyperaceae	<i>Cyperus distans</i> L. f.		Pakistan	Carl (1962), Nagarkatti and Ramachandran Nair (1973)
		<i>Cyperus papyrus</i> L.		India Uganda	Rao and Nagaraja (1969) Ingram (1958)
	Poaceae	<i>Echinochloa pyramidalis</i> (Lam.) Hitchc. and A. Chase		India Uganda	Rao and Nagaraja (1969) Ingram (1958)
		<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	India Uganda	Rao and Nagaraja (1969) Ingram (1958), Seshu Reddy (1985)
		<i>Hemarthria compressa</i> (L. f.) R. Br. [= <i>Roetboellia compressa</i> L. f.]		India Uganda	Rao and Nagaraja (1969) Ingram (1958)
		<i>Pennisetum purpureum</i> (K.) Schumach.	Napier grass, elephant grass	Gold Coast India Uganda West Africa	Tams and Bowden (1953) Rao and Nagaraja (1969) Ingram (1958) Bowden (1976)
		<i>Rotboellia conchinchinensis</i> (Lour.) W. D. Clayton [= <i>Rotboellia exaltata</i> L. f.]		Gold Coast India West Africa	Tams and Bowden (1953) Rao and Nagaraja (1969) Bowden (1976)
		<i>Saccharum officinarum</i> L.	Sugarcane	Ghana	Tams and Bowden (1953), Rao and Nagaraja (1969), Appert (1964), Sampson and Kumar (1986a)
				Ivory Coast Nigeria	Appert (1964) Appert (1964), Harris (1964), Jerath (1960), Rao and Nagaraja (1969)
				Sudan Togo Uganda	Appert (1964) Appert (1964) Ingram (1958), Seshu Reddy (1985), Rao and Nagaraja (1969)
		<i>Setaria</i> sp.		West Africa	Bowden (1976), Seshu Reddy (1985)
		<i>Sorghum arundinaceum</i> (Desv.) Stapf		Gold Coast India West Africa	Tams and Bowden (1953) Rao and Nagaraja (1969) Bowden (1976)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Holcus sorghum</i> L.] [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Ghana Gold Coast India	Appert (1964) Tams and Bowden (1953) Rao and Nagaraja (1969), Bowden (1976), Seshu Reddy (1985)
				Ivory Coast Kenya Nigeria Sudan Togo Uganda	Appert (1964) Seshu Reddy (1983) Appert (1964) Appert (1964) Appert (1964) Ingram (1958), Bowden (1976), Seshu Reddy (1985)
				West Africa	Bowden (1976), Seshu Reddy (1985)
		<i>Sorghum rigidifolium</i> Stapf		India	Rao and Nagaraja (1969)
		<i>Sorghum verticilliflorum</i> (Steud.) Stapf		India Uganda	Rao and Nagaraja (1969) Ingram (1958)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Sesamia calamistis</i> Hampson		<i>Vossia cuspidata</i> (Roxb.) W. Griff.		India Uganda	Rao and Nagaraja (1969) Ingram (1958)
		<i>Zea mays</i> L.	Maize	Ghana Gold Coast India Ivory Coast Nigeria Sudan Togo Uganda West Africa	Appert (1964) Tams and Bowden (1953) Rao and Nagaraja (1969) Appert (1964) Harris (1962, 1964) Appert (1964) Appert (1964) Ingram (1958), Seshu Reddy (1985) Bowden (1976), Seshu Reddy (1985)
	Typhaceae	<i>Typha australis</i> Schum. and Thonn.		India Uganda	Rao and Nagaraja (1969) Ingram (1958)
	Cyperaceae	<i>Cyperus distans</i> L. f.		India Uganda	Rao and Nagaraja (1969) Ingram (1958), Rao and Nagaraja (1969)
		<i>Kyllingia</i> spp.		Kenya Tanzania Uganda	Nye (1960), Seshu Reddy (1983) Nye (1960), Seshu Reddy (1983) Ingram (1958), Nye (1960), Seshu Reddy (1983)
	Poaceae	<i>Andropogon muricatus</i> L. f. <i>Andropogon</i> sp.		Mauritius Africa Madagascar	Moutia (1934) Schmutterer (1977) Appert (1967b)
		<i>Beckeropsis unisetata</i> (Nees) Schum.		India Uganda	Rao and Nagaraja (1969) Ingram (1958), Rao and Nagaraja (1969)
		<i>Cenchrus echinatus</i> L.	Herbe cato	India Mauritius	Rao and Nagaraja (1969) D' Emmerez de Charmoy (1917), Moutia (1934), Kapur (1967), Rao and Nagaraja (1969), Schunutterer et al (1969)
		<i>Coix lachryma-jobi</i> L.	Job's tears	Africa India Madagascar Mauritius	Schunutterer (1977) Rao and Nagaraja (1969) Appert (1967b) D' Emmerez de Chamoy (1917), Moutia (1934), Kapur (1967), Rao and Nagaraja (1969), Schunutterer et al (1969)
		<i>Echinochloa haploclada</i> Stapf <i>Echinochloa pyramidalis</i> (Lam.) Hitchc. and A. Chase <i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	Kenya Southern Ghana India Kenya Nigeria Sudan Tanzania Uganda	Seshu Reddy (1983) Sampson and Kumar (1986a) Rao and Nagaraja (1969) Nye (1960), Seshu Reddy (1983, 1985) Harris (1962), Seshu Reddy (1985) Schunutterer et al (1969) Nye (1960), Seshu Reddy (1983, 1985) Ingram (1958), Nye (1960), Rao and Nagaraja (1969), Seshu Reddy (1985)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Eleusine</i> sp.		Madagascar	Appert (1967b)
		<i>Hemarthria compressa</i> (L. f.) R. Br. [= <i>Roetboellia compressa</i> L. f.]		Africa	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Hyparrhenia rufa</i> (Nees) Stapf		Africa	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Lepturus repens</i> (Forst. f.) R. Br.		Kenya	Nye (1960), Seshu Reddy (1983)
				Tanzania	Nye (1960), Seshu Reddy (1983)
				Uganda	Ingram (1958), Nye (1960), Seshu Reddy (1983)
		<i>Lolium</i> sp.	Rye grass	India	Rao and Nagaraja (1969)
				Mauritius	Moutia (1934). Schmutterer et al (1969)
		<i>Panicum maximum</i> Jacq.	Guinea grass	India	Rao and Nagaraja (1969)
				Kenya	Seshu Reddy (1983)
				Madagascar	Appert (1967b)
				Mauritius	D' Emmerez de Charmoy (1917), Moutia (1934). Kapur (1967), Rao and Nagaraja (1969), Schmutterer et al (1969)
				Nigeria	Harris (1962)
				Southern Ghana	Sampson and Kumar (1986a)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Paspalum conjugatum</i> Berg.		India	Rao and Nagaraja (1969)
		<i>Paspalum</i> sp.		Africa	Schmutterer (1977)
				Madagascar	Appert (1967b)
		<i>Paspalum urvillei</i> Steud.		India	Rao and Nagaraja (1969)
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> L.]	Pearl millet, bulrush millet	India	Rao and Nagaraja (1969)
		<i>Pennisetum purpureum</i> K. Schumach.	Napier grass, elephant grass	Nigeria	Harris (1962)
				Africa	Schmutterer (1977)
				Gold Coast	Tams and Bowden (1953), Kapur (1967), Rao and Nagaraja (1969)
				India	Rao and Nagaraja (1969)
				Kenya	Seshu Reddy (1983)
				Madagascar	Appert (1967b)
				Nigeria	Harris (1962)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Pennisetum subangulatum</i> (Schum.) Stapf and C. E. Hubb.		Africa	Schmutterer (1977)
		<i>Phalaris arundinacea</i> L.		India	Rao and Nagaraja (1969)
		<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton [= <i>Roetboellia exaltata</i> L. f.]		Africa	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Nigeria	Harris (1962)
				Southern Ghana	Sampson and Kumar (1986a)
		<i>Saccharum officinarum</i> L.	Sugarcane	Africa	Schmutterer (1977), Smith (1980)
				Ghana	Sampson and Kumar (1986a)
				Kenya	Seshu Reddy (1983, 1985)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Madagascar	Frappa (1935), Caresche and Rreniere (1962), Appert (1964, 1967b), Rao and Nagaraja (1969)
				Mauritius	D' Emmerez de Charmoy (1917), Moutia (1934), Williams and Mamet (1962), Kapur (1967), Rao and Nagaraja (1969), Schmutterer et al (1969)
				Nigeria	Harris (1962), Jerath (1968), Rao and Nagaraja (1969), Seshu Reddy (1985)
				Reunion	Bordage (1914), Caresche (1962), Williams and Mamet (1962), Rao and Nagaraja (1969)
				Senegal	Vayssiere and Mimeur (1925), Rao and Nagaraja (1969)
				South Africa	Van den Merwe (1937), Dick (1951), Rao and Nagaraja (1969)
				Sudan	Vayssiere and Mimeur (1925), Rao and Nagaraja (1969)
				Tanzania	Ritchie (1927), Tams and Bowden (1953), Nye (1960), Seshu Reddy (1985)
				Uganda	Ingram (1958), Le Pelley (1959), Rao and Nagaraja (1969), Seshu Reddy (1985)
				Zaire	Tams and Bowden (1953)
		<i>Setaria barbata</i> (Lam.) Kunth		India	Rao and Nagaraja (1969)
		<i>Setaria splendida</i> Stapf		Africa	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Nigeria	Hanis (1962)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Setaria</i> sp.	Herbe millet, herbe bamboo	Mauritius	Moutia (1934), Kapur (1967)
		<i>Sorghum arundinaceum</i> (Desv.) Stapf		Gold Coast	Tams and Bowden (1953), Kapur (1967), Rao and Nagaraja (1969)
				India	Rao and Nagaraja (1969)
				Kenya	Seshu Reddy (1983)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Andropogon sorghum</i> (L.) Brot.] [= <i>Holcus sorghum</i> L.] [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Africa	Smith (1980), Schmutterer (1977)
				India	Ho and Seshu Reddy (1983), Rao and Nagaraja (1969), Mathez (1972), Seshu Reddy (1983)
				Kenya	Nye (1960), Seshu Reddy (1985)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Madagascar	Appert (1967b)
				Nigeria	Harris (1962), Seshu Reddy (1985)
				Sudan	Schmutterer et al (1969)
				Tanzania	Nye (1960), Seshu Reddy (1985)
				Uganda	Ingram (1958), Nye (1960), Rao and Nagaraja (1969), Seshu Reddy (1985)
		<i>Sorghum halepense</i> (L.) Pers.	Johnson grass	West Africa	Appert (1964)
				Africa	Schmutterer (1977)
		<i>Sorghum verticilliflorum</i> (Steud.) Stapf		Madagascar	Appert (1967b)
				India	Rao and Nagaraja (1969)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Tripsacum laxum</i> Nash		India	Rao and Nagaraja (1969)
				Nigeria	Harris (1962)
		<i>Tripsacum</i> sp.		Africa	Schmutterer (1977)
		<i>Triticum</i> sp.	Wheat	Africa	Schmutterer (1977)
				Nigeria	Harris (1962)
		<i>Vetiveria zizanioides</i> (L.) Nash ex Small		India	Rao and Nagaraja (1969)
		<i>Vossia cuspidata</i> (Roxb.) W. Griff.		Africa	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Uganda	Ingram (1958), Rao and Nagaraja (1969)
		<i>Zea mays</i> L.	Maize	Africa	Schmutterer (1977), Smith (1980)
				India	Rao and Nagaraja (1969), Mathez (1972), Ho and Seshu Reddy (1983)
				Kenya	Nye (1960), Seshu Reddy (1983, 1985)
				Madagascar	Appert (1967b)
				Mauritius	Moutia (1934), Kapur (1967)
				Nigeria	Harris (1962), Kauffman (1983), Seshu Reddy (1985), Sampson and Kumar (1986a)
				Sudan	Schmutterer et al (1969)
				Tanzania	Ritchie (1927), Tams and Bowden (1953), Nye (1960), Seshu Reddy (1985)
				Togo	Dreyer (1987)
				Uganda	Ingram (1958), Rao and Nagaraja (1969), Seshu Reddy (1985)
				West Africa	Appert (1964)
				Zaire	Tams and Bowden (1953)
<i>Sesamia cretica</i> Lederer	Poaceae	<i>Avena sativa</i> L.	Oat	Africa	Tams and Bowden (1953), Rivnay (1962), Rao and Nagaraja (1969)
		<i>Hordeum sativum</i> Jess.	Barley	Africa	Tams and Bowden (1953), Rivnay (1962), Rao and Nagaraja (1969)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.]	Pearl millet, bulrush millet	Africa	Tams and Bowden (1953), Rivnay (1962), Rao and Nagaraja (1969)
		<i>Saccharum officinarum</i> L.	Sugarcane	Algeria Egypt Ethiopia Iran Iraq Morocco Saudi Arabia Somalia Sudan	Box (1953), Rao and Nagaraja (1969) Willcocks (1922), Chiaromonte (1948), Wade (1951), Rao and Nagaraja (1969), Schmutterer (1977) Schmutterer (1977) Schmutterer (1977) Wiltshire (1957), Rao and Nagaraja (1969), Schmutterer (1977) Box (1953), Rao and Nagaraja (1969) Schmutterer (1977) Box (1953), Rao and Nagaraja (1969), Schmutterer (1977) Schmutterer (1977), Seshu Reddy (1985)
		<i>Saccharum spontaneum</i> L.		Africa	Tams and Bowden (1953), Rivnay (1962), Rao and Nagaraja (1969)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Africa Egypt Somalia Somaliland Sudan	Tams and Bowden (1953), Rao and Nagaraja (1969) Chiaromonte (1948) Chiaromonte (1948) Jepson (1954) Chiaromonte (1948). Jepson (1954). Schmutterer (1977). Seshu Reddy (1985)
		<i>Sorghum halepense</i> (L.) Pers.		Africa	Tams and Bowden (1953), Rivnay (1962). Rao and Nagaraja (1969)
		<i>Triticum</i> sp.	Wheat	Africa	Tams and Bowden (1953). Rivnay (1962). Rao and Nagaraja (1969)
		<i>Zea mays</i> L.	Maize	Africa Egypt Ethiopia Iran Iraq Saudi Arabia Somalia Sudan	Tams and Bowden (1953). Rao and Nagaraja (1969) Chiaromonte (1948), Schmutterer (1977) Schmutterer (1977) Schmutterer (1977) Schmutterer (1977) Schmutterer (1977) Chiaromonte (1948), Schmutterer (1977) King (1929), Chiaromonte (1948)
<i>Sesamia epunctifera</i> Hampson	Poaceae	<i>Zea mays</i> L.	Maize	Malawi	Smee (1944), Jepson (1954)
<i>Sesamia inferens</i> (Walker)	Cyperaceae	<i>Coelorachis glandulosa</i> (Trin) Stapf ex Ridl.		Malaysia	Pagden (1932)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Cyperus digitatus</i> Roxb.		Malaysia	Lever (1955a), Wyatt (1957), Yunus (1967), Yunus and Hua (1980)
		<i>Cyperus japonicus</i> Makino	Sedge	Asia China	Schmutterer (1977) China (1936), Jepson (1954), Kapur (1967)
		<i>Cyperus rotundus</i> L.	Coco grass	India Malaysia	Rao and Nagaraja (1969) Areekul (1971), Van Vreden and Ahmadzabidi (1986)
		<i>Cyperus</i> sp.		India	Rao and Nagaraja (1969), Saxena and Roy (1970)
		<i>Scirpus grossus</i> L. f.		Malaysia India	Grist and Lever (1969) Rao and Nagaraja (1969), Ramachandran Nair et al (1971), Nagarkatti and Ramachandran Nair (1973)
				Malaysia	Pagden (1930, 1932), Lever (1955a), Kapur (1967), Yunus (1967), Rotschild (1971), Singh (1973)
		<i>Scirpus lacustris</i> L.		Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Scirpus maritimus</i> L.	Golmootha	Asia India	Schmutterer (1977) Fletcher and Ghosh (1920), Jepson (1954), Banerjee and Pramanik (1967), Kapur (1967), Rao and Nagaraja (1969)
		<i>Scirpus</i> sp.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
	Poaceae	<i>Cymbopogon nardus</i> (L.) Rendle [= <i>Andropogon nardus</i> L.]	Serch	Asia India	Schmutterer (1977) Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967), Rao and Nagaraja (1969)
		<i>Andropogon schoenanthus</i> L.	Lemon grass	Malaysia India	Areekul (1971) Fletcher (1920), Rao and Nagaraja (1969)
		<i>Avena sativa</i> L.	Oat	India	Banerjee and Pramanik (1967), Rao and Nagaraja (1969), Ramachandran Nair et al (1971), Nagarkatti and Ramachandran Nair (1973), Ghai et al (1979), Garg (1988)
		<i>Beckmannia erucaeformis</i> (L.) Hochst.	Minogome	Malaysia Asia India Japan	Grist and Lever (1969) Schmutterer (1977) Rao and Nagaraja (1969) Kuwana (1929), Jepson (1954), Kapur (1967)
		<i>Calamagrotis epigejos</i> Roth		India Taiwan-China	Rao and Nagaraja (1969) Shiraki (1917), Kapur (1967)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Coelorachis glandulosa</i> (Trin.) Stapf ex Ridl.		India Malaysia	Rao and Nagaraja (1969) Pagden (1932), Kapur (1967)
		<i>Coelorachis</i> sp.		Malaysia	Grist and Lever (1969)
		<i>Coix lachryma-jobi</i> L.	Job's tears	Malaysia	Areekul (1971)
		<i>Echinochloa colona</i> (L.) Link	Jungle grass, jungle rice	Malaysia	Pagden (1932), Yunus (1967), Areekul (1971), Singh (1973)
		<i>Echinochloa crus-galli</i> (L.) P. Beauv. [= <i>Panicum crus-galli</i> L.]	Barnyard grass	Asia China	Schmutterer (1977) China (1936), Jepson (1954), Kapur (1967)
		<i>Echinochloa frumentacea</i> Link [= <i>Panicum frumentaceum</i> Roxb.] [= <i>Echinochloa crus-galli</i> (L.) P. Beauv. var. <i>frumentacea</i> Link W. F. Wight]	Sema	India Pakistan Asia India	Rao and Nagaraja (1969) Carl (1962) Schmutterer (1977) Fletcher and Ghosh (1920), Kapur (1967), Garg and Tandon (1983), Garg (1988)
		<i>Echinochloa</i> sp.		Malaysia Malaysia	Jepson (1954), Areekul (1971) Van Vreden and Ahmadzabidi (1986), Grist and Lever (1969)
		<i>Echinochloa stagnina</i> (Retz.) P. Beauv.		India	Rao and Nagaraja (1969)
		<i>Eleusine coracana</i> (L.) Gaertn.	Finger millet, ragi	Asia India	Schmutterer (1977) Pagden (1930), Krishnamurti and Usman (1952), Banerjee and Pramanik (1967), Kapur (1967), Rao and Nagaraja (1969), Rajagopal and Channa Basavanna (1975), Ghai et al (1979), Garg and Tandon (1983), Garg (1988)
		<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Malaysia India Malaysia	Pagden (1930), Jepson (1954), Kapur (1967), Grist and Lever (1969), Areekul (1971), Yunus and Hua (1980), Seshu Reddy (1985) Saxena and Roy (1970) Pagden (1930, 1932), Yunus (1967), Singh (1971)
		<i>Eleusine</i> sp.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Eragrostis cilianensis</i> (All.) Lut. ex F. T. Hubb. [= <i>Eragrostis major</i> Host]		India Taiwan-China	Rao and Nagaraja (1969) Shiraki (1917), Kapur (1967)
		<i>Eragrostis</i> sp.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Erianthus arundinaceus</i> (Retz.) Jesw.		India	Rao and Nagaraja (1969)
		<i>Erianthus</i> sp.		India	Rao and Nagaraja (1969)

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Table 2 continued

Stemborer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Eriochloa procera</i> (Retz.)		India	Rao and Nagaraja (1969)
		C.E. Hub. [= <i>Eriochloa ramosa</i> (Retz.) O. Ktze.] [= <i>Eriochloa annulata</i> Kunth]		Malaysia	Pagdm (1932), Kapur (1967), Yunus (1967), Singh (1971), Yunus and Hua (1980)
		[= <i>Eriochloa polystachya</i> H. B. K.]			
		<i>Eriochloa villosa</i> (Thum.) Kunth		Asia	Schmutterer (1977)
				India	Rao and Nagaraja (1969)
				Japan	Kuwana (1929), Jepson (1954), Kapur (1967)
		<i>Hemarthria compressa</i> (L. f.)	Jove grass	Asia	Schmutterer (1977)
		R. Br. [= <i>Rottboellia compressa</i> (L. f.) R. Br.]		India	Banerjee and Pramanik (1967), Rao and Nagaraja (1969)
		<i>Hordeum sativum</i> Jess.	Barley	India	Fletcher and Ghosh (1920), Jepson (1954), Kapur (1967), Banerjee and Pramanik (1967), Ghai et al (1979), Seshu Reddy (1985)
		<i>Hordeum vulgare</i> L.	Barley	Asia	Schmutterer (1977)
				India	Rao and Nagaraja (1969), Garg (1988)
				Malaysia	Grist and Lever (1969)
		<i>Hymenachne myurus</i> (Lam.) Beauv.		Malaysia	Pagden (1932), Yunus (1967), Singh (1971)
		<i>Hymenachne</i> sp.		Malaysia	Pagden (1930, 1932), Grist and Lever (1969)
				India	Rao and Nagaraja (1969)
		<i>Ischaemum rugosum</i> Salisb.		India	Rao and Nagaraja (1969)
				Malaysia	Rotschild (1971)
				Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Ischaemum</i> sp.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Ischaemum timorense</i> Kunth		Malaysia	Pagden (1932), Yunus (1967), Singh (1971)
		<i>Miscanthus sinensis</i> Anders.		China	China (1936), Zhou and men (1985)
				India	Rao and Nagaraja (1969)
				Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Miscanthus</i> sp.		Malaysia	Grist and Lever (1969)
		<i>Oryza minuta</i> J. C. Presl ex C. B. Presl		Malaysia	Grist and Lever (1969)
		<i>Oryza lalifolia</i> Desv.		India	Rao and Nagaraja (1969)
				Malaysia	Pagden (1932), Kapur (1967), Yunus (1967), Singh (1973)
		<i>Panicum auritum</i> Presl		Malaysia	Pagden (1932), Yunus (1967), Singh (1971)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Panicum maximum</i> Jacq.	Guinea grass	Asia India	Schmutterer (1977) Fletcher and Ghosh (1920), Jepson (1954), Butani (1961), Kapur (1967), Banerjee and Pramanik (1967), Chatterji et al (1969), Rao and Nagaraja (1969). Rajagopal and Channa Basavanna (1975)
		<i>Panicum miliaceum</i> L.	Proso or brown corn millet	Malaysia India	Areekul (1971) Garg (1988)
		<i>Panicum repens</i> L.	Torpedo grass, panic rampant	Malaysia	Pagden (1930,1932), Yunus (1967), Singh (1971)
		<i>Panicum</i> sp.		Malaysia	Grist and Lever (1969)
		<i>Paspalum punctatum</i> Burm.		Malaysia	Pagden (1932), Yunus (1967), Singh (1971)
		<i>Paspalum scrobiculatum</i> L. [= <i>Paspalum commersonii</i> Lam.] [= <i>Paspalum osbiculare</i> Forst]	Kodo millet, kodra millet	Asia India	Schmutterer (1977) Jepson (1954), Rao and Nagaraja (1969), Garg (1988)
				Malaysia	Pagden (1930, 1932), Lever (1955a), Kapur (1967), Yunus (1967), Singh (1971)
				Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Paspalum</i> sp.		Malaysia	Van Vreden and Ahmadzabidi (1986), Grist and Lever (1969)
		<i>Paspalum thunbergii</i> Kunth ex Steud.		Asia India Japan	Schmutterer (1977) Rao and Nagaraja (1969) Kuwana (1929), Jepson (1954), Kapur (1967)
		<i>Pennisetum gloucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C.E. Hubb.]	Pearl millet. bulrush millet	India	Fletcher and Ghosh (1920). Kapur (1963) Rajagopal and Channa, Basavanna (1975)
		<i>Pennisetum</i> sp.		Asia	Schmutterer (1977)
		<i>Phragmites karka</i> (Retz.) TM. ex Steud.	Millet	Malaysia Asia India	Grist and Lever (1969) Schmutterer (1977) Fletcher and Ghosh (1920), Jhaveri (1921). Ayyar (1940), Krishnamurti and Usman (1952), Jepson (1954), Butani (1961), Banerjee and Pramanik (1967), Kapur (1967), Rao and Nagaraja (1969)
		<i>Phragmites</i> sp.		Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		<i>Polypogon fugax monspeliensis</i> (L) Desf. [= <i>Polypogon fugax</i> Nees ex Steud. <i>higagaweri</i>]		Asia Japan	Schmutterer (1977) Kuwana (1929), Jepson (1954), Kapur (1967)
		<i>Polypogon</i> sp.		Malaysia	Grist and Lever (1969)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	Referenes
	Family	Scientific name	Common name		
		<i>Rumex crispus</i> L.		China	China (1936), Jepson (1954), Kapur (1967)
		<i>Rumex</i> sp.	Giant lobelias	India	Rao and Nagaraja (1969)
		<i>Saccharum arundinaceum</i> Retz.	Kanra	Malaysia	Grist and Lever (1969)
				Asia	Schmutterer (1977)
				India	Fletcher and Ghosh (1920), Jepson (1954), Banerjee and Pramanik (1967), Kapur (1967), Schmutterer (1977)
		<i>Saccharum arundinaceum</i> var. <i>ciliaris</i>	Sar	Malaysia	Grist and Lever (1969)
		<i>Saccharum fuscum</i> Roxb.	Ikri	India	Jepson (1954), Banerjee and Pramanik (1967)
				Asia	Schmutterer (1977)
				India	Fletcher and Ghosh (1920), Jepson (1954), Banerjee and Pramanik (1967), Kapur (1967)
		<i>Saccharum officinarum</i> L.	Sugarcane	Malaysia	Grist and Lever (1969)
				Asia	Schmutterer (1977)
				Bangladesh	Catling and Alam (1977)
				China	Chan (1937), Rao and Nagaraja (1969)
				India	Hampson (1894), Fletcher (1913, 1917, 1918, 1927), De Joannis (1913), MacKenna (1919), Fletcher and Ghosh (1920), Khare (1921), Iyer (1922), Jepson (1954), Gupta and Gupta (1959), Butani (1961), Rao (1964c, 1965b), Venkataraman and Vasudeva Menon (1964), Banerjee and Pramanik (1967), Kapur (1967), Chatterji et al (1969), Rao and Nagaraja (1969), Saxena and Roy (1970), Rajagopal and Channa Basavanna (1975), Ghai et al (1979), Seshu Reddy (1985)
				Indonesia	De Joannis (1913), Hazelhoff (1929), Ruinard (1958), Rao and Nagaraja (1969)
				Japan	Watanabe (1932), Yamazaki (1937), Box (1953b), Rao and Nagaraja (1969)
				Loochoo Islands	Maki (1937), Yamazaki (1937), Yashiro (1940), Rao and Nagaraja (1969)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
				Malaysia	Pagden (1930,1932), Lever (1955a), Yunus (1967), Grist and Lever (1969), Rao and Nagaraja (1969), Areekul (1971), Singh (1971), Yunus and Hua (1980)
				Myanmar	Ghosh (1925), Rao and Nagaraja (1969)
				Pakistan	Ghouri (1960), Rao and Nagaraja (1969)
				Philippines	Woodworth (1922), Uichanco (1928), Otones and Sison (1941), Capco (1957), Matthyse (1957), Baltazar (1962), Rao and Nagaraja (1969)
				Sri Lanka	Vinson (1942), Rao and Nagaraja (1969)
				Taiwan-China	Watanabe (1932), Takano (1934), Yanagihara (1934), Takahashi (1938), Banerjee and Pramanik (1967), Rao and Nagaraja (1969)
				Thailand	Pholboon (1950), Rao and Nagaraja (1969)
				Vietnam	Duport (1913), Rao and Nagaraja (1969)
		<i>Saccharum</i> sp.		Malaysia	Van Vreden and Ahmadzabidi (1986)
		<i>Saccharum spontaneum</i> L.	Wild sugarcane	Asia	Schmutterer (1977)
				India	Fletcher and Ghosh (1920), Jepson (1954), Banerjee and Pramanik (1967), Rao and Nagaraja (1969)
				Malaysia	Schmutterer (1977), Yunus and Hua (1980)
				Taiwan-China	Shiraki (1917), Kapur (1967)
		<i>Sacciolepis myosuroides</i> (R. Br.) A. Camus		Malaysia	Pagden (1930,1932), Yunus (1967), Singh (1971)
		<i>Sacciolepis myurus</i> (Lam.) A. Chase [= <i>Hymenachne myurus</i> (Lam.) Beauv.]		Malaysia	Pagden (1932), Yunus (1967), Singh (1971)
		<i>Sacciolepis</i> sp.		India	Rao and Nagaraja (1969)
				Malaysia	Grist and Lever (1969)
		<i>Setaria italica</i> (L.) P. Beauv.	Italian millet, foxtail millet, Indian millet	Asia	Schmutterer (1977)
				Bangladesh	Catling and Alam (1977)
				India	Fletcher and Ghosh (1920), Jepson (1954), Butani (1961), Kapur (1967), Rao and Nagaraja (1969), Rajagopal and Channa Basavanna (1975), Ghai et al (1979), Seshu Reddy (1985)

continued on next page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Setaria pumila</i> (Poir.) Roem. and Schult. [= <i>Setaria rubiginosa</i> (Steud.) Miq.]		India	Rao and Nagaraja (1969)
		<i>Setaria</i> sp.		Malaysia	Pagden (1930,1932), Yunus (1967), Kapur (1967), Singh (1971), Yunus and Hua (1980)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Andropogon sorghum</i> (L.) Brot]. [= <i>Holcus sorghum</i> L.] [= <i>Sorghum vlgare</i> Pers.]	Sorghum	Asia India	Schmutterer (1977) Fletcher (1917), Fletcher (1918), Jhaveri (1921), Jepson (1954), Banerjee and Pramanik (1967), Kapur (1967), Rao and Nagaraja (1969), Rajagopal and Channa Basavanna (1975), Ghai et al (1979), Seshu Reddy (1985), Garg (1988)
		<i>Sorghum halepense</i> (L.) Pers.	Johnson grass	Kenya	Seshu Reddy (1983)
		<i>Sorghum sudanense</i> (Piper) Stapf	Sudan grass	Malaysia	Grist and Lever (1969), Areekul (1971)
		<i>Teosinte</i> sp.		Philippines	Gabriel (1975), Otanes and Sison (1941), Capco (1957), Baltazar (1962)
		<i>Triticum aestivum</i> L.	Wheat	India	Rao and Nagaraja (1969)
		<i>Triticum</i> sp.	Wheat	India	Rao and Nagaraja (1969)
				Asia	Schmutterer (1977)
				India	Garg (1988)
				India	Fletcher and Ghosh (1920), Jepson (1954), Butani (1961), Banerjee and Pramanik (1967), Kapur (1967), Chatterji et al (1969), Rao and Nagaraja (1969), Talgeri et al (1970), Ramachandran Nair et al (1971), Nagarkatti and Ramachandran Nair (1973), Rajagopal and Channa Basavanna (1975), Seshu Reddy (1985)
				Loochoo Islands Philippines	Yamazaki (1937) Baltazar (1962), Kapur (1967)
		<i>Triticum vulgare</i> Villars	Wheat	India	Fletcher and Ghosh (1920), Jepson (1954), Ghai et al (1979)
		<i>Vetiveria odorata</i> Virey		Malaysia	Pagden (1930,1932), Yunus (1967), Singh (1971)

continued on opposite page

Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
		<i>Zea mays</i> L.	Maize	Asia Bangladesh India	Schmutterer (1977) Catling and Alam (1977) De Joannis (1913), Fletcher (1917, 1918), Fletcher and Ghosh (1920), Jhaveri (1921), Jepson (1954), Butani (1961), Banerjee and Pramanik (1967), Kapur (1967), Talgeri (1969), Chatterji et al (1969), Rao and Nagaraja (1969), Rajagopal and Channa Basavanna (1975), Ghai et al (1979), Garg and Tandon (1983), Seshu Reddy (1985), Garg (1988)
				Loochoo Islands	Yamazaki (1937), Rotschild (1971)
				Malaysia	Pagden (1930, 1932), Jepson (1954), Lever (1955), Entomology Division, Department of Agriculture, Sarawak (1966), Kapur (1967), Yunus (1967), Grist and Lever (1969), Areekul (1971), Rotschild (1971), Singh (1971), Yunus and Hua (1980)
				Philippines	Uichanco (1928), Otones and Sison (1941, 1952), Capco (1957), Baltazar (1962), Kapur (1967), Gabriel (1975)
		<i>Zea</i> sp.		Malaysia	Van Vreden and Ahmadzabidi (1986)
		<i>Zizania latifolia</i> (Griseb.) Turcz. ex Stapf	Manchurian	Taiwan-China	Shiraki (1917), Kapur (1967)
				India	Rao and Nagaraja (1969)
				Pakistan	Carl (1962)
				Morocco	Miege (1921)
<i>Sesamia nonagrioides</i> (Lefebvre)	Typhaceae	<i>Typha angustata</i> Bory and Chaub.		Algeria	Surcouf (1912), Rao and Nagaraja (1969)
	Poaceae	<i>Avena sativa</i> L.	Oat	Morocco	Miege (1921), Rao and Nagaraja (1969)
		<i>Saccharum officinarum</i> L.	Sugarcane	Spain	Mendizabel-Villalba (1942), Rao and Nagaraja (1969)
		<i>Sorghum bicolor</i> L. Moench	Sorghum	Algeria	Surcouf (1912)
				Morocco	Miege (1921)
		<i>Triticum durum</i> Desf.	Macaroni, hard wheat	Morocco	Miege (1921)
		<i>Zea mays</i> L.	Maize	Algeria	Surcouf (1912)
				France	Tams and Bowden (1953), Seshu Reddy (1985)

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Table 2 continued

Stem borer	Host plant			Country/continent	References
	Family	Scientific name	Common name		
<i>Sesamia penniseti</i> Tams and Bowden	Poaceae	<i>Echinochloa pyramidalis</i> (Lam.) Hitchc. and A. Chase	Guinea grass	Iberian Peninsula	Tams and Bowden (1953)
				Morocco	Miege (1921)
		<i>Panicum maximum</i> Jacq.	Guinea grass	Southern Ghana	Sampson and Kumar (1986a)
				Nigeria	Harris (1962), Rao and Nagaraja (1969)
		<i>Pennisetum glaucum</i> (L.) R. Br. [= <i>Pennisetum typhoides</i> (Burm. f.) Stapf and C. E. Hubb.]	Pearl millet, bulrush millet	Southern Ghana	Tams and Bowden (1953), Rao and Nagaraja (1969), Sampson and Kumar (1986a)
				Nigeria	Harris (1962)
		<i>Pennisetum purpureum</i> K. Schumach.	Napier grass, elephant grass	Ghana	Tams and Bowden (1953), Rao and Nagaraja (1969)
				Gold Coast	Tams and Bowden (1953)
		<i>Rottboellia cochinchinensis</i> (Lour.) W. D. Clayton [= <i>Rottboellia exaltata</i> L. f.]	Sugarcane	Nigeria	Harris (1962), Rao and Nagaraja (1969)
				Uganda	Tams and Bowden (1953), Rao and Nagaraja (1969)
		<i>Saccharum officinarum</i> L.	Sugarcane	Southern Ghana	Sampson and Kumar (1986a)
				Nigeria	Harris (1962), Jerath (1968), Rao and Nagaraja (1969)
		<i>Setaria splendida</i>		Ghana	Tams and Bowden (1953), Rao and Nagaraja (1969)
				Nigeria	Harris (1962)
		<i>Sorghum bicolor</i> (L.) Moench [= <i>Sorghum vulgare</i> Pers.]	Sorghum	Uganda	Tams and Bowden (1953), Rao and Nagaraja (1969)
Ghana	Tams and Bowden (1953), Rao and Nagaraja (1969)				
<i>Zea mays</i> L.	Maize	Nigeria	Harris (1962), Rao and Nagaraja (1969)		
		Uganda	Tams and Bowden (1953), Rao and Nagaraja (1969), Seshu Reddy (1985)		
		West Africa	Seshu Reddy (1985)		
		Ghana	Tams and Bowden (1953), Harris (1962), Rao and Nagaraja (1969), Sampson and Kumar (1986a)		
		Nigeria	Tams and Bowden (1953), Harris (1962), Rao and Nagaraja (1969)		
		Uganda	Tams and Bowden (1953), Harris (1962), Rao and Nagaraja (1969)		

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Table 2 continued

Stem borer	Host plant			Country/continent	References	
	Family	Scientific name	Common name			
<i>Sesamia uniformis</i> Dudgeon	Poaceae	<i>Erianthus arundinaceus</i> (Retz.) Jesw.		India	Rao and Nagaraja (1969)	
		<i>Saccharum arundinaceum</i> Retz.	Kanra	India	Fletcher and Ghosh (1920), Jepson (1954)	
		<i>Saccharum fuscum</i> Roxb.	Ikri	India	Fletcher and Ghosh (1920), Jepson (1954)	
		<i>Saccharum officinarum</i> L.	Sugarcane	India	De Joannis (1913), Fletcher and Ghosh (1920), Khare (1921), Fletcher (1928), Jepson (1954), Rao (1964c) Rao and Nagaraja (1969)	
				Pakistan	Ghouri (1960), Rao and Nagaraja (1969)	
				Philippines	Woodworth (1922), Uichanco (1928), Rao and Nagaraja (1969)	
			<i>Saccharum spontaneum</i> L.		India	Fletcher and Ghosh (1920), Jepson (1954), Rao and Nagaraja (1969)
			<i>Sorghum bicolor</i> (L.) Moench	Sorghum	India	De Joannis (1913), Rao and Nagaraja (1969)
			<i>Triticum</i> sp.	Wheat	India	De Joannis (1913), Rao and Nagaraja (1969)
			<i>Zea mays</i> L.	Maize	India	De Joannis (1913), Rao and Nagaraja (1969)
<i>Diatraea lineolata</i> (Walker)	Poaceae	<i>Euchlaena mexicana</i> Schrad.	Teosinte	Guatemala Trinidad and Tobago	Painter (1955) Kevan (1944), Box (1950a), Jepson (1954), Seshu Reddy (1985)	
		<i>Saccharum officinarum</i> L.	Sugarcane	Mexico	Van Zwaluwenburg (1926)	
		<i>Tripsacum laxum</i> Nash.	Guatemala grass	Venezuela	Box (1951), Painter (1955)	
				Venezuela	Box (1951), Painter (1955)	
				West Indies	Box (1950a), Jepson (1954)	
			<i>Triticum</i> sp.		Venezuela	Box (1951), Painter (1955)
	<i>Zea mays</i> L.	Maize	Guatemala Trinidad and Tobago	Painter (1955) Kevan (1944)		

TABLE 3

Rice varieties resistant to stem borers

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
36/14 Kaskham	China	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
529f-Ng-11-3-1	— ^b	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
529f-Ng-11-3-2	—	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
698-71	—	<i>Rupela albinella</i>	Rambajan (1979), Heinrichs et al (1985a)
704-80	—	<i>Rupela albinella</i>	Rambajan (1979)
AC1368	India	Stem borers	Israel (1967)
AC1977	India	<i>Chilo suppressalis</i> Stem borers	Khush (1977) Israel (1967), Prakasa Rao (1977), Chaudhary et al (1984)
AC2117	India	Stem borers	Israel (1967)
AC2137	India	Stem borers	Israel (1967)
AC2150	India	Stem borers	Israel (1967)
AC250	India	Stem borers	Israel (1967)
AC3008	India	Stem borers	Israel (1967)
AC517	India	<i>Scirpophaga incertulas</i>	IRGC ^c database
AC536-313	India	Stem borers	Israel (1967)
AD9408 (IR20/IR8)	—	<i>Scirpophaga incertulas</i> <i>Scirpophaga</i> sp.	Subramanian and Jayaraman (1985) Saroja and Raju (1981b)
ADT1	India	<i>Scirpophaga incertulas</i> Stem borers	Velusamy et al (1975) Pawar et al (1959), Israel (1967), Chaudhary et al (1984)
ADT2	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT4	India	Stem borers	Israel (1967)
ADT5	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT6	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ADT7	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT8	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT10	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ADT11	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT13	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ADT14	India	Stem borers	Israel (1967), Prakasa Rao (1977), Chaudhary et al (1984)
ADT15	India	<i>Scirpophaga incertulas</i>	IRGC database
ADT17	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT18	India	<i>Chilo suppressalis</i>	Khush (1977)
ADT18	India	<i>Scirpophaga incertulas</i>	IRGC database
ADT21	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ADT22	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ADT24	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)

Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
ADT25	India	<i>Scirpophaga incertulas</i> Stem borers	Velusamy et al (1975) Pawar et al (1959), Israel (1967), Chaudhary et al (1984)
Aen Okam	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Agali	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Agniban	India	<i>Scirpophaga incertulas</i>	IRGC database
Aichi Asahi	Japan	<i>Chilo suppressalis</i> Stem borers	Khush (1977) Chaudhary et al (1984)
AICRIP111-17 (HPU 2181)	India	<i>Scirpophaga incertulas</i>	IRGC database
Ajab Beti	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Ajan 246	India	<i>Scirpophaga incertulas</i>	IRGC database
Ajirman	India	<i>Scirpophaga incertulas</i>	IRGC database
Alad Kumar	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Alas	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Alash	India	<i>Scirpophaga incertulas</i>	IRGC database
Amla	India	<i>Scirpophaga incertulas</i>	IRGC database
Ampek Tanjung	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Andaragahawewa	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Ang ay yuon	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Anga	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Angkei sang sao	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Angkok	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Angroeus	Cambodia	<i>Scirpophaga incertulas</i>	JRGC database
Anlong Phnom	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Ansormg Deuth	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Arah	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10217	India	Stem borers <i>Scirpophaga incertulas</i>	Shastry et al (1970, 1971), Chaudhary et al(1984)
ARC10257	India	<i>Scirpophaga incertulas</i>	Shastry et al (1971), Heinrichs et al (1985a)
ARC10259	India	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
ARC10300	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10331	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10346	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC10379	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971),, Chaudhary et al (1984)
ARC10386	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC10443	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), CRR I (1980a), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC10528	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC10539	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10598	India	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
ARC10642	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10692	India	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
ARC10784	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10788	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC10958	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC10971	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11209	India	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
ARC11261	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a), IRGC database Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC11296	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11310	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11311	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11313	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC11332	India	Stem borers	Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC11346	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11497	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11537	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC11591	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11637	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11685	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11693	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11703	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11713	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11716	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11726	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11744	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11799	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11966	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11979	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11981	India	<i>Sesamia inferens</i>	Garg (1984)
ARC11983	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC11991	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12008	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12012	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12015	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12024	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12026	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12029	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12039	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12047	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12089	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12092	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12094	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12097	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12109	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12120	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12162	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12163	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12164	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12168	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12171	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12173	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12177	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12180	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12319	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12387	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), IRGC database
ARC12501	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12505	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12548	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12576	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12586	India	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
ARC12588	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12591	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12598	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12602	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12604	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12605	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12610	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12613	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12615	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 12625	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 12629	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 127 18	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12720	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12721	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12724	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12745	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12830	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12859	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC12890	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13202	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13204	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13235	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13259	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13283	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13292	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13295	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13300	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13304	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13306	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13367	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC13840	India	Stem borers	CRR I (1980a)
ARC 14 137	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 14202	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC14340	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC14759	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC14945	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC14960	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15022	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15104	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15157	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15197	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15265	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15275	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15313	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15357	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15361	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 15373	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15379	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15394	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC 15409	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15422	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15432	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15639	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15671	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15759	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15788	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15814	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15850	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15866	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15896	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15929	India	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
ARC15935	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC15959	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC18312	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC18582	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC18603	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC18618	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC5752	India	<i>Chilo suppressalis</i>	Choi (1975b)
ARC5784	India	<i>Chilo suppressalis</i>	Choi (1975b)
ARC5920	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC6033	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1971), Chaudhary et al (1984)
ARC6045	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Akinsola (1973), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC6049	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Akinsola (1973) Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC6184	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC6603	India	Stem borers	Shastry et al (1970)
ARC6650	India	<i>Chilo suppressalis</i>	Choi (1975b)
ARC7037	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7052	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7054	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7072	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7080	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Akinsola (1973), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7090	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7098	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7099	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7103	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7104	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7108	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7119	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7125	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7131	India	<i>Scirpophaga incertulas</i>	IRGC database
ARC7132	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7137	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7312	India	<i>Scirpophaga incertulas</i> Stem borers	Shnstry et al (1971), Heinrichs et al (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
ARC7316	India	<i>Scirpophaga incertulas</i> Stem borers	Shastry et al (1971), Heinrichs (1985a) Shastry et al (1970, 1971), Chaudhary et al (1984)
Arjundhan	India	<i>Scirpophaga incertulas</i>	IRGC database
Arjunsail	India	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
AS2	India	Stem borers	Israel (1967)
AS3	India	Stem borers	Israel (1967)
Asahi	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Asahi No. 1	Japan	Stem borers	Chaudhary et al (1984)
ASD2	India	Stem borers	Pawar et al (1959), Israel (1967), Prakasa Rao (1977), Chaudhary et al (1984)
ASD4	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ASD5	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ASD6	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ASD7	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Velusamy et al (1975), Pongprasert et al (1975), Heinrichs et al (1985a)
ASD8	India	Stem borers <i>Chilo suppressalis</i> Stem borers	Khushand Beachell (1972), Alam et al (1979) Pathak et al (1971), Akinsola (1973) Pawar et al (1959), Israel (1967), Chaudhary et al (1984)
ASD9	India	Stem borers	Israel (1967)
ASD10	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ASD11	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
ASD12	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
ASD13	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
Ashkata	India	<i>Scirpophaga incertulas</i>	IRGC database
Ashni	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Assam Aus	India	<i>Scirpophaga incertulas</i>	IRGC database
Auda	India	<i>Scirpophaga incertulas</i>	IRGC database
Aus Balam	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a), IRGC database
Aus Jhari	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Ausdhan	India	<i>Scirpophaga incertulas</i>	IRGC database
Auspapri	India	<i>Scirpophaga incertulas</i>	IRGC database
Ayda	India	<i>Scirpophaga incertulas</i>	IRGC database
B1047B-PN-18-1-4	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
B1047d-Kn-51-3-2	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B189b-52-8-3-1	Indonesia	Stem borers	Alam et al (1979)
B1991b-Pn-43-4-1	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B2358-4-1-2-7	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B2360-11-3-4-6	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B2360-6-5-1-10	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
B2360-6-9-2-6-MR-2	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
B2360-8-9-5	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
B2378-4-5-IR-12	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B404-43 (PM)	Brazil	<i>Scirpophaga incertulas</i>	IRGC database
B459b-Pn-132-3-5	Indonesia	Stem borers	Alam et al (1979)
B643b-Pn-11-4	Indonesia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
B1087b-Pn-47-2-5	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B173h-Pn-40-1	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B189c-Kn-45-1-3	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B1991b-Pn-43-4-1	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B2149c(a)50546	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B2149c(c)50548	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B217 Basumathi	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
B452c-Kn-139-3-3	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B453b-22-5-3-3	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B539b-Kpj-1-2-4-2-4	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B539b-Kpj-1-2-5-2-4	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B539b-Kpj-1-3-5-3-2	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B57d-Ng-14-2-3	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B58 (IR36/Co13)	—	<i>Scirpophaga incertulas</i>	Subramanian and Jayaraman (1985)
B58d-Tg-64-2-2-1-2	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B629d-Pn-8-2-2	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B643b-Pn-11-4	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
B643b-Pn-47	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
B9b-Tk-23-5-5-2-2	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
Babo	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Bachhaikalma	India	<i>Scirpophaga incertulas</i>	IRGC database
Badshabhog	India	Stem borers	Banerjee (1951), Israel (1967), Alam et al (1979)
Badursail	India	<i>Scirpophaga incertulas</i>	IRGC database
Baiang	Indonesia	Stem borers	Viado and Matthyse (1955)
Baillo	—	<i>Chilo suppressalis</i>	Pathak (1967c)
Bak Cham Roeus	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Balalake	India	<i>Scirpophaga incertulas</i>	IRGC database
Balam	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Balamawee	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Balambachai	India	<i>Scirpophaga incertulas</i>	IRGC database
Balammota	India	<i>Scirpophaga incertulas</i>	IRGC database
Balasang	India	<i>Scirpophaga incertulas</i>	IRGC database
Ballatinao (Diket)	India	<i>Scirpophaga incertulas</i>	IRGC database
Banchur	India	<i>Scirpophaga incertulas</i>	IRGC database
Banla Phdao	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Banteas Phloulk P 57	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Banya	India	<i>Scirpophaga incertulas</i>	IRGC database
BAU157	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Bd5	India	Stem borers	Srivastava (1979), Chaudhary et al (1984)
Bd27	India	Stem borers	Srivastava (1979), Chaudhary et al (1984)
Bd98	India	Stem borers	Srivastava (1979), Chaudhary et al (1984)
Bd650	India	Stem borers	Srivastava (1979), Chaudhary et al (1984)
BE IT	India	<i>Scirpophaga incertulas</i>	IRGC database
Bei Kuor	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Benaful	India	<i>Scirpophaga incertulas</i>	IRGC database
Benama	India	<i>Scirpophaga incertulas</i>	IRGC database
Benisengoku	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Beo Rayak	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Betalga	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Beta repot	Bangladesh	<i>Scirpophaga incertulas</i>	Soehardjan and Leeuwangh (1972), Heinrichs et al (1985a)
BG90-2	Sri Lanka	<i>Diopsis macrophthalma</i>	Alghali and Osisanta (1982b)
BG367-3	Sri Lanka	<i>Sesamia inferens</i>	Saroja et al (1987b)
(BG-280-1-2/Pbb-33)			
BG399-1	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
BGDA7-3PE-1	India	<i>Scirpophaga incertulas</i>	IRGC database
Bhadoia	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Bhasmanik	India	Stem borers	Banerjee (1951), Israel (1967)
Bhatagurmatia	India	<i>Scirpophaga incertulas</i>	IRGC database
BIET820	India	<i>Scirpophaga incertulas</i>	IRGC database
Binar	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Binato	India	<i>Scirpophaga incertulas</i>	IRGC database
Binato (Diquit)	—	<i>Scirpophaga incertulas</i>	IRGC database
Binumay	—	<i>Scirpophaga incertulas</i>	IRGC database
Biplab	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Birco884	China	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Choi (1975b), Khush (1977)
		Stem borers	Alam et al (1979)
BJ1	India	<i>Chilo suppressalis</i>	Khush (1977)
		Stem borers	Israel (1967), Alam et al (1979)
BK3	India	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
BKN6652-249-5-1	Brazil	<i>Elasmopalpus lignosellus</i>	Heinrichs et al (1985a)
BKN6805-2-7	Thailand	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
		Stem borers	Chaudhary et al (1984)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
BKN6806-18-1-3	Thailand	Stem borers	Chaudhary et al (1984)
BKN6806-18-13	Thailand	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
BKN6806-18-72	Thailand	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
		Stem borers	Chaudhary et al (1984)
BKN6806-46-54	Thailand	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
	Thailand	Stem borers	Chaudhary et al (1984)
BKN6806-46-95	Thailand	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
		Stem borers	Chaudhary et al (1984)
BKN6914-63	Thailand	Stem borers	Chaudhary et al (1984)
BKNFR76003-12-0-1-1	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
Blue bonnet50	USA	Stem borers	CRRRI (1969)
Bmt53 R3536	USA	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
Bombilla	Brazil	<i>Scirpophaga incertulas</i>	IRGC database
Bomitog	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Boro II	Bangladesh	Stem borers	Israel (1967)
Boro IV	Bangladesh	Stem borers	Israel (1967)
Boro V	Bangladesh	Stem borers	Israel (1967)
Bow Pagal	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
BPI76*10/DAWN	India	<i>Scirpophaga incertulas</i>	IRGC database
BPI RI-2	Philippines	Stem borers	Bueno (1983a,b)
		<i>Scirpophaga incertulas</i>	IRGC database
BPI RI-4	Philippines	Stem borers	Bueno (1983a,b)
BPI3-2	Philippines	Stem borers	Bueno (1983a,b)
BPI76	Philippines	Stem borers	Bueno (1983a,b)
BR17	Philippines	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
BR2-29-2-8-1	Bangladesh	<i>Scirpophaga incertulas</i>	Prakasa Rao (1977)
BR224-2B-2-5	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
BR232-2B-3-4-HR19	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1987b)
BR232-2B-3-4-HR28	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1987b)
BR3	Bangladesh	Stem borers	Israel (1967)
BR308-B-2-3-HR-8	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1987b)
BR51-19B-2	Bangladesh	Stem borers	Alam et al (1979)
BR51-46-5	Bangladesh	Stem borers	Alam et al (1979)
BR40-39-1-3	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
BR51-196-2	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
BR51-26-10	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
BRJ1	Bangladesh	Stem borers	Alam et al (1979)
BRJ1-19B-11	Bangladesh	Stem borers	Alam et al (1979)
Brown Gora S.N. 43	India	<i>Scirpophaga incertulas</i>	IRGC database
Brown Gora S.N. 84	India	<i>Scirpophaga incertulas</i>	IRGC database
Buacao	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Bucayab	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Bugis Chelom	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Bukhaido	USSR	<i>Scirpophaga incertulas</i>	IRGC database
Bullilising (Diket)	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Buntut Semut Hitam	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
C12	Brazil	Stem borers	Bueno (1983a,b)
C168	Philippines	Stem borers	Bueno (1983a,b)
C409	Myanmar	<i>Chilo suppressalis</i>	Pathak (1972)
		<i>Diatraea saccharalis</i>	Martins et al (1977b), Heinrichs et al (1985a)
C ₄ -63	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
		Stem borers	Bueno (1983a,b)
C ₄ -137	Philippines	Stem borers	Bueno (1983a,b)
C20	Sudan	<i>Chilo suppressalis</i>	Choi (1975b)
		Stem borers	Alam et al (1979)
C409	Myanmar	<i>Chilo suppressalis</i>	Khush (1977)
C5565	Philippines	<i>Diopsis macrophthalma</i>	IITA (1978), Heinrichs et al (1985a)
C62-1-230	–	<i>Chilo suppressalis</i>	Choi (1975b)
C62-1-373	–	<i>Chilo suppressalis</i>	Choi (1975b)
Cabiteña	Philippines	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Camponi	–	<i>Rupela albinella</i>	Rambajan (1979), Heinrichs et al (1985a)
Camponi SML	Surinam	<i>Sesamia inferens</i>	Bhatt et al (1984)
Camuros Na Puti	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Candenavia	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Carmeling	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
CBI	India	Stem borers	Israel et al (1959), Israel (1967), CRRI (1969), Prakasa Rao (1977), Chaudhary et al (1984)
CB2	India	Stem borers	CRRI (1969)
Cempo Serang	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Cempo Unel	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Cere Air	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
CH47	India	Stem borers	Prakasa Rao (1977), Chaudhary et al (1984)
CH62	India	Stem borers	CRRI (1960)
Chaing an Tsao Pai Ku	–	<i>Chilo suppressalis</i>	Khush (1977)
Chaing Meanh	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Chakulia	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Chambok Dan	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Chamlak Tonsay	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Champou Pean	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Chamroecum	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Chandane Boso	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Chandina	Bangladesh	<i>Scirpophaga incertulas</i>	Rezaul Karim et al (1978)
Chaplo	Bangladesh	Stem borers	Khush (1977), Alam et al (1979)
Chautukalu	India	<i>Scirpophaga incertulas</i>	IRGC database
Chianan 2	Taiwan-China	Stem borers	Pawar et al (1959), Israel (1967). Chaudhary et al (1984)
		<i>Chilo suppressalis</i>	Pathak (1967c), Pathak (1972), Pathak and Saxena (1980), Heinrichs et al (1985a)
		<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i> , <i>Sesamia inferens</i>	IRRI (1970), Pathak et al (1971), Chang et al (1975), Chaudhary et al (1984)
Chiang-an-Tsao	China	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
Chiang-an-Tsao-Pai Ku	China	<i>Chilo suppressalis</i>	Pathak (1972)
		<i>Diatraea saccharalis</i>	Martins et al (1977b), Heinrichs et al (1985a)
Chiang-Li	China	<i>Chilo suppressalis</i>	Pathak (1967c)
Chianung-She-Yu 10	–	<i>Chilo suppressalis</i>	Choi (1975b)
Chianung-Shen-Yu 11	–	<i>Chilo suppressalis</i>	IRRI (1972), Choi (1975b)
China 3	–	Stem borers	Israel (1967)
China 4	India	Stem borers	Israel (1967), Chaudhary et al (1984)
China 22	China	Stem borers	Israel (1967)
China 25	China	Stem borers	Israel (1967)
China 29	China	Stem borers	Israel (1967)
China 42	China	Stem borers	Israel (1967)
China 47	–	<i>Chilo suppressalis</i>	Khush (1977)
		Stem borers	Pawar et al (1959), Israel (1967). Chaudhary et al (1984)
China 51	China	<i>Chilo suppressalis</i>	Khush (1977)
		Stem borers	Israel (1967)
Chin chin	–	<i>Rupela albinella</i>	Heinrichs et al (1985a)
Chinsurah Boro 1	India	<i>Scirpophaga incertulas</i>	IRGC database
Chittagong I	–	Stem borers	Alam et al (1979)
Chiu Shih Iri	Brazil	<i>Scirpophaga incertulas</i>	IRGC database
Choh-chang-san-hao	China	<i>Chilo suppressalis</i>	Pathak (1972)
Chosang Kogyando	Korea	Stem borers	Chaudhary et al (1984)
Chukyo-asahi	Japan	Stem borers	Chaudhary et al (1984)
Chunbonuk	Korea	<i>Chilo suppressalis</i>	Choi (1975b)
Chungur Bali	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
CI 5339	China	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
CI 6002-1	India Philippines	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Pongprasert et al (1975), Heinrichs et al (1985a)
CICA 4	Colombia	<i>Diatraea saccharalis</i> , <i>Rupela albinella</i> <i>Elasmopalpus lignosellus</i>	CIAT (1972, 1981) Heinrichs et al (1985a)
Cicik Beton	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Cicik Gundil	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
CN506-147-14-2	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CN547-1-9	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CN694-4-13	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CN695-2-17	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CN704-7-3	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CNBP220-226	India	<i>Scirpophaga incertulas</i>	IRGC database
CNBP301-4	India	<i>Scirpophaga incertulas</i>	IRGC database
CNM539	India	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
CO 1	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
CO 3	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
CO 4	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 5	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 7	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Chaudhary et al (1984)
CO 9	India	<i>Chilo suppressalis</i>	Choi (1975b)
CO 11	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 12	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 13	India	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Chang et al (1975), Choi (1975b), Khush (1977)
CO 15	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Chaudhary et al (1984)
CO 18	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Chandramohan and Chelliah (1983, 1984b), Heinrichs et al (1985a), IRGC database
		Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
CO 19	India	<i>Scirpophaga incertulas</i> Stem borers	Velusamy et al (1975), Heinrichs et al (1985a) Pawar et al (1959), Israel (1967), Chaudhary et al (1984)
CO 21	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Khush (1977) Chang Poon Min et al (1981), Chaudhary et al (1984), Heinrich et al (1985a), IRGC database
CO 22	India	<i>Scirpophaga incertulas</i>	Soejitno (1974), Khush (1977), Heinrichs et al (1985a)
CO 23	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
CO 25	India	<i>Scirpophaga incertulas</i> Stem borers	Velusamy et al (1975), Heinrichs et al (1985a) Pawar et al (1959), Israel (1967), Chaudhary et al (1984)
CO 26	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 27	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 28	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 30	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CO 32	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
CO 43(Dasal/IR20)	India	<i>Scirpophaga incertulas</i>	Subramanian and Jayaraman (1985)
Colombia II	Colombia	<i>Sesamia inferens</i>	Bhatt et al (1984)
Colombo	India	<i>Chilo suppressalis</i>	Choi (1975b)
CP12	India	Stem borers	Israel (1967)
CR10-4181-1	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
CR34-73-200	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
CR103	India	<i>Scirpophaga incertulas</i>	Prakasa Rao (1972b)
CR139-1001	India	Stem borers	CRR1 (1976b)
CR139-1047	India	<i>Scirpophaga incertulas</i> Stem borers	Prakasa Rao (1977) CRR1 (1976b)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
CR157-392-4	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Heinrichs et al (1978)
CR157-41-112	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Heinrichs et al (1985a) Prakasa Rao (1977)
CR189-62-15	India	Stem borers	Mathur (1977, 1979)
CR190-1	India	Stem borers	Mathur (1977, 1979)
CR191-4	India	Stem borers	Mathur (1977, 1979)
CR200-1	India	Stem borers	Mathur (1977, 1979)
CR256-30-211-2-708	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-151-224	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-151-81-2-710	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-163-238	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-167-247-179	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-176-1-702	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-228	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR260-30	India	Stem borers	Prakasa Rao and Gangadharan (1986b)
CR43-76	India	<i>Scirpophaga incertulas</i>	Khush (1977)
CR44-1	India	Stem borers	CRRI (1980a)
CR44-140-2-1051	India	<i>Scirpophaga incertulas</i>	IRGC database
CR94-13	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
CR57-MR 1526	India	<i>Scirpophaga incertulas</i>	CRRI (1980a)
CR90-MR	India	<i>Scirpophaga incertulas</i>	Prakasa Rao (1977)
CR94-MR	India	Stem borers	CRRI (1976b)
CR156-5021-207	India	<i>Scirpophaga incertulas</i>	IRGC database
CR203-1-717	India	<i>Scirpophaga incertulas</i>	IRGC database
CRM10-5747	–	<i>Scirpophaga sp.</i>	Saroja and Raju (1981b)
Cross 116	India	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
Ctg. 680	Bangladesh	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b), Heinrichs et al (1985a)
CUL 147	India	<i>Scirpophaga incertulas</i>	IRGC database
D13	India	<i>Chilo suppressalis</i>	Khush (1977)
D14	India	<i>Chilo suppressalis</i>	Khush (1977)
D204-1	India	<i>Chilo suppressalis</i> Stem borers	Choi (1975b) Alam et al (1979)
D241	India	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
Dabiao Bloe	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Damakum	–	<i>Chilo suppressalis</i>	Chang and Lee (1973)
Dambnoeub Theang	Cambodia Chek 2	<i>Scirpophaga incertulas</i>	IRGC database
Damnoeub Pras	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Damnoeub Pratas	Cambodia Roneap	<i>Scirpophaga incertulas</i>	IRGC database
Damnoeub Roley	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Damnoeub Rumduol	Cambodia (Tardif)	<i>Scirpophaga incertulas</i>	IRGC database
Damnoeub Sak	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Dang Ejah	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Daw Dawk Pow 48-3-123	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Daw Leauang 181	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Daw Nam-Man Wua	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Daw Pone	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
DCA6	–	Stem borers	Israel (1967)
DCA22	–	Stem borers	CRRI (1960)
DD48	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Chang et al (1975), Pathak and Khush (1975), Martins and Zimmermann (1976), Khush (1977), Martins (1983)
		<i>Diatraea saccharalis</i>	Martins and Zimmermann (1976). Martins (1983)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Dee-geo-woo-gen	Taiwan-China	Stem borers	Khush (1977)
Dendekkolon	Indonesia	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
Dhaliboro 94	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Dhola Digha	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
DI 3	Japan	Stem borers	Israel (1967)
DI 4	Japan	Stem borers	Israel (1967)
Dik Wee	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
Diket	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Dikwee	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
	Nigeria	<i>Scirpophaga incertulas</i>	Pongprasert et al (1975), Heinrichs et al (1985a)
Dingras	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Dissi hatif (73127)	Senegal	<i>Sesamia inferens</i>	Bhatt et al (1984)
Diwani	Guyana	<i>Diatraea saccharalis</i>	Lieuw Kie Song et al (1977)
	Surinam	<i>Rupela albinella</i>	
DM27	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
DNJ97	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Chang et al (1975), Choi (1975b), Khush (1977)
		<i>Scirpophaga incertulas</i>	Pongprasert et al (1975), Heinrichs et al (1985a)
DNJ146	Bangladesh	<i>Sesamia calamistis</i>	Soto and Siddiqi (1976b), Heinrichs et al (1985a)
DNJ171	Bangladesh	<i>Diopsis macrophthalma</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Sesamia calamistis</i>	Heinrichs et al (1985a)
Doli Khama	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Donangnovan	Laos	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Dose	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
DPI 1091/1-3	–	<i>Scirpophaga incertulas</i>	Balasubramanian et al (1986)
DV57	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
DV88	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Chang et al (1975), Khush (1977)
DV139	Bangladesh	<i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i>	Pathak et al (1971), Chang et al (1975)
		Stem borers	Alam et al (1979)
DW6255	India	<i>Scirpophaga incertulas</i>	IRGC database
DZ41	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Chang et al (1975), Khush (1977)
E-lub	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
E-pua Khao	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
E. L. Golpher	USA	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b). Heinrichs et al (1985a)
EK1240	–	<i>Scirpophaga incertulas</i>	Weerapat et al (1975)
		Stem borers	Chaudhary et al (1984)
EK1252	–	Stem borers	Alam et al (1979)
EK1253	–	Stem borers	Alam et al (1979)
EK1257	–	Stem borers	Alam et al (1979)
EK1259	–	Stem borers	Alam et al (1979)
EK1262	–	Stem borers	Alam et al (1979)
EK1263	–	Stem borers	Khush (1971), Khush and Beachell (1972), Alam et al (1979)
Ekka Seeya Paha	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
Elwee	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
EPJ1-6B-9	–	Stem borers	Alam et al (1979)
EPJ1-6B-16	–	Stem borers	Alam et al (1979)
EPJ1-9B-8	–	Stem borers	Alam et al (1979)
EPJ1-9B-21	–	Stem borers	Alam et al (1979)
Eswarakora	India	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference(s)
		<i>Scirpophaga incertulas</i>	Israel (1967), Weerapat et al (1975), Chaudhary et al (1984)
		Stem borers	Prakasa Rao (1977), Alam et al (1979), Chaudhary et al (1984)
Eunkoo 6	Korea	Stem borers	Chaudhary et al (1984)
FNAI-8-7-X-X	India	<i>Scirpophaga incertulas</i>	IRGC database
Fortuna	–	Stem borers	Viado and Matthyse (1955)
Foyah (AG 1-17)	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Foyeh (AG 1-46)	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Fusakushiraj-sai No. 7	Japan	Stem borers	Chaudhary et al (1984)
Fuzi 102	South Korea	<i>Sesamia inferens</i>	Garg (1984),
Gallano	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Gampaha Samba	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
Ganado	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Gangala	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
	India	<i>Scirpophaga incertulas</i>	Pongprasert et al (1975), Heinrichs et al (1985a)
Garia	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Garman	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Gbaikpai (D 21)	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
GEB24	India	<i>Scirpophaga incertulas</i>	Prakasa Rao (1972b), Velusamy et al (1975), Heinrichs et al (1985a)
		Stem borers	CRRI (1954a)
Gei Moi (Hoatong)	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Gerimas	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Ghora	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Gie Moi 1035	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Gin-Awa	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Ginanggang	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Ginatuday	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Ginbozu	Japan	Stem borers	Chaudhary et al (1984)
Ginmasari	Japan	<i>Chilo suppressalis</i>	Pathak (1972), Chang et al (1975)
Gobua	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Gochi	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Goia	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Gori	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Gouri Saita	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Goyal	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
GPL 1 “Jumbo”	Philippines	<i>Chilo suppressalis</i>	Khush (1977)
GPL 5	–	<i>Chilo suppressalis</i>	Khush (1977)
Grunangang	–	Stem borers	Viado and Matthyse (1955)
Guda	–	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Guinangang	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Gurjo Mukli	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
H4	Sri Lanka	<i>Scirpophaga incertulas</i>	Fernando (1967), Akinsola (1973), Velusamy et al (1975), Chaudhary et al (1984), Heinrichs et al (1985a)
H5	Sri Lanka	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Fernando (1967), Chaudhary et al (1984), Heinrichs et al (1985a)
H8	Sri Lanka	<i>Chilo suppressalis</i> , <i>Chilo zacconius</i> <i>Chilo zacconius</i>	IITA (1974), Soto and Siddiqi (1976b) IITA (1974), Heinrichs et al (1985a)
Habiganj 6	–	Stem borers	Shahjahan and Zakir Hussain (1975)
Habiganj Aman IV-HR 36	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1987b)
Habiganj Aman VIII	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Habiganj Boro II	Bangladesh	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Chang et al (1975), Khush (1977)
Habiganj Boro VI	Bangladesh	Stem borers	Alam et al (1979)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Hanpa (Black)	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Hanpa (Yellow)	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Hansh Badol	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Hashikalmi	Bangladesh	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Pongprasert et al (1975), Heinrichs et al (1985a)
		Stem borers	Alam et al (1979)
Hashiriboza No. 1	Japan	Stem borers	Chaudhary et al (1984)
Hathiel	Sri Lanka	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Pongprasert et al (1975). Heinrichs et al (1985a)
		Stem borers	Alam et al (1979)
Hatsushimo	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Hatsushino	Japan	<i>Chilo suppressalis</i>	Munakata and Okamoto (1967), Akinsola (1973)
HBD-a-2	Philippines	<i>Diopsis macrophthalma</i>	IITA (1973), Soto and Siddiqi (1976b)
Hijal Digha	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Hikari	Japan	Stem borers	Chaudhary et al (1984)
Hinon	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
HPU803	India	<i>Sesamia inferens</i>	Garg (1984)
HPU2199	India	<i>Sesamia inferens</i>	Garg (1984)
HR19	India	Stem borers	Israel (1967)
HR21	India	Stem borers	Israel (1967)
Hsien Chu 62	–	<i>Chilo suppressalis</i>	Chiu and Lee (1971)
Hsunschu	–	Stem borers	Israel (1967)
Htsu Mishiki 120	Brazil	<i>Scirpophaga incertulas</i>	IRGC database
Huang Sengoo	China	<i>Diopsis macrophthalma</i>	IITA (1978), Heinrichs et al (1985a)
Hung-Mei-Tsao	China	<i>Scirpophaga incertulas</i>	IRGC database
Hurohondarawla	–	Stem borers	Alam et al (1979)
I Long	Laos	<i>Chilo suppressalis</i>	Choi (1975b)
IAC25	–	<i>Elasmopalpus lignosellus</i>	Heinrichs et al (1985a)
IAC47	–	<i>Elasmopalpus lignosellus</i>	Heinrichs et al (1985a)
IAC68 P	Brazil	<i>Scirpophaga incertulas</i>	IRGC database
IARI 5829	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
IARI 5981A	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IARI 5993	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IARI 6579	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IARI 6600	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
IARI 6638	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
IB56-8	Myanmar	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Idrasail	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
IET1785	India	Stem borers	CRR1 (1976b)
ET2812	India	Stem borers	Seshu (1976)
IET2815	India	<i>Scirpophaga incertulas</i>	Venugopal Rao et al (1987)
IET2845	India	<i>Chilo polychrysus</i> , <i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i> <i>Chilo suppressalis</i>	Heinrichs et al (1978) Heinrichs et al (1985a)
	Philippines	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a)
IET3093	India	Stem borers	Seshu (1976)
IET3127	India	Stem borers	Seshu (1976)
IET5121	India	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IET5540	India	<i>Chilo polychrysus</i> , <i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i> <i>Chilo suppressalis</i>	Heinrichs et al (1978) Heinrichs et al (1985a)
	India	<i>Scirpophaga incertulas</i>	Subramanian and Jayaraman (1985)
IET6262 (Pankaj/Vijaya)	India	<i>Scirpophaga incertulas</i>	Muthuswami and Gunathilagaraj (1989)
ET9576	India	<i>Scirpophaga incertulas</i>	IITA (1973, 1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
Iguape Cateto	Brazil	<i>Diopsis macrophthalma</i>	

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Ihara No. 5	Japan	Stem borers	Chaudhary et al (1984)
Ilchin	Korea	Stem borers	Chaudhary et al (1984)
Ilis Air	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Imang	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Inaday	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Inanod	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Intip	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
IR11185-B-B-850-1	Philippines	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
IR11185-R-0-7	Philippines	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
IR1168-76	Philippines	<i>Maliarpha separata</i>	IITA (1975), Soto and Siddiqi (1978), Heinrichs et al (1985a)
IR13260-100-1E-P3	Philippines	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
IR1330-51-1	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977)
IR1330-90-2	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977)
IR13639-39	Philippines	<i>Scirpophaga incertulas</i>	Chandramohan and Chelliah (1983, 1984b)
IR13641-4	Philippines	<i>Scirpophaga incertulas</i>	Chandramohan and Chelliah (1983, 1984b)
IR13641-18	Philippines	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
IR1416-128-5-8	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR1514A-E597	Philippines	<i>Chilo suppressalis</i>	Khush (1977)
IR1514A-E597-2	Philippines	Stem borers	Alam et al (1979)
IR1514A-E666	Philippines	<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i>	Heinrichs et al (1978)
IR15323-78-1-3-1	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR1539-823-1-4	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR1544-238-2-3	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977)
IR1544-340-6-1	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR1561	Philippines	Stem borers	Alam et al (1979)
IR1561-228-3-3	Philippines	<i>Chilo suppressalis</i>	Khush (1977)
IR1561-38-6-5	Philippines	Stem borers	Chaudhary et al (1984)
		<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Maliarpha separata</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985b)
IR15723-45-3-2-2-2	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
		Stem borers	Prakasa Rao and Gangadharan (1988)
IR15795-151-2-3-2-2	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR1721-11-6-8	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977)
IR1749	Philippines	<i>Diopsis macrophthalma</i>	Heinrichs et al (1985a)
IR1820	Philippines	<i>Scirpophaga incertulas</i>	IRRI (1980)
IR1820-52-2	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977), Pathak and Saxena (1980)
		<i>Chilo polychrysus</i> , <i>Scirpophaga incertulas</i>	Heinrichs et al (1978)
IR1820-52-2-4-1	Philippines	<i>Scirpophaga incertulas</i>	Chaudhary (1984), Heinrichs et al (1985a)
IR1917-3-19	Philippines	<i>Scirpophaga incertulas</i>	Khush (1977)
IR19362-183	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR19735-30-3-3-2-2	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR19774-34-2-1	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR19774-42-2-1-3-2	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR19774-34-2-1	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR20	Philippines	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973), Pathak et al (1973)
		<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i>	Pathak and Saxena (1980), Heinrichs et al (1982), Heinrichs et al (1985a,b)
		<i>Scirpophaga incertulas</i>	Akinsola (1973), Soejitno (1977a), Rezaul Karim et al (1978)
		Stem borers	Dyck et al (1976), Pathak et al (1976), Khush (1977), Mathur and Chaturvedi (1978), Alam et al (1979), Adkisson and Dyck (1980), CRRRI (1980a), Bueno (1983a,b), Chaudhary et al (1984)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
IR2024-102-2-1-3-2	Philippines	Stem borers	Alam et al (1979)
IR2035-255-2-3-1	Philippines	Stem borers	Alam et al (1979)
IR2035-290-2-3-1	Philippines	Stem borers	Alam et al (1979)
IR2042-175-3-2-2	Philippines	Stem borers	Alam et al (1979)
IR2053-521-1-1	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR2061-213-2	Philippines	<i>Scirpophaga incertulas</i>	Manwan (1975)
IR2070-178-2-3	Philippines	Stem borers	Alam et al (1979)
IR2070-24-1-5-1	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR2070-820-2	Philippines	<i>Scirpophaga incertulas</i>	Manwan (1975), Manwan and Vega (1975)
IR2070-820-2-3	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR2071-747-6-3-2	India	<i>Scirpophaga incertulas</i>	IRGC database
IR2157-7-Pn-4-1	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR2160-10-Pn-7-3-2	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR2172-15-1-1	Philippines	Stem borers	Alam et al (1979)
IR2172-61	Philippines	Stem borers	Alam et al (1979)
IR22	Philippines	<i>Chilo suppressalis</i> <i>Diatraea saccharalis</i> , <i>Rupela albinella</i>	Khush (1977) CIAT (1972, 1981)
		Stem borers	Heong (1977), Bueno (1983a,b)
IR2307-62-1	Philippines	Stem borers	Alam et al (1979)
IR2307-84-2-1-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR2328-27-3-6	Philippines	Stem borers	Alam et al (1979)
IR2328-491-1-1-1	Philippines	<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i>	Heinrichs et al (1978)
		<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR24	Philippines	Stem borers	Bueno (1983a,b)
IR2588-132-1-2	Philippines	Stem borers	Alam et al (1979)
IR26	Philippines	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1982, 1985b) Soejitno (1977a)
		Stem borers	Pathak et al (1976), CRRRI (1980a), Bueno (1983a,b)
IR2681-34-5-6	Philippines	Stem borers	Alam et al (1979)
IR2706-3-3	Philippines	Stem borers	Alam et al (1979)
IR272-4-1-2	Philippines	Stem borers	Alam et al (1979)
IR2754-EI-5-6-3	Philippines	Stem borers	Alam et al (1979)
IR2757-E2-1-2-1	Philippines	Stem borers	Alam et al (1979)
IR2760-EI-33-1-2	Philippines	Stem borers	Alam et al (1979)
IR2763-EI-1-2-1	Philippines	Stem borers	Alam et al (1979)
IR2793-15-2	Philippines	Stem borers	Alam et al (1979)
IR2798-107-3	Philippines	Stem borers	Alam et al (1979)
IR2798-143-3-2	Philippines	<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i>	Heinrichs et al (1978)
		<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR2798-86-6	Philippines	Stem borers	Alam et al (1979)
IR28	Philippines	Stem borers	Pathak et al (1976), Alam et al (1979), Bueno (1983a,b)
IR2863-31-3	Philippines	Stem borers	Alam et al (1979)
IR2863-38-1	Philippines	Stem borers	Alam et al (1979)
IR2863-39-2	Philippines	Stem borers	Alam et al (1979)
IR29	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
		Stem borers	Pathak et al (1976)
IR297-9-13-2-2-2	Philippines	Stem borers	Alam et al (1979)
IR30	Philippines	<i>Chilo suppressalis</i> <i>Maliarpha separatella</i> <i>Scirpophaga incertulas</i>	Heinrichs et al (1982) IITA (1975), Soto and Siddiqi (1976b) Soejitno (1977a)
		Stem borers	Pathak et al (1976), Alam et al (1979), Bueno (1983a,b), Chaudhary et al (1984)
IR305-3-1	Philippines	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IR305-4-20-3-3	Philippines	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
IR32	Philippines	<i>Chilo suppressalis</i> Stem borers	Heinrichs et al (1982) Pathak et al (1976), Bueno (1983a,b)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
IR3255-19-215-2	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR3265-P193-2-5	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR3265-P193-6-3	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR3265-P461-2-2	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR3268-P742-4-4	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR3273-339-2-5	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR3275-A1732-7	Philippines	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IR34	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982, 1985b)
		<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
		Stem borers	Pathak et al (1976), Bueno (1983a,b)
IR356	Philippines	Stem borers	Chaudhary et al (1984)
IR36	Philippines	<i>Chilo suppressalis</i> .	Heinrichs et al (1978, 1982, 1985a,b)
		<i>Scirpophaga incertulas</i>	
		<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981), Chaudhary et al (1984)
		Stem borers	Bueno (1983a,b), Chaudhary et al (1984)
IR38	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982)
		Stem borers	Bueno (1983a,b)
IR3941-2-1-3	Philippines	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a)
IR3941-9-2	Philippines	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a)
IR3941-97-1	Philippines	<i>Chilo suppressalis</i> ,	Heinrichs et al (1978)
		<i>Scirpophaga incertulas</i>	
		<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR40	Philippines	<i>Chilo suppressalis</i> ,	Heinrichs et al (1982, 1985a,b)
		<i>Scirpophaga incertulas</i>	
		<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
		Stem borers	Bueno (1983a,b)
IR42	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982)
		Stem borers	Bueno (1983a,b)
IR43	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982)
IR44	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982, 1985a,b)
		Stem borers	Bueno (1983a,b)
IR4547-6-2-5	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR46	Philippines	<i>Scirpophaga incertulas</i>	Viajante and Heinrichs (1985)
IR4791-89	Philippines	<i>Chilo suppressalis</i> ,	Heinrichs et al (1978)
		<i>Scirpophaga incertulas</i>	
		<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR48	Philippines	Stem borers	Bueno (1983a,b)
IR5	Philippines	Stem borers	Khush (1977), Bueno (1983a,b)
IR50	Philippines	<i>Chilo suppressalis</i> ,	Heinrichs et al (1982, 1985a,b)
		<i>Scirpophaga incertulas</i>	
		Stem borers	Bueno (1983a,b)
IR503-1-91-3-2-1	Philippines	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
IR2031-Plp-4B	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR516-34-1	Philippines	Stem borers	Chaudhary et al (1984)
IR52	Philippines	<i>Chilo suppressalis</i>	Heinrichs et al (1982, 1985b)
IR5201-122-2	Philippines	<i>Chilo suppressalis</i> ,	Heinrichs et al (1978)
		<i>Scirpophaga incertulas</i>	
		<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
IR523-1-218	Philippines	<i>Diopsis macrophthalma</i>	IITA (1973, 1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
IR532	Philippines	<i>Chilo suppressalis</i>	Khush (1977)
IR532-14-6-1-2	Philippines	Stem borers	Alam et al (1979)
IR532-E-239	Philippines	Stem borers	Chaudhary et al (1984)
IR532-PK24-C2	Philippines	Stem borers	Shafi et al (1972)
IR532-PK27-C2	Philippines	Stem borers	Shafi et al (1972)
IR532-PK36-C2	Philippines	Stem borers	Shafi et al (1972)
IR532-PK67-C2	Philippines	Stem borers	Shafi et al (1972)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
IR54	Philippines	<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i> <i>Scirpophaga incertulas</i> Stem borers	Heinrichs et al (1982, 1985b) Heinrichs et al (1985a) Bueno (1983a,b)
IR56	Philippines	Stem borers	Bueno (1983a,b)
IR577-24-1-1-5	Philippines	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IR578-76-1-2-1	Philippines	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IR579-160-2	Philippines	<i>Diopsis macrophthalma</i>	IITA (1973), Soto and Siddiqi (1976b)
IR579-48-2-1-3	Philippines	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b)
IR580-25-3	Philippines	<i>Chilo suppressalis</i>	Khush (1977)
IR5853-196-1-81	Philippines	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
IR589-53-2	Philippines	<i>Diopsis macrophthalma</i>	IITA (1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
IR589-66-2-1	Philippines	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b)
IR589-87-2-3	Philippines	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IR5908-84-2-3-3	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR6-156-2-2	Philippines	Stem borers	Alam et al (1979)
IR6-67-1-3	Philippines	Stem borers	Alam et al (1979)
IR60	Philippines	<i>Scirpophaga incertulas</i>	Viajante and Heinrichs (1985)
IR7167-33-2-5	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR747B2-12-1-1-2	Philippines	Stem borers	Chaudhary et al (1984)
IR7691-07-4-2-1-1	Philippines	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
IR8	Philippines	<i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i> Stem borers	Pathak et al (1971), Chang et al (1975) Shahjahan and Zakir Hussain (1975), Khush (1977), Bueno (1983a,b)
IR8608-75-3-1-3	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR878-B2-143-2-2	Philippines	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b), Heinrichs et al (1985a)
IR878-B2-82-3-3	Philippines	<i>Diopsis macrophthalma</i>	Soto and Siddiqi (1976b), Heinrichs et al (1985a)
IR9129-169-3-2-3-3	Philippines	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
IR9129-192-2-4-3	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR9129-263-3-3-2-3	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR9202-21-1	Philippines	<i>Sesamia inferens</i>	Bhatt et al (1984)
IR9758-150-3	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR9782-111-2-1	Philippines	<i>Sesamia inferens</i>	Garg (1984)
IR9828-23-1	Philippines	<i>Scirpophaga incertulas</i> Stem borers	Chang Poon Min et al (1981) Prakasa Rao and Gangadharan (1986b)
IR2344-PIPB-61-1B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR2344-PIPB-9-1-1B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR2344-PIPB-9-1-2B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR2344-PIPB-9-2-3B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR2403-PIPB-5-3-2B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3256-89-5	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3261-97-9-2-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-2-1-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-4-PIP-2B	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-58-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-6-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
JR3941-68-1-3-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR3941-9-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4478-7-2-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4482-3-3-3-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4482-5-3-9-5	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4500-19-2-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4530-7-3-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR453 1-10062-2-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4531-5-3-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
IR4531-9-1-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4532-8-2-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR4543-1-1-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5-36-801	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5-36-813	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5-36-814	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5098-B-JN-1B	Philippines	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a), IRGC database
IR5467-2-2-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5495	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5825-41-2-P1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5825-41-2-P4	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5853-135-3-P3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5857-10-1E-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5857-3-2E-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5906-56-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5908-15-1	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5908-79-2	Philippines	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a), IRGC database
IR5908-84-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5908-85-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR5908-96-2	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR8/3 x Zenith	–	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IR865-32-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR908-111-3	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IR9673-9-6-5	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
IRAM1622	Madagascar	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
IRAM1642	Madagascar	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
IRAT102	–	<i>Sesamia inferens</i>	Garg (1984)
IRATOM24	Pakistan	Stem borers	Shahjahan and Zakir Hussain (1975)
IRATOM38	Pakistan	Stem borers	Shahjahan and Zakir Hussain (1975)
IRGC Acc. 12852	Sri Lanka	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
IRGC Acc. 45966	Myanmar	Stem borers	Alam et al (1979)
IRGC Acc. 6300	India	Stem borers	Alam et al (1979)
ISLA	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
ITA121	–	<i>Diopsis macrophthalma</i>	IITA (1983)
ITA6-16-7-Bp3	Nigeria	<i>Diopsis macrophthalma</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
ITA6-20-1-Bpl	Nigeria	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
ITA6-22-2-Bpl	Nigeria	<i>Diopsis macrophthalma</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
ITA6-4-2	Nigeria	<i>Maliarpha separatella</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
ITA7-2-2-Bp2	–	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b)
ITA7-7-2	Nigeria	<i>Maliarpha separatella</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
Jagal Shaita	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Jalath	–	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Jao Daeng	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Jaya	India	Stem borers	Khush (1977)
Jeeragasamba	–	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
	(nonscented)		
Jelutuk Bulu Putih	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Jemadi	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Jepang	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Jhangi	India	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
Jhanji	India	Stem borers	Israel (1967)
Jhingasail	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
	India	<i>Scirpophaga incertulas</i>	Pongprasert et al (1975), Heinrichs et al (1985a)
Jongkong Pendek	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Jyothi	India	<i>Scirpophaga incertulas</i>	IRGC database
K8 (Mutant) Sel	Sri Lanka	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
K42-55 B	India	<i>Scirpophaga incertulas</i>	IRGC database
K42-86-B-1	India	<i>Scirpophaga incertulas</i>	IRGC database
K94	USSR	<i>Scirpophaga incertulas</i>	IRGC database
K228-8-3	–	<i>Sesamia inferens</i>	Garg (1984)
K427	–	<i>Sesamia inferens</i>	Garg (1984)
Kacha Nuni	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Kaciak Maimanah	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kaciak Sumani	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kala Aman	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Kala Harsel	–	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Kalajira	Bangladesh	Stem borers	Alam et al (1979)
Kalihatti	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Kalimot-tog	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Kalinga 2	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Kalu Heenati	Sri Lanka	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Kalu Hewariderrri	Sri Lanka	<i>Scirpophaga incertulas</i>	IRGC database
Kao-shen-yu 10	–	<i>Chilo suppressalis</i>	Chiu and Lee (1971)
Kaohsiung 24	Taiwan-China	<i>Chilo suppressalis</i>	Chiu and Lee (1971)
Kaohsiung Yu 420	Taiwan-China	<i>Chilo suppressalis</i>	Chiu and Lee (1971)
Kartuni	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kasih Baranak	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Katiak Piangu	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Katigued	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
KAU2110	India	<i>Sesamia inferens</i>	Garg (1984)
Keora	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Keriting Putih	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Jambe	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Kasumba	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Koneng	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Mayang	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Pb	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Ketan Untup Randa Kaya	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Keudah Grulumpang	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Khangkhouay	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Khao Luum Hawm	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Khao Moon	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Khao Phei Phalo	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Khao Phie DENG	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Khao Pongxeng	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Khao' Ton Lek 339-6-20	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Khewali	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Khoiamotor	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Khud Boilum	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Khukni	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Kidama	Japan	Stem borers	Chaudhary et al (1984)
Kinai-wase No. 70	Japan	Stem borers	Chaudhary et al (1984)
Kinainakate No. 70	Japan	Stem borers	Chaudhary et al (1984)
Kinastila	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Kinki 47	Japan	<i>Chilo suppressalis</i>	Patanakamjorn and Pathak (1967), Heinrichs et al (1985a)
Kinki NO 24	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Kinki NO 25	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Kinmaze	Japan	<i>Chilo suppressalis</i>	Munakata and Okamoto (1967), Akinsola (1973), Khush (1977)
		Stem borers	Chaudhary et al (1984)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Kipusa	Rwanda	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973)
	Urundi	<i>Scirpophaga incertulas</i>	Akinsola (1973), Khush (1977), Prakasa Rao (1977), Heinrichs et al (1985a)
Kn-Ib-361-1-8-6-6-1-10-2	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kn-Ib-361-8-6-9-2-7	Indonesia	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a), IRGC database
Kobumasari	Philippines	<i>Scirpophaga incertulas</i>	Manwan (1975)
Kong Kambot	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Kong Keo	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Kong Pao	–	<i>Diopsis macrophthalma</i>	IITA (1975), Soto and Siddiqi (1976b)
Kucir	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kumar	India	<i>Scirpophaga incertulas</i>	IRGC database
Kumargore	India	<i>Scirpophaga incertulas</i>	IRGC database
Kuning Halus	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kuntu Putih	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Kurohondarawala	–	<i>Chilo suppressalis</i>	Choi (1975b)
	Sri Lanka	<i>Scirpophaga incertulas</i>	Pongprasert et al (1975), Heinrichs et al (1985a)
Kusabue	Japan	<i>Chilo suppressalis</i>	Munakata and Okamoto, (1967), Akinsola (1973)
Kwa-hwa-yuan	Philippines	<i>Scirpophaga incertulas</i>	Manwan (1975)
L 41	India	<i>Scirpophaga incertulas</i>	IRGC database
L 45	India	<i>Scirpophaga incertulas</i>	IRGC database
L 79	India	<i>Scirpophaga incertulas</i>	IRGC database
Lal Megi	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Lal Taura	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Lalboro	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Lampung	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Landis	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Laskmitia	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Lata say	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Latisail	Bangladesh	Stem borers	Banerjee (1951), Israel (1967)
Lepgu	Philippines	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Leri	Indonesia	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
Leuang 28-1-64	Thailand	<i>Diopsis macrophthalma</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
Liberian Coll. D 1-122	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. D 1-172	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. D 1-182	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. D 1-183	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. D 1-186	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. D 2-127	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. Y 35	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Liberian Coll. Y-082	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Linagawe	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Lohargura	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Lor Beol Medium	India	<i>Scirpophaga incertulas</i>	IRGC database
Los Baños	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Lunah	–	<i>Scirpophaga incertulas</i>	Soehardjan and Leeuwangh (1972), Heinrichs et al (1985a)
Lu-wan-hsien	–	<i>Chilo suppressalis</i>	Pathak (1972)
Madhu Malati	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Magoti	East Africa	<i>Diopsis macrophthalma</i>	IITA (1978), Heinrichs et al (1985a)
Mahlenyaw	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Mahsuri	Malaysia	<i>Scirpophaga incertulas</i>	Prakasa Kao (1977), Heinrichs et al (1985a)
		Stem borers	Heong (1977), Chaudhary et al (1984)
Mainagiri	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984), Heinrichs et al (1985a)
Mak Hing	Laos	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Mak Nam	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Makhm	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Malagkit	Philippines	Stem borers	Viado and Matthyse (1955)
Malagkit Sungsong	Philippines	<i>Chilo suppressalis</i> , <i>Chilo zacconius</i>	IITA (1974)
Malinja	Malaysia	Stem borers	IITA (1974), Soto and Siddiqi (1976b)
Malkhog Nuri	Liberia	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Mangasa	Philippines, Malaysia	Stem borers	IRGC database Viado and Matthyse (1955)
Manglar	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1974), Heinrichs et al (1985a)
Manik Kalma	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Manovari	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1974), Heinrichs et al (1985a)
Marech S. V. R.	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Masinag	Philippines	<i>Scirpophaga incertulas</i>	Rowan (1923)
Mean down	Taiwan-China	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
Meghi	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Mehren	–	Stem borers	Khush (1977)
Mena Muri	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Mete Dhamri	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Mete Jumri	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Miho 111	Japan	<i>Chilo suppressalis</i>	Patanakamjorn and Pathak (1967), Heinrichs et al (1985a)
Mihonishiki	Japan	<i>Chilo suppressalis</i> Stem borers	Khush (1977) Chaudhary et al (1984)
Milfor	Philippines	Stem borers	Viado and Matthyse (1955)
Milpal 18	Philippines	<i>Diopsis macrophthalma</i>	Heinrichs et al (1985a)
Milyang 46	Korea	<i>Sesamia inferens</i>	Bhatt et al (1984)
Milyang 47	Korea	<i>Sesamia inferens</i>	Bhatt et al (1984)
MNP119	–	<i>Scirpophaga incertulas</i>	Khush (1977)
Mohis Kani	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Mohishdo	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Molshira	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Moni Mukul	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Morseng	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
MR7	Malaysia	<i>Scirpophaga incertulas</i>	Chang Poon Min et al (1981)
MR301	India	<i>Scirpophaga incertulas</i>	IRGC database
MTU15	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Prakasa Rao (1977), Chang Poon Min et al (1981), Chaudhary et al (1984), Heinrichs et al (1985a)
MTU18	India	Stem borers	Israel et al (1959), Pawar et al (1959), CRR (1960), Israel (1967), Prakasa Rao (1977), Chaudhary et al (1984)
MTU19	India	<i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i>	Israel (1967) Chang et al (1975)
MTU20	India	Stem borers <i>Chilo suppressalis</i>	Alam et al (1979) Khush (1977)
MTU3502	India	Stem borers <i>Scirpophaga incertulas</i>	CRR (1960), Israel (1967)
MTU4246	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
MTU8431	India	<i>Scirpophaga incertulas</i>	IRGC database
Mudgo	India	<i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i>	Chang et al (1975)
Mudo	Liberia	Stem borers <i>Scirpophaga incertulas</i>	Khush and Beachell (1972) IRGC database
Munda	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Mundam Lumuik	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Murungakayan	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Murungakayan 3	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Murungakayan 101	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Murungakayan 303	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Muthumanikan	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
	Sri Lanka	<i>Scirpophoga incertulas</i>	Pongprasert et al (1975). Heinrichs et al (1985a)
“N”	–	<i>Rupela albinella</i>	Rambajan (1979), Heinrichs et al (1985a)
N136	India	Stem borers	Israel (1967)
Nagra	Bangladesh, India	Stem borers	Banerjee (1951), Israel (1967)
Nah Khwan	Thailand	<i>Scirpophoga incertulas</i>	IRGC database
Naka-Okayama-mochi	Japan	Stem borers	Chaudhary et al (1984)
Nakate Ashahi	Japan	<i>Chilo suppressalis</i>	Khush (1977)
NAWN51-9-79	Thailand	<i>Scirpophoga incertulas</i>	IRGC database
Nazerail	–	Stem borers	Alam et al (1979)
NC493	India	<i>Scirpophoga incertulas</i>	Catling et al (1984e)
NC496	India	<i>Scirpophoga incertulas</i>	Catling et al (1984e)
NC55	Liberia	<i>Scirpophoga incertulas</i>	IRGC database
NC73	Liberia	<i>Scirpophoga incertulas</i>	IRGC database
Nean Mao	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Chen (Batheay)	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Chhmar K.T.	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Kang K.P.	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Meas Angkor	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Phtong	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Phuong	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Prom	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Stong K 176	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Neang Tei	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
NG6637	–	<i>Chilo suppressalis</i>	Khush (1977)
Niaw Khiaw Ngro	Thailand	<i>Scirpophoga incertulas</i>	IRGC database
Nilo 1	Surinam	<i>Rupela albinella</i>	Navas (1965), Heinrichs et al (1985a)
Nilo 2	Surinam, El Salvador	<i>Rupela albinella</i>	Navas (1965), Heinrichs et al (1985a)
Norin NO 6	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Norin NO 8	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Norin NO 22	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Norin NO 23	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Nortai	USA	<i>Scirpophoga incertulas</i>	IRGC database
Oboro Mock	–	<i>Chilo suppressalis</i>	Khush (1977)
OC52	Liberia	<i>Scirpophoga incertulas</i>	IRGC database
OR101-1	India	<i>Scirpophoga incertulas</i>	IRGC database
OR100-5	India	<i>Scirpophoga incertulas</i>	IRGC database
OR100-7	India	<i>Scirpophoga incertulas</i>	IRGC database
OR100-9	India	<i>Scirpophoga incertulas</i>	IRGC database
OR100-16	India	<i>Scirpophoga incertulas</i>	IRGC database
OS6	Zaire	<i>Diopsis mocrrophthalma</i>	Alghali and Osisanta (1982b), Alghali (1983)
PI-245717	Japan	Stem borers	Oliver et al (1973)
P33-C-19	India	<i>Scirpophoga incertulas</i>	IRGC database
P33-C-30	India	<i>Scirpophoga incertulas</i>	IRGC database
P4-1-11-21	India	<i>Scirpophoga incertulas</i>	IRGC database
Pa Ang	Cambodia	<i>Scirpophoga incertulas</i>	IRGC database
Pachhaiperumal 2462/11	Sri Lanka	Stem borers	Israel (1967)
Pachhaiperumal/Mas.	Sri Lanka	Stem borers	Israel (1967)
Padi	Indonesia	<i>Scirpophoga incertulas</i>	Soehardjan and Leeuwangh (1972), Heinrichs Heinrichs et al (1985a)
Padi Bayak	Indonesia	<i>Scirpophoga incertulas</i>	IRGC database
Padi Ikue Kambiang	Indonesia	<i>Scirpophoga incertulas</i>	IRGC database
Padi Kapuas	Malaysia	<i>Scirpophoga incertulas</i>	IRGC database
Padi Payo Cino	Indonesia	<i>Scirpophoga incertulas</i>	IRGC database

continued on opposite page

Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Pah Leuang 29-11-112	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Pah Puang 73-4-19	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Pai Hu	–	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
Paiyur 1	–	<i>Scirpophaga incertulas</i>	Balasubramanian et al (1986)
Pala Jore	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Palaidang Mirah	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Palasithari 601	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Palawan	Philippines	Stem borers	Viado and Matthyse (1955)
Palman 579	Philippines	Stem borers	Khush (1977)
Pankaj	India	<i>Diopsis macrophthalma</i>	Heinrichs et al (1985a)
Pathong	Taiwan-China	<i>Scirpophaga incertulas</i>	Soejitno (1974), Heinrichs et al (1985a)
Patnai 6	India	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Pathak and Khush (1975), Chang et al (1975), Martins and Zimmermann (1976), Khush (1977), Martins (1983)
		Stem borers	Israel (1977)
Patnai 23	India	Stem borers	Banerjee (1951), Israel (1967)
PB5	–	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
Pelita I-1	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1977a)
Pelopor	Indonesia	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
Perubak Avang	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Peswari	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Peta	Indonesia	<i>Chilo zacconius</i>	IITA (1974), Soto and Siddiqi (1976b)
		Stem borers	Viado and Matthyse (1955), Khush and Beachell (1972)
Peta 2802	Indonesia	<i>Chilo suppressalis</i>	Choi (1975b)
Phanphei	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Phcar Chambak P.P.	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phcar Chan	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phcar Poul K 15	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phdao Pen DK 81	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phdao Pen T2	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phdauk P 38	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
Phei Do	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Phulkari	–	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
PI 160	USA	<i>Chilo suppressalis</i>	Khush (1977)
PI 160638	USA	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973)
PI245717	–	Stem borers	Oliver et al (1971)
Pinidwa Qan	Philippines	<i>Scirpophaga incertulas</i>	IRGC database
Qipugo Binaquk			
PJRC81030	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
PLRI	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
Pong-kaat Gi	Cambodia	<i>Scirpophaga incertulas</i>	IRGC database
PR107	Puerto Rico	<i>Scirpophaga incertulas</i>	Dhaliwal and Singh (1982)
PR325	Puerto Rico	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
PR403	Puerto Rico	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
PTB10	India	<i>Chilo suppressalis</i> , <i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i>	IRRI (1970), Pathak et al (1971), Chang et al (1975), Chaudhary et al (1984)
		Stem borers	Israel (1967), CRRRI (1969), Nadarajan and Rajappan Nair (1983)
PTB15	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
PTB18	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Khush (1977), Pongprasert et al (1975), CRRRI (1980a), Heinrichs et al (1985a)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
		Stem borers	Khush (1971), Khush and Beachell (1972), Alam et al (1979), Nadarajan and Rajappan Nair (1983)
PTB19	India	<i>Chilo suppressalis</i>	Choi (1975b)
PTB21	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Pongprasert et al (1975), Heinrichs et al (1985a)
		Stem borers	Alam et al (1979), Nadarajan and Rajappan Nair (1983)
Pu Tauch Pu Chih Chi 1 Hao	China	<i>Chilo suppressalis</i>	Patanakamjorn and Pathak (1967), Heinrichs et al (1985a)
Pukhi	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Pulut Bara	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Pulut Kelapa	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Pulut Kemenyan	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Purple Puttu	–	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
Pusa 169 (IR28/P140)	India	<i>Scirpophaga incertulas</i>	Subramanian and Jayaraman (1985)
PVR1	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
R2384	India	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
R35-2750	India	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
R35-2751	India	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
R35-2752	India	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
R. Kumis	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Raden Mas	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Raghusail	India	Stem borers	Banerjee (1951), Israel (1967)
Ranadja	–	Stem borers	Israel (1967)
Rangpura Jali	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Rascadam	–	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
Rataun	–	Stem borers	Israel (1967)
Rathu Heenati	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b), Pongprasert et al (1975), Heinrichs et al (1985a)
Ratna	India	<i>Chilo suppressalis</i> , <i>Chilo zacconius</i> <i>Chilo zacconius</i>	IITA (1974) Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Scirpophaga incertulas</i>	Prakasa Rao (1972b), CRR1 (1980a), Chaudhary et al (1984)
		Stem borers	Mathur (1977, 1979), CRR1 (1980a)
Ratna (CR44-11)	India	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a)
Ratusen	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Raya Tembahu	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Rindu	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1974), Heinrichs et al (1985a)
RNR56103-1	India	<i>Scirpophaga incertulas</i>	IRGC database
Ro Hen Do	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Roal	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Ronda Kuning	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Roya	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Royna	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
RP1057-35-1-1	India	<i>Sesamia inferens</i>	Bhatt et al (1984)
RP260-228-1-1	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP260-533-4	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RP260-675-5	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RP291-20	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RP3-2	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP319-34-8-1-3	India	<i>Scirpophaga incertulas</i>	IRGC database
RP4-10	India	<i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	Choi (1975b) Velusamy et al (1975)
RP4-12	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
RP4-13	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RP423-2-4-2-3	India	<i>Scirpophaga incertulas</i>	IRGC database
RP5-12	–	<i>Chilo suppressalis</i>	Choi (1975b)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
RP6-156-3-6	India	<i>Scirpophaga incertulas</i>	IRGC database
RP6-1899-25-4	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP6-516-33-1-1	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP6-516-34-1-8	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP6-590-10-1-11	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP6-590-22-6	India	Stem borers	Seshu (1976)
RP6-590-22-6-4-3	India	<i>Scirpophaga incertulas</i>	IRGC database
RP611-106-1-10	India	Stem borers	Mathur and Chaturvedi (1978), Chaudhary et al (1984)
RP633-519-1	India	Stem borers	Mathur and Chaturvedi (1978), Chaudhary et al (1984)
RP79-116892	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RP887-46-1	India	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
RP9-3	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP9-4	India	<i>Chilo suppressalis</i>	Choi (1975b)
RP9-6	—	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
	—	<i>Chilo suppressalis</i>	Choi (1975b)
	India	Stem borers	Alam et al (1979)
RPCBIB7078	India	<i>Scirpophaga incertulas</i>	IRGC database
RPW6-13	—	<i>Scirpophaga incertulas</i>	CRRI (1980a)
	—	Stem borers	Alam et al (1979)
RPW6-17	India	<i>Scirpophaga incertulas</i>	Shrivastava et al (1979)
	—	Stem borers	Alam et al (1979)
RPW6-1899-14-1-2	—	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
RPW6-508-23	—	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
Rungan	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Rusty Late	China	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Chang et al (1975)
S317	India	Stem borers	Israel (1967)
Sacondo Brasil TM 1377	El Salvador	<i>Diopsis macrophthalma</i>	IITA (1978), Heinrichs et al (1985a)
Sada	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sada Katari	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sadajira 19-241	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Sajira	Nepal	<i>Chilo suppressalis</i>	Khush (1977)
	—	Stem borers	Israel (1967)
Sakha 2	—	<i>Chilo suppressalis</i>	Khush (1977)
Samba	Sri Lanka	Stem borers	Israel (1967)
Samba Kongo	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sani 6	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sanpatong	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Sapan Kwai	Thailand	<i>Chilo suppressalis</i>	Pathak (1967c)
Saripul	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Saru Bhadoi	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SB13	—	<i>Scirpophaga incertulas</i>	Balasubramanian et al (1986)
SB19	—	<i>Scirpophaga incertulas</i>	Balasubramanian et al (1986)
SD27	Haiti	<i>Diopsis macrophthalma</i>	Alghali and Osisanta (1982b)
SD27A	—	<i>Diopsis macrophthalma</i>	Alghali (1983)
Seketori	—	<i>Chilo suppressalis</i>	Pathak (1967c)
Senbon-asahi	Japan	Stem borers	Chaudhary et al (1984)
Seri Jedah	Malaysia	<i>Scirpophaga incertulas</i>	Soehardjan and Leeuwangh (1972), Heinrichs et al (1985a)
Sete Sail	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Shada Goira	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Shete	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Shiga-shira-mochi	Japan	Stem borers	Chaudhary et al (1984)
	No. 18		
Shin-ishi-ziro	Japan	<i>Chilo suppressalis</i>	Patanakamjorn and Pathak (1967)
Shinishijiro	Japan	Stem borers	Chaudhary et al (1984)
shitabhog	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Shoni	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Shulpan	Bangladesh	<i>Scirpophaga incertulas</i>	Catling et al (1983a)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
Shu-ya Tsan	China	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
Shyamla Meghi	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Siansimun	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Siantar-situar	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sidek	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sigabe	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sigabe Taon	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sigugguk	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sihalus	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Si Jambe	Indonesia	<i>Scirpophaga incertulas</i>	Soejitno (1974), Heinrichs et al (1985a)
Sijan	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sijeer	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sikasso	Nigeria	<i>Sesamia calamistis</i>	IITA (1973,1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Maliarpha separatella</i>	IITA (1973)
Siketumbar	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Silumat	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Simet 2	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sinantonio	–	Stem borers	Viado and Matthyse (1955)
Sipasso	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Sipeget	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sipendek-sumbul	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sipilian	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Siraga	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sirandah Bulu	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Siribu	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Sisior	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Siyam Salaka-siam	–	<i>Scirpophaga incertulas</i>	IRGC database
	Salaka		
SLO 6	India	<i>Chilo suppressalis</i> Stem borers	Khush (1977) Israel (1967)
SLO 12	India	<i>Chilo suppressalis</i> Stem borers	Khush (1977) Israel et al (1959), Israel (1967), Prakasa Rao (1977), Chaudhary et al (1984)
SLO 15	India	<i>Chilo suppressalis</i>	Khush (1977)
SLO 17	India	<i>Scirpophaga incertulas</i>	Prakasa Rao (1977), Heinrichs et al (1985a)
SLO 19	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SML 81B	Surinam	<i>Chilo zacconius</i>	IITA (1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Chilo zacconius</i> , <i>Chilo suppressalis</i> , <i>Maliarpha separatella</i> , <i>Sesamia calamistis</i> <i>Sesamia calamistis</i>	IITA (1974)
			Heinrichs et al (1985a)
Sona Meta Jumri	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Soni	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sornavazhai	India	<i>Scirpophaga incertulas</i>	Chandramohan and Chelliah (1983, 1984b), Balasubramanian et al (1986)
Sossoupa	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
SPR7233-32-1-5-2	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
SPR7284-14	Thailand	Stem borers	Chaudhary et al (1984)
SR26B	India, Japan	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
SR3 (G12A)	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Sri Kutu	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
STB Res. 12708	Bangladesh	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
Su-yai 20	China	<i>Chilo suppressalis</i>	Pathak et al (1971). Pathak (1972). Akinsola (1973), Pathak and Khush (1975), Martins and Zimmermann (1976), Khush (1977), Martins (1983), Heinrichs et al (1985a)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
		<i>Diatraea saccharalis</i>	Martins and Zimmermann (1976). Martins (1983)
		<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i> , <i>Sesamia inferens</i>	IRRI (1970), Pathak et al (1971), Chang et al (1975), Chaudhary et al (1984)
Sudurvi 305	Sri Lanka	<i>Chilo suppressalis</i>	Choi (1975b)
Sudwai 306	Sri Lanka	Stem borers	Israel (1967)
Sukwang	Korea	Stem borers	Chaudhary et al (1984)
Sulpan	Bangladesh	<i>Scirpophaga incertulas</i>	Chaudhary et al (1984)
Suna Digha	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Surja Mani	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC199	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC206	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC223	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC238	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC244	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC286	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
SXC323	Liberia	<i>Scirpophaga incertulas</i>	IRGC database
Szu-Maio	China	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
Szu Miao	China	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Chang et al (1975), Khush (1977)
T1559	India	Stem borers	Israel (1967)
T2018	India	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
T2048	India	Stem borers	Israel et al (1959), Israel (1967), Chaudhary et al (1984)
T380	India	Stem borers	Israel (1967)
T657	India	Stem borers	Israel (1967)
T980	India	Stem borers	Israel (1967)
Ta-mao-shan	China	<i>Chilo suppressalis</i>	Pathak (1972)
Ta-poo-cho 2	China	<i>Chilo suppressalis</i>	Pathak (1972), Choi (1975b)
Ta-poo-cho-z	China	<i>Sesamia inferens</i>	Bhatt et al (1984), Pongprasert et al (1975)
	China	<i>Scirpophaga incertulas</i>	Bhatt et al (1984), Pongprasert et al (1975) Heinrichs et al (1985a)
Tadukan	Philippines	<i>Chilo zacconius</i> Stem borers	IITA (1974), Soto and Siddiqi (1976b) Alam et al (1979)
Tahun Bato	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Tahun Buluh	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Taisho-akaho No. 66	Japan	Stem borers	Chaudhary et al (1984)
Taisho-mochi	Japan	Stem borers	Chaudhary et al (1984)
Taitung 16	India	<i>Chilo suppressalis</i>	Pathak (1967c, 1972), Pathak et al (1971), Akinsola (1973), Chang et al (1975), Khush (1977), Pathak and Saxena (1980) IITA (1974)
		<i>Chilo suppressalis</i> , <i>Chilo zacconius</i> , <i>Maliarpha separatella</i> , <i>Sesamia calamistis</i>	IRRI (1970), Chaudhary et al (1984)
		<i>Chilo suppressalis</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i> , <i>Sesamia inferens</i>	IITA (1975), Soto and Siddiqi (1976b)
		<i>Chilo zacconius</i> <i>Sesamia calamistis</i> , <i>Chilo zacconius</i> , <i>Maliarpha separatella</i>	IITA (1974), Soto and Siddiqi (1976b)
		<i>Scirpophaga incertulas</i> <i>Sesamia calamistis</i>	Akinsola (1973) IITA (1973)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
	Taiwan-China	<i>Chilo suppressalis</i> , <i>Chilo zacconius</i> , <i>Sesamia calamistis</i>	Heinrichs et al (1985a)
Takeda-wase	Japan	Stem borers	Chaudhary et al (1984)
Talai Sunga	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
Tamaguem	Korea	Stem borers	Chaudhary et al (1984)
Tango-chuto	Japan	Stem borers	Chaudhary et al (1984)
Tapa 1	–	Stem borers	Prakasa Rao (1977), Chaudhary et al (1984)
Tapuripa	Colombia	<i>Rupela albinella</i>	CIAT (1972)
Taring Pelanduk	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
TC37	Indonesia	<i>Scirpophaga incertulas</i>	Prakasa Rao (1977), Heinrichs et al (1985a)
TCA32	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
TCA180-4	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
TCA181-1	Thailand	<i>Scirpophaga incertulas</i>	Catling et al (1984e)
TD10 A	Thailand	<i>Diopsis macrophthalma</i>	IITA (1978), Heinrichs et al (1985a)
Tedori-wase	Japan	<i>Chilo suppressalis</i>	Patanakamjorn and Pathak (1967), Heinrichs et al (1985a)
Tepa I	India	Stem borers	Israel (1967), CRRRI (1969)
Tepa II	India	Stem borers	Israel (1967)
Terabali	Bangladesh	<i>Scirpophaga incertulas</i>	IRGC database
Terung Daun	Indonesia	<i>Scirpophaga incertulas</i>	IRGC database
Tetep	Vietnam	<i>Chilo zacconius</i> <i>Scirpophaga incertulas</i> <i>Sesamia inferens</i>	IITA (1974) Velusamy et al (1975), Heinrichs et al (1985a) Bhau et al (1984)
Tewadah	Thailand	<i>Scirpophaga incertulas</i>	IRGC database
Thailand	Thailand	Stem borers	Viado and Matthyse (1955)
Thella Garikasanavari	India	<i>Chilo suppressalis</i>	Choi (1975b)
Ti Jo Hung	–	<i>Diatraea saccharalis</i> <i>Chilo suppressalis</i>	Martins et al (1977b), Heinrichs et al (1985a)
		<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Pathak and Khush (1975), Martins and Zimmermann (1976), Khush (1977), Martins (1983)
		<i>Diatraea saccharalis</i>	Martins and Zimmermann (1976), Martins (1983)
TKM1	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
TKM2	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
TKM3	India	<i>Chilo suppressalis</i>	Khush (1977)
		Stem borers	Israel (1967), CRRRI (1969)
TKM6	India	<i>Chilo suppressalis</i>	Pathak et al (1971), Pathak (1972), Akinsola (1973), Pathak and Khush (1975), Choi (1975b), Martins and Zimmermann (1976), Khush (1977), Pathak and Saxena (1980), Martins (1983), Heinrichs et al (1985a)
		<i>Chilo suppressalis</i> , <i>Sesamia inferens</i> , <i>Scirpophaga incertulas</i> , <i>Scirpophaga innotata</i>	IRRI (1970), Pathak et al (1971), Pathak (1972), Chang et al (1975), Chaudhary et al (1984)
		<i>Chilo suppressalis</i> , <i>Maliarpha separatella</i>	IITA (1974)
		<i>Diatraea saccharalis</i>	Martins and Zimmermann (1976), Martins et al (1977b), Martins (1983)
		<i>Maliarpha separatella</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
		<i>Scirpophaga incertulas</i>	Prakasa Rao (1972b), CRRRI (1976b), Khush (1977), CRRRI (1980a), Chang Poon Min et al (1981), Chaudhary et al (1984)
		<i>Sesamia calamistis</i> , <i>Chilo zacconius</i> , <i>Maliarpha separatella</i>	IITA (1974), Soto and Siddiqi (1976b)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
		Stem borers	Israel et al (1959), Pathak (1966), Israel (1967), Chandler (1968), CRR (1969), Wongsiri et al (1971), Khush (1971), Oliver et al (1971), Khush and Beachell (1972), Oliver et al (1973), Heong (1977), Prakasa Rao (1977). Alam et al (1979), Chaudhary et al (1984)
TKM6	India (Sanna Swarnavari)	<i>Chilo suppressalis</i>	Pathak et al (1971), Akinsola (1973)
TKM9	India	<i>Scirpophaga incertulas</i>	Akinsola (1973), IRGC database
TM8089	India	<i>Scirpophaga incertulas</i>	Balasubramanian et al (1986)
TNI	Taiwan-China	<i>Scirpophaga incertulas</i>	Saroja et al (1987a)
		Stem borers	Chang Poon Min et al (1981)
TN73-2	–	<i>Chilo suppressalis</i>	Israel (1969), Khush (1977)
TNR1	India	<i>Scirpophaga incertulas</i>	Khush (1977)
TNR2	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
TOg6390	Liberia	<i>Diopsis macrophthalma</i>	Velusamy et al (1975), Heinrichs et al (1985a)
TOg6481	Liberia	<i>Diopsis macrophthalma</i>	IITA (1983)
Tone-wase	Japan	<i>Chilo suppressalis</i>	IITA (1983)
			Patanakamjorn and Pathak (1967), Heinrichs et al (1985a)
Tongil	Korea	<i>Chilo suppressalis</i>	Choi (1975b)
Toride 1	Japan	<i>Sesamia inferens</i>	Bhatt et al (1984)
TOs2513	Nigeria	<i>Chilo zacconius</i>	IITA (1975), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
TOs272	USA	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs285	USA	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs3212	Ivory Coast	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs3213	Ivory Coast	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs372	Indonesia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs373	Indonesia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs4121	Indonesia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs5267	Ivory Coast	<i>Diopsis macrophthalma</i>	Alghali and Osisanta (1982b), Alghali (1983)
TOs5677	Nigeria	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs5734	Liberia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs5792	Liberia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs5827	Liberia	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs657	USA	<i>Diopsis macrophthalma</i>	IITA (1983)
TOs663	Nigeria	<i>Diopsis macrophthalma</i>	IITA (1983)
TOx891-212-2-102-1-1	Ghana	<i>Diopsis macrophthalma</i>	IITA (1983)
TOx916-6-1-101-2	Ghana	<i>Diopsis macrophthalma</i>	IITA (1983)
TOx936-152-5-3-3	Ghana	<i>Diopsis macrophthalma</i>	IITA (1983)
TR1	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975), Heinrichs et al (1985a)
TR3	India	Stem borers	Israel (1967)
		<i>Chilo suppressalis</i>	Khush (1977)
TX52-2-4	USA, Nigeria	<i>Diopsis macrophthalma</i>	IITA (1973, 1974), Soto and Siddiqi (1976b), Heinrichs et al (1985a)
Ubak Abun	Malaysia	<i>Scirpophaga incertulas</i>	IRGC database
UPL Ri-4	Philippines	Stem borers	Bueno (1983a,b)
UPRB17	India	<i>Scirpophaga incertulas</i>	IRGC database
UPRB42	India	<i>Scirpophaga incertulas</i>	IRGC database
UPRB54	India	<i>Scirpophaga incertulas</i>	IRGC database
UPRB79	India	<i>Scirpophaga incertulas</i>	IRGC database
UPRB83	India	<i>Scirpophaga incertulas</i>	IRGC database
V. C. Miracle Rice	Vietnam	<i>Scirpophaga incertulas</i>	IRGC database
Vaigai	India	<i>Scirpophaga incertulas</i>	Saroja et al (1987a)
Vijaya	India	<i>Scirpophaga incertulas</i>	Prakasa Rao (1972b)
		Stem borers	Khush (1977)
VL8	India	<i>Sesamia inferens</i>	Bhatt et al (1984), Garg (1984)
VRS163-2-3	–	<i>Sesamia inferens</i>	Garg (1984)
VRS245-2-1	–	<i>Sesamia inferens</i>	Garg (1984)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
VRS291-3-1	—	<i>Sesamia inferens</i>	Garg (1984)
VRS598-3-1	—	<i>Sesamia inferens</i>	Garg (1984)
Vunam	—	<i>Chilo suppressalis</i>	Choi (1975b)
W361	India	Stem borers	CRRI (1960)
W488	India	Stem borers	Israel (1967)
W1236	India	<i>Scirpophaga incertulas</i>	Banerjee (1972)
W1251	India	<i>Scirpophaga incertulas</i>	Banerjee (1972), Akinsola (1973), Manwan and Vega (1975), Khush (1977), Heinrichs et al (1985a)
W1253	India	<i>Scirpophaga incertulas</i>	Banerjee (1972), Akinsola (1973), Manwan (1975), Manwan and Vega (1975), Khush (1977), Chaudhary et al (1984), Heinrichs et al (1985a), Prakasa Rao and Padhi (1988a)
W1257	India	<i>Scirpophaga incertulas</i>	Khush (1977), Heinrichs et al (1985a)
W1263	India	<i>Chilo suppressalis</i>	Manwan and Vega (1975), Heinrichs et al (1978), Balasubramanian et al (1986) IITA (1974)
		<i>Chilo zacconius</i> ,	
		<i>Sesamia calamistis</i>	
		<i>Scirpophaga incertulas</i>	Israel (1967), Velusamy et al (1975), Manwan (1975), Khush (1977), CRRI (1980a), Chang Poon Min et al (1981), Chandramohan and Chelliah (1983, 1984b), Chaudhary et al (1984), Heinrichs et al (1985a), Prakasa Rao and Padhi (1988a)
		<i>Sesamia calamistis</i> ,	IITA (1973)
		<i>Maliarpha separatella</i>	
		<i>Sesamia calamistis</i> ,	IITA (1974), Soto and Siddiqi (1976b)
		<i>Chilo zacconius</i> ,	
		<i>Maliarpha separatella</i>	
Washi-shirage	—	<i>Chilo suppressalis</i>	Pathak (1967c)
White Atte	Nepal	<i>Scirpophaga incertulas</i>	IRGC database
White Gora S. N. 40	India	<i>Scirpophaga incertulas</i>	IRGC database
White Gora S. N. 117	India	<i>Scirpophaga incertulas</i>	IRGC database
White Putthu	India	<i>Scirpophaga incertulas</i>	Velusamy et al (1975)
WIR3022	USSR	<i>Scirpophaga incertulas</i>	IRGC database
WND-1	India	Stem borers	Israel (1967)
World Collection 1203	USA	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 1210	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1218	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1219	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
	—	Stem borers	Oliver et al (1971, 1973)
World Collection 1221	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1229	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1253	India	<i>Scirpophaga incertulas</i>	Heinrichs et al (1985a)
World Collection 1296	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1345	—	<i>Sesamia calamistis</i>	Dobelmann and Falais (1968)
World Collection 1539	—	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 1541	Japan	<i>Chilo plejadellus</i>	Oliver et al (1970)
		<i>Diatraea saccharalis</i>	Oliver et al (1973), Oliver and Gifford (1975), Heinrichs et al (1985a)
World Collection 1584	Japan	<i>Chilo plejadellus</i> ,	Oliver et al (1970),
		<i>Diatraea saccharalis</i>	Oliver et al (1971, 1972b)
		<i>Diatraea saccharalis</i>	Oliver et al (1973), Oliver and Gifford (1975), Heinrichs et al (1985a)
		Stem borers	Oliver et al (1971, 1973)
World Collection 2459	Italy	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)

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Table 3 continued

Resistant varieties/lines ^a	Country of origin	Stem borer species	Reference (s)
World Collection 2469	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2489	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2491	Italy	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 2496	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2544	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2553	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2566	Spain	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 2771	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2779	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 2888	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3034	Indonesia	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3042	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3050	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3081	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3086	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3108	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3348	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3415	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3602	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3604	China	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3631	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3669	USA	<i>Chilo plejadellus</i>	Oliver et al (1970)
		<i>Diatraea saccharalis</i>	Martins et al (1977b), Heinrichs et al (1985a)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3680	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
World Collection 3715	Japan	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3756	Pakistan	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3760	Philippines	<i>Chilo plejadellus</i>	Oliver et al (1970)
		Stem borers	Oliver et al (1971, 1973)
World Collection 3934	–	<i>Chilo plejadellus</i>	Oliver et al (1970)
X.2.D.T.	Vietnam	<i>Diopsis macrophthalma</i>	IITA (1983)
Y TENG	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Yabami Montakhab	Egypt	<i>Chilo suppressalis</i>	Heinrichs et al (1985a)
	–	Stem borers	Chaudhary et al (1984)
Yabami Montakhab 55	Egypt	<i>Chilo suppressalis</i>	Pathak (1972)
Yamadanishiki	Japan	<i>Chilo suppressalis</i>	Khush (1977)
		Stem borers	Chaudhary et al (1984)
Yambi Montakhab	Egypt	<i>Chilo suppressalis</i>	Patanakamjom and Pathak (1967)
Yambi Monlakhhab 55	Egypt	<i>Chilo suppressalis</i>	Pathak et al (1971), Chang et al (1975)
Yangkhuke	Nepal	<i>Scirpophaga incertulas</i>	IRGC database
Yorumoyukimochi	Japan	Stem borers	Chaudhary et al (1984)
YT1044	–	Stem borers	Alam et al (1979)
Ytay	Laos	<i>Scirpophaga incertulas</i>	IRGC database
Yubae	Japan	<i>Chilo suppressalis</i>	Khush (1977)
Yungkwang	Korea	Stem borers	Chaudhary et al (1984)
Yuubae	Japan	Stem borers	Chaudhary et al (1984)
Zenith	Puerto Rico	<i>Sesamia inferens</i>	Bhatt et al (1984)

^a Damage score of 3 or less on 0-9 scale (IRRI 1988c).

^b Origin of rice variety/line not known.

^c International Rice Germplasm Center, International Rice Research Institute.

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TABLE 4

Wild rices resistant to stem borers

Resistant wild rice species ^a	IRGC accession number	Country/continent of origin	Resistant to stem borer species	Reference(s)
<i>O. alta</i> Swallen	100161	Brazil	<i>S. incertulas</i>	IRGC ^b database
<i>O. alta</i> Swallen	100888	Latin America	<i>S. incertulas</i>	IRGC database
<i>O. alta</i> Swallen	100952	Latin America	<i>S. incertulas</i>	IRGC database
<i>O. alta</i> Swallen	100967	Surinam	<i>S. incertulas</i>	IRGC database
<i>O. alta</i> Swallen	101395	Latin America	<i>S. incertulas</i>	IRGC database
<i>O. australiensis</i> Domin	101144	Australia	<i>S. incertulas</i>	IRGC database
<i>O. australiensis</i> Domin	103303	Australia	<i>S. incertulas</i>	IRGC database
<i>O. australiensis</i> Domin	103318	Australia	<i>S. incertulas</i>	IRGC database
<i>O. australiensis</i> Domin	105165	Australia	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. barthii</i> A. Chev.	100122	Gambia	<i>C. suppressalis</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	100115	Guinea	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101231	Sierra Leone	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101232	Sierra Leone	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101233	Sierra Leone	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101234	Sierra Leone	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101235	Sierra Leone	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	101236	Mali	<i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	105150	Sierra Leone	<i>C. suppressalis</i> , <i>S. incertulas</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	105151	Sierra Leone	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. brachyantha</i> A. Chev. et Roehr.	105152	Sierra Leone	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. eichingeri</i> A. Peter	101418	Uganda	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. eichingeri</i> A. Peter	101421	Uganda	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. eichingeri</i> A. Peter	101422	Uganda	<i>S. incertuhr</i>	IRRI (1981a), Chaudhary et al (1984)
<i>O. eichingeri</i> A. Peter	101424	Uganda	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. eichingeri</i> A. Peter	101425	Uganda	<i>S. incertulas</i>	IRGC database
<i>O. eichingeri</i> A. Peter	101426	Uganda	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. eichingeri</i> A. Peter	101430	Uganda	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984)
<i>O. eichingeri</i> A. Peter	105159	Uganda	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. eichingeri</i> A. Peter	105163	Uganda	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. eichingeri</i> A. Peter	105181	Uganda	<i>C. suppressalis</i>	IRGC database
<i>O. glumaepatula</i> Steud.	100894	Latin America	<i>C. suppressalis</i>	IRGC database
<i>O. grandiglumis</i> (Doell) Prod.	105144	Brazil	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. grandiglumis</i> (Doell) Prod.	105155	Brazil	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. grandiglumis</i> (Doell) Prod.	105156	Brazil	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. granulata</i> Nees et Am. ex Watt	102119	Myanmar	<i>C. suppressalis</i>	IRGC database
<i>O. latifolia</i> Desv.	100170	Costa Rica	<i>S. incertulas</i>	IRGC database

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Table 4 continued.

Resistant wild rice species ^a	IRGC accession number	Country/continent of origin	Resistant to stem borer species	Reference(s)
<i>O. latifolia</i> Desv.	100171	Guatemala	<i>S. incertulas</i>	IRGC database
<i>O. latifolia</i> Desv.	101443	Mexico	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. latifolia</i> Desv.	102481	Nicaragua	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. latifolia</i> Desv.	105141	Costa Rica	<i>S. incertulas</i>	IRGC database
<i>O. latifolia</i> Desv.	105142	Costa Rica	<i>S. incertulas</i> <i>C. suppressalis</i>	IRGC database
<i>O. latifolia</i> Hook	100966	Panama	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. longiglumis</i> Jansen	105148	Indonesia	<i>C. suppressalis</i>	IRGC database
<i>O. longistaminata</i> A. Chev. et Roehr.	101754	Senegal	<i>S. incertulas</i>	IRGC database
<i>O. longistaminata</i> A. Chev. et Roehr.	101383	Mali	<i>S. incertulas</i>	IRGC database
<i>O. malampuzhaensis</i> Krish. et Chand.	100957	India	<i>S. incertulas</i>	IRGC database
<i>O. meridionalis</i> Ng	103317	Australia	<i>S. incertulas</i>	IRGC database
<i>O. meridionalis</i> Ng	103321	Australia	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101079	Philippines	<i>C. suppressalis</i>	IRRI (1983), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101080	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101083	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101086	Philippines	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101089	Philippines	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101092	Philippines	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101094	Philippines	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101096	Philippines	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101128	Philippines	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101129	Philippines	<i>C. suppressalis</i>	IRRI (1983), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	101141	Philippines	<i>C. suppressalis</i>	IRRI (1983), IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	104676	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	105124	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	105125	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	105126	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. minuta</i> J. S. Presl. ex C. B. Pres.	105130	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103419	Sri Lanka	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103830	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103837	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103838	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103839	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103840	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	103841	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> Sharma et Shastry	104408	Thailand	<i>C. suppressalis</i>	IRGC database
<i>O. nivara</i> / <i>O. rufipogon</i>	102168	India	<i>C. suppressalis</i>	IRRI (1983), IRGC database
<i>O. nivara</i> / <i>O. rufipogon</i>	103814	China	<i>S. incertulas</i>	IRGC database
<i>O. nivara</i> / <i>O. sativa</i>	103842	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	100878	Thailand	<i>C. suppressalis</i>	IRRI (1983), IRGC database
<i>O. officinalis</i> Wall ex Watt	100925	Myanmar	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	100947	India	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. officinalis</i> Wall ex Watt	100948	India	<i>S. incertulas</i>	IRRI (1981a), IRGC database
<i>O. officinalis</i> Wall ex Watt	100949	India	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	100953	Asia	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. officinalis</i> Wall ex Watt	100973	Philippines	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. officinalis</i> Wall ex Watt	101151	Brunei	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	101154	Malaysia	<i>C. suppressalis</i>	IRRI (1983), IRGC database

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Table 4 continued.

Resistant wild rice species ^a	IRGC accession number	Country/continent of origin	Resistant to stem borer species	Reference(s)
<i>O. officinalis</i> Wall ex Watt	101999	Sri Lanka	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	102382	Indonesia	<i>S. incertulas</i>	IRRI (1981a)
<i>O. officinalis</i> Wall ex Watt	102383	Indonesia	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	103285	Indonesia	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	103286	Indonesia	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105095	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105096	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105098	Brunei	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105100	Brunei	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105101	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105102	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105103	Brunei	<i>C. suppressalis</i> , <i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105104	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105105	Brunei	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105106	Malaysia	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105111	Indonesia	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105112	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105113	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105118	Philippines	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105174	Malaysia	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105175	Philippines	<i>C. suppressalis</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105178	Philippines	<i>S. incertulas</i>	IRGC database
<i>O. officinalis</i> Wall ex Watt	105220	Indonesia	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	100125	Africa	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	100126	Africa	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	100884	Africa	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	100937	Ghana	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. punctata</i> Kotschy ex Steud.	100954	Africa	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984)
<i>O. punctata</i> Kotschy ex Steud.	101167	Malaysia	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	101389	Africa	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	101417	Kenya	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRRI (1981a), Chaudhary et al (1984), IRGC database
<i>O. punctata</i> Kotschy ex Steud.	101434	Tanzania	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	101439	Ghana	<i>S. incertulas</i>	IRRI (1981a), Chaudhary et al (1984)
<i>O. punctata</i> Kotschy ex Steud.	103887	Tanzania	<i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	105153	Nigeria	<i>C. suppressalis</i> , <i>S. incertulas</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	105154	Nigeria	<i>S. incertulas</i> , <i>C. suppressalis</i>	IRGC database
<i>O. punctata</i> Kotschy ex Steud.	105158	Kenya	<i>S. incertulas</i>	IRGC database
<i>O. rhizomatis</i> Vaughan	103417	Sri Lanka	<i>S. incertulas</i>	IRGC database
<i>O. ridleyi</i> Hook f.	100821	Southeast Asia	<i>S. incertulas</i>	IRGC database, Padhi and Prakasa Rao (1978), Caballero et al (1988)
<i>O. ridleyi</i> Hook f.	100820	Southeast Asia	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	100926	Myanmar	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	101186	Taiwan-China	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	103823	China	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	103827	Bangladesh	<i>C. suppressalis</i>	IRGC database
<i>O. rufipogon</i> Griff.	103844	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	103849	India	<i>S. incertulas</i>	IRGC database
<i>O. rufipogon</i> Griff.	104409	Thailand	<i>C. suppressalis</i>	IRGC database
<i>O. rufipogon</i> / <i>O. nivara</i>	103307	Taiwan-China	<i>C. suppressalis</i>	IRGC database
<i>O. rufipogon</i> / <i>O. nivara</i>	103796	Myanmar	<i>C. suppressalis</i>	IRGC database

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Table 4 continued.

Resistant wild rice species ^a	IRGC accession number	Country/continent of origin	Resistant to stem borer species	Reference(s)
<i>O. rufipogon</i> / <i>O. nivara</i>	104056	China	<i>S. incertulas</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	100586	India	<i>C. suppressalis</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104403	Thailand	<i>C. suppressalis</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104406	Thailand	<i>C. suppressalis</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104407	Thailand	<i>C. suppressalis</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104436	Thailand	<i>S. incertulas</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104448	Thailand	<i>S. incertulas</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104464	Thailand	<i>S. incertulas</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104475	Thailand	<i>S. incertulas</i>	IRGC database
<i>O. sativa</i> / <i>O. nivara</i>	104481	Thailand	<i>S. incertulas</i>	IRGC database
<i>O. spontanea</i> Roschev.	102172	India	<i>C. suppressalis</i>	IRGC database
<i>O. spontanea</i> Roschev.	103826	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. spontanea</i> Roschev.	103832	Bangladesh	<i>S. incertulas</i>	IRGC database
<i>O. spontanea</i> Roschev.	103833	Bangladesh	<i>S. incertulas</i>	IRGC database

^aDamage score of 3 or less on 0-9 scale (IRRI 1988c).

^bInternational Rice Germplasm Center, International Rice Research Institute.

TABLE 5

Natural enemies of rice stem borers worldwide

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
INSECTA				
COLEOPTERA				
Anthicidae ^a				
<i>Formicomus braminus braminus</i> La Ferte-Senectere	Stem borers	Egg	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
Carabidae ^a				
<i>Calathus halensis</i> Schaller	<i>Chilo suppressalis</i>	NM ^c	South and Southeast Asia	Yasumatsu (1967c)
<i>Calosoma alternans</i> [=armata Lap.] Fabricius	<i>Elasmopalpus lignosellus</i>	NM	Venezuela	Guagliumi (1966), Salinas (1976)
<i>Chlaenius costiger</i> Chaudoir	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Chlaenius pallipes</i> Gebler	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Chlaenius posticalis</i> Motschulsky	<i>Sesamia inferens</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Chlaenius</i> sp.	<i>Sesamia inferens</i>	NM	Taiwan-China	Yanagihara (1934)
<i>Colliurus</i> sp. nr. <i>distigma</i> (Chaudhary)	<i>Sesamia inferens</i>	Egg/Larva	Malaysia	Rothschild (1971)
<i>Drypta</i> sp. nr. <i>japonica</i> Bates	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
<i>Drypta (Lachnocrepis) japonica</i> (Bates)	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Scirpophaga incertulas</i>	Larva	Japan	Ito et al (1962)	
<i>Ophionea indica</i> (Thunberg) [= <i>Casnoidea indica</i>]	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Barrion (1979)
	<i>Sesamia inferens</i>	Larva	Hongkong	Thornton et al (1975)
		Larva	Philippines	Barrion (1979)
		NM	South and Southeast Asia	Yasumatsu (1967c)
	Stem borers	NM	Indonesia	Chu (1979)
		Egg	Thailand	Yasumatsu et al (1981)
		Egg/Larva	Thailand	JICA (1981)
<i>Ophionea interstitiales</i> (Schmidt- Goebel) [= <i>Casnoidea interstitiales</i> (Schmidt-Goebel)]	<i>Scirpophaga innotata</i>	NM	Indonesia	Thompson and Simmonds (1964)
<i>Ophionea ishii ishii</i> Habu	Stem borers	Egg	Pakistan	Beg et al (1967)
		Egg/Larva	Thailand	Yasumatsu et al (1981)
<i>Ophionea nigrofasciata</i> (Schmidt-Goebel)	Stem borers	Larva	Thailand	JICA (1981)
		Larva	Philippines	Reissig et al (1986)
<i>Pheropsophus jessoensis</i> Morawitz	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Pheropsophus</i> sp.	<i>Scirpophaga incertulas</i>	Larva	Philippines	Barrion (1979)
<i>Scarites terricola</i> Bonelli	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
	<i>Sesamia inferens</i>	NM	Taiwan-China	Yanagihara (1934)
Coccinellidae ^a				
<i>Chilomenes</i> sp.	<i>Chilo partellus</i>	Egg/Larva	Kenya	Seshu Reddy (1983)
	<i>Chilo polychrysus</i>	Larva	Philippines	Barrion (1979)
<i>Coccinella arcuata</i> (Fabricius) [= <i>Harmonia arcuata</i> (Fabricius)]	Stem borers	NM	Indonesia	Sastrodihardjo (1971)
	<i>Chilo polychrysus</i>	Larva	Philippines	Barrion (1979)
	<i>Chilo suppressalis</i>	Larva	Philippines	Barrion (1979)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Barrion (1979)
	<i>Scirpophaga innotata</i>	Larva	Philippines	Barrion (1979)
<i>Coleomegilla maculata</i> (De Geer)	<i>Diatraea saccharalis</i>	NM	Colombia	CIAT (1981)
		NM	Latin America	Gonzales et al (1983)
<i>Harmonia octomaculata</i> (Fabricius)	Stem borers	Egg	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
		Egg/Larva	Thailand,	JICA (1981)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Menochilus sexmaculatus</i> Fabricius	<i>Chilo polychrysus</i>	Larva	Philippines	Barrion (1979)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Barrion (1979)
<i>Micraspis</i> (= <i>Alesia</i>) <i>discolor</i> (Fabricius)	<i>Chilo polychrysus</i>	Egg	Malaysia	Yunus and Hua (1980)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Egg	Thailand	JICA (1981)
	<i>Scirpophaga innotata</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Thailand	Yasumatsu et al (1975)
	Stem borers	Egg	Thailand	Yasumatsu et al (1981)
		Egg/Larva	Thailand	JICA (1981)
<i>Micraspis</i> sp.	Stem borers	Egg	Thailand	Wongsiri (1980)
<i>Micraspis vincta</i> (Gorham)	<i>Chilo polychrysus</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Thailand	Yasumatsu et al (1975)
Elateridae ^a				
<i>Monocrepidius</i> sp.	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
Histeridae ^a				
<i>Lioderma quadridentatum</i> Fabricius	<i>Diatraea saccharalis</i>	Larva/Adult	Guyana	Box (1926)
Lampyridae ^c				
<i>Chauliognathus marginatus</i> Fabricius	<i>Diatraea saccharalis</i>	Larva	USA	Ingram and Bynum (1941)
Malachiidae ^a				
<i>Apalochrus rufofasciatus</i> Pic	Stem borers	Egg	Thailand	Yasumatsu et al (1981)
Staphylinidae ^a				
<i>Hypostena</i> sp.	<i>Diatraea saccharalis</i>	Larva/Pupa	Puerto Rico	Jones (1915)
<i>Paederus fuscipes</i> Curtis	<i>Chilo polychrysus</i>	Egg/Larva	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Larva/Pupa	Japan	Ito et al (1962)
		Larva	Philippines	Barrion (1979)
		NM	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM	Far East	Thompson and Simmonds (1965)
		Larva/Pupa	Japan	Ito et al (1962)
		NM	Malaysia	Manley (1977)
		Egg/Larva	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	NM	Indonesia	Thompson and Simmonds (1965)
		Egg/Larva	Thailand	Yasumatsu et al (1975)
		NM	Indonesia	Chu (1979)
		Egg	Thailand	Wongsiri (1980)
	<i>Paederus idae</i> Lewis	<i>Scirpophaga incertulas</i>	Egg	China, Japan, Taiwan-China	Manickavasagar and Miyashita (1959)
		Egg	Taiwan-China	Rao (1965)
		NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Paederus mixtus</i> Sharp	<i>Scirpophaga incertulas</i>	Egg	Taiwan-China	Rao (1965)
<i>Paederus</i> sp.	<i>Chilo auricilius</i>	Larva	Malaysia	Wyatt (1957), Heong (1978)
	<i>Chilo polychrysus</i>	Larva	Malaysia	Wyatt (1957), Heong (1978)
	<i>Chilo suppressalis</i>	Larva	Malaysia	Wyatt (1957), Heong (1978)
	<i>Scirpophaga incertulas</i>	Larva	Malaysia	Wyatt (1957), Heong (1978)
	<i>Sesamia inferens</i>	Larva	Malaysia	Wyatt (1957), Heong (1978)
Tenebrionidae ^d				
<i>Gonocephalum depressum</i> Fabricius	<i>Chilo partellus</i>	Adult	India	Rathore (1969), Neupane (1982)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
DERMAPTERA ^d				
Carcinophoridae				
<i>Anisolabis annulipes</i> Lucas	<i>Sesamia inferens</i>	NM	Taiwan-China	Yanagihara (1934)
<i>Euborellia annulata</i> (Fabricius)	<i>Sesamia inferens</i>	Larva	Philippines	Bamon et al (1987)
[= <i>Euborellia stali</i> (Dohm)]				
[= <i>Forcinella stali</i> Dohm]				
[= <i>Forficula annulata</i> Fabricius]				
[= <i>Labia annulata</i> Burr]				
[= <i>Anisolabis stali</i> Borelli]				
[= <i>Anisolabis minuta</i> Cardell]				
[= <i>Euborellia minuta</i> Burr]				
[= <i>Euborellia annulata</i> Brindle]				
Chelisochoidea				
<i>Adiathella philippinensis</i> Srivastava	<i>Chilo suppressalis</i>	Larva	Philippines	Barrion (1979)
	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
<i>Chelisoche morio</i> (Fabricius)	<i>Chilo polychrysus</i>	Larva	Philippines	Barrion (1979)
[= <i>Forficula morio</i> Fabricius]	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
<i>Proreus simulans</i> Stål	<i>Chilo polychrysus</i>	Larva	Philippines	Barrion (1979)
	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
		NM	Taiwan-China	Yanagihara (1934)
DIPTERA				
Anthomyiidae ^a				
<i>Dichaetomyia pallitarsis</i> Cameron	<i>Chilo polychrysus</i>	Larva	Malaysia	Yunus and Hua (1980)
	<i>Chilo suppressalis</i>	NM	Malaysia	Corbett and Miller (1933), Rao (1965)
		NM	South and Southeast Asia	Yasumatsu (1967c)
	<i>Sesamia inferens</i>	Larva	Malaysia	Rao (1972), Yunus and Hua (1980)
Asilidae ^a				
<i>Ommatidius chinensis</i> Fabricius	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
[= <i>Ommatidius fulvidus</i> Wiedemann]				
Ceratopogonidae ^a				
<i>Ceratopogon risbeci</i> Seguy	<i>Acigona ignefusalis</i>	NM	Madagascar	Risbec (1960), Appert (1964)
Chloropidae				
<i>Anacamptoneurum</i> sp.	<i>Sesamia inferens</i>	NM	India	Rao and Nagaraja (1969)
<i>Anatrichus pygmaeus</i> Lamb ^a	<i>Chilo polychrysus</i>	Larva	Bangladesh, India, Malaysia, Pakistan, Taiwan-China, Thailand	Wongsiri et al (1974)
[= <i>Anatrichus erinaceus</i> Loew]		Larva	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh, India, Malaysia, Pakistan, Philippines, Taiwan-China, Thailand	Wongsiri et al (1974)
		Larva	Philippines	Barrion (1979)
		NM	South and Southeast Asia	Yasumatsu (1967c)
		Adult	Taiwan-China	Shiraki (1917), Rao (1965)
	<i>Sesamia inferens</i>	Larva	India	Rao (1965), Rao and Nagaraja (1969)
		Larva	India, Pakistan	Rao (1972)
	Stem borers	Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)
	Stem borers	Larva	Thailand	JICA (1981)
	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980).
				Yasumatsu et al (1981)
<i>Aphiocheta xanthina</i> Speiser ^c	<i>Sesamia</i> spp.	NM	Africa	Appert (1964)
<i>Epimadiza</i> sp. ^c	<i>Acigona ignefusalis</i>	NM	Africa	Appert (1964)
<i>Oscinosoma risbeci</i> Seguy ^c	<i>Acigona ignefusalis</i>	NM	Africa	Appert (1964)
	<i>Sesamia inferens</i>	NM	Africa	Appert (1964)
<i>Polyodaspis</i> sp. <i>robusta</i> Lamb ^c	<i>Chilo partellus</i>	Larva	Kenya	Mathez (1972)
	<i>Sesamia colamistis</i>	Larva	Kenya	Mathez (1972)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Steleocerellus maculicoxa</i> (Kanmiya) ^b [= <i>Mepchymerus tenellus</i> Becker]	<i>Sesamia inferens</i>	NM	India	Rao and Nagaraja (1969)
Diopsidae				
<i>Diopsis</i> (= <i>Tenuipes</i>) <i>apicalis</i> Dalman ^d	<i>Diopsis macrophthalma</i>	Larva	Ghana	Scheibelreiter (1974)
Ephydriidae				
<i>Ephydrid</i> sp. ^b	<i>Sesamia</i> spp.	Pupa	Sierra Leone	Jordan (1966)
Muscidae				
<i>Atherigona</i> sp. (<i>orientalis</i> group) ^d	<i>Busseola fusca</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
<i>Atherigona</i> sp. ^d	<i>Chilo partellus</i>	Larva	Kenya	La Croix (1967), Mathez (1972)
	<i>Sesamia calamistis</i>	Larva	Kenya	Mathez (1972)
<i>Myospila</i> (= <i>Helinella</i>) <i>lenticeps</i> (Thompson) ^d	<i>Chilo partellus</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
<i>Phaonia</i> sp. ^d	<i>Sesamia inferens</i>	NM	India	Rao and Nagaraja (1969)
Oestridae				
Dexiid fly ^c	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
Phoridae				
<i>Aphiochaeta parasitica</i> Shiraki ^b	<i>Scirpophaga incertulas</i>	Larva	Taiwan-China	Manickavasagar and Miyashita (1959)
<i>Megaselia scalaris</i> Loew ^b	<i>Chilo suppressalis</i>	Larva/Pupa	Philippines	Barrion (1979), Barrion and Litsinger (1979)
	<i>Scirpophaga incertulas</i>	Larva/Pupa	Bangladesh, China	Barrion and Litsinger (1979)
<i>Megaselia</i> sp. ^b	<i>Diatraea saccharalis</i>	Larva	Cuba	Plank (1929b)
	<i>Scirpophaga incertulas</i>	Larva	China	Chiu (1942), Manickavasagar and Miyashita (1959)
		Larvupupa	South and Southeast Asia	Yasumatsu (1967c)
Phorid fly, unidentified ^b	<i>Scirpophaga</i> spp.	Larva	Pakistan	Rao (1972)
	<i>Busseola fusca</i>	Pupa	Uganda	Ingram (1958)
	<i>Chilo partellus</i>	NM	India	Butani (1957)
Pipunculidae				
<i>Pipunculus risbeci</i> Seguy ^d	<i>Chilo zacconius</i>	NM	Senegal	Brénière (1969)
Platystomatidae ^a				
<i>Poecilotrapphera gamma</i> Hind	<i>Chilo</i> sp.	NM	Malaysia	Yunus and Hua (1980)
	<i>Sesamia inferens</i>	Larva	Malaysia	Yunus and Hua (1980)
<i>Poecilotrapphera taeniata</i> (Macquart)	<i>Chilo polychrysus</i>	Larva	Bangladesh, Hongkong, Indonesia, Malaysia, Philippines, Taiwan-China, Thailand	Wongsiri et al (1974)
		Larva	Bangladesh	Alam et al (1981a)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Larva	Bangladesh	Catling and Alam (1977)
	<i>Scirpophaga incertulas</i>	Larva	Pakistan	Alam (1971)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Larva	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Larva	Thailand	Yasumatsu et al (1975)
	Stem borers	Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)
	Stem borers	Larva	Thailand	JICA (1981)
	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
Sarcophagidae ^b				
<i>Sarcophaga benefactor</i> Malloch	<i>Busseola fusca</i>	NM	East Africa	Appert (1964)
<i>Sarcophaga calicifera</i> Boettcher	<i>Chilo polychrysus</i>	Larva	Malaysia	Lever (1956b), Walker (1959), Nickel (1964), Greathead (1979), Yunus and Hua (1980)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Sarcophaga dux scopariiformis</i> S.W.	Stem borers	NM	Malaysia	Lever (1956b)
<i>Sarcophaga heliicis</i> Townsend	<i>Diatraea saccharalis</i>	NM	Cuba	Plank (1929b)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Sarcophaga orientalis</i> Part	<i>Sesamia inferens</i>	Larva	Malaysia	Walker (1959), Nickel (1964), Rao and Nagaraja (1969), Yunus and Hua (1980)
<i>Sarcophaga pedata</i> Wulp	<i>Diatraea saccharalis</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Sarcophaga</i> sp.	<i>Busseola fusca</i>	NM	Cuba	Plank (1929b)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Sesamia inferens</i>	NM	India	Mohyuddin and Greathead (1970)
<i>Sarcophaga sternodontis</i> Townsend	<i>Diatraea saccharalis</i>	Pupa	Cuba	Rao and Nagaraja (1969)
<i>Sarcophaga surrubea</i> Wulp	<i>Diatraea saccharalis</i>	NM	Cuba	Van Dine (1926), Van Zwaluwenburg (1926), Plank (1929b), Angeles et al (1960)
Stratiomyidae ^a				Plank (1927)
Stratiomyid fly; unidentified	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
Tabanidae				
Tabanid fly ^{cd}	<i>Diopsis macrophthalma</i>	Larva/Pupa	Cameroon	Descamps (1957a)
<i>Tabanus</i> sp. ^c	<i>Scirpophaga incertulas</i>	NM	Philippines	Kumhof (1986)
<i>Tabanus striatus</i> Fabricius ^a	<i>Chilo polychrysus</i>	Larva	Malaysia	Lever (1956a,b), Yunus and Hua (1980)
Tachinidae ^b				
<i>Actia</i> [= <i>Strobliomyia</i>] <i>orbata</i> Wiedemann	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970), Neupane (1982)
<i>Actia</i> sp.	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1981)
<i>Actia</i> sp. ? <i>comitata</i> Villen	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
<i>Actia</i> sp. ? <i>exsecta</i> Villen	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970), Neupane (1982)
<i>Carcelia modicella</i> Wulp	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
	<i>Chilo</i> spp.	Larva	Bangladesh	Catling and Alam (1977)
<i>Ceromyia</i> sp.? <i>cuthbertsoni</i> (Curran)	<i>Chilo</i> spp.	Larva	Sierra Leone	Jordan (1966), Greathead (1979)
<i>Descampsina sesamiae</i> (Mesnil)	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1981)
	<i>Sesamia botanophaga</i>	Larva	Ghana	Sampson and Kumar (1986b)
	<i>Sesamia calamistis</i>	Larva	Ghana	Sampson and Kumar (1986b)
<i>Drino discreta</i> Wulp	<i>Sesamia inferens</i>	NM	India	Rao and Nagaraja (1969)
<i>Exorista quadrimaculata</i> ^c	<i>Chilo</i> spp.	Larva	India	Rao (1972)
<i>Goniophana</i> sp.	<i>Sesamia inferens</i>	Pupa	Malaysia	Rothschild (1971)
<i>Jaynesleskia</i> [= <i>Leskiomima</i>] <i>jaynesi</i> (Aldrich)	<i>Diatraea saccharalis</i>	Larva	Argentina	Jaynes (1933)
		NM	Argentina	Box (1952)
		Larva	Colombia	Nickel (1964), CIAT (1981), Cock (1985)
<i>Leskiopalpus diodema</i> (Wiedemann)	<i>Diatraea saccharalis</i>	Larva	Latin America	Gonzales et al (1983)
		Larva	Brazil	Nickel (1964)
		Larva	Guyana	Box (1926)
		Larva	Surinam	Hummelen (1974)
		Larva	Venezuela	Nickel (1964)
<i>Lixophaga diatraea</i> (Townsend)	<i>Chilo suppressalis</i>	Larva	Philippines	Calora (1964), Gabriel (1978)
[= <i>Hypostena grissea</i> Curran]	<i>Diatraea saccharalis</i>	NM	Antigua	Tucker (1935a), Box (1937)
[= <i>Euzenillia aurea</i> Townsend]		Larva	Antigua, Cuba	Box (1933)
[= <i>Euzenillia variabilis</i> Coquillett]		NM	Barbados	Bennett (1971), Tucker (1936)
[= <i>Euzenillopsis diatraea</i> Townsend]		Larva/Pupa	Caribbean and South America	Miskimen (1962)
[= <i>Eurycioides thoracica</i> Curran]		Larva	Colombia	Sanchez (1980)
[= <i>Prolixophaga plumbea</i> Aldrich]		Larva/Pupa	Cuba	Holloway (1919), Van Dine (1926), Van Zwaluwenburg (1926)
		Larva	Greater Antilles	Cock (1985)
		Larva	Puerto Rico	Box (1927a,b)
		Larva	Trinidad and Tobago	Box (1937)
		Larva	Virgin Islands-USA	Miskimen (1962)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Lixophaga</i> sp. [= <i>Hypostena</i> sp.]	<i>Sesamia inferens</i>	Larva	Philippines	Gabriel (1978)
	<i>Diatraea saccharalis</i>	Larva/Pupa	Puerto Rico	Jones (1915)
<i>Metagonistylum minense</i> Townsend	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962)
	<i>Chilo polychrysus</i>	Pupa	Philippines	Kamran (1972)
	<i>Chilo suppressalis</i>	NM	Malaysia	Kok (1965)
		NM	Malaysia	Kok (1965)
	Larva	Philippines	Gabriel (1978)	
	Pupa	Philippines	Kamran (1972)	
	<i>Diatraea saccharalis</i>	Larva	Argentina	Sosa Gomez and Alves (1985)
		NM	Bolivia, Brazil, Guyana, USA, West Indies	Grist and Lever (1969)
	Larva	Brazil	Brazil Instituto do Azucar e do Alcool (1983?), Macedo et al (1983), Alves et al (1985)	
	NM	Brazil, Trinidad and Tobago	Box (1952)	
	Larva/Pupa	Cambean and South America	Miskimen (1962)	
	Larva	Colombia	Sanchez (1980), CIAT (1981)	
	Larva	Guyana	Dohanian (1937), Cleare (1941), Kennard (1965)	
	Larva	Latin America	Gonzales et al (1983)	
Pupa	Malaysia	Yunus and Hua (1980)		
Larva	Surinam	Hummelen (1974)		
Larva	USA	Ingram and Bynum (1941)		
Larva	Venezuela	Angeles et al (1960)		
<i>Scirpophaga incertulas</i>	NM	Malaysia	Kok (1965)	
	NM	Malaysia	Kok (1965)	
<i>Sesamia inferens</i>	Larva	Philippines	Gabriel (1978)	
	NM	Trinidad and Tobago	Cock (1985)	
<i>Miobiosis diadema</i> ^e	<i>Diatraea saccharalis</i>	NM	Brazil	Bertels (1970)
<i>Paratheresia brasiliensis</i> ^e	<i>Diatraea saccharalis</i>	NM	Brazil	Bertels (1970)
<i>Paratheresia claripalpis</i> (Wulp)	<i>Chilo auricilius</i>	Larva	India	Kalra and Chandra (1980)
	[= <i>Paratheresia signifera</i>]	<i>Chilo polychrysus</i>	Larva	Malaysia	Lever (1956b)
[= <i>Sarcophaga diatraea</i>]	<i>Chilo polychrysus</i>	Pupa	Malaysia	Grist and Lever (1969)
[= <i>Theresia claripalpis</i> Wulp]	<i>Chilo polychrysus</i>	NM	Malaysia	Kok (1965), Lim (1970)
<i>Chilo suppressalis</i>	Larva/Pupa	Malaysia	Malaysia	Lever (1956b)
	NM	Malaysia	Malaysia	Kok (1965)
<i>Diatraea lineolata</i>	Larva	NM	NM	Grist and Lever (1969)
<i>Diatraea saccharalis</i>	Larva	Argentina	Argentina	Jaynes (1932), Hayward (1943)
	NM	Argentina	Argentina	Brethes (1927), Box (1928)
	NM	Argentina, Peru	Argentina, Peru	Holloway et al (1932). Jaynes (1933)
	Larva	Barbados	Barbados	Tucker (1936)
	Larva	Brazil	Brazil	Brazil Instituto do Azucar e do Alcool (1983), Macedo et al (1983)
	Larva	Caribbean and South America	Caribbean and South America	Miskimen (1962)
	Larva	Colombia	Colombia	Sanchez (1980)
	Larva	Latin America	Latin America	Gonzales et al (1983)
	NM	Malaysia	Malaysia	Yunus and Hua (1980)
	NM	Mexico, Peru, Trinidad and Tobago	Mexico, Peru, Trinidad and Tobago	Box (1952)
	Larva	Peru	Peru	Incio Paredes (1968)
	NM	Peru	Peru	Jaynes (1932), Box (1950a, 1951)
	Larva	Trinidad and Tobago	Trinidad and Tobago	Box (1935a, 1937), Tucker (1935a) Dohanian (1937), Lever (1956b). Hughes et al (1982)
	Larva	USA	USA	Ingram and Bynum (1941)
<i>Scirpophaga incertulas</i>	<i>Scirpophaga incertulas</i>	Larva	USA	Ingram and Bynum (1941)
<i>Sesamia inferens</i>	<i>Sesamia inferens</i>	NM	Malaysia	Kok (1965), Lim (1970)
	<i>Sesamia inferens</i>	NM	Malaysia	Kok (1965), Grist and Lever (1969)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Parthenoleskia parkeri</i> ^e	<i>Diatraea</i> sp.	Larva/Pupa	Brazil	Cock (1985)	
<i>Peirbaea</i> sp.	<i>Scirpophoga incertulas</i>	Larva	Philippines	Litsinger et al (1987a)	
<i>Plagiprospherysa parvipalpis</i> (Wulp)	<i>Elasmopalpus lignosellus</i>	Larva	Trinidad and Tobago	Thompson (1968), Beg and Bennett (1974), Cock (1985)	
		Larva	USA	Leuck and Dupree (1965), Beg and Bennett (1974)	
<i>Siphona</i> [=Crocota] <i>murina</i> Mesnil	<i>Busseola fusca</i>	Larva	East Africa	Appert (1964), Mohyuddin and Greathead (1970)	
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)	
	<i>Eldana saccharina</i>	NM Larva	Africa East Africa	Betbeder-Matibet (1981) Mohyuddin and Greathead (1970)	
<i>Stomatomyia floridensis</i> Townsend <i>Stomatomyia</i> sp.	<i>Elasmopalpus lignosellus</i>	Larva	USA	Leuck and Dupree (1965)	
	<i>Elasmopalpus lignosellus</i>	Larva	Jamaica	Metcalfe (1965), Beg and Bennett (1974)	
<i>Sturmiopsis inferens</i> Townsend [= <i>Winthemia semiberbis</i> Bezzi]	<i>Busseola fusca</i>	NM	East Africa	Appert (1964)	
		Larva	India	Rao (1964d), Rao and Baliga (1968)	
	<i>Chilo partellus</i>	Larva	NM	South and Southeast Asia	Grist and Lever (1969)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	India	Sharma et al (1966), Rao and Baliga (1968)	
	<i>Chilo polychrysus</i>	Larva	Pakistan	Haq (1967)	
		Larva	Bangladesh	Alam (1961), Rao (1972), Alam et al (1981a)	
		Larva	India	Kamran and Rams (1971)	
		Larva	Indonesia, Malaysia	Rao and Baliga (1968)	
		Larva	Malaysia	Yunus and Hua (1980)	
		Larva/Pupa	Malaysia	Lever (1956b)	
	<i>Chilo</i> spp.	Larva	Pakistan	Alam (1971), Singh (1971)	
		Larva	Philippines	Dyck and Varca (1970), Barrion (1979)	
		Pupa	Philippines	Kamran and Raros (1971)	
		Larva	Thailand	Nishida and Wongsiri (1972)	
Larva		Bangladesh	Islam (1975), Catling and Alam (1977)		
Larva		India, Malaysia, Pakistan	Rao (1972)		
<i>Chilo suppressalis</i>	Larva	Thailand	Nishida and Wongsiri (1972)		
	Larva	India	Rao (1964d), Rao and Baliga (1968), Kamran and Raros (1971)		
	Larva	Philippines	Dyck and Varca (1970), Gabriel (1978), Barrion (1979)		
<i>Scirpophaga incertulas</i> <i>Scirpophaga nivella</i> <i>Sesamia calamistis</i>	Pupa	Philippines	Kamran and Raros (1971)		
	NM	Philippines	IRRI (1967a)		
	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)		
	Pupa	Philippines	Kamran and Raros (1971)		
	Larva	India	Rao and Baliga (1968)		
<i>Sesamia inferens</i>	Larva	Madagascar	Caresche (1962), Appert et al (1969), Grist and Lever (1969)		
	Larva	Madagascar, Mauritius	Appert (1971b)		
	Larva	Bangladesh	Alam (1961), Rao (1972), Catling and Alam (1977)		

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	India	Krishnamurti and Usman (1952), Rao (1963, 1964d, 1965, 1972), Rao and Baliga (1968), Rao and Nagaraja (1969), Kamran and Rams (1971), Nagarkatti and Ramachandran Nair (1973)
		Larva/Pupa Larva	India Indonesia	Cock (1985) Leeffmans (1930), Nickel (1964), Rao and Nagaraja (1969)
		Larva	Malaysia	Pagden (1930), Rao and Nagaraja (1969), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		Larva/Pupa Larva	Malaysia Pakistan	Rao (1964d) Rao and Nagaraja (1969), Alam (1971), Rao (1972)
		Larva	Philippines	Dyck and Varca (1970), Gabriel (1978), Barrion (1979)
		Larva/Pupa Pupa NM	Philippines Philippines Philippines	Reissig et al (1986) Kamran and Rams (1971) IRRI (1967a)
		Larva/Pupa Larva	South and Southeast Asia Taiwan-China	Yasumatsu (1967c) Chen (1963)
		Larva Larva	Thailand NM	Nishida and Wongsiri (1972) Grist and Lever (1969), Schmutterer (1977)
<i>Sturmiopsis parasitica</i> (Curran)	<i>Acigona ignefusalis</i>	Larva/Pupa	Nigeria	Harris (1962), Grist and Lever (1969), Mohyuddin and Greathead (1970)
	<i>Busseola fusca</i>	Pupa	Nigeria	Harris (1962), Mohyuddin and Greathead (1970)
	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966)
	<i>Eldana saccharina</i>	Larva	Kenya	La Croix (1967)
	<i>Sesamia sp.</i>	Larva	Africa	Betbeder-Matibet (1981)
		Pupa	Nigeria	Harris (1962), Mohyuddin and Greathead (1970)
Tachinid fly, unidentified	<i>Chilo partellus</i>	NM	India	Butani (1957, 1961)
<i>Zygothrips ciliata</i> (Wulp)	<i>Scirpophaga incertulas</i>	Larva	Pakistan	Haq (1967)
HEMIPTERA		Larva	Philippines	Litsinger et al (1987a)
Anthocoridae ^a				
<i>Cardiastethus sp.</i>	<i>Chilo suppressalis</i>	Egg/Larva	Japan	Hidaka (1965)
<i>Lyctocoris</i> [= <i>Euspudaeus</i>] <i>beneficus</i> (Hiura)	<i>Chilo suppressalis</i>	Larva/Newly emerged adult	Japan	Oho (1954, 1955b), Hiura (1957), Rao (1965)
		Larva/Pupa	Japan	Bess (1967)
		NM	South and Southeast Asia	Yasumatsu (1967c)
<i>Orius</i> [= <i>Triphleps</i>] <i>punctaticollis</i> ^e	<i>Diopsis macrophthalma</i>	Egg	Cameroon	Descamps (1957a)
<i>Orius tantillus</i> (Motschulsky)	Stem borers	Egg/Larva	Thailand	JICA (1981)
	Stem borers	Egg/Larva/Pupa	Thailand	Yasumatsu et al (1981)
	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980)
<i>Xylocoris galactinus</i> (Fieber)	<i>Chilo suppressalis</i>	Larva/Pupa	Japan	Bess (1967)
		NM	Japan	Yasumatsu (1967c)
Gerridae ^a				
<i>Gerris lacustris latiabdominalis</i> Miyamoto	<i>Chilo suppressalis</i>	Larva	Japan	Ito et al (1962)
		NM	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	Larva	Japan	Ito et al (1962)
Miridae ^a				
<i>Cyrtorhinus lividipennis</i> Reuter	<i>Chilo spp.</i>	NM	Thailand	Khusakul et al (1979, 1981).
	<i>Chilo polychrysus</i>	NM	Thailand	Khusakul et al (1979)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo suppressalis</i>	Egg	Philippines	IRRI (1973), Htun (1976), Peña (1987)
		NM	Thailand	Khusakul et al (1979)
	<i>Scirpophaga incertulas</i>	Egg	Philippines	Htun et al (1976)
		Egg	Philippines	Kumhof (1986)
Nabidae ^a				
<i>Nabis ferus</i> Linne	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
Pentatomidae ^a				
<i>Amyotea [=Asopus] malabarica</i> Fabricius	<i>Chilo spp.</i>	Larva	India	Pati and Mathur (1986)
	<i>Scirpophaga incertulas</i>	Larva	India	Pati and Mathur (1986)
	<i>Sesamia inferens</i>	Larva	India	Pati and Mathur (1986)
<i>Arma custos</i> Fabricius	<i>Sesamia inferens</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
Reduviidae ^a				
<i>Acanthaspis quinquespinosa</i> Fabricius	<i>Chilo partellus</i>	Larva	India	Butani (1958)
HYMENOPTERA				
Bethylidae ^b				
<i>Goniozus indicus</i> Muesebeck	<i>Chilo partellus</i>	Larva	India	Butani (1958), Sharma et al (1966)
		Larva	Pakistan	Haq (1967)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1964d), Nickel (1964), Rao et al (1968)
		Larva	Philippines	Rao (1972), Gabriel (1978), Barrion (1979)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva	NM	Grist and Lever (1969)
	<i>Scirpophaga nivella</i>	Larva	India	Cherian and Israel (1942)
	<i>Sesamia inferens</i>	Larva	India	Rao (1964d)
		Larva	India, Taiwan-China	Rao and Nagaraja (1969)
		Larva	Taiwan-China	Chen (1963)
<i>Goniozus procerae</i> Risbec	<i>Adelpherupa sp.</i>	NM	Cameroon	Descamps (1956b)
	<i>Chilo diffusilineus</i>	NM	Madagascar	Risbec (1960)
	<i>Chilo sp.</i>	Larva	West Africa	Vercambre (1977), Akinsola and Agyen-Sampong (1984)
	<i>Chilo suppressalis</i>	NM	France	Coquard (1984)
	<i>Chilo zacconius</i>	NM	Cameroon	Descamps (1956b)
		NM	Senegal	Vercambre (1977)
	<i>Maliarpha separatella</i>	Larva	West Africa	Akinsola and Agyen-Sampong (1984)
		NM	Senegal	Vercambre (1977)
	<i>Scirpophaga sp.</i>	NM	Cameroon	Descamps (1956b), Mohyuddin and Greathead (1970)
		NM	Senegal	Vercambre (1977)
<i>Goniozus sp.</i>	<i>Acigona ignefusalis</i>	Larva	Madagascar	Risbec (1960), Grist and Lever (1969)
		Larva	Madagascar, Nigeria	Appert (1964)
		Larva	Nigeria	Harris (1962)
	<i>Chilo diffusilineus</i>	NM	Burkina Faso	Bonzi (1982)
		Larva	West Africa	Bonzi (1982)
	<i>Chilo partellus</i>	Larva	Kenya	Mathez (1972)
	<i>Chilo sp.</i>	Larva/Pupa	Sierra Leone	Jordan (1966)
		Larva	West Africa	Vercambre (1977), Akinsola and Agyen-Sampong (1984)
	<i>Chilo zacconius</i>	Larva	Buskina Faso	Bonzi (1982)
	<i>Maliarpha separatella</i>	NM	Madagascar	Appert (1970)
		Larva	Mali, Senegal, Sierra Leone	Breniere (1969)
		Larva	Sierra Leone	Grist and Lever (1969)
		Larva/Pupa	Sierra Leone	Jordan (1966)
	<i>Scirpophaga incertulas</i>	Larva	Pakistan	Beg et al (1967)
		Larva	Thailand	Nishida and Wongsiri (1972)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga innotata</i>	Larva	Australia	Li (1970)
	<i>Scirpophaga</i> spp.	Larva	India	Cock (1985)
	<i>Sesamia calamistis</i>	Larva	Kenya	Mathez (1972)
<i>Odontepyrus argiriae</i> Kurian	<i>Chilo polychrysus</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
	<i>Chilo</i> spp.	Larva	Bangladesh, India	Rao (1972). Catling and Alam (1977)
	<i>Sesamia inferens</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
<i>Perisierola</i> sp.	<i>Chilo partellus</i>	Pupa	Uganda	Ingram (1958)
	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1981)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao et al (1968), Rao (1972), Greathead (1979)
	<i>Scirpophaga</i> sp.	Larva	India	Rao (1972)
<i>Trissomalus</i> sp.	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
	<i>Chilo</i> sp.	NM	Bangladesh	Catling and Alam (1977)
	<i>Chilo suppressalis</i>	Larva	Bangladesh	Catling and Alam (1977)
Braconidae^b				
<i>Agathis parvifarciata</i> (Cameron) [= <i>Cremops parvifasciatus</i>] [= <i>Microdus parvifasciatus</i>]	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
<i>Agathis rubricinctus</i> Ashmead	<i>Elasmopalpus lignosellus</i>	Larva	Trinidad and Tobago	Beg and Bennett (1974), Cock (1985)
<i>Agathis</i> sp.	<i>Diatraea saccharalis</i>	NM	Brazil	Brazil Instituto de Açúcar e do álcool (1983?)
<i>Agathis stigmaterus</i> (Cresson) [= <i>Bassus stigmaterus</i>] [= <i>Microdus crossi</i>] [= <i>M. dialraea</i>] [= <i>M. stigmatera</i>] [= <i>M. stigmaterus</i>]	<i>Diatraea saccharalis</i>	Larva/Pupa	Argentina	Hayward (1943)
		Larva	Argentina, Peru	Jaynes (1930, 1932)
		Larva	Barbados	Tucker (1936)
		Larva	Brazil	Bartlett (1940)
		Larva	Colombia	Brooks (1979)
		Larva/Pupa	Cuba	Holloway (1919), Plank (1929b), Scaramuzza (1933), Hummelen (1974)
		Larva	Grenada	Myers (1935)
		Larva/Pupa	Guyana	Turner (1918), Skeete (1925), Box (1926), Squire (1936), Kennard (1965), Hummelen (1974)
		Larva/Pupa	Peru	Holloway et al (1932), Jaynes (1933), Box (1950b, 1951)
		Pupa	Puerto Rico	Martorell and Gaud (1965), Hummelen (1974)
		Larva	St. Christopher-Nevis-Anguilla	Box (1932a)
		Larva	St. Vincent-UK	Myers (1935d)
		Larva	Surinam	Hummelen (1974)
		Larva/Pupa	USA	Ingram and Bynum (1941), Wilson (1941), Gifford and Mann (1967), Hummelen (1974)
<i>Allorhogas pyralophagus</i> Marsh	<i>Diatraea</i> spp.	Larva	Trinidad and Tobago	Cock (1985)
	<i>Chilo auricilius</i>	Larva	India	Varma et al (1987)
	<i>Chilo partellus</i>	Larva	India	Varma et al (1987)
<i>Allorhogas</i> sp.	<i>Acigona loftini</i>	Larva	Mexico	Cock (1985), Jayanth and Nagarkatti (1985)
	<i>Chilo auricilius</i>	NM	India	Jayanth and Nagarkatti (1985)
	<i>Chilo partellus</i>	Larva	India	Jayanth and Nagarkatti (1985)
	<i>Chilo</i> spp.	NM	India, Pakistan	Bennett et al (1983)
	<i>Diatraea saccharalis</i>	Larva	Trinidad and Tobago	Bennett et al (1983)
	<i>Scirpophaga incertulas</i>	NM	India	Jayanth and Nagarkatti (1985)
	<i>Sesamia inferens</i>	NM	India	Jayanth and Nagarkatti (1985)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Aulosalpes antennatus</i> Granger	<i>Chilo zacconius</i>	Larva	Senegal	Appert (1952), Nickel (1964)
<i>Aulosalpes unicolor</i> (Ashmead)	<i>Chilo suppressalis</i>	Larva	Sudan	Risbec (1956), Nickel (1964)
		Larva	Philippines	Cendaña and Morallo (1960), Nickel (1964), Nishida and Torii (1970), Barrion (1979)
<i>Bracon antennatus</i> Granger	<i>Chilo diffusilineus</i>	NM	Africa	Appert (1964)
[= <i>Habrobracon triangularis</i> Szepligeti]	<i>Chilo zacconius</i>	Larva	Senegal	Appert (1952)
		Larva	Sudan	Risbec (1956)
	<i>Diopsis macrophthalma</i>	NM	Cameroon	Descamps (1957a)
	<i>Maliarpha separatella</i>	Larva	Nigeria	Akinsola (1979)
		Larva	West Africa	Akinsola and Agyen-Sampong (1984)
<i>Bracon brevicornis</i> (Wesmael)	<i>Sesamia</i> sp.	NM	India	Rao (1964d), Rao and Nagaraja (1969)
<i>Bracon famulus</i> Bingham	<i>Scirpophaga nivella</i>	Larva	India	Krishnamurti and Usman (1954)
<i>Bracon johannseni</i> Viereck	<i>Scirpophaga incertulas</i>	Larva	Pakistan	Beg et al (1967)
	Stem borers	Larva	Pakistan	Ghouri (1977)
<i>Bracon mellitor</i> Say	<i>Elasmopalpus lignosellus</i>	Larva	NM	Grist and Lever (1969)
<i>Eracon quadrinotatus</i> Granger	<i>Sesamia inferens</i>	Larva	Cameroon	Descamps (1957a), Nickel (1964), Nishida and Torii (1970)
	<i>Sesamia</i> sp.	NM	Cameroon	Descamps (1956b), Risbec (1956)
<i>Bracon sesamiae</i> ^c	<i>Busseola fusca</i>	Larva	South Africa	Mally (1920)
<i>Bracon</i> sp.	<i>Bathytricha truncata</i>	Larva	Australia	Li (1970)
	<i>Busseola fusca</i>	Larva	Uganda	Mohyuddin and Greathead (1970)
	<i>Chilo agamemnon</i>	Larva	Uganda	Mohyuddin and Greathead (1970)
	<i>Chilo auricilius</i>	Larva	India	Rao (1963)
		Larva	India, Malaysia	Rao (1972)
	<i>Chilo diffusilineus</i>	Larva	Burkina Faso	Bonzi (1982)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
		Larva	India	Rao (1963), Sharma et al (1966)
		Larva	India, Malaysia	Rao (1972)
		Larva	Kenya	Mathez (1972)
	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
		Larva	India, Malaysia	Rao (1972)
	<i>Chilo</i> sp.	Egg	Ghana	Agyen-Sampong (1977)
		Larva	West Africa	Brénière (1969), Akinsola and Agyen-Sampong (1984)
	<i>Chilo suppressalis</i>	Larva	India, Malaysia	Rao (1972)
	<i>Chilo zacconius</i>	NM	Cameroon	Descamps (1956b), Risbec (1956)
		Larva	Senegal	Appert (1952), Vercambre (1977)
	<i>Maliarpha separatella</i>	Larva	Ivory Coast	Pollet (1978b, 1981)
		Larva	Madagascar	Breniere (1983)
		Larva	Senegal	Breniere (1969), Vercambre (1977)
	<i>Scirpophaga incertulas</i>	Larva	China	Chiu (1942)
		Larva	India	Tirumala Rao et al (1956), Rao (1963, 1972), Nickel (1964)
		Larva	Pakistan	Carl (1962), Nickel (1964)
		Larva	Thailand	Nishida and Wongsiri (1972)
	<i>Scirpophaga innotata</i>	Larva	Australia	Li (1961, 1970, 1972), Allwood (1979)
		Larva	India	Rao (1972)
	<i>Scirpophaga</i> sp.	NM	Senegal	Vercambre (1977)
	<i>Sesamia calamistis</i>	NM	Senegal	Vercambre (1977)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Bracon</i> sp. nr. <i>griseopubescens</i> ^e	<i>Sesamia inferens</i>	Larva	Bangladesh	Catling and Alam (1977)
		Larva	India	Rao (1963, 1964d)
		Larva	India, Malaysia	Rao (1972)
		Larva	Malaysia	Yunus and Hua (1980)
<i>Bracon testaceorufatus</i> Granger	<i>Sesamia calamistis</i>	NM	Madagascar	Appert (1971b)
	<i>Maliarpha separatella</i>	Larva	Madagascar	Brénière et al (1962), Appert (1964, 1970, 1971b), Nickel (1964), Appert et al (1969), Brénière (1969), Grist and Lever (1969)
<i>Campyloneurus mutator</i> ^e <i>Chelonus</i> [= <i>Microchelonus</i>] <i>curvimaculatus</i> Cameron	<i>Chilo</i> spp.	Larva	India	Cock (1985)
	<i>Busseola fusca</i>	Pupa	Africa	Mohyuddin and Greathead (1970)
	<i>Chilo diffusilineus</i>	NM	Africa	Appert (1964)
	<i>Chilo partellus</i>	Pupa	East Africa	Mohyuddin and Greathead (1970)
<i>Chelonus</i> [= <i>Microchelonus</i>] <i>elasmopalpi</i> McComb <i>Chelonus munakatae</i> (Munakata) [= <i>Chelonus chilonis</i> Cushman]	<i>Chilo zacconius</i>	Larva	Senegal	Nickel (1964). Breniere (1969)
		Larva	Sudan	Appert (1952), Risbec (1956), Nickel (1964)
	<i>Elasmopalpus lignosellus</i>	Larva	USA	Smith and Johnson (1986)
	<i>Chilo suppressalis</i>	Egg/Larva	China	Tsai (1932), Asia (1957), Subba Rao and Chawla (1964)
		Egg/Larva	China, Japan	Ishii (1933a), Nickel (1964), Nishida and Torii (1970), Manoi et al (1975)
		NM	Hawaii-USA	Cushman (1929)
		Egg/Larva	Japan	Kuwana (1930a,b), Maki (1930) Fujimoto (1960), Hidaka (1965), Yasumatsu (1967b), Yasumatsu and Torii (1968), Katayama (1971)
		Egg	Korea	Ishii (1933a), Nishida and Torii (1970), Momoi et al (1975)
		Egg/Larva	Korea	Chang (1978b)
		Larva/Pupa	Philippines	Reissig et al (1986),
		Egg/Larva	South and Southeast Asia	Yasumatsu (1967c)
		Larva	China	Tsai (1932), Manickavasagar and Miyashita (1959), Subba Rao and Chawla (1964)
		Larva	India	Nath and Hikim (1978)
		Egg/Larva	Philippines	Litsinger et al (1987a)
<i>Scirpophaga incertulas</i> Stem borers		Larva	NM	Grist and Lever (1969)
		NM	Japan, Korea, Ryukyu Island-Japan	Watanabe (1972a)
		Larva	India	Subba Rao (1955a), Sharma et al (1966)
<i>Chelonus narayani</i> Subba Rao <i>Chelonus rufus</i> Lyle <i>Chelonus</i> sp.	<i>Chilo partellus</i>	Larva	India	Rao (1972)
	<i>Scirpophaga</i> spp.	Egg	India	Rao (1972)
	<i>Scirpophaga</i> spp.	Egg	Pakistan	Rao (1972)
	<i>Chilo partellus</i>	Pupa	Kenya	Mathez (1972)
		Egg	Pakistan	Rao (1972)
		Larva	Pakistan	Carl (1962)
	<i>Chilo</i> spp.	Egg	Pakistan	Rao (1972)
	<i>Chilo zacconius</i>	NM	Senegal	Vercambre (1977)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao et al (1968)
		Egg	India, Pakistan	Rao (1972)
		Larva/Pupa	India	Nath and Hikim (1978)
		Larva	Pakistan	Carl (1962), Nickel (1964), Beg et al (1967)
		Larva	Philippines	Barrion (1979), Litsinger et al (1987a)
	Egg/Larva	South and Southeast Asia	Yasumatsu (1967c)	

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
	Stem borers	Larva	Pakistan	Ghouri (1977)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>baoris</i> Wilkinson	<i>Chilo auricilius</i>	Larva	India	Rao (1963, 1964d, 1972), Nickel (1964), Rao et al (1968)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Cotesia</i> (= <i>Apanteles</i>) <i>chilocida</i> Viereck	<i>Chilo suppressalis</i>	Larva	Japan	Kuwana (1930a,b)
<i>Cotesia chilonis</i> (Munakata) [= <i>Apanteles flavipes chilonis</i> Munakata]	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966), Varma and Bindra (1974)
		Larva	Pakistan	Yasumatsu and Torii (1968)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Chilo suppressalis</i>	Larva	Japan	Tateishi (1962), Mochida and Yoshimeki (1964), Hidaka (1965), Watanabe (1932, 1965, 1966, 1968), De Loach and Miyatake (1966), Drake (1966), Sharma et al (1966), Yasumatsu (1967b), Yasumatsu and Torii (1968), Imamura and Machimura (1969, 1976), Kajita and Drake (1969), Nishida and Torii (1970), Katayama (1971), Kajita (1973), Inamura et al (1974), Imamura and Yamasaki (1975), Momoi et al (1975), Ishikawa and Muroga (1976)
		Larva	Korea	Chang (1978b)
		Larva	Pakistan	Hattori (1980)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Maliarpha separatella</i>	NM	Madagascar	Appert et al (1969), Appert (1970, 1971b)
	<i>Scirpophaga incertulas</i>	Larva	Japan	Kajita and Drake (1969)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
		NM	Indonesia	Chu (1979)
		Larva	Japan, Ryukyu Islands-Japan, Korea	Watanabe (1972a)
<i>Cotesia colemani</i> (Viereck) [= <i>Apanteles</i> (<i>Protapanteles</i>) <i>colemani</i>]	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966)
		Larva	Mozambique	Goncalves (1970)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>descampi</i> (Risbec)	<i>Chilo diffusilineus</i>	NM	Africa	Appert (1964)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>diatraeae</i> (Muesebeck)	<i>Diatraea saccharalis</i>	Larva	Cuba	Van Dine (1926), Plank (1929b)
	<i>Diatraea</i> spp.	Larva	Trinidad and Tobago	Dohanian (1937)
	<i>Diatraea lineolata</i>	NM	Cuba	Van Dine (1926), Grist and (1969)
		NM	Mexico	Van Zwaluwenbrg (1926)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>flavipes</i> Cameron	<i>Bathytrica truncata</i>	Larva	Australia	Li (1970)
	<i>Chilo auricilius</i>	Larva	India	Rao (1963, 1972), Rao and Israel (1977), Nigam (1984)
[= <i>Apanteles nonagriae</i> Oliff] [= <i>Apanteles</i> (<i>Stenopleura</i>) <i>nonagriae</i> Viereck]	<i>Chilo partellus</i>	Larva	Africa	Skoroszewski and Van Hamburg (1987)
[= <i>Apanteles flavipes</i> (Cameron)]		Larva/Pupa	Hongkong, Japan	Yasumatsu (1967c)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	India	Vinson (1942), Krishnamurti and Usman (1954), Chandy (1955), Mohammad Ali and Prasad (1958), Butani (1961), Rao (1963), Sharma et al (1966), Sub Rao et al (1967), Yasumatsu and Torii (1968), Subba Rao et al (1969), Nagarkatti and Ramachandran Nair (1973), Vanna and Bindra (1974), Israel and Padmanabhan (1976), Greathead (1979), Nikam and Sathe (1983)
		NM	India, Mauritius, Sri Lanka	Watanabe (1965)
		NM	India, Sri Lanka; Taiwan-China	Box (1953b)
		Larva	Nepal	Neupane (1982), Neupane et al (1985)
		Larva	Pakistan	Beg et al (1967), Haq (1967)
		Larva	Sri Lanka	Vinson (1942), Yasumatsu (1967b), Yasumatsu and Torii (1968)
	<i>Chilo polychrysus</i>	NM	Australia, Malaysia	Watanabe (1965)
		Larva	Bangladesh	Alam (1961), Rao (1972) Alam et al (1981a)
		Larva	India	Rao et al (1968)
		NM	Japan, Mauritius, Pakistan	Watanabe (1968)
		Larva	Malaysia	Pagden (1930), Ooi (1974), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		Larva/Pupa	Philippines	Barrion (1979), Reissig et al (1986)
	<i>Chilo sacchariphagus indicus</i>	Larva	Thailand	Nishida and Wongsiri (1972)
		NM	Madagascar	Appert et al (1969)
		NM	Malaysia	Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		Larva	Mauritius	Moutia and Courtois (1952), Yasumatsu and Torii (1968)
	<i>Chilo suppressalis</i>	NM	Australia, Japan, Mauritius, Pakistan	Watanabe (1968)
		Larva/Pupa	Hongkong, Japan	Yasumatsu (1967c)
		Larva	India	Chaudhary and Chand (1972), Rao (1972)
		Larva	Japan	Tateishi et al (1955), Tateishi (1962), Drake (1966), Yasumatsu and Torii (1968), Kajita and Drake (1969)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Philippines	Delfinado (1959), Gabriel (1978), Barrion (1979), Canapi et al (1987)
		Larva	Taiwan-China	Wilkinson (1928), Vinson (1942) Watanabe (1965)
	<i>Chilo spp.</i>	Larva	Thailand	Nishida and Wongsiri (1972)
		Larva	East Africa	Mohyuddin (1971)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo</i> sp.	Larva Larva/Pupa	Bangladesh Thailand	Catling and Alam (1977) Nishida and Wongsiri (1972), Yasumatsu et al (1981)
	<i>Diatraea saccharalis</i>	Larva Larva Larva Larva Larva	Barbados Brazil Colombia Latin America USA	Bennett (1971), Mohyuddin (1971) Brazil Institute do Açúcar e do álcool(1983?), Macedo et al (1983), Araujo et al (1984) CIAT (1981) Gonzales et al (1983) Fuchs et al (1979), Van Leerdam et al (1985), Hawkins and Smith (1986)
	<i>Diatraea</i> sp.	NM	Brazil	Macedo et al (1983), Araujo et al (1984)
	<i>Scirpophaga incertulas</i>	NM Larva Larva Larva Larva Larva Larva	Australia, Japan, Mauritius, Pakistan Hongkong India Pakistan Philippines Sri Lanka Thailand	Watanabe (1968) Thornton et al (1975) Israel and Padmanabhan (1976), Nath and Hikim (1978), Gupta et al (1985) Beg et al (1967) Rao and Nagaraja (1969), Gabriel (1978), Barrion (1979), Kumhof (1986), Litsinger et al (1987a) De Silva (1961), Fernando (1967, 1970) Nishida and Wongsiri (1972), Yasumatsu et al (1981)
	<i>Scirpophaga innotata</i>	Larva/Pupa Larva	Philippines Philippines	Reissig et al (1986) Gabriel (1978), Barrion (1979)
	<i>Sesamia calamistis</i>	NM	Mauritius	Mauritius Sugar Industry Research Institute (1985)
	<i>Sesamia inferens</i>	NM Larva Larva Larva Larva NM Larva Larva/Pupa Larva NM Larva Larva Larva Larva	Australia, Japan, Mauritius, Pakistan Bangladesh India Japan Malaysia Pakistan, Taiwan-China Philippines Philippines Sri Lanka Taiwan-China Thailand Malaysia Pakistan Taiwan-China	Watanabe (1968) Alam (1961), Catling and Alam (1977), Alam et al (1981a) Krishnamurti and Usman (1952, 1954), Rao (1964d, 1965), Nagarkatti and Ramachandran Nair (1973), Yadava and Israel (1977) Arakaki and Ganaha (1976) Rothschild (1970, 1971) Watanabe (1965) Box (1953b), Rao and Nagaraja (1969), Barrion (1979) Reissig et al (1986) Fernando (1972) Vinson (1942), Watanabe (1972b) Nishida and Wongsiri (1972), Yasumatsu et al (1981) Lim (1972b) Carl (1962), Beg et al (1967), Rao and Nagaraja (1969) Watanabe (1932), Yanagihara (1934)
	<i>Sesamia</i> sp.	Larva Larva Larva	Malaysia Pakistan Taiwan-China	Lim (1972b) Carl (1962), Beg et al (1967), Rao and Nagaraja (1969) Watanabe (1932), Yanagihara (1934)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines	Bess (1972)
		Larva	Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	
		NM	Japan, Korea, Ryukyu Islands-Japan	Watanabe (1972a)
		Larva/Pupa	Thailand	Wongsiri (1980)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>impunctatus</i> (Muesebeck)	<i>Diatraea saccharalis</i>	NM	USA	Box (1953b), Muesebeck (1933)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>opacus</i> (Nixon)	<i>Scirpophaga nivella</i>	NM	India	Nagarkatii and Ramachandran Nair (1973)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>pallipes</i> (Cameron)	<i>Sesamia inferens</i>	Larva	India	Rao (1965), Rao et al (1968), Rao and Nagaraja (1963)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>procerae</i> (Risbec)	<i>Chilo diffusilineus</i>	NM	Africa	Appert (1964)
		NM	Senegal	Appert (1952)
	<i>Chilo partellus</i>	Larva	Sudan	Risbec (1956), Nickel (1964)
	<i>Chilo zacconius</i>	NM	Senegal	Appert (1952), Brénière (1969)
<i>Cotesia</i> [= <i>Apanteles</i>] <i>ruficrus</i> (Haliday)	<i>Chilo auricilius</i>	Larva	India	Nigam (1984)
[= <i>Microgaster ruficrus</i> Haliday]	<i>Chilo suppressalis</i>	Larva	China	Zhang (1986)
	<i>Chilo zacconius</i>	Larva	Australia, Cambodia	Nickel (1964)
		NM	Cameroon	Descamps (1956b), Nickel (1964), Breniere (1969)
	<i>Scirpophaga incertulas</i>	Larva	China	Chiu (1942)
		Larva	China, Japan, Taiwan-China	Manickavasagar and Miyashita (1959)
		Larva	India	Rao (1972)
	<i>Scirpophaga innotata</i>	Larva	India	Rao (1972)
		Larva	NM	Grist and Lever (1969)
	<i>Sesamia calamistis</i>	NM	Somalia	Wilkinson (1932), Box (1953b), Rao and Nagaraja (1969)
	<i>Sesamia inferens</i>	Larva	China	Zhang (1986)
<i>Cotesia</i> [= <i>Apanteles</i>] sp.	<i>Chilo partellus</i>	Larva	Uganda	Mohyuddin and Greathead (1970)
	<i>Chilo polychrysus</i>	NM	Thailand	Khusakul et al (1979)
	<i>Chilo suppressalis</i>	Larva	Hawaii-USA	Van Zwaluwenburg et al (1928)
		Larva	India	Rao et al (1968)
		Larva	Philippines	Gabriel (1978)
		NM	Thailand	Khusakul et al (1979)
	<i>Chilo zacconius</i>	NM	Senegal	Appert (1952), Vercambre (1977)
	<i>Diatraea saccharalis</i>	Larva	Colombia	Sanchez (1980)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Delfinado (1959), Gabriel (1978)
	<i>Scirpophaga innotata</i>	Larva	Indonesia	Van der Goot (1928)
<i>Cotesia</i> [= <i>Apanteles</i>] sp. (<i>ater</i> group)	<i>Chilo partellus</i>	Larva	Kenya	Mohyuddin and Greathead (1970)
<i>Cotesia</i> [= <i>Apanteles</i>] sp. <i>laevigatus</i> ^e	<i>Chilo aleniellus</i>	Larva	Sierra Leone	Jordan (1966)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Sesamia calamistis</i>	Larva	Kenya	Mathez (1972)
<i>Cotesia sesamiae</i> (Cameron)	<i>Acigona ignefusalis</i>	Larva	West Africa	Risbec (1960), Appert (1964), Mohyuddin and Greathead (1970)
[= <i>Stenopleura sesamiae</i> Cameron]				
[= <i>Apanteles sesamiae</i> (Cameron)]	<i>Busseola fusca</i>	Larva	East Africa	Mohyuddin (1971)
		Larva	Africa	Mohyuddin and Greathead (1970)
		Larva	Kenya	Seshu Reddy (1983)
		Larva	Nigeria	Harris (1962)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	South Africa	Mally (1920), Ullyett (1935),
	<i>Chilo diffusilineus</i>	NM	Burkina Faso	Ingram (1958), Nickel (1964)
	<i>Chilo partellus</i>	Larva	East Africa	Bonzi (1982)
		Larva	Kenya	Mohyuddin and Greathead (1970), Mohyuddin (1971)
		Larva	Madagascar	Mathez (1972), Seshu Reddy (1983), Oloo (1989)
		NM	Mozambique	Appert (1971b)
		Larva	Uganda	Goncalves (1970)
	<i>Chilo</i> sp.	Larva	West Africa	Ingram (1958), Watanabe (1965)
		Larva		Agyen-Sampong (1979), Akinsola and Agyen-Sampong (1984)
	<i>Eldana saccharina</i>	Larva	Africa	Mohyuddin and Greathead (1970), Betbeder-Matib (1981)
		Larva	Cameroon	Descamps (1956b), Nickel (1964)
		Larva	East Africa	Mohyuddin (1971)
		Larva	Ivory Coast, Madagascar	Appert (1971b)
		Larva	Kenya	Mauritius, Reunion
		Larva	Madagascar	Seshu Reddy (1983)
		Larva	Mauritius	Caresche and Bréniere (1962)
		Larva		Williams and Mamet (1962), Rao and Nagaraja (1969), Mauritius Sugar Industry Research Institute (1985)
		Larva	Nigeria	Harris (1962), Mohyuddin and Greathead (1970)
		Larva	Tanzania	Nickel (1964)
		Larva	Uganda	Ingram (1958), Watanabe (1965), Rao and Nagaraja (1969)
	<i>Sasamia cretica</i>	Larva	Malawi, Sudan	Mohyuddin and Greathead (1970)
	<i>Sesamia</i> spp.	Larva	Madagascar, Mauritius, West Africa	Bréniere (1983)
<i>Cotesia</i> [=Apanteles] sp.? <i>sesamiae</i> (Cameron)	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
	<i>Sesamia</i> sp.	Larva	Sierra Leone	Jordan (1966)
<i>Cotesia</i> [=Apanteles] <i>syleptae</i> (Ferriere)	<i>Chilo diffusilineus</i>	NM	Africa	Appert (1964)
	<i>Chilo suppressalis</i>	Larva	Philippines	Gabriel (1978)
	<i>Chilo zacconius</i>	Larva	Senegal	Appert (1952), Bréniere (1969)
		Larva	Sudan	Appert (1952), Risbec (1956), Nickel (1964)
<i>Cotesia</i> [=Apanteles] <i>xanthopus</i> Ashmead	<i>Diatraea saccharalis</i>	Pupa	Argentina	Jaynes (1930, 1932, 1933)
		NM	Argentina, Brazil	Box (1953b)
<i>Exoryza schoenobii</i> (Wilkinson) [=Apanteles <i>schoenobii</i> Wilkinson]	<i>Chilo polychrysus</i>	NM	India, Philippines	Watanabe (1968)
[=Cotesia <i>schoenobii</i> (Wilkinson)]		Larva/Pupa	Malaysia	Yunus and Hua (1980)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Philippines	Barrion (1979)
	<i>Chilo suppressalis</i>	Larva	Philippines	Kamran and Ram (1969), Dyck and Varca (1970)
	<i>Chilo</i> spp.	Larva	India, Malaysia	Rao (1972)
		Larva	Thailand	Nickel (1964), Nishida and Wongsiri (1972)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	India	Krishnamurti and Usman (1954). Manickavasagar and Miyashita (1959). Rao (1963), Nickel (1964), Subba Rao and Chawla (1964), Chandramohan and Chelliah (1984a)
		Pupa	India	Nath and Hikim (1978)
		Larva	Japan	Rao (1965)
		Larva	Malaysia	Ooi (1976), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986)
		Larva	Philippines	Kamran and Raros (1969), Dyck and Varca (1970), Htun (1976), Htun et al (1976), Gabriel (1978), Kumhof (1986)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Sri Lanka	De Silva (1961), Fernando (1967, 1970)
		Larva	Thailand	Nickel (1964), Nishida and Wongsiri (1972)
	<i>Scirpophaga innotata</i>	Larva	Philippines	Barrion (1979)
	<i>Scirpophaga</i> spp.	Larva	India, Pakistan, Sri Lanka	Rao (1972)
	<i>Sesamia calamistis</i>	Larva	Tanzania	Nye (1960), Nickel (1964)
<i>Glyptomorpha deesae</i> (Cameron)	<i>Chilo auricilius</i>	Larva	NM	Grist and Lever (1969)
	<i>Chilo partellus</i>	NM	India	Butani (1957)
<i>Glyptomorpha</i> sp.	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962)
<i>Glyptomorpha</i> sp. <i>rufiscapus</i> Szepligeti	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
<i>Habrobracon</i> sp. aff. <i>triangularis</i> Szepligeti	<i>Chilo zacconius</i>	NM	Senegal	Br≈ni...re (1969)
<i>Hapolethria ramachandri</i> ^e	<i>Sesamia inferens</i>	Larva	India	Rao (1972)
<i>Hecabolus</i> sp.	<i>Rupela albinella</i>	Larva	Guyana	Squire (1936), Kennard (1965), Hummelen (1974)
<i>Heterospilus</i> sp.	<i>Rupela albinella</i>	Larva	Surinam	Hummelen (1974)
<i>Hygroplitis russatus</i> (Haliday)	<i>Chilo</i> spp.	Larva	India	Rao (1972)
[= <i>Microgaster russatus</i> Haliday]	<i>Chilo suppressalis</i>	Larva	India	Rao (1972)
		Larva	Japan	Watanabe (1962, 1966, 1968), Nickel (1964), Hidaka (1965), Katayama (1971)
		Larva	Korea	Chang (1978b)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	Larva	Japan	Watanabe (1932), Manickavasagar and Miyashita (1959), Nickel (1964), Subba Rao and Chawla (1964)
	Stem borers	NM	Japan, Korea, Ryukyu Islands-Japan	Watanabe (1972a)
<i>Iphiaulax famulus</i> (Bingham)	<i>Sesamia inferens</i>	NM	Philippines	Box (1953b), Rao and Nagaraja (1969)
<i>Iphiaulax grenadensis</i> (Ashmead)	<i>Diatraea saccharalis</i>	NM	Cuba, Brazil	Grist and Lever (1969)
		Larva	Surinam	Van Dinther (1960b), Zwart (1969), Hummelen (1974)
<i>Iphiaulax kimballi</i> ^e	<i>Diatraea saccharalis</i>	Larva	Mexico	Kirkland (1982)
<i>Iphiaulax sikkimensis</i> ^e	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
<i>Iphiaulax</i> sp.	<i>Chilo auricilius</i>	Larva	India	Rao (1972)
	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966), Rao (1972)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
		Larva	India	Rao (1972)
	<i>Chilo</i> spp.	Larva	Bangladesh	Catling and Alam (1977)
	<i>Chilo suppressalis</i>	Larva	Bangladesh	Catling and Alam (1977)
		Larva	India	Rao (1972)
	<i>Diatraea saccharalis</i>	Larva	Peru	Herrera and Iman (1976)
		Larva	Surinam	Van Dinther (1960b), Zwart (1969), Hummelen (1974)
	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
	<i>Sesamia inferens</i>	NM	India	Rao and Nagaraja (1969)
<i>Iphiaulax</i> sp. nr. <i>fastidiator</i> (Fabricius)	Stem borers	Larva	Nigeria	Jerath (1965)
<i>Iphiaulax spilocephalus</i> Cameron	<i>Chilo partellus</i>	Egg	India	Butani (1958), Sharma et al (1966)
		Larva	Pakistan	Haq (1967)
	<i>Chilo</i> spp.	Larva	India	Rao (1972)
<i>Ipobracon aquaticus</i> Myers	<i>Diatraea saccharalis</i>	Larva	Guyana	Myers (1931)
<i>Ipobracon grenadensis</i> Ashmead	<i>Diatraea saccharalis</i>	Larva	Argentina	Tucker (1930), Jaynes (1933)
		Larva	Argentina, Guyana	Turner (1918)
		Larva	Guyana	Skeete (1925), Box (1926)
		Larva	Venezuela	Box (1947)
<i>Ipobracon pennipes</i> Myers	<i>Diatraea</i> spp.	NM	Guyana	Myers (1931)
<i>Ipobracon puberoloides</i> Szepligeti	<i>Diatraea saccharalis</i>	Larva	Guyana	Skeete (1925)
[= <i>Ipobracon puberulus</i>]	<i>Diatraea</i> spp.	NM	Guyana	Box (1926), Myers (1931)
<i>Ipobracon rimac</i> Wolcott	<i>Diatraea saccharalis</i>	NM	Peru	Holloway et al (1932), Jaynes (1932, 1933), Box (1950a, 1951), Cock (1985)
<i>Ipobracon saccharalis</i> Turner	<i>Diatraea saccharalis</i>	Larva	Guyana	Turner (1918), Box (1926)
<i>Ipobracon</i> sp.	<i>Diatraea saccharalis</i>	Larva	Argentina	Jaynes (1932)
		Larva	Brazil	Brazil Instituto de Açúcar e do álcool (1983?)
		Larva	Puerto Rico	Box (1927a,b)
<i>Ipobracon tucumanus</i> Bréthes	<i>Diatraea saccharalis</i>	Larva	Argentina	Bréthes (1927), Box (1928), Jaynes (1933), Hayward (1943)
		NM	Brazil	Bertels (1970)
<i>Macrocentrus nicevillei</i> Ashmead	<i>Sesamia inferens</i>	NM	India	Rao (1964), Rao and Nagaraja (1969)
<i>Macrocentrus</i> sp.	<i>Chilo partellus</i>	Larva	Sri Lanka	Vinson (1942), Sharma et al (1966)
	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
	<i>Chilo</i> spp.	Larva	Bangladesh	Catling and Alam (1977)
	<i>Elasmopalpus lignosellus</i>	Larva	Trinidad and Tobago	Beg and Bennett (1974), Cock (1985)
<i>Macrocentrus</i> sp. cf. <i>turkestanicus</i> Telenga	<i>Chilo suppressalis</i>	Larva/Pupa	Philippines	Barrion (1979), Barrion and Litsinger (1979)
	<i>Sesamia cretica</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
	<i>Sesamia uniformis</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
<i>Merinotus</i> sp.	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966)
	<i>Chilo suppressalis</i>	Larva	India	Nickel (1964), Subba Rao and Chawla (1964), Rao (1972)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Mesobracon</i> sp.	<i>Chilo</i> sp.	Larva	Bangladesh	Catling and Alam (1977)
<i>Meteorus</i> sp.	<i>Sesamia calamistis</i>	Larva	Uganda	Ingram (1958)
	<i>Busseola fusca</i>	Larva	Kenya	Mohyuddin and Greathead (1970)
<i>Meteorus unicolor</i> Wesmael	<i>Scirpophaga incertulas</i>	Larva	India	Rao et al (1968), Rao (1972)
<i>Microbracon</i> [= <i>Habrobracon</i>] <i>brevicornis</i> Wesm.	<i>Sesamia</i> spp.	NM	Africa	Appert (1964)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Microbracon</i> [=Bracon] <i>hebetor</i> (Say)	<i>Sesamia inferens</i>	Larva	India	Appanna (1951), Krishnamurti and Usman (1952, 1954), Rao (1972)
	<i>Sesamia cretica</i>	Larva	NM	Grist and Lever (1969)
	<i>Elamopalpus lignosellus</i>	NM	Venezuela	Guagliumi (1966), Salinas (1976)
<i>Microbracon</i> sp.	<i>Chilo plejadellus</i>	Larva	USA	Grist and Lever (1969)
	<i>Scirpophaga incertulas</i>	Larva	China	Manickavasagar and Miyashita (1959)
<i>Microplitis</i> sp.	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966)
	<i>Sesamia inferens</i>	Egg	India	Rao (1972)
<i>Myosoma chinensis</i> (Szepligeti)	<i>Chilo auricilius</i>	Larva	India	Rao (1972)
[=Agathis noiratum Ishida]		Larva/Pupa	Malaysia, Nepal, Ryukyu Islands-Japan	Yasumatsu (1967c)
[=Amyosoma chilonis Viereck]				
[=Bracon albolineatus Cameron]	<i>Chilo partellus</i>	Larva	India	Cherian and Narayanaswami (1942), Box (1953b), Subba Rao (1955b), Butani (1961), Rao (1963, 1972)
[=Bracon chinensis Szepligeti]				
[=Microbracon chilonis Viereck]				
[=Microbracon chilocida]				
[=Microbracon chinensis Szepligeti]		Larva	India, Sri Lanka	Yasumatsu (1967b)
		Larva/Pupa	Malaysia, Nepal, Ryukyu Islands-Japan	Yasumatsu (1967c)
		Larva	Nepal	Neupane et al (1985)
		Larva	Sri Lanka	Vinson (1942)
	<i>Chilo polychrysus</i>	Larva	India	Nair (1958), Rao (1972)
		Larva/Pupa	Japan	Schmutterer (1977)
		Larva	Malaysia	Yunus and Hua (1980)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Larva	China	Tsai (1932)
		Larva/Pupa	China, India, Japan, Korea, Malaysia, Philippines, Ryukyu Islands-Japan, Taiwan-China	Watanabe (1966)
		Larva	Hawaii-USA	Van Zwaluwenburg et al (1928), Illingworth (1929), Sweetman (1958), De Bach (1964), Bess (1967)
		Larva	India	Butani (1961), Rao (1972)
		Larva	Indonesia	Van der Goot (1948a)
		Larva	Japan	Kuwana (1930a,b), Bess (1967), Watanabe (1968)
		Larva	Korea	Chang (1978b)
		Larva	Malaysia	Lim (1972b), Heong (1978)
		Larva/Pupa	Malaysia, Nepal, Ryukyu Islands-Japan	Yasumatsu (1967c)
		Larva	Philippines	Delfinado (1959), Dyck and Varca (1970), Gabriel (1978)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Thailand	Nishida and Wongsiri (1972)
		Larva	Sri Lanka	Vinson (1942)
	<i>Chilo</i> spp.	Larva	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
	<i>Diatraea saccharalis</i>	Larva	Thailand	Yasumatsu et al (1981)
		NM	Trinidad and Tobago	Grist and Lever (1969)
	<i>Maliarpha separatella</i>	NM	Madagascar	Appert (1970, 1971b)
	<i>Scirpophaga incertulas</i>	Larva	China	Tsai (1932)
		Larva	India	Rao and Israel (1977a)
		Larva	Indonesia	Watanabe (1932), Van der Goot (1948a)
		Larva	Japan	Kuwana (1930a,b), Watanabe (1968)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Larva/Pupa	Malaysia, Nepal, Ryukyu Islands-Japan	Yasumatsu (1967c)
		NM	Pakistan	Watanabe (1968)
		Larva	Philippines	Dyck and Varca (1970), Gabriel (1978), Litsinger et al (1987a)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Taiwan-China	Shiraki (1917), Subba Rao and Chawla (1964), Yasumatsu (1967b)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
	<i>Scirpophaga</i> spp.	Larva	India, Malaysia, Pakistan Sri Lanka	Rao (1972)
	<i>Sesamia calamistis</i>	NM	Mauritius	Appert (1971b)
	<i>Sesamia inferens</i>	Larva	India	Krishnamurti and Usman (1952), Rao (1972), Yadava and Israel (1977)
		Larva	Indonesia	Van der Goot (1948a)
		NM	Japan, Pakistan	Watanabe (1968)
		Larva	Korea	Gang (1978b)
		Larva	Malaysia	Yunus and Hua (1980)
		Larva/Pupa	Malaysia, Nepal, Ryukyu Islands-Japan	Yasumatsu (1967c)
		Larva	Philippines	Delfinado(1959), Dyck and Varca (1970), Gabriel (1978)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1981)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
		Larva	Thailand	JICA (1981)
<i>Myosoma</i> (=Bracon) <i>onukii</i> (Watanabe)	<i>Chilo suppressalis</i>	Larva	China	Hsia (1957), Nickel (1964), Chen et al (1984a)
		Larva	Japan	Nawa (1913), Watanabe (1932, 1966), Suenaga (1933), Tateishi et al (1955), Hidaka (1965), Yasumatsu and Tori (1968)
		Larva	Japan, Korea	Momoi et al (1975)
		Larva	Korea	Yasumatsu (1967a), Nishida and Torii (1970), Chang (1978b)
		NM	Japan, Korea, Ryukyu Islands-Japan	Watanabe (1968)
		Larva/Pupa	Ryukyu Islands-Japan	Yasumatsu (1967c)
		Larva	Sri Lanka	Vinson (1942)
	<i>Sesamia inferens</i>	Larva	Japan	Watanabe and Miyatake (1952), Walker (1959), Yasumatsu and Watanabe (1965), Yasumatsu and Tori (1968), Rao and Nagaraja (1969)
		Larva	Japan, Korea	Momoi et al (1975)
		NM	Japan, Korea, Ryukyu Islands-Japan	Watanabe (1968)
		Larva	Korea	Nishida and Torii (1970), Chang (1978b)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	Pakistan	Ghuri (1977)
	Stem borers	Larva/Pupa	Ryukyu Islands-Japan	Yasumatsu (1967c)
		Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
	stem borers	NM	Japan, Korea, Ryukyu Islands-Japan	Watanabe (1972a)
<i>Opius annulicornis</i> Granger	<i>Diopsis apicalis</i>	Pupa	Cameroon	Risbec (1956)
	<i>Diopsis macrophthalma</i>	Pupa	Cameroon, Malawi	Descamps (1957a), Schulten and Feijen (1983)
	<i>Diopsis</i> sp.	Pupa	Cameroon	Descamps (1957a)
<i>Opius</i> spp.	<i>Diopsis macrophthalma</i>	NM	Cameroon	Descamps (1957a)
<i>Orgilus laeiventris</i> Cresson	<i>Elasmopalpus lignosellus</i>	NM	USA	Luginbill and Ainslie (1917)
<i>Orgilus</i> sp.	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao et al (1968), Rao (1972)
<i>Perilitus</i> sp.	<i>Chilo zacconius</i>	NM	Senegal	Breniere (1969)
	<i>Sesamia</i> sp.	NM	Africa	Appert (1964)
<i>Phanerotoma hendecasisella</i> Cameron	<i>Chilo suppressalis</i>	Egg	Sri Lanka	De Silva (1961), Rao (1972)
<i>Phanerotoma major</i> Brues	<i>Maliarpha separatella</i>	Larva	Nigeria	Akinsola (1979)
		Larva	Sierra Leone	Jordan (1966), Brénière (1969), Grist and Lever (1969), Greathead (1979)
		Larva	West Africa	Agyen-Sampong (1979), Akinsola (1979), Akinsola and Agyen-Sampong (1984)
		NM	Madagascar	Appert (1970)
<i>Phanerotoma saussurei</i> Kohl	<i>Sesamia cretica</i>	Larva	Senegal	Appert (1952)
	<i>Maliarpha separatella</i>	Larva	Ivory Coast	Pollet (1978, 1981)
		Larva	Madagascar	Brénière et al (1962), Nickel (1964), Appert et al (1969), Grist and Lever (1969), Appert (1970, 1971b)
		Larva	Madagascar, Senegal	Brénière (1969)
		NM	Senegal	Vercambre (1977)
		Larva	West Africa	Akinsola and Agyen-Sampong (1984)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
<i>Phanerotoma</i> sp.	<i>Chilo</i> spp.	Egg	Pakistan	Rao (1972)
	<i>Maliarpha separatella</i>	Larva	Africa, Madagascar	Brénière (1983)
		Larva	Mali	Brénière (1969)
<i>Rhaconotus niger</i> (Szepligeti)	<i>Sesamia</i> spp.	NM	Madagascar	Risbec (1960), Appert (1964)
	<i>Maliarpha separatella</i>	Larva	Ivory coast	Pollet (1981)
		Larva	Madagascar	Brénière et al (1962), Breniere (1969), Nickel (1964), Appert et al (1969), Grist and Lever (1969), Appert (1970, 1971b)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
<i>Rhaconotus oryzae</i> Wilkinson	<i>Chilo suppressalis</i>	Larva	Philippines	Gabriel (1978), Barrion (1979)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Rhaconotus</i> sp. nr. <i>oryzae</i> (Wilkinson)	<i>Scirpophaga incertulas</i>	Larva	India	Nishida and Torii (1970), Rao (1972), Momoi et al (1975)	
		NM	India	Subba Rao and Chawla (1964), Watanabe (1968)	
		Larva	India, Indonesia, Philippines	Manickavasagar and Miyashita (1959)	
		Larva/Pupa	Pakistan	Beg et al (1967)	
		Larva	Philippines	Gabriel (1978), Barrion (1979)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	Pakistan	Ghouri (1977)	
		Larva	Sierra Leone	Jordan (1966)	
		Larva	Sierra Leone	Jordan (1966), Braemli...re (1969)	
		Larva	India	Sharma et al (1966)	
<i>Rhaconotus roslinensis</i> Lal	<i>Chilo</i> sp.	Larva	USA	Hawkins and Smith (1986)	
	<i>Scirpophaga nivella</i>	Larva	India	Sharma et al (1966), Nagarkatti and Ramachandran Nair (1973)	
<i>Rhaconotus</i> [=Hormiopterus] <i>schoenobivorus</i> (Rohwer)	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)	
	<i>Chilo</i> sp.	Larva	Malaysia	Lim (1972b)	
	<i>Chilo suppressalis</i>	Larva	India	Rao (1963, 1972), Rao et al (1968), Nagarkatti and Ramachandran Nair (1973)	
		Pupa	Indonesia	Subba Rao and Chawla (1964)	
		NM	Indonesia, Thailand	Watanabe (1968)	
		Larva	Japan	Manickavasagar and Miyashita (1959)	
		Larva	Malaysia	Rothschild (1970, 1971), Heong (1978)	
		Larva	Philippines	Gabriel (1978), Barrion (1979), Reissig et al (1986)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	Thailand	Nishida and Torii (1970), Momoi et al (1975)	
		<i>Scirpophaga incertulas</i>	Larva	Rao (1963, 1972), Rao et al (1968)	
			Pupa	India	Nath and Hikim (1978)
			Larva	Indonesia	Nishida and Torii (1970), Momoi et al (1975)
			Pupa	Indonesia	Subba Rao and Chawla (1964)
			NM	Indonesia, Thailand	Watanabe (1968)
		Larva	Philippines	Gabriel (1978), Barrion (1979), Reissig et al (1986)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	Thailand	Nishida and Torii (1970), Momoi et al (1975)	
<i>Rhaconotus scirpophagae</i> ^e [= <i>Eripterimorpha scirpophagae</i> (Rohwer)]	<i>Scirpophaga nivella</i>	Larva	India	Rahman (1976)	
	<i>Chilo partellus</i>	Larva	India	Butani (1958)	
		Larva	Pakistan	Haq (1967)	
	<i>Maliarpha separatella</i>	Larva	Nigeria, West Africa	Akinsola (1979)	
		Larva	Senegal	Bréniere (1969)	
		Larva	West Africa	Agyen-Sampong (1979), Akinsola and Agyen-Sampong (1984)	
<i>Rhaconotus signipennis</i> (Walker)	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)	
		Larva	Pakistan	Carl (1962)	
	<i>Chilo auricilius</i>	Larva	India	Rao (1963, 1972), Rao et al (1968)	
	<i>Scirpophaga incertulas</i>	Larva	India	Nickel (1964), Rao (1964d, 1972), Rao et al (1968)	

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Rhaconotus</i> sp. nr. <i>signipennis</i> (Walker)	<i>Chilo auricilius</i>	Larva	India	Rao (1963, 1972), Rao et al (1968)
<i>Rhaconotus</i> sp.	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
		Larva	India	Rao (1972)
		Larva	Kenya	Mathez (1972)
	<i>Chilo</i> sp.	Larva	West Africa	Bréniere (1969), Akinsola and Agyen-Sampong (1984)
	<i>Chilo</i> spp.	Larva	India	Rao (1972)
	<i>Chilo zacconius</i>	NM	Senegal	Vercambre (1977)
	<i>Maliarpha separatella</i>	Larva	Ivory coast	Pollet (1978)
		Larva	Madagascar	Bréniere (1983)
		NM	Senegal	Vercambre (1977)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1963, 1972), Chandramohan and Chelliah (1984a)
	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
	<i>Sesamia calamistis</i>	Larva	Kenya	Mathez (1972)
<i>Rhaconotus</i> sp. nr. <i>manippus</i> Nixon	<i>Chilo polychrysus</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
	<i>Chilo</i> spp.	Larva	Bangladesh	Catling and Alam (1977)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
<i>Rhaconotus sudanensis</i> Wilkinson [= <i>R. soudanensis</i>]	<i>Acigona ignefusalis</i>	NM	Africa	Risbec (1960), Mohyuddin and Greathead (1970)
	Stem borers	Larva	Sierra Leone	Nickel (1964)
	<i>Chilo</i> sp.	Larva	Nigeria	Jerath (1965)
<i>Rhaconotus</i> sp. nr. <i>sudanensis</i> Wilkinson	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
<i>Rogas</i> [= <i>Rhogas</i>] sp.	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Jordan (1966), Bréniere (1969)
	<i>Chilo suppressalis</i>	Larva	Philippines	Uichanco (1930), Nickel (1964), Gabriel (1978), Barrion (1979)
	<i>Chilo zacconius</i>	Larva	Senegal	Appert (1952), Nickel (1964)
<i>Spathius fuscipennis</i> Ashmead	<i>Chilo</i> spp.	Larva	India	Rao (1972)
		Larva	Philippines	Ishii (1930, 1939, 1953), Delfinado (1959), Nickel (1964), Baltazar (1966), Gabriel (1978), Barrion (1979)
<i>Spathius helle</i> Nixon	<i>Chilo suppressalis</i>	Larva	Philippines	Ishii (1953), Watanabe (1964), Yasumatsu and Torii (1968), Nishida and Torii (1970), Momoi et al (1975), Barrion (1979)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Spathius</i> sp.	Stem borers	NM	Philippines	Watanabe (1973)
	<i>Chilo suppressalis</i>	Larva	Philippines	Delfinado (1959)
	<i>Scirpophaga incertulas</i>	Larva	Japan, Taiwan-China	Subba Rao and Chawla (1964)
	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
<i>Spathius</i> sp. nr. <i>vulnificus</i> ^e	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
<i>Stenobracon albolineatus</i> Cameron	<i>Chilo partellus</i>	Larva	Sri Lanka	Vinson (1942), Box (1953b)
	<i>Chilo polychrysus</i>	Larva	India	Nair (1958)
		Larva	Malaysia	Yunus and Hua (1980)
	<i>Sesamia inferens</i>	Larva	Malaysia	Yunus and Hua (1980)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Stenobracon deesae</i> (Cameron) [= <i>Vipio deesae</i> Cameron]	<i>Chilo partellus</i>	Larva	India	Narayanan (1938), Trehan and Butani (1949), Krishnamurti and Usman (1954), Butani (1958, 1961), Bhalla and Venkataraman (1963), Sharma et al (1966), Yasumatsu and Torii (1968), Nagarkatti and Ramachandran Nair (1973), Neupane (1982)	
		Larva Larva	Pakistan India	Carl (1962) Alam (1952), Mashood (1952), Jepson (1954), Nickel (1964), Rao (1964d), Yasumatsu and Torii (1968), Nishida and Torii (1970), Momoi et al (1975)	
	<i>Scirpophaga</i> spp. <i>Scirpophaga nivella</i> <i>Sesamia inferens</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	India, Pakistan	Rao (1972)	
		Larva	Pakistan	Carl (1962)	
		Larva Larva Larva	India India, Philippines Philippines	Rao (1964d), Rao (1972) Rao and Nagaraja (1969) Delfinado (1959)	
	<i>Stenobraconkarnalensis</i> ^e <i>Stenobracon lutea</i> (Cameron)	Stem borers <i>Scirpophaga</i> spp.	Larva	Pakistan	Ghourri (1977)
		Stem borers	Larva NM	India Malaysia	Rao (1972) Van Vreden and Ahmadzabidi (1986)
	<i>Stenobracon nicevillei</i> (Bingham) [= <i>Bracon nicevillei</i> Bingham] [= <i>Macrocentrus javanicus</i> Ishida] [= <i>Stenobracon maculata</i> Matsumura] [= <i>Stenobracon trifasciatus</i> Szepliget]	<i>Chilo auricilius</i> <i>Chilo partellus</i>	Larva	India	Rao (1972)
			Larva	India	Butani (1957), Rao (1972) Nagarkatti and Ramachandran Nair (1973)
<i>Chilo polychrysus</i> <i>Chilo suppressalis</i>		Larva	Nepal	Neupane (1982), Neupane et al (1985)	
		Larva	India	Rao (1972)	
		Larva	India	Rao (1972)	
		Larva	Japan	Kuwana (1930a,b)	
		Larva	Philippines	Gabriel (1978)	
		<i>Scirpophaga incertulas</i>	Larva	China, Indonesia, Japan, Taiwan-China	Manickavasagar and Miyashita (1959)
			Larva/Pupa	India	Krishnamurti and Usman (1954), Rao (1972), Rao and Israel (1977a), Nath and Hikim (1978)
		<i>Scirpophaga innotata</i> <i>Scirpophaga nivella</i>	Larva	Indonesia	Van der Goot (1925)
			Larva	Japan	Kuwana (1930a,b), Subba Rao and Chawla (1964)
			NM Larva	Pakistan Philippines	Watanabe (1968) Delfinado (1959), Baltazar (1966), Kamran and Raros (1969), Gabriel (1978), Barrion (1979), Litsinger et al (1987a)
Larva/Pupa Larva			South and Southeast Asia Taiwan-China	Yasumatsu (1967c) Shiraki (1917), Sonan (1929b), Watanabe (1968)	
Larva Larva Larva			Indonesia Philippines India	Van der Goot (1925) Gabriel (1978), Barrion (1979) Nagarkatti and Ramachandran Nair (1973)	
		Larva Larva	Indonesia Taiwa-China	Watanabe (1932) Sonan (1929b)	

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Sesamia inferens</i>	larva Larva	India Philippines	Rao (1972) Delfinado (1959), Baltazar (1966), Gabriel (1978), Barrion (1979), Canapi et al (1987), Litsinger et al (1987a)
<i>Stenobracon oculatus</i> Szepligeti	Stem borers Stem borers	Larva/Pupa NM NM	South and Southeast Asia Taiwan-China Malaysia	Yasumatsu (1967c) Watanabe (1972b) Van Vreden and Ahmadzabidi (1986)
<i>Stenobracon</i> sp.	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1972), Rawat and Diwakar (1982)
<i>Tropobracon dorsalis</i> Matsumura [= <i>Shirakia dorsalis</i> Matsumura]	<i>Scirpophaga incertulas</i> <i>Scirpophaga innotata</i>	Larva Larva	Taiwan-China Indonesia	Shiraki (1917) Van der Goot (1925)
<i>Tropobracon indica</i> Ramakrishna Ayyar	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
<i>Tropobracon jokohamensis</i> ^e	<i>Scirpophaga nivella</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
<i>Tropobracon luteus indicus</i> Ramakrishna Ayyar	<i>Scirpophaga incertulas</i>	Larva Larva	Bangladesh India	Rao et al (1968), Rao (1972), Catling and Alam (1977), Alam et al (1981a) Ayyar and Ananthanarayanan (1937), Krishnamurti and Usman (1954), Manickavasagar and Miyashita (1959), Subba Rao and Chawla (1964)
<i>Tropobracon schoenobii</i> (Viereck)	<i>Chilo auricilius</i> <i>Chilo polychrysus</i> <i>Chilo</i> spp. <i>Chilo suppressalis</i>	Larva Larva Larva/Pupa Larva Larva Larva Larva Larva NM	Pakistan India Thailand Bangladesh India Thailand Bangladesh Thailand India Pakistan	Alam (1971) Rao et al (1968) Yasumatsu (1967c) Alam et al (1981a) Rao et al (1968) Nishida and Wongsiri (1972) Catling and Alam (1977) Yasumatsu et al (1981) Rao et al (1968) Watanabe (1968), Momoi et al (1975)
		Larva/Pupa Larva Larva	Philippines Philippines Taiwan-China	Reissig et al (1986) Gabriel (1978) Shiraki (1917), Watanabe (1968), Momoi et al (1975)
		Larva Larva/Pupa	Thailand Thailand	Nishida and Wongsiri (1972) Yasumatsu (1967c)
	<i>Diatraea saccharalis</i> <i>Scirpophaga incertulas</i>	NM Larva	Trinidad and Tobago Bangladesh	Grist and Lever (1969) Catling and Alam (1977), Alam et al (1981a)
		Larva Larva	China India	Chiu (1937, 1942) Rao (1972), Nath and Hikim (1978), Hattori (1980)
		Larva NM	Malaysia Pakistan	Van Vreden and Ahmadzabidi (1986) Watanabe (1968), Momoi et al (1975)
		Larva/Pupa Larva	Philippines Philippines	Reissig et al (1986) Delfinado (1959), Dyck and Varca (1970), Gabriel (1978)
		Larva	Sri Lanka	Litsinger et al (1987a) Fernando (1967, 1970)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	Taiwan-China	Shiraki (1917), Subba Rao and Chawla (1964), Watanabe (1968) Momoi et al (1975)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1981)
	<i>Scirpophaga innotata</i>	Larva/Pupa	Thailand	Yasumatsu (1967c)
		Larva	Philippines	Gabriel (1978)
	<i>Sesamia inferens</i>	Larva/Pupa	Thailand	Yasumatsu (1967c)
		Larva	India	Rao et al (1968)
		NM	Pakistan	Watanabe (1968)
		Larva	Philippines	Cendaña and Calora (1967), Gabriel (1978)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Taiwan-China	Shiraki (1917), Watanabe (1968)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1981)
	Stem borers	Larva/Pupa	Thailand	Yasumatsu (1967c)
		Larva	Australia, Japan, Kenya Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan- China	Bess (1972)
		NM	Philippines, Taiwan-China	Watanabe (1972b, 1973)
		Larva	Philippines	Kumhof (1986)
		Larva	Thailand	JICA (1981)
<i>Tropobracon</i> sp.	<i>Chilo aleniellus</i>	Larva	Sierra Leone	Jordan (1966)
	<i>Chilo polychrysus</i>	NM	Thailand	Khusakul et al (1979)
	<i>Chilo</i> spp.	NM	Thailand	Khusakul et al (1979, 1981)
	<i>Chilo suppressalis</i>	NM	Thailand	Khusakul et al (1979)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao and Israel (1977a)
	<i>Scirpophaga innotata</i>	Larva	Australia	Li (1970)
	<i>Sesamia</i> sp.	Larva	Sierra Leone	Jordan (1966)
<i>Tropobracon</i> [=Shirakia] sp. nr. <i>schoenobii</i> (Viereck)	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Jordan (1966), Brènière (1969)
	<i>Sesamia</i> sp.	Larva	Sierra Leone	Jordan (1966)
<i>Vipio</i> [=Euvipio] sp. <i>rufa</i> Szepligeti	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962), Mohyuddin and Greathead (1970)
	<i>Busseola fusca</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo diffusilineus</i>	Larva	Kenya	La Croix (1967), Mohyuddin and Greathead (1970)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
<i>Vipio</i> [=Euvipio] <i>rufa</i> Szepligeti	<i>Chilo partellus</i>	Larva	Kenya	Oloo (1989)
<i>Vipio</i> [=Euvipio] sp.	<i>Chilo partellus</i>	Larva	Sudan	Badawy (1967), Neupane (1982)
	<i>Chilo zacconius</i>	NM	Senegal	Vercambre (1977)
Braconid, unidentified	<i>Chilo plejadellus</i>	Egg	USA	Sargent (1976)
	Stem borers	Larva	Australia, Japan, Kenya, Madagascar, Malaysia, Nigeria, Philippines, Ryukyu Islands-Japan, Sri Lanka, Taiwan-China	Bess (1972)
Ceraphronidae				
<i>Aphanogmus</i> sp. ^d	<i>Chilo suppressalis</i>	Larva/Pupa	Japan	Yasumatsu (1967c)
Chalcididae ^b				
<i>Brachymeria feae</i> Masi	<i>Sesamia calamistis</i>	Pupa	Nigeria	Harris (1962), Appert (1964), Rao and Nagaraja (1969)
<i>Brachymeria porrecta</i> Stephens	<i>Sesamia</i> spp.	NM	Madagascar	Risbec (1960), Appert (1964)
<i>Brachymeria sesamiae</i> Gahan	<i>Sesamia</i> sp.	NM	Madagascar	Risbec (1960)
<i>Brachymeria</i> sp.	<i>Chilo diffusilineus</i>	NM	Burkina Faso	Boni (1982)

Continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/ continent	Reference(s)
	<i>Chilo partellus</i>	NM	India	Nagarkatti and Ramachandran Nair (1973)
	<i>Scirpophaga incertulas</i>	Pupa	India	Rao (1964d, 1972), Greathead (1979)
		Pupa	Pakistan	Beg et al (1967)
		Larva	Philippines	Kamran and Rams (1969), Greathead (1979), Litsinger et al (1987a)
<i>Chalcid</i> spp.	<i>Chilo polychrysus</i>	Pupa	Malaysia	Pagden (1930)
	<i>Scirpophaga incertulas</i>	Egg	India	Israel and Prakasa Rao (1968)
	<i>Sesamia inferens</i>	Larva	Taiwan-China	Yanagihara (1934)
<i>Dirhinus garouae</i> Risbec	<i>Diopsis macrophthalma</i>	NM	Cameroon	Descamps (1957a)
<i>Euchalcidia</i> sp.	<i>Chilo polychrysus</i>	Pupa	Australia	Li (1970), Greathead (1979)
<i>Heptasmicra curvilineata</i> Cameron	<i>Diatraea saccharalis</i>	Pupa	Guyana	Box (1926)
<i>Hyperchalcidia</i> [= <i>Euchalcidia</i>] <i>soudanensis</i> (Steffan)	<i>Acigona ignefusalis</i>	Pupa	Madagascar	Risbec (1960)
		Pupa	Madagascar, Nigeria	Appert (1964)
		Pupa	Nigeria	Harris (1962)
	<i>Chilo diffusilineus</i>	NM	Madagascar	Risbec (1960), Appert (1964)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
		Larva	India	Shanna et al (1966)
		Pupa	Nigeria	Neupane (1982)
		Larva	Sudan	Badawy (1967)
		Larva	Uganda	Ingram (1958)
	<i>Chilo zacconius</i>	NM	Cameroon	Risbec (1956)
		NM	Cameroon, Senegal	Brénière (1969)
		Larva	India	Sharma et al (1966)
		Pupa	Nepal	Neupane (1982)
		Larva pupa	Senegal, Sudan, Uganda	Nickel (1964)
		Larva pupa	Uganda	Ingram (1958)
		Larva	Sudan	Appert (1952)
	<i>Eldana saccharina</i>	Pupa	Africa	Betbeder-Matibet (1981)
		NM	Madagascar	Risbec (1960), Appert (1964)
<i>Hyperchalcidia</i> sp.	<i>Chilo partellus</i>	Larva/Pupa	Cameroon	Descamps (1956b), Risbec (1957), Nickel (1964)
		Pupa	India	Shanna et al (1966)
		Larva	Pakistan	Carl (1962)
		Larva	Sudan	Badawy (1967)
		Larva	Uganda	Ingram (1958)
	<i>Chilo</i> spp.	Larva	Pakistan	Rao (1972)
	<i>Chilo zacconius</i>	Larva pupa	Senegal, Sudan, Uganda	Nickel (1964)
		Larva pupa	Uganda	Ingram (1958)
	<i>Eldana saccharina</i>	Pupa	Africa	Betbeder-Matibet (1981)
		NM	Madagascar	Risbec (1960), Appert (1964)
<i>Invreia aff. propinqua</i> ^e	<i>Eldana saccharina</i>	Pupa	Africa	Betbeder-Matibet (1981)
<i>Invreia ghanii</i> ^e	<i>Chilo partellus</i>	NM	Pakistan	Habu (1970)
<i>Spilochalcis dux</i> ^e	<i>Diatraea</i> sp.	Larva	Trinidad	Cock (1985)
<i>Spilochalcis</i> sp.	<i>Diatraea saccharalis</i>	Pupa	Peru	Herrera and Iman (1976)
		Pupa	Surinam	Hummelen (1974)
<i>Spilocryptus diatraeae</i> Myers	<i>Diatraea saccharalis</i>	Pupa	Guyana	Squire (1936)
Elasmidae ^b				
<i>Elasmus albopictus</i> (Crawford)	<i>Chilo suppressalis</i>	Larva/Pupa	Philippines	Reissig et al (1986)
	<i>Scirpophaga incertulas</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva/Pupa	China	Chiu (1942)
		Larva	China	Chiu (1937), Nickel (1964)
		NM	China	Subba Rao and Chawla (1964)
		Larva	China, India, Philippines	Manickavasagar and Miyashita (1959)
		Larva	India	Rao (1963, 1964d), Rao et al (1968), Greathead (1979)
		Larva pupa	Philippines	Gabriel (1978)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Elasmus</i> sp.	<i>Scirpophaga innotata</i>	Larva/Pupa	Philippines	Reissig et al (1986)
	<i>Chilo polychrysus</i>	NM	Thailand	Khusakul et al (1979)
	<i>Chilo</i> spp.	NM	Thailand	Khusakul et al (1979, 1981)
	<i>Chilo suppressalis</i>	NM	Thailand	Khusakul et al (1979)
	<i>Scirpophaga incertulas</i>	Larva	India	Manickavasagar and Miyashita (1959), Rao et al (1968), Greathead (1979)
<i>Elasmus</i> sp. nr. <i>albopictus</i> Crawford	<i>Scirpophaga incertulas</i>	Larva	Philippines	Barrion (1979)
<i>Elasmus zehntneri</i> Ferriere	<i>Scirpophaga nivella</i>	Larva	Pakistan	Carl (1962)
Encyrtidae ^b	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
	<i>Euzkadia integralis</i> Mercet			
Eulophidae ^b	<i>Acigona ignefusalis</i>	NM	Madagascar	Risbec (1960), Appert (1964)
<i>Aprostocetus</i> sp.	<i>Chilo partellus</i>	Pupa	Pakistan	Haq (1967)
	<i>Diopsis macrophthalma</i>	Pupa	Malawi	Feijen (1977a)
		Pupa	Sierra Leone	Jordan (1966)
	<i>Diopsis</i> spp.	Pupa	Ghana	Agyen-Sampong (1977)
	<i>Scirpophaga incertulas</i>	Larva	Sri Lanka	De Silva (1961), Fernando (1967, 1970), Greathead (1979)
	<i>Scirpophaga innotata</i>	NM	Australia	Li (1970, 1972), Allwood (1979), Greathead (1979)
<i>Aprostocetus brevistylus</i> Masi	<i>Diopsis macrophthalma</i>	Pupa	Benin, Burkina Faso, Cameroon, Ghana, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierra Leone	Bréniere (1983)
<i>Cirrospilus</i> sp. nr. <i>ingenuus</i> Gahan	<i>Chilo polychrysus</i>	Larva/Pupa	Malaysia	Lever (1955a), Nickel (1964), Yunus and Hua (1980)
	<i>Chilo suppressalis</i>	Larva/Pupa	Malaysia	Lever (1955a), Nickel (1964), Greathead (1979), Yunus and Hua (1980)
	<i>Sesamia inferens</i>	Larva/Pupa	Malaysia	Walker (1959), Rao and Nagaraja (1969), Yunus and Hua (1980)
<i>Euplectrus howardi</i> ^e	<i>Bathytricha truncata</i>	Pupa	Australia	Li (1970)
<i>Euplectrus</i> sp.	<i>Chilo</i> spp.	Larva	India	Rao (1972)
	<i>Chilo suppressalis</i>	Larva	India	Rao (1963, 1964d), Nickel (1964), Greathead (1979)
	<i>Sesamia inferens</i>	Larva	India	Rao (1964d, 1965), Rao and Nagaraja (1969)
<i>Horismenus</i> sp.	<i>Elasmopalpus lignosellus</i>	NM	Venezuela	Guagliumi (1966), Salinas (1976)
<i>Pediobius furvus</i> (Gahan) [= <i>Pediobius furvum</i>] [= <i>Pleurotropis furvum</i> Gahan]	<i>Acigona ignefusalis</i>	Pupa	Nigeria	Harris (1962), Appert (1964)
	<i>Busseola fusca</i>	Pupa	Nigeria	Harris (1962)
		Pupa	Uganda	Ingram (1958)
	<i>Chilo partellus</i>	Pupa	East Africa	Mohyuddin and Greathead (1970)
		Pupa	Kenya	Mathez (1972)
		Pupa	Madagascar	Appert and Ranaivosoa (1971)
		NM	Madagascar	Appert (1971b)
	Pupa	Nigeria	Harris (1962), Appert (1964)	
	<i>Sesamia calamistis</i>	Larva	Angola, Cameroon, Congo, Ivory Coast, Madagascar, Mauritius, Niger, Nigeria, Senegal, Zambia	Bréniere (1983)
		NM	Cameroon	Appert (1971c)
		Pupa	Kenya	Mathez (1972)
		Pupa	Madagascar	Risbec (1960), Appert (1964), Appert et al (1969)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		NM	Madagascar, Comoro Islands, Reunion, Uganda	Appert (1971b)
	<i>Sesamia</i> spp.	Pupa	Cameroon	Descamps (1956b), Nickel (1964)
		Pupa	East Africa	Mohyuddin and Greathead (1970)
		Pupa	Nigeria	Harris (1962), Appert (1964)
		Pupa	Sierra Leone	Jordan (1966)
		Pupa	Uganda	Ingram (1958)
<i>Pediobius</i> sp.	<i>Busseola fusca</i>	Pupa	Uganda	Ingram (1958), Appert (1964)
	<i>Chilo partellus</i>	Larva	India	Sharma et al (1966)
		Pupa	Uganda	Ingram (1958)
	<i>Sesamia botanephaga</i>	Pupa	Uganda	Ingram (1958), Appert (1964), Nickel (1964)
	<i>Sesamia calamistis</i>	Pupa	Uganda	Ingram (1958), Nickel (1964)
		NM	Senegal	Vercambre (1977)
<i>Pleurotropis dipterae</i> Risbec	<i>Diopsis macrophthalma</i>	Pupa	Cameroon	Descamps (1956b)
		Pupa	Malawi	Schulten and Feijen (1983)
<i>Scenocharops</i> sp.	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Grist and Lever (1969)
<i>Stenomesus japonicus</i> (Ashmead)	<i>Chilo suppressalis</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
[= <i>Sympiesomorpha chilonis</i> Ishii]	<i>Acigona ignefusalis</i>	Larva/Pupa	Nigeria	Harris (1962)
<i>Syntomosphyrum</i> [= <i>Tetrastichopsis</i>] sp.	<i>Chilo partellus</i>	Pupa	Kenya	Mathez (1972)
		Pupa	Uganda	Mohyuddin and Greathead (1970)
<i>Tetrastichus atriclavus</i> Waterston	<i>Acigona ignefusalis</i>	Pupa	Nigeria	Harris (1962), Appert (1964), Grist and Lever (1969)
	<i>Busseola fusca</i>	Pupa	Nigeria	Harris (1962), Appert (1964), Mohyuddin and Greathead (1970)
	<i>Eldana saccharina</i>	Pupa	Africa	Betbeder-Matibet (1981)
	<i>Sesamia calamistis</i>	Egg	NM	Grist and Lever (1969)
		NM	Madagascar, Mauritius, Reunion	Appert (1971b)
		NM	Mauritius, Reunion	Rao and Nagaraja (1969)
		NM	Mauritius	Williams and Mamet (1962)
	<i>Sesamia</i> sp.	Pupa	Nigeria	Harris (1962), Nickel (1964)
<i>Tetrastichus ayyari</i> Rohwer	<i>Chilo auricilius</i>	Pupa	India	Rao (1963, 1970, 1972), Rao and Rao (1980b)
[= <i>Syntomosphyrum israeli</i> Kurian]		Pupa	Malaysia	Rotschild (1970, 1971)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Chilo partellus</i>	Pupa	India	Chcrian and Subramanian (1940), Krishnamurti and Usman (1954), Butani (1958), Puttarudriah and Sastry (1959), Rao (1963, 1972), Yasumatsu (1967b), Yasumatsu and Torii (1968), Greathead (1979)
		Pupa	Pakistan	Haq (1967)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Chilo polychrysus</i>	Pupa	Bangladesh	Alam et al (1981a)
		Pupa	India	Rao (1963), Yasumatsu and Torii (1968), Israel and Padmanabhan (1976)
		Egg	Philippines	Reissig et al (1986)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Chilo</i> spp.	Pupa	India	Krishnamurti and Usman (1954)
		Pupa	Malaysia	Lim (1972b)
		Larva/Pupa	Thailand	Yasumatsu et al (1981)
	<i>Chilo suppressalis</i>	Pupa	Bangladesh	Catling and Alam (1977)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	China	Chen et al (1984a)
		Egg	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
		Pupa	Malaysia	Rothschild (1971)
		Egg	Philippines	Reissig et al (1986)
		Pupa	Philippines	Gabriel (1978)
		NM	Philippines	Kumhof (1986)
	<i>Scirpophaga incertulas</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Pupa	Bangladesh	Bhuiyan and Sufian (1986)
		Pupa	India	Rao (1963), Subba Rao and Chawla (1964), Rao et al (1968)
		Pupa	India, Indonesia	Nickel (1964)
		Pupa	Malaysia	Rotschild (1970), Rao (1972)
		Egg	Philippines	Reissig et al (1986)
		NM	Philippines	Kumhof (1986)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Sri Lanka	De Silva (1961), Fernando (1970), Rajapakse and Kulasekera (1980)
		<i>Scirpophaga innotata</i> <i>Sesamia inferens</i>	Larva	Thailand	Yasumatsu et al (1975)
	Larva		Thailand	Yasumatsu et al (1975)
	Pupa		Bangladesh	Rao (1972), Catling and Alam (1977), Alam et al (1981a)
	Pupa		India	Krishnamurti and Usman (1952)
		NM	India	Nagarkatti and Ramachandran Nair (1973)
		Pupa	Malaysia	Rotschild (1970, 1971)
		Egg	Philippines	Reissig et al (1986)
		Pupa	Philippines	Gabriel (1978)
		NM	Philippines	Kumhof (1986)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Sesamia</i> sp.	Pupa	Malaysia	Lim (1972b)
<i>Tetrastichus brevistylus</i> Masi		<i>Diopsis macrophthalma</i>	Pupa	Cameroon	Descamps (1957a), Schulten and Feijen (1983)
<i>Tetrastichus confusus</i> Schulten and Feijen	<i>Diopsis macrophthalma</i>	Larva	Cameroon	Schulten and Feijen (1984a)
<i>Tetrastichus</i> [= <i>Aprostocetus</i>] <i>diopsisi</i> (Risbec)	<i>Diopsis ichneumonea</i> <i>Diopsis macrophthalma</i>	Pupa	Cameroon	Risbec (1956)
		Larva/Pupa	Cameroon	Descamps (1957a)
		Pupa	Malawi	Feijen (1979b), Schulten and Feijen (1983)
	<i>Diopsis servillei</i>	Pupa	Cameroon	Risbec (1956)
<i>Tetrastichus flavobrunneus</i> Schulten and Feijen	<i>Diopsis ichneumonea</i>	Pupa	Malaysia	Rothschild (1970, 1971)
<i>Tetrastichus inferens</i> Yoshimoto	<i>Scirpophaga incertulas</i> <i>Sesamia inferens</i>	Pupa	Cameroon	Schulten and Feijen (1984b)
<i>Tetrastichus procerae</i> Risbec	<i>Chilo diffusilineus</i> <i>Chilo zacconius</i>	Larva	Bangladesh	Bhuiyan and Sutian (1984, 1986)
		Pupa	Taiwan-China	Yoshimoto (1970)
<i>Tetrastichus risbeci</i> Schulten and Feijen [= <i>Asyntomosphyrum diopsisi</i> Risbec]	<i>Chilo diffusilineus</i> <i>Chilo zacconius</i>	NM	Madagascar	Risbec (1960), Appert (1964)
	<i>Diopsis apicalis</i>	NM	Madagascar	Risbec (1960), Appert (1964)
<i>Tetrastichus schoenobii</i> Ferriere	<i>Chilo auricilius</i>	Pupa	Cameroon	Schulten and Feijen (1984b)
		Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
		Pupa	India	Rao (1963), Yasumatsu (1967b)
	<i>Chilo partellus</i>	Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
	<i>Chilo polychrysus</i>	Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
		Egg	Malaysia	Rao (1965)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	China	Chen et al (1984a)
	<i>Chilo</i> sp.	Egg	Philippines	Shepard et al (1987)
	<i>Chilo suppressalis</i>	Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Egg	Philippines	Kamran and Raros (1969), Gabriel (1978)
	<i>Scirpophaga incertulas</i>	Egg	Bangladesh	Krishnamurti and Usman (1954), Alam and Bhuiyan (1964), Islam (1976b), Catling and Alam (1977), Catling (1979), Alam et al (1981a), Catling et al (1983a), Bhuiyan and Sufian (1986)
		Egg	China	Tsai (1932), Chiu (1937, 1942), Chao et al (1979), Ding et al (1981), He (1984), Qiu et al (1984), Zhang and Zhao (1986)
		Egg	India	Sastry and Appanna (1959), Rao (1963, 1972), Butcheswara Rao and Kameswara Rao (1965), Vasantharaj David and Kumaraswami (1975), Kameshwara Rao and Ali (1976), Saivaraj et al (1976), Rai and Gowda (1977), Rao and Israel (1977a), Hikim (1979), Chandramohan and Chelliah (1984a)
		Egg	India, Indonesia, Philippines,	Rao (1965)
		Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
		Egg	Indonesia	Van der Laan (1951), Van der Goot (1948a), Soehardjan and Sugiarto (1979), Soejitno (1986b), Tirumala Rao (1986)
		Egg	Indonesia, Malaysia, Taiwan-China, Thailand	Subba Rao and Chawla (1964)
		Egg	Japan	Yasumatsu (1967c)
		Egg	Malaysia	Van der Goot (1948a), Van der Laan (1951), Yasumatsu (1967b), Yasumatsu and Torii (1968), Rothschild (1970), Lim (1972b), Ooi (1974), Yunus and Hua (1980), Van Vreden and Ahmadzabidi (1986), Islam (1987)
		Egg	Pakistan	Alam (1971)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Egg	Philippines	Kamran and Raros (1969), Dyck and Varca (1970), Htun et al (1976), Gabriel (1978), Kim and Heinrichs (1985), Kim et al (1986), Kumhof (1986), Reissig et al (1986), Shepard and Arida (1986), Arida and Shepard (1987), Litsinger et al (1987a), Xia (1988)
		Egg	Sri Lanka	Fernando (1967, 1970), Rajapakse and Kulasekera (1980), Ahangama and Gilstrap (1987)
		Egg	Taiwan-China	Manickavasagar and Miyashita (1959)
		Egg	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975, 1981), Catling et al (1984)
		Egg	NM	Grist and Lever (1969), Schmutterer (1977)
	<i>Scirpophaga innotata</i>	Egg	India, Malaysia, Pakistan, Sri Lanka	Rao (1972)
		Egg	Indonesia	Van der Goot (1948a), Van der Laan (1951), Rao (1965)
		Egg	Japan	Yasumatsu (1967c)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Egg	Philippines	Manickavasagar and Miyashita (1959), Barrion (1979), Reissig et al (1986)
		Egg	Thailand	Yasumatsu et al (1981)
	<i>Scirpophaga nivella</i>	Egg	NM	Grist and Lever (1969)
	<i>Scirpophaga</i> spp.	Larva	India	Krishnamurti and Usman (1954)
		Egg	Indonesia	Soehardjan (1976), Greathead (1979), Soehardjan and Sugiarto (1979)
		Egg	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966), Rothschild (1971), Ooi (1974), Khoo and Lee (1978), Van Vreden and Ahmadzabidi (1986)
	<i>Sesamia inferens</i>	Egg	Indonesia	Nickel (1964), Rao and Nagaraja (1969)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Egg	Philippines	Barrion (1979), Reissig et al (1986)
<i>Tetrastichus sesamiae</i> Risbec	Stem borers <i>Chilo zacconius</i>	Egg Larva	Thailand Cameroon	Nishida (1971), JICA (1981) Descamps (1956b), Grist and Lever (1969)
	<i>Diopsis macrophthalma</i>	NM	Cameroon	Descamps (1957a)
	<i>Diopsis servillei</i>	Pupa	Cameroon	Risbec (1956)
	<i>Sesamia calamistis</i>	NM	Senegal	Appert (1952)
	<i>Sesamia</i> spp.	NM	Cameroon	Descamps (1956b)
<i>Tetrastichus</i> sp.	<i>Chilo auricilius</i>	Pupa	Bangladesh, India	Rao (1972)
	<i>Chilo partellus</i>	Pupa	India	Butani (1957), Sharma et al (1966)
		Pupa	NM	Grist and Lever (1969)
	<i>Chilo polychrysus</i>	Pupa	Bangladesh	Alam (1961)
		Pupa	Bangladesh, India	Greathead (1979)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Pupa	Bangladesh, Pakistan	Alam (1971)
		Pupa	India	Nair (1958), Rao (1964d)
		Pupa	Malaysia	Yunus and Hua (1980)
		NM	Thailand	Khusakul et al (1979)
	<i>Chilo</i> sp.	Pupa	Sarawak-Malaysia	Munroe (1974)
	<i>Chilo suppressalis</i>	Larva/Pupa	Thailand	Khusakul et al (1976, 1979)
	<i>Diopsis macrophthalma</i>	Pupa	Cameroon	Descamps (1957a)
		Pupa	Kenya	Alghali (1984c)
		Pupa	Sierra Leone	Agyen-Sampong (1979)
	<i>Diopsis</i> sp.	Pupa	West Africa	Agyen-Sampong (1979), Akinsola and Agyen-Sampong (1984)
	<i>Scirpophaga incertulas</i>	Egg	India	Kameshwara Rao and Ali (1976), Rao (1969, 1972)
		Pupa	India	Rao (1963)
		Egg	Japan	Kuwana (1930a,b)
		Egg	Malaysia	Munroe (1974)
		Egg	Philippines	Rowan (1923), El-Dakroury Abdallah et al (1983)
		Egg	Taiwan-China	Subba Rao and Chawla (1964)
	<i>Scirpophaga innotata</i>	Egg/Larva/Pupa	Thailand	Khusakul et al (1976, 1977)
		Egg	India	Rao (1972)
		Egg	Indonesia	Van der Goot (1925)
	<i>Scirpophaga nivella</i>	Larva	India	Krishnamurti and Usman (1954)
	<i>Sesamia calamistis</i>	Pupa	Madagascar	Caresche (1962)
	<i>Sesamia inferens</i>	Egg	India, Malaysia	Rao (1972)
		Larva, Pupa	Malaysia	Yunus and Hua (1980)
		Pupa	Philippines	Delfinado (1959), Baltazar (1966)
		Larva, Pupa	Thailand	Khusakul et al (1976)
	<i>Sesamia</i> spp.	NM	Madagascar	Caresche and Brénière (1962)
	Stem borers	Egg	Indonesia	Sastrodihardjo (1971)
<i>Tetrastichus</i> sp. (<i>atriclavus</i> group)	<i>Sesamia inferens</i>	Larva	Bangladesh	Alam et al (1981a)
<i>Tetrastichus</i> sp. (<i>crino</i> group)	<i>Chilo</i> sp.	Larva	Bangladesh	Alam et al (1981a)
<i>Tetrastichus</i> sp. ? <i>inferens</i> Yoshimoto	<i>Sesamia inferens</i>	NM	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Pupa	Philippines	Barrion (1979)
<i>Tetrastichus variabilis</i> Schulten and Feijen	<i>Diopsis macrophthalma</i>	Larva	Cameroon	Schulten and Feijen (1984a)
<i>Trichospilus diatraeae</i> Cherian and Margabandhu	<i>Chilo sacchariphagus indicus</i>	Pupa	India	Rao et al (1968)
	<i>Sesamia inferens</i>	Pupa	India	Nickel (1964), Rao et al (1968), Rao and Nagaraja (1969), Rao (1972), Greathead (1979)
<i>Trichospilus vorax</i> ^e	<i>Eldana saccharina</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
Eupelmidae ^b		Pupa	Africa	Betbeder-Matibet (1981)
<i>Eupelmella predatoria</i> Ferriere	<i>Diopsis macrophthalma</i>	Pupa	Cameroon, Malawi	Descamps (1957a), Schulten and Feijen (1983)
		Pupa	Benin, Burkina Faso, Cameroon, Ghana, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierra Leone	Brénière (1983)
<i>Eupelmus</i> sp.	<i>Busseola fusca</i>	Pupa	Cameroon	Risbec (1956)
	<i>Chilo auricilius</i>	Larva/Pupa	Nigeria	Harris (1962), Appert (1964)
		Pupa	India	Nickel (1964), Rao (1972)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Eurytomidae</i> ^b				
<i>Eurytoma browni</i> Crawford	<i>Scirpophaga incertulas</i>	Larva Larva/Pupa	India South and Southeast Asia	Rao (1963) Yasumatsu (1967c)
<i>Eurytoma diopsisi</i> Risbec	<i>Diopsis macrophthalmia</i>	Pupa Pupa	Cameroon Malawi	Descamps (1957a) Schulten and Feijen (1983)
<i>Eurytoma lepidopterae</i> Risbec	<i>Adelpherupa</i> sp.	Larva	Cameroon	Descamps (1956b), Risbec (1956), Nickel (1964)
	<i>Chilo zacconius</i>	Larva Pupa	Cameroon Cameroon	Risbec (1956), Nickel (1964) Descamps (1956b), Nickel (1964)
<i>Eurytoma</i> sp.	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
	<i>Eldana saccharina</i>	NM	Africa	Betbeder-Matibet (1981)
	<i>Maliarpha separata</i>	Larva	Sierra Leone	Jordan (1966)
<i>Formicidae</i> ^a				
<i>Formicid</i> , unidentified	<i>Bathytrica truncata</i>	Pupa	Australia	Li (1970)
<i>Paratrechina</i> [= <i>Nylanderia</i>] sp.	<i>Diatraea saccharalis</i>	Larva	Surinam	Hummelen (1974)
	<i>Rupela albinella</i>	Egg/Larva	Surinam	Hummelen (1974)
<i>Pheidole megacephala</i> (Fabricius)	<i>Bathytrica truncata</i>	Larva	Australia	Li (1970)
	<i>Busseola fusca</i>	Egg/Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo partellus</i>	Egg/Larva	East Africa	Mohyuddin and Greathead (1970), Neupane (1982)
	<i>Chilo suppressalis</i>	NM Egg	Hawaii-USA Taiwan-China	Van Zwaluwenburg et al (1928) Manickavasagar and Miyashita (1959)
<i>Pheidole nodus</i> Smith	Stem borers <i>Chilo suppressalis</i>	Egg Egg	Thailand Taiwan-China	Wongsiri (1980) Manickavasagar and Miyashita (1959)
	<i>Scirpophaga incertulas</i>	NM Egg	South and Southeast Asia Taiwan-China	Yasumatsu (1967c) Shiraki (1917)
<i>Pheidole</i> sp.	<i>Scirpophaga incertulas</i> <i>Sesamia inferens</i>	Larva Larva	Philippines Taiwan-China	Barrion (1979) Yanagihara (1934), Des et al (1974)
<i>Solenopsis geminata</i> (Fabricius)	<i>Chilo suppressalis</i> <i>Elasmopalpus lignosellus</i> <i>Scirpophaga incertulas</i> <i>Sesamia inferens</i>	Larva/Pupa NM Larva Larva/Pupa	Philippines Venezuela Philippines Philippines	Barrion (1979) Guagliumi (1966), Salinas (1976) Barrion (1979) Barrion (1979)
<i>Tetramorium</i> [= <i>Formica</i>] <i>guineense</i> (Fabricius)	<i>Chilo partellus</i>	Egg/Larva	East Africa	Mohyuddin and Greathead (1970), Neupane (1982)
	<i>Scirpophaga incertulas</i>	NM Larva	South and Southeast Asia Taiwan-China	Yasumatsu (1967c) Shiraki (1917)
<i>Tetramorium simillimum</i> (F. Smith)	<i>Sesamia inferens</i> <i>Chilo polychrysus</i> <i>Scirpophaga incertulas</i> <i>Sesamia inferens</i>	Larva NM NM NM	Taiwan-China Pakistan Pakistan Pakistan	Yanagihara (1934) Alam (1972) Alam (1972) Alam (1972)
<i>Tetramorium</i> [= <i>Tetrogmus</i>] sp.	<i>Scirpophaga incertulas</i>	Larva/Pupa	Philippines	Barrion (1979)
<i>Tetraponera rufonigra</i> Jerdon	<i>Chilo suppressalis</i>	Egg	Malaysia	Yunus and Hua (1980)
<i>Ichneumonidae</i> ^b				
<i>Agrothereutes diatraea</i> (Myers) [= <i>Spilocryptus diatraea</i> Myers]	<i>Diatraea saccharalis</i>	NM	Guyana	Squire (1936), Box (1953b), Nickel (1964)
<i>Agrothereutes lanceolatus</i> (Walker)	<i>Chilo polychrysus</i> <i>Chilo suppressalis</i>	NM NM NM	Japan, Korea Japan Japan, Korea	Momoi (1968a) Watanabe (1966) Manoi (1968a), Nishida and Torii (1970), Momoi et al (1975)
		Larva Larva/Pupa	Japan, Korea South and Southeast Asia	Chang (1978b) Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM NM	Japan, Korea Korea	Momoi (1968a) Chang (1978b)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Agrothereutes</i> [= <i>Gambrus</i>] sp. <i>Amauromorpha accepta accepta</i> (Tosquinet)	<i>Scirpophaga innotata</i>	NM	Japan, Korea	Momoi (1968a)	
	<i>Sesamia inferens</i>	NM	Japan, Korea	Momoi (1968a)	
	<i>Chilo suppressalis</i>	Larva	Japan	Hidaka (1965)	
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1963), Rao et al (1968), Rao (1972)	
		NM	India	Rao (1964d)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
	<i>Scirpophaga innotata</i>	Larva	Indonesia	Van der Goot (1925), Nickel (1964)	
		NM	Indonesia	Townes et al (1961)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva/Pupa	Thailand	Wongsiri (1980)	
<i>Amauromorpha accepta metathorocica</i> (Ashmead) [= <i>Amauromorpha metathoracica</i> Ashmead]	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980)	
	<i>Chilo auricilius</i>	Larva	NM	Grist and Lever (1969)	
	<i>Chilo polychrysis</i>	NM	Philippines	Momoi (1968a)	
	<i>Chilo suppressalis</i>	NM	Philippines	Momoi (1968a)	
	<i>Scirpophaga incertulas</i>	NM	China	Subba Rao and Chawla (1964)	
		Larva	China	Chiu (1937, 1942), Townes et al (1961)	
		Larva	India	Chandramohan and Chelliah (1984a)	
		Larva	Indonesia, Thailand	Nickel (1964)	
		Larva	Philippines	Cendana and Morallo (1961), Momoi (1968a), Nishida and Torii (1970), Momoi et al (1975), Barrion (1979), Kumhof (1986)	
		Larva/Pupa	South and Southeast Asia	Litsinger et al (1987a)	
<i>Amauromorpha</i> sp.? <i>metathorocica</i> Ashmead	<i>Scirpophaga innotata</i>	NM	Philippines	Yasumatsu (1967c)	
	<i>Sesamia inferens</i>	NM	Philippines	Momoi (1968a)	
	<i>Scirpophaga incertulas</i>	Larva	India	Momoi (1968a)	
		Larva	China	Rao et al (1968)	
		Larva	China	Chiu (1937)	
		Larva	India, Indonesia, Philippines	Manickavasagar and Miyashita (1959), Rao (1963, 1972)	
		Larva	India	Rao et al (1968)	
		Larva	India	Rao et al (1968), Rao (1972)	
	<i>Amauromorpha accepta schoenobii</i> (Viereck) [= <i>Amauromorpha metathoracica</i>]	<i>Chilo auricilius</i>	Larva	India	Rao (1964d)
			Larva/Pupa	Japan, Malaysia, Sri Lanka	Yasumatsu (1967c)
		Larva	NM	Grist and Lever (1969)	
<i>Chilo partellus</i>		Larva/Pupa	Japan, Malaysia	Yasumatsu (1967)	
<i>Chilo polychrysis</i>		NM	China, India, Malaysia, Taiwan-China, Thailand	Momoi (1968a)	
		Larva	Thailand	Nishida and Wongsiri (1972)	
<i>Chilo suppressalis</i>		NM	China, India, Malaysia, Taiwan-China, Thailand	Momoi (1968a)	
		Larva	Philippines	Dyck and Varca (1970)	
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Larva	Taiwan-China	Shiraki (1917)	
<i>Chilo</i> spp. <i>Scirpophaga incertulas</i>		NM	Taiwan-China	Townes et al (1961)	
		Larva	Thailand	Nishida and Wongsiri (1972).	
				Yasumatsu et al (1975)	
	<i>Chilo</i> spp.	Larva	Thailand	Nishida and Wongsiri (1972)	
	<i>Scirpophaga incertulas</i>	NM	China, India, Malaysia, Taiwan-China, Thailand	Manoi (1968a)	
		Egg	India	Vasantharaj David and Kumaraswami (1975)	
		Larva	India	Rao (1963), Rao and Israel (1977a)	

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		NM	India	Gupa (1964), Rao (1964d)
		Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Larva/Pupa	Philippines	Gabriel (1978)
		Larva	Philippines	Delfinado (1959), Dyck and Varca (1970), Htun et al (1976), Barrion (1979)
		NM	Philippines	Kumhof (1986)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva	Taiwan-China	Shiraki (1917), Manickavasagar and Miyashita (1959)
		NM	Taiwan-China	Townes et al (1961), Subba Rao and Chawla (1964)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
		Larva/Pupa	Thailand	Yasumatsu et al (1981)
	<i>Scirpophaga innotata</i>	NM	China, India, Malaysia, Taiwan-China, Thailand	Momoi (1968a)
		Pupa	Indonesia	Van der Goot (1925), Nickel (1964)
	<i>Scirpophaga nivella</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		NM	Taiwan-China	Townes et al (1961)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	NM	China, India, Malaysia, Taiwan-China, Thailand	Momoi (1968a)
		Larva	Philippines	Delfinado (1959)
		Larva	Taiwan-China	Yanagihara (1934)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
		NM	Taiwan-China	Townes et al (1961)
<i>Amauromorpha schoenobii</i> (Viereck)	<i>Scirpophaga nivella</i>	NM	Taiwan-China	Box (1953b)
	<i>Sesamia inferens</i>	NM	Taiwan-China	Box (1953b)
<i>Amauromorpha</i> sp. <i>schoenobii</i> (Viereck)	<i>Chilo sacchariphagus indicus</i>	Larva	Taiwan-China	Sonan (1929a)
	<i>Chilo suppressalis</i>	Larva	Taiwan-China	Shiraki (1917), Yasumatsu and Torii (1968)
	<i>Scirpophaga incertulas</i>	Larva	India	Manickavasagar and Miyashita (1959)
		Larva	Philippines	Delfinado (1959)
		Larva	Taiwan-China	Sonan (1929a)
	<i>Sesamia inferens</i>	Larva	Taiwan-China	Sonan (1929a), Takano (1934), Yanagihara (1934), Rao and Nagaraja (1969)
<i>Amauromorpha</i> sp.	<i>Chilo auricilius</i>	Larva	India	Rao (1963)
		NM	India	Rao (1964d)
	<i>Scirpophaga incertulas</i>	Pupa	India	Nath and Hikim (1979)
		NM	India	Rao (1964d)
	<i>Scirpophaga nivella</i>	Larva	Taiwan-China	Sonan (1929a)
<i>Amesospilus</i> sp.	<i>Sesamia calamistis</i>	Larva	Madagascar	Caresche and Brénière (1962)
				Appert et al (1969), Rao and Nagaraja (1969), Appert (1971b)
<i>Ancaria</i> sp.	<i>Scirpophaga incertulas</i>	Larva	Malaysia	Yunus and Hua (1980)
<i>Anilastus</i> sp.	<i>Sesamia inferens</i>	NM	India	Rao (1965, 1972), Rao (1964d), Rao et al (1968), Rao and Nagaraja (1969)
<i>Anomalon</i> sp.	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
<i>Apsilops</i> sp.	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1972), Rao et al (1968)
		NM	India	Rao (1964d)
<i>Barichneumon</i> sp.	<i>Sesamia</i> sp.	Pupa	Pakistan	Beg et al (1967)
<i>Brachycoryphus nursei</i> (Cameron)	<i>Chilo</i> spp.	Larva	India	Rao (1972)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/Continent	Reference(s)
<i>Campopleginiid</i> sp., unidentified	<i>Sesamia inferens</i>	Larva	India	Rao et al (1968)
<i>Camptolynx striatus</i> Cameron	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
<i>Centeterus alternecoloratus</i> (Cushman)	<i>Chilo auricilius</i>	Larva/Pupa	India	Rao et al (1968), Rao (1972)
[= <i>Phaeogenes alternecoloratus</i> Thompson]		Pupa	India	Rao (1963), Chacko and Rao (1966), Yasumatsu (1967b), Grist and Lever (1969)
		NM	India	Rao (1964d)
	<i>Chilo partellus</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Pupa	India	Chacko and Rao (1966), Sharma et al (1966), Grist and Lever (1969), Rao (1972)
	<i>Chilo polychrysus</i>	Pupa	India	Rao (1963)
		NM	India, Taiwan-China	Momoi (1968a)
	<i>Chilo suppressalis</i>	Larva	China	Tsai (1932)
		Pupa	China	Rao (1972)
		NM	China	Townes et al (1961)
		NM	Hawaii-USA	Cushman (1929)
		Larva	India	Nishida and Torii (1970)
		NM	India, Taiwan-China	Manoi (1968a)
		Larva	Indonesia	Van der Goot (1948c)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	Larva	China	Tsar (1932), Manickavasagar and Miyashita (1959), Rao (1972)
		NM	China	Subba Rao and Chawla (1964)
		NM	India, Taiwan-China	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	India, Taiwan-China	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	India, Taiwan-China	Momoi (1968a)
	Stem borers	NM	India, Taiwan-China	Momoi (1968b)
<i>Charops bicolor</i> (Szepligeti)	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
[= <i>Agrypon bicolor</i> Szepligeti]				
[= <i>Charops (Zacharops) formosanus</i> Uchida]				
[= <i>Gongropelma formosanum</i> Endelein]				
[= <i>Zacharops narangae</i> Cushman]				
<i>Charops brachypterum</i> Gupta and Maheswary	<i>Scirpophaga incertulas</i>	Larva	Philippines	Litsinger et al (1987a)
[= <i>Anomalon brachypterum</i> Cameron]				
<i>Charops</i> sp.	<i>Chilo diffusilineus</i>	NM	Senegal	Appert (1964)
	<i>Chilo zacconius</i>	NM	Cameroon	Descamps (1956b)
		Pupa	Senegal	Appert (1952)
		NM	Senegal	Bréniere (1969)
		Larva	Sudan	Risbec (1956), Nickel (1964)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Alam et al (1981a)
		NM	India	Rao (1964d)
	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
<i>Charops</i> sp. nr. <i>spinitarsus</i> Cameron	<i>Sesamia</i> sp.	Larva	Nigeria	Jerath (1965)
<i>Chasmias</i> sp.	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962)
	<i>Chilo partellus</i>	Pupa	Uganda	Ingram (1958)
	<i>Chilo</i> sp.	Pupa	Sierra Leone	Jordan (1966)
	<i>Sesamia calamistis</i>	Larva	NM	Grist and Lever (1969)
<i>Coccygomimus laothoe</i> (Cameron)	<i>Sesamia inferens</i>	Pupa	India	Rao et al (1968), Rao (1972)
[= <i>Pimpla instigator</i> Morley]		Pupa	Sri Lanka	Rao (1972)
[= <i>Pimpla laothoe</i> Cameron]				
[= <i>Pimpla nepe</i> Cameron]				
[= <i>Pimpla poesia</i> Cameron]				
<i>Coleocentrus</i> sp.	<i>Chilo diffusilineus</i>	NM	West Africa	Appert (1964)
	<i>Chilo zacconius</i>	Larva/Pupa	Cameroon	Descamps (1956b), Nickel (1964)
		Larva	NM	Grist and Lever (1969)
		NM	Senegal	Bréniere (1969)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Cryptus</i> [=Trachysphyrus] sp.	<i>Chilo suppressalis</i>	Larva	Philippines	Nickel (1964), Barrion (1979)	
<i>Dentichasmias busseolae</i> Heinrich	<i>Busseola</i> sp.	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		Pupa	Africa	Mohyuddin and Greathead (1970)	
	<i>Chilo partellus</i>	NM	Tanzania	Heinrich (1968)	
		Pupa	Cameroon	Heinrich (1968)	
		Pupa	East Africa	Mohyuddin (1972)	
		Pupa	Kenya	Seshu Reddy (1983), Oloo (1989)	
	<i>Chilo</i> sp.	Pupa	Kenya, Tanzania, Uganda	Mohyuddin and Greathead (1970)	
		NM	East Africa	Cock (1985)	
	<i>Devorgilla</i> sp.	<i>Chilo zacconius</i>	Pupa	Africa	Mohyuddin and Greathead (1970)
		<i>Sesamia</i> sp.	NM	Sierra Leone	Heinrich (1968)
<i>Diadegma akoensis</i> (Shiraki) [=Angitia akoensis Sonan] [=Aorogenes akoensis] [=Eripternus ? akoensis Shiraki]	<i>Sesamia inferens</i>	Larva	India	Rao (1965, 1972), Rao et al (1968)	
		NM	India	Rao (1964d)	
	<i>Chilo polychrysus</i>	NM	Japan, Taiwan-China	Momoi (1968a)	
		NM	Japan, Taiwan-China	Momoi (1968a)	
	<i>Scirpophaga incertulas</i>	Larva	Japan, Taiwan-China	Nishida and Torii (1970), Momoi et al (1975)	
		NM	Japan, Taiwan-China	Momoi (1968a)	
	<i>Ecphoropsis perdistinctus</i> ^e	<i>Sesamia inferens</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
			Larva	Taiwan-China	Shiraki (1917), Nickel (1964)
		<i>Scirpophaga innotata</i>	NM	Taiwan-China	Subba Rao and Chawla (1964)
			NM	Japan, Taiwan-China	Momoi (1968a)
<i>Sesamia inferens</i>		NM	Japan, Taiwan-China	Momoi (1968a)	
		NM	Japan	Momoi (1972)	
<i>Enicospilus</i> [=Henicospilus] <i>antacarus</i> ^e	<i>Sesamia calamistis</i>	NM	Mauritius	Appert (1971b)	
		Larva	Mauritius	D' Emmerez de Charmoy (1916), Moutia (1934)	
<i>Enicospilus</i> [=Henicospilus] <i>mauriti</i> (Sawesau)	<i>Sesamia calamistis</i>	Egg	Mauritius	D' Emmerez de Charmoy (1916)	
<i>Enicospilus sakaguchii</i> (Matsumura and Uchida) [=Henicospilus sakaguchii Matsumura and Uchida]	<i>Chilo polychrysus</i>	NM	Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
		NM	Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
	<i>Scirpophaga incertulas</i>	NM	Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
		NM	Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
	<i>Sesamia inferens</i>	NM	Japan	Rao and Nagaraja (1969)	
		NM	Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a). Townes et al (1961)	
<i>Enicospilus</i> [=Henicospilus] <i>shinkanus</i> (Uchida)	Stem borers	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)	
		NM	Taiwan-China	Takano (1934), Box (1953b), Nishida and Torii (1970), Momoi et al (1975)	
<i>Enicospilus</i> [=Henicospilus] sp.	<i>Busseola fusca</i>	NM	India, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968b)	
		Larva	East Africa	Mohyuddin and Greathead (1970)	
	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1986)	
		Larva	Madagascar	Caresche and Brénière (1962), Appert et al (1969)	
	<i>Sesamia calamistis</i>	NM	Madagascar	Appert (1971b)	
		NM	Mauritius	Box (1953b)	
Larva		Reunion	Caresche (1962)		

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Sesamia inferens</i>	NM	Mauritius, Reunion	Williams and Mamet (1962), Rao and Nagaraja (1969)
	<i>Sesamia</i> spp.	Larva/Pupa NM	Philippines Madagascar	Barrion (1979) Brénière et al (1962), Rao and Nagaraja (1969)
<i>Eriborus giganteus</i> (Szepligeti) [= <i>Angitia (Dioctes) gigantea</i> Szepligeti]	Stem borers	NM	Philippines	Momoi (1968b)
	<i>Scirpophaga incertulas</i>	NM	China	Townes et al (1961)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Sesamia inferens</i>	NM	China	Rao and Nagaraja (1969), Townes et al (1961)
<i>Eriborus sinicus</i> (Holmgren) [= <i>Angitia chilonis (chilonia)</i> Neave] [= <i>A. lineata</i> Ishida] [= <i>Angitia sinica</i> Roman] [= <i>Horogenes (Dioctes) chilonis</i> Swezey]	<i>Chilo polychrysus</i>	Larva/Pupa NM	South and Southeast Asia China, Hawaii-USA, Philippines, Taiwan-	Yasumatsu (1967c) Momoi (1968a)
	<i>Chilo suppressalis</i>	Larva	China, Hawaii-USA,	China Grist and Lever (1969) Japan, Taiwan-China
		NM	China, Hawaii-USA, Philippines, Taiwan- China	Momoi (1968a)
		NM	China	Rao et al (1968), Townes et al (1961)
		Larva/Pupa Larva	Japan Japan	Yasumatsu (1967c) Watanabe (1966)
		Larva/Pupa	Philippines	Nickel (1964), Kamran and Raros (1969), Dyck and Varca (1970), Gabriel (1978), Barrion (1979)
		Larva Larva	Philippines Taiwan-China	Delfinado (1959) Yanagihara (1934), Rao and Nagaraja (1969)
	<i>Scirpophaga incertulas</i>	Larva	China	Shiraki (1917), Tsai (1932), Manickavasagar and Miyashita (1959)
		NM	China, India, Malaysia, Taiwan-China, Thailand	Momoi (1968a)
		Larva/Pupa	Philippines	Kamran and Raros (1969), Dyck and Varca (1970), Gabriel (1978), Barrion (1979)
	Larva	Philippines	Delfinado (1959), Litsinger et al (1987a)	
	NM	Taiwan-China	Subba Rao and Chawla (1964), Townes et al (1961)	
	<i>Scirpophaga innotata</i>	NM	China, Hawaii-USA, Philippines, Taiwan- China	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	China, Hawaii-USA, Philippines, Taiwan- China	Momoi (1968a)
		Larva	Philippines	Kamran and Raros (1969), Dyck and Varca (1970), Barrion (1979)
		Larva	Taiwan-China	Yanagihara (1934), Rao and Nagaraja (1969)
		NM	Taiwan-China	Box (1953b), Townes et al (1961)
<i>Eriborus</i> sp.	<i>Scirpophaga incertulas</i>	NM	India	Nath and Hikim (1979)
<i>Eriborus terebrans</i> (Gravenhorst)	<i>Chilo polychrysus</i>	NM	China, Europe, Japan, Korea, Micronesia, Russia	Momoi (1968a)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo suppressalis</i>	NM	China, Europe, Japan, Korea, Micronesia, Russia	Momoi (1968a)
		NM	Japan	Katayama (1971)
	<i>Scirpophaga incertulas</i>	NM	China, Europe, Japan, Korea, Micronesia, Russia	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	China, Europe, Japan, Korea, Micronesia, Russia	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	China, Europe, Japan, Korea, Micronesia, Russia	Momoi (1968a)
		Larva	China, Europe, Japan, Korea, Micronesia	Chang (1978b)
		Larva	Philippines	Barrion (1979)
<i>Gambrus ruficoxatus</i> (Sonan)	Stem borers	NM	Japan	Momoi (1972)
	<i>Chilo polychrysus</i>	NM	Japan, Korea, Kuriles-USSR	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Japan	Nishida and Torii (1970), Momoi et al (1975)
		Larva	Japan, Korea, Kuriles-USSR	Chang (1978b)
		NM	Japan, Korea, Kuriles-USSR	Momoi (1968a)
	<i>Scirpophaga incertulas</i>	NM	Japan, Korea, Kuriles-USSR	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Japan, Korea, Kuriles-USSR	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	Japan, Korea, Kuriles-USSR	Momoi (1968a)
<i>Gambrus</i> sp.	<i>Chilo</i> spp.	NM	Japan	Hidaka (1965)
<i>Gambrus tricoloropsis</i> Uchida	<i>Chilo suppressalis</i>	NM	Japan	Watanabe (1966)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Gambrus</i> [= <i>Agrothereutes</i>] <i>wadai</i> (Uchida)	<i>Chilo polychrysus</i>	NM	Japan	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Japan	Watanabe (1966), Momoi (1968a), Nishida and Torii (1970), Momoi et al (1975)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM	Japan	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Japan	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	Japan	Momoi (1968a)
<i>Goryphus apicalis</i> (Holmgren) [= <i>Agrothereutes nigratarsis</i> Ashmead] [= <i>Gambrus</i> (<i>Mesostenus</i>) <i>similis</i> Szepligeti] [<i>Spilocryptus</i> (<i>Agrothereutes</i>) <i>nigratarsis</i> Schmiedeknecht]	<i>Chilo polychrysus</i>	NM	Indonesia, Lang Island, Philippines	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Indonesia, Lang Island, Philippines	Momoi (1968a)
		Larva	Indonesia, Philippines	Nickel (1964)
		Larva	Philippines	Momoi et al (1975), Barrion (1979)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM	Indonesia, Lang Island, Philippines	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Indonesia, Lang Island, Philippines	Momoi (1968a)
	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
	<i>Sesamia inferens</i>	NM	Indonesia, Lang Island, Philippines	Momoi (1968a)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Goryphus basilaris</i> (Holmgren) [= <i>Exetastes longicornis</i> Ishida]	<i>Chilo polychrysus</i>	NM	China, Lambek Island, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)
[= <i>Mesostenus</i> (Goryphus) <i>longicornis</i> (Uchida)]	<i>Chilo suppressalis</i>	Larva	China	Nickel (1964), Nishida and Torii (1970), Momoi et al (1975)
		NM	China, Lambek Island, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva/Pupa	Hongkong, Japan	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM	China, Lambek Island, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)
	<i>Scirpophaga innolata</i>	NM	China, Lambek Island, Ryukyu Islands- Japan, Taiwan-China	Momoi (1968a)
	<i>Scirpophaga nivella</i>	NM	India, Taiwan-China	Box (1953b)
		NM	Taiwan-China	Townes et al (1961)
	<i>Sesamia inferens</i>	NM	China, Lambek Island, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)
<i>Goryphus mesoxanthus maculipennis</i> (Cameron)	<i>Chilo polychrysus</i>	NM	India, Indonesia, Malaysia, Singapore	Momoi (1968a)
[= <i>Goryphus maculipennis</i> Gater]	<i>Chilo suppressalis</i>	NM	India, Indonesia, Malaysia, Singapore,	Momoi (1968a)
[= <i>Melcha moculipennis</i> Cameron]	<i>Scirpophaga incertulas</i>	Larva	India	Manickavasagar and Miyashita (1959), Rao and Krishnaswamy (1961), Gupta (1964)
		NM	India	Gupta (1964), Nath and Hikim (1979), Townes et al (1961)
		NM	India, Indonesia, Malaysia, Singapore	Momoi (1968a)
		Larva	India, Indonesia	Nickel (1964)
		Larva	India, Malaysia	Nishida and Torii (1970)
		Larva	Malaysia	Momoi et al (1975)
	<i>Scirpophaga innotata</i>	NM	India, Indonesia, Malaysia, Singapore	Momoi (1968a)
	<i>Scirpophaga</i> sp.	NM	India	Townes et al (1961)
	<i>Sesamia inferens</i>	NM	India, Indonesia, Malaysia, Singapore	Momoi (1968a)
<i>Goryphus mesoxanthus mesoxanthus</i> (Brulle)	<i>Scirpophaga incertulas</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
[= <i>Cryptus mesoxanthus</i> Brulle]				
<i>Goryphus ornatipennis</i> (Cameron)	<i>Scirpophaga incertulas</i>	NM	India	Momoi (1968a), Rao (1964d)
[= <i>Gotyphus kalshoveni</i> Betrem]		Larva	India	Rao and Krishnaswamy (1961), Gupta (1964), Nickel (1964), Nishida and Torii (1970), Rao (1972)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga nivella</i>	NM	India, Myanmar	Box (1953b)
<i>Goryphus</i> sp.	<i>Chilo suppressalis</i>	Larva	Philippines	Delfinado (1959)
	<i>Scirpophaga nivella</i>	NM	India	Box (1953b)
<i>Gregopimpla kuwanae</i> (Viereck)	<i>Chilo polychrysus</i>	NM	China, Japan, Taiwan-China	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	China, Japan, Taiwan-China	Momoi (1968a), Nishida and Torii (1970), Momoi et al (1975)
	<i>Scirpophaga incertulas</i>	NM	China, Japan, Taiwan-China	Momoi (1968a)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga innotata</i>	NM	China, Japan, Taiwan-China	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	China, Japan, Taiwan-China	Momoi (1968a)
<i>Ichneumon tananarive</i> ^e	Stem borers	NM	Japan	Momoi (1972)
<i>Ichneumon</i> sp.	<i>Sesamia calamitis</i>	NM	Madagascar	Appert (1971b)
<i>Ichneumonid</i> sp., unidentified	<i>Sesamia</i> sp.	Pupa	Pakistan	Beg et al (1967)
<i>Idechthis</i> sp.	<i>Bathytricha truncata</i>	Larva	Australia	Li (1970)
	<i>Rupela albinella</i>	Larva	Guyana	Kennard (1965), Grist and Lever (1969)
		Larva	NM	Grist and Lever (1969)
<i>Ischnojoppa luteator</i> (Fabricius) [= <i>Ichneumon adpersor</i> Thunberg] [= <i>Ichneumon lutea</i> Gravenhorst] [= <i>Ichneumon luteator</i> Fabricius] [= <i>Ischnojoppa (Joppa) lutea</i> Kriechbaumer] [= <i>Ischnojoppa luteatrix</i> Schulz]	<i>Chilo polychrysus</i>	NM	Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	NM	Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
		Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)
	<i>Scirpophaga incertulas</i>	NM	Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
		Larva	Bangladesh, Malaysia	Rao et al (1968)
		Larva	Bangladesh	Rao (1972), Catling and Alam (1977), Alam et al (1981b)
		Larva	India	Manickavasagar and Miyashita (1959)
		NM	India	Gupa (1964), Rao (1964d)
		Larva	Japan	Gupa (1964)
		Larva	Malaysia	Van Vredin and Ahmadzabidi (1986)
		Larva	Pakistan	Alam (1971)
		Larva	Philippines	Gabriel (1978), Barrion (1979), Litsinger et al (1987a)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva/Pupa	Thailand	Yasumatsu et al (1975, 1981)
	<i>Scirpophaga innotata</i>	NM	Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Sesamia inferens</i>	Larva/Pupa NM	Thailand Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Yasumatsu et al (1975) Momoi (1968a)
	Stem borers	Larva NM	Thailand Australia, Celebes, China, Hongkong, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines Sarawak-Malaysia, Singapore, Sri Lanka, Taiwan-China	Yasumatsu et al (1975) Momoi (1968b)
<i>Isotima dammermani</i> (Rohwer) [= <i>Eripternimorpha dammermani</i> Rohwer] [= <i>Gambroides dammermani</i> Betrem]	<i>Chilo polychrysus</i>	NM	Japan	Momoi (1972)
	<i>Chilo suppressalis</i>	NM	Indonesia, Philippines	Momoi (1968a)
		NM	Indonesia, Philippines	Momoi (1968a)
	<i>Scirpophaga incertulas</i>	Larva NM	Philippines Indonesia, Philippines	Gabriel (1978) Momoi (1968a)
		Larva	Philippines	Gabriel (1978), Barrion (1979)
	<i>Scirpophago innotata</i>	Larva/Pupa Larva	South and Southeast Asia Indonesia	Yasumatsu (1967c) Van der Goot (1925), Nickel (1964)
		NM	Indonesia, Philippines	Momoi (1968a), Tomes et al (1961)
		Larva	Philippines	Barrion (1979)
	<i>Scirpophaga nivella</i>	Larva/Pupa NM	South and Southeast Asia Philippines	Yasumatsu (1967c) Box (1953b)
	<i>Scirpophaga</i> sp. <i>Sesamia inferens</i>	Larva NM	India Indonesia, Philippines	Nickel (1964) Momoi (1968a)
	Larva	Malaysia	Van Vreden and Ahmadzabidi (1986)	
<i>Isotima</i> nr. <i>dammermani</i> Rohwer <i>Isotima javensis</i> (Rohwer) [= <i>Eripternimorpha javensis</i> Rohwer] [= <i>Gambroides javensis</i> Betrem]	<i>Scirpophaga incertulas</i>	Larva	Philippines	Litsinger et al (1987a)
	<i>Chilo polychrysus</i>	NM	India, Indonesia	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	India, Indonesia	Momoi (1968a)
	<i>Diatraea saccharalis</i>	Larva	NM	Schmutterer (1977)
	<i>Scirpophaga incertulas</i>	Egg	India	Vasantharaj David and Kumaraswami (1975)
		Larva	India	Gupta (1964)
		Larva/Pupa NM	India India, Indonesia	Nath and Hikim (1979) Momoi (1968a)
	<i>Scirpophago innotata</i>	Larva/Pupa NM	South and Southeast Asia India, Indonesia	Yasumatsu (1967c) Momoi (1968a)
	<i>Scirpophaga nivella</i>	Larva NM	Bangladesh Indonesia, Philippines	Rahman (1976) Box (1953b)
	<i>Sesamia inferens</i>	NM	India, Indonesia	Momoi (1968a)
<i>Isotima</i> sp.	<i>Busseola fusca</i>	Larva/Pupa	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo auricilius</i>	NM	India	Rao (1964d)
	<i>Chilo partellus</i>	Pupa	East Africa	Mohyuddin and Greathead (1970)
		Pupa	Kenya	Mathez (1972)
	<i>Chilo suppressalis</i>	Larva	Philippines	Barrion (1979)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Maliarpha separatella</i>	Egg	Ghana	Agyen-Sampong (1977)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
<i>Itopectis narangae</i> (Ashmead) [= <i>Itopectis naranyae</i> Ashmead] [= <i>Nesopimpla naranyae</i>] [= <i>Pimpla naranyae</i>]	<i>Scirpophaga incertulas</i>	NM	Madagascar	Appert (1971b)	
		Larva/Pupa	Sierra Leone	Jordan (1966)	
		Larva	Swaziland	Bréniere (1969)	
		Larva/Pupa	India	Rao (1963), Rao et al (1968)	
		NM	India	Rao (1964d)	
		Larva	Pakistan	Beg et al (1967)	
		Larva/Pupa	Philippines	Reissig et al (1986)	
		Larva	Sri Lanka	De Silva (1961), Fernando (1967, 1970)	
		Larva/Pupa	Sri Lanka	Rao (1972)	
		Larva	Pakistan	Carl (1962)	
	<i>Sesamia</i> sp.	Pupa	Pakistan	Beg et al (1967)	
	<i>Chilo polychrysus</i>	NM	China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
	<i>Chilo suppressalis</i>	Larva/Pupa	China	Nickel (1964)	
		Pupa	China, Hawaii-USA, Japan, Korea, Mexico	Chang (1978b)	
		NM	China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
		Larva	Japan	Nawa (1913), Hidaka (1965)	
		NM	Japan	Watanabe (1966)	
		Pupa	Japan, Philippines	Yasumatsu (1967c)	
		Larva/Pupa	Philippines	Kamran and Raros (1969), Barrion (1979), Reissig et al (1986)	
		NM	Philippines	Dyck and Varca (1970)	
Larva/Pupa		Taiwan-China	Takano (1934), Nickel (1964)		
NM		China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)		
<i>Scirpophaga incertulas</i>	NM	Philippines	Dyck and Varca (1970)		
	Larva/Pupa	Taiwan-China	Takano (1934), Nickel (1964)		
	NM	China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)		
	<i>Scirpophaga innotata</i>	NM	China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)	
		<i>Sesamia inferens</i>	NM	China, Hawaii-USA, Japan, Korea, Mexico, Philippines, Ryukyu Islands-Japan, Taiwan-China	Momoi (1968a)
			Larva	Japan	Rao and Nagaraja (1969)
	<i>Itopectis</i> [= <i>Pimpla</i>] <i>poesia</i> Cameroon	Larva	Philippines	Kamran and Raros (1969), Barrion (1979)	
		Larva/Pupa	Philippines	Reissig et al (1986)	
		NM	Philippines	Dyck and Varca (1970)	
		NM	Taiwan-China	Box (1953b)	
NM		Japan	Momoi (1972)		
Pupa		India	Rao (1965, 1972), Rao and Nagaraja (1969)		
<i>Lampronota mandschurica</i> (Uchida)		NM	China, Japan	Momoi (1968a)	
		NM	China, Japan	Momoi (1968a)	
		Larva/Pupa	Japan	Yasumatsu (1967c)	

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		NM	Japan	Watanabe (1966), Nishida and Torii (1970), Momoi et al (1975)
	<i>Scirpophaga incertulas</i>	NM	China, Japan	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	China, Japan	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	China, Japan	Momoi (1968a)
<i>Lampronota</i> sp.	<i>Chilo suppressalis</i>	Larva	Japan	Hidaka (1965)
<i>Lissonota japonica</i> Matsumura	<i>Scirpophaga incertulas</i>	Larva	Japan	Manickavasagar and Miyashita (1959)
<i>Menaforia</i> sp.	<i>Maliarpha separatella</i>	Larva	West Africa	Agyen-Sampong (1980), Akinsola and Agyen-Sampong (1984)
		NM	India	Box (1953b)
<i>Mesostenoides clavinervis</i> (Cameron)	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
[= <i>Listrognathus clavinervis</i> Cameron]				
<i>Mesostenoides</i> sp.	<i>Diatraea saccharalis</i>	Larva	Guyana	Box (1926)
<i>Metopius discolor</i> Tosquinet	<i>Sesamia</i> sp.	Larva	Nigeria	Jerath (1965)
<i>Neopristomerus</i> sp.	<i>Elasmopalpus lignosellus</i>	NM	USA	Luginbill and Ainslie (1917)
<i>Nythobia</i> [= <i>Diocetes</i>] <i>chilonis</i> (Cushman)	<i>Chilo suppressalis</i>	NM	Hawaii-USA	Cushman (1929), Sweetman (1958), De Bach (1964)
<i>Oronatus</i> sp.	Stem borers	NM	Thailand	Momoi (1968b)
<i>Phaeogeninid</i> sp., unidentified	<i>Scirpophaga incertulas</i>	Larva	India	Rao et al (1968)
<i>Pimpla hova</i> ^a	<i>Sesamia calamistis</i>	NM	Madagascar	Appert (1971b)
<i>Pimplinid</i> sp., unidentified	<i>Chilo auricilius</i>	Larva	India	Rao (1963)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1963), Rao et al (1968)
<i>Polycyrtidea flavopicta</i> (Ashmead)	<i>Rupela albinella</i>	Larva	Guyana	Kennard (1965)
		Larva	NM	Grist and Lever (1969)
<i>Pristoderus</i> sp.	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Brénière (1969)
		Larva/Pupa	Sierra Leone	Jordan (1966)
<i>Pristomerus</i> sp.	<i>Chilo auricilius</i>	Larva	India	Rao et al (1968), Rao (1972)
		NM	India	Rao (1964d)
	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Jordan (1966)
	Stem borers	NM	India	Mamoi (1968b)
<i>Pristomerus spinator</i> (Fabricius)	<i>Elasmopalpus lignosellus</i>	Larva	USA	Smith and Johnson (1986)
<i>Procerochasmias glaucopterus</i> (Morley)	<i>Busseola fusca</i>	Pupa	East Africa, South Africa	Mohyuddin and Greathead (1970)
	<i>Sesamia calamistis</i>	Pupa	East Africa, South Africa	Mohyuddin and Greathead (1970)
<i>Procerochasmias nigromaculatus</i> ^e	<i>Busseola fusca</i>	Pupa	East Africa	Mohyuddin (1972)
	<i>Diatraea</i> spp.	Pupa	East Africa	Mohyuddin (1972)
	<i>Eldana saccharina</i>	Pupa	East Africa	Mohyuddin (1972)
	<i>Sesamia calamistis</i>	Pupa	East Africa	Mohyuddin (1972)
<i>Scambus annulitarsis</i> (Ashmead)	<i>Chilo polychrysus</i>	NM	Japan, Kuriles-USSR, Sakhalin-USSR	Momoi (1968a)
	<i>Chilo suppressalis</i>	Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		NM	Japan	Watanabe (1966)
		NM	Japan, Kuriles-USSR	Nishida and Torii (1970), Mamoi et al (1975)
		NM	Japan, Kuriles-USSR, Sakhalin-USSR	Momoi (1968a)
	<i>Scirpophaga incertulas</i>	NM	Japan	Watanabe (1966)
		NM	Japan, Kuriles-USSR, Sakhalin-USSR	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Japan, Kuriles-USSR, Sakhalin-USSR	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	Japan, Kuriles-USSR, Sakhalin-USSR	Momoi (1968a)
<i>Scenocharops</i> sp.	Stem borers	NM	Japan	Momoi (1972)
	<i>Maliarpha separatella</i>	Larva	Sierra Leone	Jordan (1966), Brénière (1969), Greathead (1979)
		NM	Sierra Leone	Appert (1970)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Strabotes abdominalis obscurus</i> (Zwart)	<i>Sesamia</i> spp.	Larva	Sierra Leone	Jordan (1966), Greathead (1979)
	<i>Rupela albinella</i>	Larva	Colombia	Cardona and Gonzales (1979), CIAT (1981)
<i>Strabotes rupelae</i> (Zwart)	<i>Rupela albinella</i>	Larva	Latin America	Gonzales et al (1983)
		Larva/Pupa	Surinam	Zwart (1969, 1973), Hummelen (1974)
<i>Syzeuctus apicipennis</i> (Cameron) [= <i>Lissonota apicipennis</i> Cameron] [= <i>Syzeuctus baluchistanensis</i> var. <i>apicipennis</i> Morley]	<i>Scirpophaga</i> spp.	Larva	India	Rao (1972)
<i>Syzeuctus</i> sp.	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962), Appert (1964), Grist and Lever (1969)
		NM	West Africa	Institut de Recherches Agronomiques Tropicales et des Cultures Vivieres-France (1987)
	<i>Busseola fusca</i>	Larva	Nigeria	Harris (1962), Appert (1964), Grist and Lever (1969)
		NM	West Africa	Institut de Recherches Agronomiques Tropicales et des Cultures Vivieres-France (1987)
<i>Temelucha biguttula</i> (Munakata)	<i>Chilo partellus</i>	Larva	NM	Grist and Lever (1969)
	<i>Chilo</i> sp.	Larva	Sierra Leone	Jordan (1966)
	<i>Maliarpha separatella</i>	Larva	Nigeria	Akinsola (1979)
	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1981)
	<i>Chilo polychrysus</i>	NM	China, Hawaii-USA, Japan, Korea	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	China, Hawaii-USA, Japan, Korea	Momoi (1968a,b)
		Larva	China, Hawaii-USA, Japan, Korea	Chang (1978b)
		Larva	Japan	Tateishi et al (1955)
		NM	Japan	Aino (1939), Tateishi and Gyotoku (1953), Watanabe (1966)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	Larva	NM	Grist and Lever (1969)
		NM	China, Hawaii-USA, Japan, Korea	Momoi (1968a)
		Larva	NM	Grist and Lever (1969)
	<i>Scirpophaga innotata</i>	NM	China, Hawaii-USA, Japan, Korea	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	China, Hawaii-USA, Japan, Korea	Momoi (1968a)
<i>Temelucha biguttula</i> (Matsumura) [= <i>Cremastus biguttulus</i> Matsumura] [= <i>Cremastus chinensis</i> Viereck]	Stem borers	Pupa	NM	Grist and Lever (1969)
		NM	Japan	Momoi (1972)
	<i>Chilo suppressalis</i>	Larva	China	Hsia (1957)
		Larva	China, Hawaii-USA, Japan, Taiwan-China	Nickel (1964)
	<i>Scirpophaga incertulas</i>	Larva	Japan	Hidaka (1965), Watanabe (1966), Katayama (1971)
		Larva	China, Japan, Taiwan-China	Manickavasagar and Miyashita (1959)
		Larva	Kenya	Mohyuddin and Greathead (1970)
<i>Temelucha japonica</i> (Ashmead) [= <i>Cremastus japonicus</i> Ashmead]	Stem borers	Larva	Indonesia	Chiu (1979)
		Larva	China, Japan	Nickel (1964)
<i>Temelucha kerrichi</i> (Momoi)	Stem borers	NM	Japan	Momoi (1968b)
<i>Temelucha pestifer</i> (Morley)	<i>Scirpophaga incertulas</i>	Pupa	India	Rao et al (1968), Rao (1972)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)		
[= <i>Cremastus pestifer</i> Morley] <i>Temelucha philippinensis</i> (Ashmead) [= <i>Cremastus (Tarytia) shirakii</i> Sonan]	Stem borers	NM	India	Rao (1964d)		
		NM	India, Sri Lanka	Momoi (1968b)		
	<i>Chilo polychrysus</i>	NM	NM	China, India, Malaysia, Philippines, Taiwan-China, Thailand	Momoi (1968a)	
				Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
		<i>Chilo suppressalis</i>	Larva/Pupa	NM	South and Southeast Asia	Yasumatsu (1967c)
			NM		China, India, Malaysia, Philippines, Taiwan-China, Thailand	Momoi (1968a)
			NM	China	Townes et al (1961)	
			Larva	Philippines	Gabriel (1978)	
		<i>Chilo</i> spp. <i>Scirpophaga incertulas</i>	Larva/Pupa	NM	Philippines	Cendaña and Morallo (1961), Barrion (1979), Reissig et al (1986), Canapi et al (1987)
			Larva		Thailand	Nishida and Wongsiri (1972)
			Larva	Thailand	Nishida and Wongsiri (1972)	
			Larva/Pupa	NM	Thailand	Nishida and Wongsiri (1972)
	NM		South and Southeast Asia		Yasumatsu (1967c)	
	<i>Scirpophaga innotata</i>		Larva/Pupa	NM	China, India, Malaysia, Philippines, Taiwan-China, Thailand	Momoi (1968a)
		Larva			India	Nath and Hikim (1979)
		Larva	NM	Philippines	Cendaña and Morallo (1961), Gabriel (1978), Barrion (1979), Litsinger et al (1987a)	
				Larva/Pupa	Philippines	Reissig et al (1986)
		<i>Sesamia inferens</i>	Larva	NM	Thailand	Nishida and Wongsiri (1972)
			Larva		Thailand	Yasumatsu et al (1975, 1981)
			NM	China, India, Malaysia, Philippines, Taiwan-China, Thailand	Momoi (1968a)	
NM			Philippines	Barrion (1979)		
<i>Temelucha shirakii</i> (Sonan) [= <i>Apanteles simplicis</i> Shiraki] [= <i>Cremastus (Tarytia) shirakii</i> Sonan]		Stem borers	Larva	Philippines	Yasumatsu et al (1975)	
			NM	China, India, Malaysia, Philippines, Thailand, Taiwan-China	Momoi (1968b)	
	<i>Chilo suppressalis</i>	Larva	NM	Philippines	Gabriel (1978)	
				Larva	Taiwan-China	Shiraki (1917), Yasumatsu (1967b)
		<i>Chilo</i> spp. <i>Scirpophaga incertulas</i>	NM	NM	Taiwan-China	Townes et al (1961)
			Larva		India	Rao (1972)
			Larva	China	Chiu (1942), Hsia (1957)	
			Larva	China, Japan	Nickel (1964)	
		<i>Sesamia inferens</i>	Larva	NM	China, Taiwan-China	Manickavasagar and Miyashita (1959)
			Larva		China, Taiwan-China	Townes et al (1961)
Larva			Japan	Greathead (1979)		
Larva			Philippines	Delfinado (1959), Barrion (1979), Baltazar (1966)		
Larva/Pupa	NM		South and Southeast Asia	Yasumatsu (1967c)		
Larva			Taiwan-China	Sonan (1930), Yasumatsu (1967b)		
<i>Sesamia inferens</i>	Larva	NM	China, Taiwan-China	Grist and Lever (1969)		
	Larva		China, Taiwan-China	Walker (1959), Rao and Nagaraja (1969)		

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Temelucha</i> [=Cremastus] sp.	Stem borers	NM	Japan	Momoi (1968b)
	<i>Chilo partellus</i>	NM	India	Rao (1964d)
	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam (1971), Alam et al (1981a)
	<i>Chilo suppressalis</i>	NM	Philippines	Baltazar (1966)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981b)
		Larva/Pupa	Bangladesh, India	Rao et al (1968), Rao (1972)
		Larva/Pupa	India	Rao (1963)
		NM	India	Rao (1964d)
		Larva	Philippines	Baltazar (1966), El-Dakroury Abdallah et al (1983)
		Larva/pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga innotata</i>	Larva	Australia	Li (1970)
	<i>Sesamia inferens</i>	Larva	Bangladesh	Alam (1971), Alam et al (1981b)
		Larva	India	Nickel (1964), Rao and Nagaraja (1969), Nagarkatti and Ramachandran Nair (1973)
		NM	India	Rao (1964d)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
<i>Temelucha</i> sp. nr. <i>basimacula</i> Cameron	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980)
	<i>Chilo auricilius</i>	Larva	India	Rao et al (1968)
		NM	India	Rao (1964d)
<i>Temelucha</i> sp. nr. <i>japonica</i> ^e	<i>Chilo</i> spp.	Larva	India	Rao (1972)
	Stem borers	NM	Japan	Momoi (1968b)
<i>Temelucha</i> sp. nr. <i>nigromaculata</i> ^c	<i>Chilo auricilius</i>	NM	India	Rao (1964d)
	<i>Chilo</i> spp.	Larva	India, Malaysia, Pakistan	Rao (1972)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Kamran and Raros (1969), Htun et al (1976), Barrion (1979)
<i>Temelucha</i> sp. nr. <i>pestifer</i> (Morley) [=Cremastus <i>pestifer</i>]	<i>Scirpophaga incertulas</i>	NM	Philippines	Kumhof (1986)
		Larva	India	Rao (1963, 1972), Rao et al (1968)
<i>Temelucha</i> sp. nr. <i>schoenobii</i> Cameron	<i>Scirpophaga incertulas</i>	Pupa	India	Htun (1976)
		NM	Philippines	Kumhof (1986)
<i>Temelucha</i> [=Leptogyrus] <i>stangli</i> (Ashmead)	<i>Chilo polychrysus</i>	NM	India, Malaysia, Philippines, Thailand	Momoi (1968a)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	NM	India, Malaysia, Philippines, Thailand	Momoi (1968a)
	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Alam et al (1981a)
		Larva/Pupa	India	Nath and Hikim (1979)
		Larva	India, Malaysia, Thailand	Nishida and Torii (1970)
		NM	India, Malaysia, Philippines, Thailand	Momoi (1968a, b)
		Larva	Philippines	Barrion (1979), Litsinger et al (1987a), Canapi et al (1987)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975), Yasumatsu et al (1981)
	<i>Scirpophaga innotata</i>	NM	India, Malaysia, Philippines, Thailand	Momoi (1968a)
		Larva	Philippines	Barrion (1979)
		Larva	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	NM	India, Malaysia, Philippines, Thailand	Momoi (1968a)
<i>Trathala flavoorbitalis</i> (Cameron) [=Cremastus <i>bigototus</i>] [=C. <i>flavoorbitalis</i> Cushman] [=C. <i>hymeniae</i> Viereck]	<i>Chilo partellus</i>	Larva	Thailand	Yasumatsu et al (1975)
		Larva	India	Sharma et al (1966)
		Larva	Nepal	Neupane (1982)
		Larva	Sri Lanka	Vinson (1942)
		NM	Sri Lanka	Box (1953b)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
[= <i>C. (Tarytia) coreanus</i> f. <i>kigaonis</i> Uchida] [= <i>Tarytia flavo-orbitalis</i> Cameron] [= <i>Zaleptopygus (Cremastus) flavo-orbitalis</i> Van Zwaluwenburg]	<i>Chilo polychrysus</i>	NM	China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
		Larva	China, Fiji, Hawaii-USA, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Sri Lanka, Taiwan	Chang (1978b)
		Larva	Hawaii-USA	Van Zwalunwenburg et al (1928)
		NM	Hawaii-USA, India, Myanmar, Sri Lanka	Townes et al (1961)
		Larva	Japan	Oho & Kiritani (1961), Nickel (1964)
		NM	Japan	Watanabe (1966)
		Larva/Pupa	Philippines	Barrion (1979)
		Larva	Philippines	Gabriel (1978)
		Larva	Sri Lanka	De Silva (1961)
		Larva/Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Larva	NM	Grist and Lever (1969)
	<i>Scirpophaga incertulas</i>	NM	China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	India	Nath and Hikim (1979)
		NM	China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)
<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1978)	
	NM	China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan-China	Momoi (1968a)	
	NM	India	Rao (1964d), Rao (1965), Rao and Nagaraja (1969)	
	Larva	Philippines	Barrion (1979)	
	Pupa	NM	Grist and Lever (1969)	

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stages(s) attacked	Country/continent	Reference(s)
	Stem borers	Larva NM	NM China, Fiji, Hawaii-USA, Hongkong, India, Japan, Korea, Malaysia, Micronesia, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan- China	Bess (1972) Momoi (1968b)
<i>Trathala hymeniae</i> (Viereck) [= <i>Cremastus hymeniae</i> Viereck]	<i>Chilo suppressalis</i>	Larva	Hawaii-USA	Van Zwalunwenburg et al (1928), Illingworth (1929)
<i>Trathala</i> sp. [= <i>Cremastus</i> sp.]	<i>Chilo polychrysus</i>	Larva	Bangladesh	Alam et al (1981a)
	<i>Chilo</i> spp.	Larva	Bangladesh	Catling and Alam (1977)
	<i>Chilo suppressalis</i>	Larva	Philippines	Delfinado (1959)
	<i>Rupela albinella</i>	Larva	Colombia	Cardona and Gonzalez (1979), CIAT (1981)
	<i>Scirpophaga incertulas</i>	Larva	Latin America	Gonzalez et al (1983)
	<i>Sesamia inferens</i>	Larva	Philippines	Delfinado (1959)
		Larva	Bangladesh	Catling and Alam (1977), Alam et al (1981a)
<i>Trichomma cnaphalocrosis</i> Uchida	Stem borers	NM	Australia	Momoi (1968b)
	<i>Chilo auricilius</i>	Larva	Philippines	Litsinger et al (1987a)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Litsinger et al (1987a)
<i>Venturia crassicaput</i> ^e	<i>Maliarpha separatella</i>	Larva	West Africa	Agyen-Sampong (1980), Akinsola and Agyen-Sampong (1984)
<i>Venturia ovivenans</i> (Zwart)	<i>Rupela albinella</i>	Larva	Surinam	Zwart (1969, 1973), Hummelen (1974),
<i>Venturia</i> sp.	<i>Chilo polychrysus</i>	NM	Hawaii-USA	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Hawaii-USA	Momoi (1968a), Nishida and Torii (1970), Momoi et al (1975)
	<i>Diatraea saccharalis</i>	Larva	Colombia Latin America	CIAT (1981) Gonzalez et al (1983)
	<i>Scirpophaga incertulas</i>	NM	Hawaii-USA	Momoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Hawaii-USA	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	Hawaii-USA	Momoi (1968a)
<i>Xanthopimpla (Pimpla) citrina</i> (Holmgren)	<i>Chilo sacchariphagus indicus</i>	NM	Mauritius	Caresche and Bréniere (1962)
	<i>Sesamia calamistis</i>	NM	Mauritius	Box (1953b)
	<i>Sesamia</i> spp.	NM	Mauritius	Moutia and Courtois (1952), Appert (1964)
<i>Xanthopimpla enderleini</i> (Krieger)	<i>Sesamia inferens</i>	NM	Philippines	Box (1953b)
<i>Xanthopimpla flavolineata</i> Cameron [= <i>Xanthopimpla emaculata</i> (Szepligeti)]	<i>Chilo auricilius</i>	Pupa NM	India India	Rao (1972) Rao (1964d)
[= <i>Xanthopimpla immaculata</i> Morley] [= <i>Xanthopimpla sesamiae</i> Rao]	<i>Chilo polychrysus</i>	NM	India, Indonesia, Micronesia, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan- China	Momoi (1968a)
	<i>Chilo suppressalis</i>	Pupa	Hongkong, Japan, Malaysia, Nepal	Yasumatsu (1967c)
		NM	India, Indonesia, Micronesia, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan- China	Momoi (1968a)
		Larva Pupa	Philippines Philippines	Gabriel (1978) Delfinado (1959), Baltazar (1966)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga incertulas</i>	NM	India, Indonesia, Micronesia, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan-China	Mamoi (1968a)
	<i>Scirpophaga innotata</i>	NM	India, Indonesia, Micronesia, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan-China	Mamoi (1968a)
	<i>Sesamia inferens</i>	Larva Larva NM	India India, Taiwan-China India, Indonesia, Micronesia, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan-China	Rao (1972) Rao and Nagaraja (1969) Mamoi (1968a)
<i>Xanthopimpla luteola</i> (Tosquinet)	<i>Chilo partellus</i>	Pupa Larva	Taiwan-China Kenya	Nickel (1964) La Croix (1967)
<i>Xanthopimpla modesta modesta</i> (Smith) [= <i>Pimpla modesta</i> Smith] [= <i>Xanthopimpla kuchingensis</i> Cameron [= <i>Xanthopimpla dohrni</i> Krieger] [= <i>Xanthopimpla modesta</i> Krieger]	<i>Chilo polychrysus</i>	NM	Borneo, Celebes, Indonesia, Philippines, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Borneo, Celebes, Indonesia, Philippines, Sarawak-Malaysia, Taiwan-China	Mamoi (1968a)
		Larva Pupa	Philippines Philippines	Gabriel (1978) Delfinado (1959), Baltazar (1966), Barrion (1979)
	<i>Scirpophaga incertulas</i>	Pupa NM	South and Southeast Asia Borneo, Celebes, Indonesia, Philippines, Sarawak-Malaysia, Taiwan-China	Yasumatsu (1967c) Mamoi (1968a)
	<i>Scirpophaga innotata</i>	NM	Borneo, Celebes, Indonesia, Philippines, Sarawak-Malaysia, Taiwan-China	Mamoi (1968a)
	<i>Sesamia inferens</i>	NM	Borneo, Celebes, Indonesia, Philippines, Sarawak-Malaysia, Taiwan-China	Mamoi (1968a)
<i>Xanthopimpla punctata</i> (Fabricius) [= <i>Ichneumon punctatus</i> Fabricius] [= <i>Pimpla punctata</i> Fabricius] [= <i>Xanthopimpla brunneicornis</i> Cameron] [= <i>Xanthopimpla kriegeri</i> Szepligetii] [= <i>Xanthopimpla trimaculata</i> Matsumura]	<i>Chilo partellus</i> <i>Chilo polychrysus</i>	Pupa NM	India Afghanistan, China, India, Indonesia, Japan, Malaysia, Mauritius, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Sri Lanka, Taiwan-China	Sharma et al (1966) Mamoi (1968a)
		NM	Malaysia	Lim (1970)
		Pupa	Philippines	Delfinado (1959)
		Larva	Thailand	Nishida and Wongsiri (1972)
	<i>Chilo</i> spp.	Larva	Thailand	Nishida and Wongsiri (1972)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo suppressalis</i>	NM	Afghanistan, China, India, Japan, Malaysia, Mauritius, Pakistan, Philippines, Sarawak-Malaysia, Sri Lanka, Taiwan	Momoi (1968a)
		Pupa	Afghanistan, China, India, Japan, Korea, Malaysia, Mauritius, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Sri Lanka, Taiwan-China	Chang (1978b)
		Pupa	Japan, Malaysia, Nepal	Yasumatsu (1967c)
		NM	China, India, Japan	Nishida and Torii (1970), Momoi et al (1975)
		Pupa	Philippines	Delfinado (1959)
		Pupa	NM	Grist and Lever (1969)
		Larva/Pupa	Philippines	Baltazar (1966), Ramon (1979)
		Larva	Philippines	Gabriel (1978)
		NM	Sri Lanka	De Silva (1961)
		Larva	Thailand	Nishida and Wongsiri (1972)
	<i>Scirpophaga incertulas</i>	NM	Afghanistan, China, India, Japan, Korea, Malaysia, Mauritius, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Sri Lanka, Taiwan-China	Momoi (1968a)
		NM	Malaysia	Lim (1970)
	<i>Scirpophaga innotata</i>	NM	Afghanistan, China, India, Japan, Korea, Malaysia, Mauritius, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Sri Lanka, Taiwan-China	Momoi (1968a)
	<i>Sesamia inferens</i>	NM	Afghanistan, China, India, Japan, Korea, Malaysia, Mauritius, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Sri Lanka, Taiwan-China	Momoi (1968a)
	Stem borers	NM	Japan	Momoi (1972)
<i>Xanthopimpla punctator</i> (Linnaeus)	<i>Chilo partellus</i>	Pupa	India	Trehan and Butani (1949), Butani (1958), Nagarkatti and Ramachandran Nair (1973)
[= <i>Ichneumon punctator</i> Linnaeus]				
[= <i>Ichneumon pedator</i> Fabricius]				
[= <i>Pimpla pedator</i> Fabricius]		NM	India	Butani (1957), Townes et al (1961)
[= <i>Pimpla punctator</i> Vollenhoven]				
[= <i>Xanthopimpla pedator</i> Cameron]	<i>Chilo polychrysus</i>	NM	Borneo, Celebes, China, India, Indonesia	Momoi (1968a)
	<i>Chilo suppressalis</i>	NM	Asia	Nickel (1964)
		NM	Borneo, Celebes, China, India, Indonesia	Momoi (1968a)
		NM	India	Townes et al (1961)
	<i>Scirpophaga incertulas</i>	NM	Borneo, Celebes, China, India, Indonesia	Momoi (1968a)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga innotata</i>	NM	Borneo, Celebes, China, India, Indonesia	Momoi (1968a)
	<i>Scirpophaga nivella</i>	NM	India	Townes et al (1961)
	<i>Sesamia inferens</i>	NM	Borneo, Celebes, China, India, Indonesia	Momoi (1968a)
		Larva	India	Rao (1965), Rao (1972)
		NM	India	Rao (1964d)
<i>Xanthopimpla</i> sp. (<i>citrina</i> group)	<i>Sesamia calamistis</i>	NM	Mauritius	Appert (1971b)
<i>Xanthopimpla</i> sp. nr. <i>stemmator</i> ^e	<i>Sesamia inferens</i>	NM	India	Rao (1964d)
<i>Xanthopimpla stemmator</i> (Thunberg)	<i>Chilo auricilius</i>	NM	India	Rao (1964d)
[= <i>Ichneumon stemmator</i> Thunberg]		NM	Indonesia	Townes et al (1961)
[= <i>Metopius sesamiae</i> Rao]		Pupa	Malaysia	Rothschild (1970), Rao (1972)
[= <i>Pimpla integrata</i> Smith]		Larva/Pupa	Philippines	Litsinger et al (1987a)
[= <i>Xanthopimpla nursei</i> Cameron]	<i>Chilo partellus</i>	Pupa	India	Vinson (1942), Butani (1957, 1958), Sharma et al (1966), Reddy (1969)
[= <i>Xanthopimpla sesamiae</i> Rao]		NM	India, Sri Lanka	Box (1953b)
[= <i>Xanthopimpla</i> sp. Krishnamurti and Usman]		NM	India, Sri Lanka	Townes et al (1961)
[= <i>Xanthopimpla thoracalis</i> Krieger]		Larva	Pakistan	Carl (1962)
		Pupa	Nepal	Neupane (1982), Neupane et al (1985)
		Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Pupa	Sri Lanka	Vinson (1942), Yasumatsu (1967b), Yasumatsu and Torii (1968)
		Pupa	Sri Lanka	Vinson (1942)
	<i>Chilo polychrysus</i>	NM	Borneo, China, India, Indonesia, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
		Pupa	Philippines	Barrion (1979)
	<i>Chilo</i> spp.	Pupa	India, Pakistan, Sri Lanka	Rao (1972)
		Pupa	Sarawak-Malaysia	Lim (1972b)
	<i>Chilo suppressalis</i>	Pupa	Borneo, China, India, Indonesia, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
		NM	India	Townes et al (1961)
		Egg	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
		Pupa	Malaysia	Rothschild (1970, 1971)
		Larva/Pupa	Philippines	Dyck and Varca (1970), Gabriel (1978), Reissig et al (1986)
		Larva	Philippines	Tadiarca (1963), Kamran and Raros (1969)
		Pupa	Philippines	Delfinado (1959), Baltazar (1966), Barrion (1979)
		Pupa	Sarawak-Malaysia	Munroe (1974)
		Pupa	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga incertulas</i>	NM	Borneo, China, India, Indonesia, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
		NM	India	Nath and Hikim (1979)
		Pupa	Malaysia	Rothschild (1971), Heong (1978)
		Larva/Pupa	Philippines	Gabriel (1978), Litsinger et al (1987a)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Larva	Philippines	Tadiarca (1963)
		Pupa	Sarawak-Malaysia	Munroe (1974)
	<i>Scirpophaga innotata</i>	NM	Borneo, China, India, Indonesia, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
	<i>Scirpophaga nivella</i>	NM	Borneo, China, India, Pakistan, Philippines, Ryukyu Islands-Japan, Taiwan-China	Townes et al (1961)
		NM	Taiwan-China	Box (1953b)
	<i>Sesamia calamistis</i>	Larva	NM	Grist and Lever (1969)
		NM	Mauritius, Reunion	Williams and Mamet (1962), Rao and Nagaraja (1969)
	<i>Sesamia inferens</i>	NM	Borneo, China, India, Indonesia, Pakistan, Philippines, Ryukyu Islands-Japan, Sarawak-Malaysia, Taiwan-China	Momoi (1968a)
		NM	China, India, Taiwan-China	Townes et al (1961)
		Pupa	India	Krishnamurti and Usman (1952), Rao (1965, 1972)
		NM	India	Rao (1964d), Rao and Nagaraja (1969)
		Pupa	Malaysia	Pagden (1930), Rao and Nagaraja (1969), Rothschild (1970), Rao (1972)
		Larva/Pupa	Philippines	Reissig et al (1986)
		Larva	Philippines	Tadiarca (1963), Kamran and Raros (1969)
		Pupa	South and Southeast Asia	Yasumatsu (1967c)
		Pupa	Taiwan-China	Takano (1934), Vinson (1942), Rao and Nagaraja (1969)
		Larva	Taiwan-China	Yanagihara (1934)
		NM	Taiwan-China	Box (1953b)
		Pupa	NM	Grist and Lever (1969)
		Larva	Thailand	JICA (1981)
Mymaridae ^d				
<i>Anagrus</i> [= <i>Paranagrus</i>] <i>optabilis</i> (Perkins)	<i>Chilo polychrysus</i>	Egg	Malaysia	Pagden (1930), Corbett and Miller (1933)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
	<i>Chilo</i> spp.	Egg	Malaysia	Rao (1965)
<i>?Dicopulus</i> sp.	<i>Scirpophaga incertulas</i>	Egg	India	Rao et al (1968)
	<i>Scirpophaga</i> spp.	Egg	India	Rao (1972)
<i>Gonatocerus</i> [= <i>Lymaenon</i>] sp.	<i>Chilo suppressalis</i>	Egg	Malaysia	Pagden (1934)
	<i>Scirpophaga incertulas</i>	Egg	Malaysia	Pagden (1934), Rao (1972), Van Vreden and Ahmadzabidi (1986)
	<i>Scirpophaga innotata</i>	Egg	Malaysia	Rao (1972)
	<i>Scirpophaga</i> spp.	Egg	Malaysia	Rao (1972)
Platygasteridae				
<i>Platygaster</i> sp. ^d	<i>Scirpophaga incertulas</i>	Larva	Bangladesh	Alam et al (1981a)
Proctotrupidae ^b				
<i>Galesus silvestrii</i> Kieffer	<i>Diopsis macrophthalma</i>	NM	Cameroon	Descamps (1957a)
<i>Trichopria oriphila</i> ^e	<i>Diopsis apicalis</i>	Pupa	Cameroon	Risbec (1956)
<i>Trichopria</i> sp.	<i>Diopsis</i> spp.	Pupa	Ghana	Agyen-Sampong (1977)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
Pteromalidae^b					
<i>Dinarmus</i> [= <i>Bruchobius</i>] sp.	<i>Adelpherupa</i> sp.	Larva/Pupa	Cameroon	Descamps (1956b), Nickel (1964)	
<i>Eupteromalus</i> sp.	<i>Scirpophaga incertulas</i>	Egg	China	Manickavasagar and Miyashita (1959)	
		Egg	Malaysia	Pagden (1934), Rao (1972), Yunus and Hua (1980)	
<i>Habrocytus</i> sp.	<i>Chilo polychrysus</i>	Egg	South and Southeast Asia	Yasumatsu (1967c)	
		Egg	Malaysia	Rao (1965)	
		Egg	Korea	Chang and Lee (1973)	
		Egg	India	Rao et al (1968)	
		Larva	India	Rao (1963)	
<i>Norbanus rushkai</i> (Masi)	<i>Chilo suppressalis</i>	Egg	South and Southeast Asia	Yasumatsu (1967c)	
		Egg	Philippines	Cendaña and Morallo (1961), Nickel (1964), Barrion (1979)	
<i>Norbanus</i> [= <i>Picroscythus</i>] sp.	<i>Sesamia</i> sp.	Larva	Philippines	Gabriel (1978)	
<i>Platecrizoles sudanensis</i> Ferriere	<i>Sesamia</i> spp.	Larva/Pupa	Nigeria	Harris (1962), Appert (1964)	
<i>Trichomalopsis apanteloctena</i> Crawford [= <i>Eupteromalus parnarai</i> Gahan]	<i>Scirpophaga incertulas</i>	NM	Madagascar	Risbec (1960), Appert (1964)	
		Egg	Bangladesh	Catling (1979), Catling et al (1983a)	
<i>Trichomalopsis</i> [= <i>Eupteromalus</i>] sp.	<i>Scirpophaga incertulas</i>	Egg/Pupa	Philippines	Litsinger et al (1987a)	
		Egg	Malaysia	Subba Rao and Chawla (1964), Rao (1972), Van Vreden and Ahmadzabidi (1986)	
	<i>Scirpophaga innotata</i>	Egg	South and Southeast Asia	Yasumatsu (1967c)	
		Egg	Malaysia	Rao (1972)	
Scelionidae^b					
<i>Gryon</i> spp.	<i>Scirpophaga incertulas</i>	Egg	Bangladesh	Alam et al (1981a)	
<i>Scelio</i> sp.	<i>Scirpophaga incertulas</i>	Egg	India	Chandramohan and Chelliah (1984a)	
<i>Telenomus alecto</i> (Crawford) [= <i>Prophanurus alecto</i>]	<i>Diatraea saccharalis</i>	Egg	Antigua	Box (1932a)	
		Egg	Argentina	Jaynes (1932)	
		Egg	India, Central and South America	Bin and Johnson (1982)	
		Egg	Guyana	Box (1926)	
		Egg	Martinique	D'Aguiar and Bonfils (1962)	
		Egg	Peru	Herrera and Iman (1976)	
		Egg	Colombia	CIAT (1981)	
		Egg	Mauritius	Moutia (1934)	
		Egg	Ivory Coast	Bin and Johnson (1982)	
		<i>Telenomus applanatus</i> Bin and Johnson	<i>Rupela albinella</i>	Egg	Colombia	CIAT (1981)
<i>Sesamia calamistis</i>	Egg		Mauritius	Moutia (1934)	
<i>Telenomus beneficiens</i> (Zehntner) [= <i>Ceraphron beneficiens</i> Zehntner] [= <i>Phanurus beneficiens</i>]	<i>Maliarpha separata</i>	Egg	Ivory Coast	Bin and Johnson (1982)	
	<i>Eldana saccharina</i>	Egg	Ivory Coast	Bin and Johnson (1982)	
<i>Telenomus beneficiens</i> (Zehntner) [= <i>Ceraphron beneficiens</i> Zehntner] [= <i>Phanurus beneficiens</i>]	<i>Chilo auricilius</i>	Egg	Malaysia	Rao (1972)	
	<i>Chilo partellus</i>	Egg	Malaysia	Rao (1972)	
	<i>Chilo polychrysus</i>	Egg	Hawaii-USA	Van Zwaluwenburg et al (1928)	
		Egg	Malaysia	Pagden (1930, 1934), Rao (1965, 1972), Grist and Lever (1969)	
	<i>Chilo suppressalis</i>	Egg	China	Tsai (1932)	
		Egg	Hawaii-USA	Van Zwaluwenburg et al (1928), Illingworth (1929)	
			Egg	Japan	Kuwana (1930a,b), Okada and Maki (1934), Okada et al (1934), Shibuya and Iyatomi (1950), Ito et al (1962)
			NM	Japan	Iyatomi (1956a,b)
			Egg	Japan, Korea, Philippines, Taiwan-China	Rao (1965)
			Egg	Korea	Nakayama (1929)
		Egg	Malaysia	Rao (1972)	

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)	
	<i>Scirpophaga incertulas</i>	Egg	Philippines	Gabriel (1978)	
		Egg	China	Tsai (1932), Chiu (1942), Zhang and Zhao (1986)	
		Egg	China, India, Japan, Indonesia	Manickavasagar and Miyashita (1959)	
		Egg	China, India, Malaysia, Taiwan-China	Subba Rao and Chawla (1964)	
		Egg	India	Krishnamurti and Usman (1954), Tirumala Rao (1956), Sastry and Appanna (1959), Butcheswara Rao and Kameswara Rao (1965), Vasantharaj David and Kumaraswami (1975), Saivaraj et al (1976)	
		Egg	India, Indonesia	Rao (1965)	
		Egg	India, Malaysia	Rao (1972)	
		Egg	Indonesia	Van Vuuren (1935), Van der Goot (1948a), Van der Laan (1951)	
		Egg	Japan	Kuwana (1930a,b), Ito et al (1962)	
		NM	Japan	Iyatomi (1956a,b)	
		Egg	Malaysia	Corbett and Pagden (1933)	
		Egg	Philippines	Rowan (1923), Baltazar (1966), Gabriel (1978), Barrion (1979)	
		<i>Scirpophaga innotata</i>	Egg	India, Malaysia	Rao (1972)
			Egg	Indonesia	Van der Goot (1925, 1948a), Van der Laan (1951), Rao (1965)
<i>Telenomus busseolae</i> Gahan [= <i>Platytenomus busseola</i> Gahan]	<i>Busseola fusca</i>	Egg	Philippines	Gabriel (1978), Barrion (1979)	
		Egg	NM	Grist and Lever (1969)	
		<i>Busseola fusca</i>	Egg	Nigeria	Harris (1962), Appert (1964)
		<i>Sesamia calamistis</i>	Egg	East Africa	Mohyuddin and Greathead (1970)
			Egg	Kenya	Mathez (1972)
			Egg	Mauritius	Moutia and Courtois (1952)
			Egg	Mauritius, Reunion	Williams and Mamet (1962)
			Egg	Reunion	Rao and Nagaraja (1969)
		<i>Sesamia calamistis</i>	NM	Mauritius, Reunion	Appert (1971b)
	[= <i>Platytenomus hylas</i> Nixon]	<i>Sesamia cretica</i>	Egg	British Sudan	Nixon (1935)
[= <i>Platytenomus</i> sp.? <i>hylas</i> Nixon]	<i>Sesamia calamistis</i>	Egg	Mauritius	Moutia and Courtois (1952)	
		Egg	Mauritius, Reunion	Williams and Mamet (1962), Rao and Nagaraja (1969)	
	<i>Sesamia cretica</i>	Egg	NM	Grist and Lever (1969)	
	<i>Sesamia</i> sp.	Egg	Cameroon	Descamps (1956b)	
<i>Telenomus dignoides</i> (Nixon)	<i>Scirpophaga incertulas</i>	Egg	Bangladesh	Catling et al (1983a)	
		Egg	India	Rao (1963, 1964d), Rao et al (1968), Misra (1973), Israel and Padmanabhan (1976), Greathead (1979), Hikim (1979), Patnaik et al (1983)	
			Egg	India, Indonesia, Pakistan, Taiwan-China	Nishida and Torii (1970)
			Egg	India, Pakistan	Rao (1972)
			Egg	Indonesia, Pakistan, Taiwan-China	Momoi et al (1975)
			Egg	Philippines	Reissig et al (1986)
			Egg	South and Southeast Asia	Yasumatsu (1967c)
			Egg	Thailand	Yasumatsu et al (1975), Greathead (1979)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Telenomus dignus</i> (Gahan)	<i>Scirpophaga innotata</i>	Egg	NM	Grist and Lever (1969)
		Egg	India, Pakistan	Rao (1972)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga nivella</i>	Larva	Pakistan	Carl (1962)
		Egg	Malaysia	Rao (1972)
	<i>Chilo auricilius</i>	Egg	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Kenya	Mathez (1972)
	<i>Chilo partellus</i>	Egg	Malaysia	Rao (1972)
		Egg	Malaysia	Rao (1972)
	<i>Chilo polychrysus</i>	Egg	Philippines	Barrion (1979)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
	<i>Chilo</i> spp.	Egg	Thailand	Nishida and Wongsiri (1972)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
		Egg	Sarawak-Malaysia	Lim (1972b)
	<i>Chilo suppressalis</i>	Egg	Thailand	Yasumatsu et al (1981)
		Egg	Japan	Okada and Maki (1934), Okada et al (1934), Otake (1956c, 1959, 1960), Hidaka (1965), Yasumatsu (1967b), Yasumatsu and Tori (1968)
		Egg	Korea	Paik (1967), Chang and Lee (1973), Chang (1978b)
	<i>Scirpophaga incertulas</i>	Egg	Malaysia	Rothschild (1970, 1971), Rao (1972), Greathead (1979)
		Egg	Philippines	Gabriel (1978), Barrion (1979), Reissig et al (1986)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
Egg		Sri Lanka	Fernando (1970), Greathead (1979)	
Egg		Thailand	Nishida and Wongsiri (1972)	
Egg		Bangladesh	Catling and Alam (1977), Alam et al (1981a)	
Egg		China	Chiu (1942), Zhang and Zhao (1986)	
Egg		China, Philippines	Manickavasagar and Miyashita (1959)	
Egg		Hongkong	Thomton et al (1975)	
Egg		India	Rao (1963, 1965), Rao et al (1968), Kameshwara Rao and Ali (1976), Hikim (1979)	
Egg		India, Philippines	Rao (1965)	
Egg		India, Malaysia, Sri Lanka	Rao (1972)	
Egg		Malaysia	Yunus and Hua (1980)	
Egg	Philippines	Subba Rao and Chawla (1964), Gabriel (1978), Barrion (1979)		
<i>Telenomus nephele</i> Nixon [= <i>Telenomus tolli</i> Risbec]	<i>Scirpophaga innotata</i>	Egg	Sri Lanka	De Silva (1961), Fernando (1967, 1970), Rajapakse and Kulasekera (1980)
		Egg	NM	Grist and Lever (1969)
	Stem borers	Egg	India, Malaysia, Sri Lanka	Rao (1972)
		Egg	Philippines	Gabriel (1978), Barrion (1979)
	<i>Scirpophaga subumbrosa</i>	Egg	Philippines	Barrion and Litsinger (1984)
		Egg	Sri Lanka	Fernando (1970)
	<i>Chilo polychrysus</i>	Egg	Indonesia	Chu (1979)
		Egg	Ghana	Agyen-Sampong (1977)
	<i>Chilo suppressalis</i>	Egg	West Africa	Akinsola and Agyen-Sampong (1984)
		Egg	Cameroon	Descamps (1956b)
<i>Telenomus rowani</i> (Gahan)	<i>Chilo polychrysus</i>	Egg	Malaysia	Yunus and Hua (1980)
	<i>Chilo suppressalis</i>	Egg	Malaysia	Heong (1975, 1978)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Egg	Philippines	Kamran and Raros (1969), Gabriel (1978)
	<i>Diatraea saccharalis</i>	Egg	Surinam	Hummelen (1974)
	<i>Rupela albinella</i>	Egg	Colombia	Sanchez (1980), CIAT (1981)
		Egg	Latin America	Gonzales et al (1983)
	<i>Scirpophaga incertulas</i>	Egg	Australia, Japan	Yasumatsu (1967c)
		Egg	Bangladesh	Catling and Alam (1977), Catling (1979), Catling et al (1983a), Bhuiyan and Sufian (1986)
		Egg	China	Chiu (1937, 1942), Sonan (1943), Tao (1966), Zhang and Zhao (1986)
		Egg	China, Philippines	Subba Rao and Chawla (1964)
		Egg	India	Rao et al (1968), Rai and Gowda (1977), Kameswara Rao and Ali (1975), Hikim (1979), Chandramohan and Chelliah (1984a)
		Egg	India, Indochina, Indonesia, Taiwan-China, Thailand	Manickavasagar and Miyashita (1959)
		Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	India, Philippines	Rao (1965)
		Egg	Indonesia	Soehardjan and Sugiarto (1979)
		Egg	Malaysia	Rothschild (1971), Lim (1972b), Heong et al (1974), Ooi (1974), Heong (1975)
		Egg	Malaysia, Taiwan-China	Hattori (1980)
		Egg	Philippines	Kamran and Raros (1969), Htun (1976), Htun et al (1976), Gabriel (1978), Barrion (1979), El-Dakrouy Abdallah et al (1983), Kim and Heinrichs (1985), Kim et al, (1986), Reissig et al (1986), Shepard and Arida (1986), Arida and Shepard (1987), Canapi et al (1987), Litsinger et al (1987a), Peña (1987), Xia (1988), Luo (1989)
		Egg	Sarawak-Malaysia	Rothschild (1970), Lim (1972b)
		Egg	Thailand	Nishida and Wongsiri (1972) Yasumatsu et al (1975, 1981)
		Egg	NM	Schmutterer (1977)
	<i>Scirpophaga innotata</i>	Egg	Australia	Li (1970, 1971), Allwood (1979)
		Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	Philippines	Gabriel (1978), Reissig et al (1986)
		Egg	Thailand	Yasumatsu et al (1975, 1981)
	<i>Scirpophaga</i> spp.	Egg	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966), Van Vreden and Ahmadzabidi (1986)
		Egg	Malaysia, Pakistan	Rao (1972)
		Egg	Thailand	Nishida and Wongsiri (1971)
<i>Telenomus saccharicola</i> Mani	<i>Scirpophaga</i> spp.	NM	India	Rao (1972)
<i>Telenomus</i> sp. [= <i>Prophanurus</i>]	<i>Chilo polychrysus</i>	Egg	Thailand	Kovitvadhi (1972), Khusakul et al (1977, 1979)
[= <i>Phanurus</i>]	<i>Chilo</i> spp.	NM	Thailand	Khusakul et al (1979, 1981)
[= <i>Liophanurus</i>]	<i>Chilo suppressalis</i>	Egg	Philippines	Calora (1964)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
[= <i>Paridris</i>]	<i>Diatraea saccharalis</i>	Egg	Thailand	Kovitvadhi (1972), Khusakul et al (1977, 1979)
		Egg	Argentina	Amaya et al (1973), Brooks (1979), Vargas and Sanchez (1983)
	<i>Eldana saccharina</i> <i>Maliarpha separatella</i>	Egg	Colombia	CIAT (1981)
		Egg	Latin America	Gonzales et al (1983)
		Egg	Surinam	Hummelen (1974)
		Egg	Africa	Betbeder-Matibet (1981)
		Egg	Madagascar	Brénierie et al (1962), Appert et al (1969), Brénierie (1969), Appert (1970, 1971b), Akinsola (1979)
	<i>Rupela albinella</i>	Egg	West Africa	Brénierie (1983), Akinsola and Agyen-Sampong (1984)
		Egg	Colombia	Amaya et al (1973), Vargas and Sanchez (1983)
		Egg	Surinam	Van Dinther (1960b), Hummelen (1974)
	<i>Scirpophaga incertulas</i>	Egg	NM	Grist and Lever (1969)
		Egg	Bangladesh	Islam (1976b), Catling and Alam (1977), Catling et al (1983a)
		Egg	Bangladesh, Japan, Malaysia, Philippines	Delfinado (1959)
		Egg	India	Rao (1963, 1972), Kameshwara Rao and Ali (1976), Chandramohan and Chelliah (1984a)
		Egg	Laos	Dean (1978)
		Egg	Malaysia	Yunus and Hua (1980)
		Egg	Pakistan	Beg et al (1967)
		Egg	Philippines	Barrion and Litsinger (1984), Kumbhof (1986)
		Egg/Adult	Philippines	Delfinado (1959)
		Egg	Sarawak-Malaysia	Munroe (1974)
	<i>Scirpophaga innotata</i> <i>Scirpophaga</i> spp. <i>Sesamia calamistis</i> <i>Sesamia inferens</i>	Egg	Thailand	Kovitvadhi (1972), Khusakul et al (1976, 1977), Yasumatsu et al (1981), Catling et al (1984d)
		Egg	India	Rao (1972)
		Egg	Philippines	Barrion and Litsinger (1984)
		Egg	India	Rao (1963, 1972)
		Egg	Mauritius	D'Emmerez de Charmoy (1916)
		Egg	India	Krishnamurti and Usman (1952, 1954), Rao and Nagaraja (1969), Rao (1972), Israel and Padmanabhan (1976), Greathead (1979)
		Stem borers	Egg	Malaysia	Rotschild (1971), Heong (1978)
Egg			Taiwan-China	Yanagihara (1934)
Egg			Thailand	Khusakul et al (1976, 1977)
Egg			NM	Grist and Lever (1969)
Egg	Indonesia		Sastrodihardjo (1971)	
Egg	Pakistan		Ghouri (1977)	
Egg	Thailand		Khusakul et al (1971), Wongsiri (1980), JICA (1981)	
<i>Telenomus</i> sp. <i>dignus</i> (Gahan)	<i>Chilo partellus</i>	Egg	Kenya	Mathez (1972)
<i>Telenomus</i> sp. nr. <i>rowani</i> (Gahan)	<i>Maliarpha separatella</i>	Egg	West Africa	Akinsola and Agyen-Sampong (1984)
	<i>Scirpophaga incertulas</i>	Egg	India	Rao (1963, 1964d), Rao et al (1968), Greathead (1979)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Scirpophaga</i> spp.	Egg	Sarawak-Malaysia	Lim (1972b)
<i>Telenomus thestor</i> Nixon	<i>Scirpophaga subumbrosa</i>	Egg	India, Pakistan	Rao (1972)
<i>Telenomus transversus</i> Bin and Johnson	<i>Scirpophaga innotata</i>	Egg	Ghana, Ivory Coast, Mali	Breniere (1983)
<i>Telenomus ulyetti</i> Nixon	<i>Scirpophaga</i> sp.	Egg	Indonesia	Bin and Johnson (1982)
<i>Telenomus soudanensis</i> (Risbec) [= <i>Trissolcus soudanensis</i> Risbec]	<i>Chilo diffusilineus</i>	NM	Cameroon	Descamps (1956b)
	<i>Chilo zacconius</i>	NM	Madagascar	Risbec (1960), Appert (1964)
		Larva	Senegal	Bréniere (1969)
		NM	Sudan	Appert (1952)
			Sudan	Risbec (1956), Nickel (1964)
Trichogrammatidae ^b				
<i>Asynacta</i> sp.	<i>Chilo suppressalis</i>	Egg	South and Southeast Asia	Yasumatsu (1967c)
Genus nr. <i>Bloodiella</i> sp.	<i>Scirpophaga</i> sp.	Egg	Cameroon	Descamps (1956b), Nickel (1964)
<i>Lathromeris ovicida</i> Risbec	<i>Busseola fusca</i>	Egg	Uganda	Mohyuddin and Greathead (1970)
	<i>Chilo auricilius</i>	Egg	Ghana	Rao and Rao (1980b)
	<i>Maliarpha separata</i>	Egg	West Africa	Akinsola and Agyen-Sampong (1978, 1984), Akinsola (1979)
<i>Trichogrammatoidea (=Trichogramma) bactrae bactrae</i> Nagaraja	<i>Scirpophaga subumbrosa</i>	Egg	Ghana	Agyen-Sampong (1977)
<i>Trichogramma chilonis</i> Ishii [= <i>Trichogramma australicum</i> Girault]	<i>Chilo suppressalis</i>	Egg	Philippines	Alba (1988)
	<i>Chilo auricilius</i>	Egg	India, Malaysia, Pakistan	Rao (1972)
	<i>Chilo partellus</i>	Egg	India, Malaysia, Pakistan	Rao (1972)
		Pupa	Nepal	Neupane (1982)
	<i>Chilo polychrysus</i>	Egg	USA	Neupane et al (1985)
		Egg	Philippines	Reissig et al (1986)
		Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Chilo</i> spp.	Egg	Thailand	Yasumatsu et al (1981)
	<i>Chilo suppressalis</i>	Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	Indonesia, Mauritius	Grist and Lever (1969)
		Egg	Japan	Shibuya and Yamashita (1936), Ishii (1941), Shibuya and Iyatomi (1950), Yasumatsu (1967b), Yasumatsu and Torii (1968)
		Egg	Korea	Chang (1978b)
		Egg	Philippines	Shibuya and Yamashita (1936), Perez (1985), Perez and Cadapan (1986), Reissig et al (1986), Canapi et al (1987)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Taiwan-China	Chen and Chiu (1985)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Diatraea</i> sp.	NM	Philippines	Baltazar (1966)
	<i>Scirpophaga incertulas</i>	Egg	India	Arasumallah et al (1984)
		Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	Madagascar	Caresche and Bréniere (1962), Nickel (1964)
		Egg	Philippines	Barrion (1979), Reissig et al (1986), Litsinger et al (1987a)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
	<i>Scirpophaga innotata</i>	Egg	Thailand	Yasumatsu et al (1975, 1981)
		Egg	India, Malaysia, Pakistan	Rao (1972)
		Egg	Indonesia	Van der Goot (1925)
		Egg	Philippines	Reissig et al (1986)
		Egg	South and Southeast Asia	Yasumatsu (1967c)

continued on opposite page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Sesamia calamistis</i>	Egg	Thailand	Yasumatsu et al (1975, 1981)
		Egg	Madagascar	Box (1953a), Rao and Nagaraja (1969)
	<i>Sesamia inferens</i>	Egg	Mauritius	D'Emmerez de Charmoy (1916),
		NM	Mauritius	Appert (1971b)
		Egg	Taiwan-China	Chen (1963)
		Egg	China, Philippines	Rao and Nagaraja (1969)
		Egg	Philippines	Reissig et al (1986)
		Egg	Thailand	Yasumatsu et al (1975)
	Stem borers	Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
<i>Trichogramma chiloatrae</i>	<i>Chilo polychrysus</i>	Egg	Philippines	Morales et al (1964)
Nagarkatti and Nagaraja	<i>Chilo</i> spp.	Egg	Thailand	Yasumatsu et al (1975)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
	<i>Scirpophaga incertulas</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Thailand	Yasumatsu et al (1975)
<i>Trichogramma confusum</i> Viggiani	<i>Scirpophaga incertulas</i>	Egg	China	Zhang and Zhao (1986)
<i>Trichogramma dendrolimi</i> Matsumura	<i>Chilo suppressalis</i>	Egg	China	Hsia (1957), Nickel (1964)
<i>Trichogramma ethiopicum</i> (Risbec)	<i>Chilo zacconius</i>	Egg	Cameroon	Descamps (1956b), Nickel (1964), Breniere (1969)
[= <i>Xanthoatomus ethiopicum</i> (Risbec)]	<i>Diopsis macrophthalma</i>	Egg	Benin, Burkina Faso, Cameroon, Ghana, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierra Leone	Breniere (1983)
	<i>Scirpophaga</i> sp.	Egg	Cameroon	Descamps (1956b), Nickel (1964)
<i>Trichogramma evanescens</i> Westwood	<i>Chilo suppressalis</i>	Egg	Iran	Mostowfi (1977), Greathead (1979)
	<i>Scirpophaga incertulas</i>	Egg	India	Butcheswara Rao and Kameswara Rao (1965)
		Egg	Pakistan	Beg et al (1967)
<i>Trichogramma evanescens minutum</i>	<i>Sesamia cretica</i>	Egg	NM	Grist and Lever (1969)
	<i>Chilo partellus</i>	Egg	India	Krishnamurti and Usman (1954)
		Egg	Pakistan	Haq (1967)
<i>Trichogramma exiguum</i> Pinto, Platner and Oatman	<i>Scirpophaga incertulas</i>	Egg	India	Arasumallah et al (1984)
<i>Trichogramma fasciatum</i> (Perkins)	<i>Diatraea saccharalis</i>	Egg	Surinam	Hummelen (1974)
<i>Trichogramma japonicum</i> Ashmead	<i>Chilo partellus</i>	Egg	India, Malaysia	Rao (1972)
	<i>Chilo polychrysus</i>	Egg	India, Malaysia	Rao (1972)
		Egg	Japan	Rao (1965)
		Egg	Malaysia	Grist and Lever (1969), Van Vreden and Ahmadzabidi (1986)
		NM	Malaysia	Lim (1970)
		Egg	Philippines	Reissig et al (1986)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Egg	NM	Schmutterer (1977)
		Egg	China	Tsai (1932)
		Egg	China, Japan, Hawaii-USA	Grist and Lever (1969)
		Egg	Hawaii-USA	Illingworth (1929), Van Zwaluwenburg et al (1928)
		NM	Hawaii-USA	Sweetman (1958), De Bach (1964), Bess (1967)
		Egg	India, Malaysia	Rao (1972)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Egg	Japan	Kuwana (1930a,b), Shibuya (1936, 1938), Shibuya and Iyatomi (1950), Iyatomi (1955, 1956a,b), Tateishi et al (1955), Otake (1956c, 1960), Washizuka and Kuwana (1961), Ito et al (1962), De Loach and Miyatake (1966), Bess (1967), Yasumatsu (1967b)
		Egg	Japan, Philippines	Shibuya and Yamashita (1936)
		Egg	Japan, Taiwan-China	Rao (1965)
		Egg	Korea	Nakayama (1929), Chang (1978b)
		Egg	Philippines	Gabriel (1978), Kumhof (1986), Reissig et al (1986)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Thailand	Nishida and Wongsiri (1972)
	<i>Scirpophaga incertulas</i>	Egg	Bangladesh	Catling (1979), Catling et al (1983a)
		Egg	China	Tsai (1932), Chiu (1942), Zhang and Zhao (1986)
		Egg	India	Sastry and Appanna (1959), Rao et al (1968), Rai and Gowda (1977), Hikim (1979), Patnaik et al (1983)
		Egg	India, Malaysia	Rao (1972)
		Egg	Indonesia	Van der Goot (1948a), Van der Laan (1951)
		Egg	Indonesia, Philippines	Rao (1965)
		Egg	Japan	Kuwana (1930a,b), Ito et al (1962)
		Egg	Malaysia	Van Vreden and Ahmadzabidi (1986)
		NM	Malaysia	Lim (1970)
		Egg	Philippines	Rowan (1923), Gabriel (1978), Kim and Heinrichs (1985), Kim et al (1986), Kumhof (1986), Reissig et al (1986), Litsinger et al (1987a)
		Egg	South and Southeast Asia	Yasumatsu (1967c)
		Egg	Taiwan-China	Subba Rao and Chawla (1964)
		Egg	Thailand	Nishida and Wongsiri (1972), Yasumatsu et al (1975)
		Egg	NM	Schmutterer (1977), Grist and Lever (1969)
	<i>Scirpophaga innotata</i>	Egg	India, Malaysia	Rao (1972)
		Egg	Indonesia	Van der Goot (1948b), Van der Laan (1951), Rao (1965)
		Egg	Philippines	Reissig et al (1986)
		Egg	Thailand	Yasumatsu et al (1975)
		Egg	NM	Grist and Lever (1969)
	<i>Scirpophaga subumbrosa</i>	Egg	Ghana	Agyen-Sampong (1977)
		Egg	West Africa	Agyen-Sampong (1984)
	<i>Sesamia inferens</i>	Egg	Korea	Chang (1978b)
		Egg	Thailand	Yasumatsu et al (1975)
<i>Trichogramma ?japonicum</i> Ashmead	<i>Chilo</i> sp.	Egg	Sarawak-Malaysia	Lim (1972b)
<i>Trichogramma</i> sp.? <i>japonicum</i> Ashmead	<i>Scirpophaga innotata</i>	Egg	Australia	Li (1970, 1972), Allwood (1979)
<i>Trichogramma kalkae</i> Schulten and Feijen	<i>Diopsis macrophthalma</i>	Egg	Malawi	Schulten and Feijen (1978), Feijen (1979b)
<i>Trichogramma minutum</i> Riley	<i>Chilo auricilius</i>	Egg	India	Rao (1965)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
		Egg	Malaysia	Corbett (1932-1933), Corbett and Pagden (1933), Yasumatsu (1967b)
	<i>Chilo polychrysus</i>	Egg Egg	India, Malaysia Malaysia	Rao (1965) Corbett (1932-1933), Yasumatsu and Torii (1968), Yunus and Hua (1980)
	<i>Chilo suppressalis</i>	Egg Egg	Hawaii-USA India	Van Zwaluwenburg et al (1928) Chopra (1928), Yasumatsu and Torii (1968)
	<i>Diatraea lineolata</i> <i>Diatraea saccharalis</i>	Egg Egg Egg Egg Egg	South and Southeast Asia Mexico Argentina Argentina, Peru Barbados	Yasumatsu (1967c) Van Zwaluwenburg (1926) Box (1928), Jaynes (1932) Jaynes (1933) Box (1927b), Tucker (1930, 1935 a,b, 1936)
		Egg Egg Egg Egg Egg Egg	Bolivia Brazil Cuba, USA Guadeloupe Guyana Peru	Risco (1966) Zucchi (1984) Holloway (1919) D'Aguilar and Bonfils (1962) Box (1926) Wille (1932), Box (1950b, 1951), Incio Paredes (1968)
		Egg	Puerto Rico	Van Dine (1913), Jones (1915), Wolcott and Martorell (1943)
		Egg	St. Christopher-Nevis-Anguilla	Box (1932a)
		Egg Egg	St. Vincent-UK USA	Myers (1935b) Holloway et al (1928), Ingram and Bynum (1941), Wilson (1941)
	<i>Scirpophaga incertulas</i>	Egg Egg Egg	Venezuela Virgin Islands-USA China	Box (1950b) Miskimen (1962) Tsai (1932), Yasumatsu and Torii (1968)
		Egg	India	Tirumala Rao et al (1956), Manickavasagar and Miyashita (1959), Subba Rao and Chawla (1964), Butcheswara Rao and Kameswara Rao (1965), Rao (1965)
		Egg	Malaysia	Corbett (1932-1933), Corbett and Pagden (1933), Pagden (1934) Yasumatsu (1967b), Yasumatsu and Torii (1968)
	<i>Sesamia calamistis</i>	Egg Egg NM	Sri Lanka Taiwan-China Reunion	Rajapakse and Kulasekera (1980) Shiraki (1917) Luziau (1953), Rao and Nagaraja (1969), Appert (1971b)
	<i>Sesamia inferens</i>	Egg Egg	India Indonesia	Krishnamurti and Usman (1952) Rao and Nagaraja (1969)
	Stem borers	Egg Egg Egg	India Philippines Malawi	Arasumallah et al (1984) Morales et al (1964) Schulten and Feijen (1982)
<i>Trichogramma nwanzai</i> Schulten and Feijen	<i>Chilo diffusilineus</i>	Egg	Malawi	Schulten and Feijen (1982)
<i>Trichogramma offella</i> Pinto and Oatman	<i>Chilo plejadellus</i>	Egg	USA	Pinto and Oatman (1985)
<i>Trichogramma pallidiventris</i> Nagaraja	<i>Scirpophaga incertulas</i>	Egg	Bangladesh	Catling et al (1983a)
<i>Trichogramma pinneyi</i> Schulten and Feijen	<i>Diopsis macrophthalma</i>	Egg	Malawi	Schulten and Feijen (1978), Feijen (1979b)
<i>Trichogramma</i> sp.	<i>Chilo auricilius</i>	Egg	Malaysia	Hattori (1980), Rao (1972)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo partellus</i>	Egg	India	Hattori (1980), Sharma et al (1966), Kameshwara and Ali (1976)
		Egg	Kenya	Mathez (1972)
		Egg	Malaysia	Rao (1972), Yunus and Hua (1980)
		Egg	Mozambique	Goncalves (1970)
		Egg	Philippines	Barrion (1979)
		Egg	Thailand	Kovitvadi (1972)
	<i>Chilo polychrysus</i>	Egg	Thailand	Kovitvadi (1972), Rao (1972), Khusakul et al (1976, 1977)
		Egg	Malaysia	Yunus and Hua (1980), Rao (1972)
	<i>Chilo suppressalis</i>	Egg	Philippines	Barrion (1979)
		Egg	Japan	Shibuya (1933a)
		Egg	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
		Egg	Malaysia, Thailand	Rao (1972)
		Egg	Philippines	Baltazar (1966), Barrion (1979)
		Egg	Sarawak-Malaysia	Munroe (1974)
		Egg	Thailand	Kovitvadi (1972), Khusakul et al (1976, 1977)
	<i>Diatraea saccharalis</i>	Egg	NM	Schmutterer (1977)
		Egg	Argentina	Hayward (1942, 1943)
		Egg	Brazil	Zucchi (1984)
		Egg	Colombia	Brooks (1979), Sanchez (1980), CIAT (1981), Vargas and Sanchez (1983)
		Egg	Latin America	Gonzales et al (1983)
		Egg	NM	Schmutterer (1977)
	<i>Diopsis macrophthalmia</i>	Egg	Malawi	Feijen (1977a)
	<i>Diopsis</i> spp.	Egg	Ghana	Agyen-Sampong (1977)
	<i>Rupella albinella</i>	Egg	Colombia	CIAT (1981), Vargas and Sanchez (1983)
	<i>Scirpophaga incertulas</i>	Egg	Latin America	Gonzales et al (1983)
		Egg	Bangladesh	Catling and Alam (1977)
		Egg	India	Rao (1963), Rao et al (1968), Vasantharaj David and Kumaraswami (1975), Kameshwara Rao and Ali (1976)
		Egg	Malaysia	Rothschild (1971), Ooi (1974), Hattori (1980), Van Vreden and Ahmadzabidi (1986)
		Egg	Malaysia, Sri Lanka	Rao (1972)
		Egg	Pakistan	Beg et al (1967)
		Egg	Philippines	Otañes (1925), Baltazar (1966), Htun et al (1976), Barrion (1979), El-Dakroury Abdallah et al (1983), Shepard and Arida (1986), Arida and Shepard (1987), Peña (1987), Xia (1988), Luo (1989)
	<i>Scirpophaga innotata</i>	Egg	Sri Lanka	Fernando (1970)
	<i>Sesamia calamistis</i>	Egg	Malaysia, Sri Lanka	Rao (1972)
	<i>Sesamia inferens</i>	Egg	Kenya	Mathez (1972)
		Egg	India	Krishnamurti and Usman (1954), Israel and Padmanabhan (1976)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	Stem borers	Egg	Indonesia	Sastrodihardjo (1971)
<i>Trichogramma</i> sp. nr. [=australicum]	<i>Chilo suppressalis</i>	Egg	Thailand	JICA (1981)
<i>chilonis</i> Ishii		Egg	Philippines	Barrion (1979)
<i>Trichogrammatoidea nana</i> (Zehntner)	<i>Chilo auricilius</i>	Egg	India, Malaysia	Rao (1972)
[= <i>Chaetosticha nana</i> Zehntner]		Egg	Malaysia	Tempany (1931)
[= <i>T. nanum</i> (Zehntner)]	<i>Chilo partellus</i>	Egg	East Africa	Mohyuddin and Greathead (1970)
[= <i>Trichogramma nana</i> (Zehntner)]		Egg	India	Sharma et al (1966)
		Egg	Malaysia	Rao (1972)
	<i>Chilo plejadellus</i>	Egg	USA	Grist and Lever (1969)
	<i>Chilo polychrysus</i>	Egg	Malaysia	Miller and Pagden (1930a), Pagden (1930), Kok (1964/1965), Rao (1965, 1972), Van Vreden and Ahmadzabidi (1986)
	<i>Chilo</i> spp.	Egg	India, Malaysia	Rao (1972)
		Egg	Indonesia	Dammerman (1915)
	<i>Chilo suppressalis</i>	Egg	Hawaii-USA	Van Zwaluwenburg et al (1928)
		Egg	India, Malaysia	Rao (1972)
		Egg	Malaysia	Kok (1964/1965)
	<i>Diatraea saccharalis</i>	Egg	Peru	Wille (1932), Incio Paredes (1968)
	<i>Diatraea</i> spp.	NM	Philippines	Baltazar (1966)
	<i>Scirpophaga incertulas</i>	Egg	India, Malaysia	Rao (1972)
		Egg	Indonesia	Dammerman (1915)
		Egg	Malaysia	Miller and Pagden (1930a), Pagden (1930), Tempany (1931), Kok (1964/1965)
	<i>Scirpophaga innotata</i>	Egg	India, Malaysia	Rao (1972)
	<i>Sesamia calamistis</i>	Egg	NM	Grist and Lever (1969)
	<i>Sesamia inferens</i>	Egg	Indonesia	Dammerman (1915), Rao and Nagaraja (1969)
		NM	Malaysia	Kok (1964/1965)
	<i>Sesamia</i> spp.	NM	Philippines	Baltazar (1966)
<i>Trichogrammatoidea simmondsi</i> Feijen	<i>Diopsis macrophthalma</i>	Egg	Malawi	Feijen (1977a, 1979b)
<i>Trichogrammatoidea</i> sp.? <i>nanum</i> (Zehntner)	<i>Sesamia calamistis</i>	Egg	Mauritius	Williams and Mamet (1962), Rao and Nagaraja (1969)
<i>Xanthoatomus aethiopicus</i> Risbec	<i>Chilo diffusilineus</i>	Egg	Madagascar	Risbec (1960), Appert (1964), Grist and Lever (1969)
	<i>Chilo partellus</i>	Egg	NM	Grist and Lever (1969)
	<i>Chilo zacconius</i>	Egg	Cameroon	Risbec (1956)
	<i>Diopsis macrophthalma</i>	Egg	West Africa	Brènière (1983)
Vespidae ^a				
<i>Icaria</i> sp.	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Polistes hebraeus</i> Fabricius	<i>Chilo suppressalis</i>	Larva	Hawaii-USA	Van Zwaluwenburg et al (1928)
	<i>Chilo</i> sp.	NM	Hawaii-USA	Rao (1965)
	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Polistes</i> spp.	<i>Diatraea saccharalis</i>	Larva	Colombia	CIAT (1981)
		Larva	Latin America	Gonzales et al (1983)
<i>Polistes versicolor</i> (Oliver)	<i>Elasmopalpus lignosellus</i>	NM	Venezuela	Guagliumi (1966), Salinas (1976)
<i>Polybia occidentalis</i> (Oliver)	<i>Rupela albinella</i>	Larva	Colombia	CIAT (1981)
		Larva	Latin America	Gonzales et al (1983)
<i>Vespa lewisii</i> Cameron	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
Wasp, unidentified	<i>Bathytricha truncata</i>	Larva	Australia	Li (1970)
ODONATA				
Coenagrionidae ^a				
<i>Actagrion occidentale</i> Laidlow	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)

continued on next page

Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Agriocnemis d'abreu</i> Fraser	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
<i>Agriocnemis pygmaea</i> (Rambur)	Stem borers	Larva/Adult	Thailand	JICA (1981)
	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
	Stem borers	Adult	Malaysia	Van Vreden and Ahmadzabidi (1986)
<i>Agrion</i> sp.	Stem borers	Larva/Adult	Thailand	JICA (1981)
	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Asisoma panorpoides</i> Rambur	<i>Scirpophaga incertulas</i>	Larva	Taiwan-China	Rao (1965)
<i>Ceriatrion olivaceum olivaceum</i> Laidlow	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
<i>Ischnura senegalensis</i> Rambur	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Adult	Philippines	Barrion (1979)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
<i>Ischnura torresiana</i> Tillyard	Stem borers	Larva/Adult	Thailand	JICA (1981)
	<i>Scirpophaga innotata</i>	Adult	Australia	Li (1970, 1972), Allwood (1979)
Lestidae ^a				
<i>Lestes</i> spp.	Stem borers	Adult	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
Libellulidae ^a				
<i>Diplacodes trivialis</i> ^e	Stem borers	Adult	Thailand	Wongsiri (1980)
<i>Neurothemis fluctuans</i> Fabricius	Stem borers	Probably Adult	Malaysia	Rothschild (1971)
<i>Neurothemis tullia tullia</i> (Drury)	Stem borers	Egg	Thailand	Wongsiri (1980)
<i>Orthemis ferruginosa</i> (Fabricius)	<i>Rupela albinella</i>	Egg	Surinam	Hummelen (1974)
<i>Orthetrum albistyla</i> Selys	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Orthetrum</i> (=Lepthemis) <i>sabina</i> (Drury)	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Orthetrum testaceum</i> (Burmeister)	Stem borers	NM	Indonesia	Sastrodihardjo (1971)
	<i>Sesamia inferens</i>	Larva	Philippines	Barrion (1979)
<i>Palpopleura sexmaculata sexmaculata</i> (Fabricius)	Stem borers	Egg	Thailand	Wongsiri (1980)
<i>Pantala flavescens</i> Fabricius	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
<i>Rhyothemis splendens</i> Rambur	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
Trithemis trivialis Rambur Damsselflies	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Shiraki (1917), Rao (1965)
	<i>Chilo</i> spp.	NM	Thailand	Khusakul et al (1979, 1981)
	Stem borers	Adult	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
ORTHOPTERA				
Acrididae				
<i>Oxya</i> sp. ^d	Stem borers	Egg/Larva	Malaysia	Rothschild (1971)
Gryllidae ^a				
<i>Anaxipha</i> sp.	<i>Chilo suppressalis</i>	Egg	Malaysia	Rothschild (1971)
	<i>Chilo</i> sp.	Egg	Sarawak-Malaysia	Munroe (1974)
	<i>Scirpophaga incertulas</i>	Egg	Malaysia	Rothschild (1971)
		Egg	Philippines	Kumhof (1986), Peña (1987), Xia (1988)
	Stem borers	Egg	Sarawak-Malaysia	Munroe (1974)
	Egg	Thailand	Wongsiri (1980), Yasumatsu et al (1981)	

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Euscirtus</i> sp. ^d	Stem borers	Egg	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
<i>Metioche vittalicollis</i> (Stal)	<i>Chilo suppressalis</i>	Egg	Philippines	Rubia (1986)
	<i>Scirpophaga incertulas</i>	NM	Philippines	Peña (1987)
	Stem borers	Egg	Thailand	Wongsiri (1980), Yasumatsu et al (1981)
Tettigoniidae ^a				
<i>Conocephalus chinensis</i> Redtenbacher	<i>Chilo suppressalis</i>	Egg	Japan	Takahashi and Kiritani (1973)
<i>Conocephalus longipennis</i> (de Haan)	<i>Chilo polychrysus</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Egg	Malaysia	Rothschild (1971)
	<i>Scirpophaga incertulas</i>	Egg	Malaysia	Rothschild (1971), Manley (1985)
		Egg	Philippines	Pantua and Litsinger (1984), Xia (1988), Kumhof (1986), Peña (1987)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Egg	Philippines	Barrion (1979)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Philippines	Barrion (1979)
		Egg	Thailand	Yasumatsu et al (1975)
	Stem borers	Egg	Thailand	Yasumatsu et al (1981)
<i>Conocephalus maculatus</i> (Le Guillou)	<i>Chilo polychrysus</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Chilo suppressalis</i>	Egg	Japan	Kiritani and Kono (1975)
		Egg/Larva	Japan	Takahashi and Kiritani (1973)
	<i>Scirpophaga incertulas</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Thailand	Yasumatsu et al (1975)
	Stem borers	Egg	Thailand	Yasumatsu et al (1981)
<i>Conocephalus saltator</i> (Saussure)	Stem borers	Egg	Thailand	Wongsiri (1980)
<i>Conocephalus</i> sp.	<i>Chilo polychrysus</i>	Egg	Thailand	Yasumatsu et al (1975)
	<i>Chilo</i> sp.	Egg	Sarawak-Malaysia	Munroe (1974)
	<i>Chilo suppressalis</i>	Egg	Malaysia	Rothschild (1971)
	<i>Scirpophaga incertulas</i>	Egg	China	Deng and Jin (1985)
		Egg	Sarawak-Malaysia	Rothschild (1971), Munroe (1974)
	<i>Scirpophaga innotata</i>	Egg	China	Deng and Jin (1985)
		Egg	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Egg	Thailand	Yasumatsu et al (1975)
	Stem borers	Egg	Thailand	Wongsiri (1980), JICA (1981)
ARANEAE (SPIDERS)				
Araneidae ^a				
<i>Araneus inustus</i> (C. L. Koch)	Stem borers	Adult	Philippines	Reissig et al (1986)
<i>Neoscona</i> (= <i>Araneus</i>) <i>sinhagadensis</i> (Tikader)	<i>Chilo partellus</i>	Larva	India	Singh and Sandhu (1976), Neupane (1982)
	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
<i>Argiope</i> sp. nr. <i>aetherea</i> (Walckenaer)	Stem borers	Adult	Malaysia	Rothschild (1971)
Clubionidae				
<i>Chiracanthium saraswatii</i> Tikader	<i>Chilo partellus</i>	Larva	India	Singh et al (1975)
<i>Chiracanthium</i> sp.	<i>Chilo partellus</i>	Larva	India	Singh et al (1975)
<i>Clubiona</i> sp.	<i>Chilo partellus</i>	Larva	India	Singh et al (1975), Neupane (1982)
Gnaphosidae				
<i>Drassodes</i> sp.	<i>Chilo partellus</i>	Larva	India	Singh et al (1975), Neupane (1982)
Lycosidae				
<i>Pardosa</i> [= <i>Lycosa</i>] <i>fletcheri</i> (Gravely)	<i>Chilo partellus</i>	Larva	India	Singh et al (1975)
<i>Pardosa</i> [= <i>Lycosa</i>] <i>pseudoannulata</i> (Boesenberg and Strand)	<i>Chilo</i> sp.	NM	Thailand	Khusakul et al (1979, 1981)
	<i>Chilo suppressalis</i>	Larva	Japan	Takahashi and Kiritani (1973)
	<i>Scirpophaga incertulas</i>	Larva	Philippines	Htun (1976), Kumhof (1986), Peña (1987)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Pardosa</i> [= <i>Lycosa</i>] sp.	Stem borers	Adult	Philippines	Reissig et al (1986)
	<i>Scirpophaga incertulas</i>	Larva	India	Yadava and Israel (1977)
		Adult	India	Rao and Israel (1977a)
	<i>Sesamia inferens</i>	Larva	India	Yadava and Israel (1977)
Metidae				
<i>Leucauge argentata</i> (O. P. Cambridge)	Stem borers	Adult	Malaysia	Rothschild (1971)
Oxyopidae				
<i>Oxyopes assamensis</i> Tikader	Stem borers	Adult	Malaysia	Van Vreden and Ahmadzabidi (1986)
<i>Oxyopes javanus</i> Thorell	Stem borers	Adult	Malaysia	Van Vreden and Ahmadzabidi (1986)
			Philippines	Reissig et al (1986)
<i>Oxyopes lineatipes</i> Koch	Stem borers	Adult	Malaysia	Van Vreden and Ahmadzabidi (1986)
<i>Oxyopes pandae</i> Tikader	<i>Chilo partellus</i>	Larva	India	Singh et al (1975), Neupane (1982)
	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
<i>Oxyopes</i> sp.	<i>Chilo</i> sp.	NM	Thailand	Khusakul et al (1979, 1981)
	<i>Chilo polychrysus</i>	NM	Thailand	Khusakul et al (1979)
	<i>Chilo suppressalis</i>	NM	Thailand	Khusakul et al (1979)
	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
Salticidae				
<i>Marpissa</i> sp.	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
Jumping Spider, unidentified	<i>Scirpophaga innotata</i>	Adult	Australia	Li (1970)
Sparassidae				
<i>Heteropoda</i> sp.	<i>Chilo partellus</i>	Larva	India	Singh et al (1975)
Tetragnathidae				
<i>Tetragnatha maxillosa</i> Thorell	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
[= <i>Tetragnatha japonica</i> Boesenberg et Strand]	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
<i>Tetragnatha javana</i> (Thorell)	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
<i>Tetragnatha mandibulata</i> Walckenaer	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasumatsu et al (1975)
<i>Tetragnatha</i> sp.	<i>Chilo polychrysus</i>	Adult	Thailand	Yasumatsu et al (1975)
		NM	Thailand	Khusakul et al (1979)
	<i>Chilo</i> sp.	NM	Thailand	Khusakul et al (1979)
	<i>Chilo suppressalis</i>	NM	Thailand	Khusakul et al (1979)
	<i>Scirpophaga incertulas</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Scirpophaga innotata</i>	Adult	Thailand	Yasumatsu et al (1975)
	<i>Sesamia inferens</i>	Adult	Thailand	Yasutatsu et al (1975)
Thomisidae				
<i>Thomisus cherapunjeus</i> Tikader	<i>Scirpophaga incertulas</i>	Adult	India	Rao and Israel (1977a)
Spiders, unidentified	<i>Chilo sacchariphagus indicus</i>	Larva/Pupa	India	Easwaramoorthy and Nandagopal (1986)
	<i>Scirpophaga incertulas</i>	NM	China	Tang and Zhou (1983)
	Stem borers	Adult	Thailand	Yasumatsu et al (1981), Wongsiri (1980)
ACARI (MITES)				
Anoetidae ^b				
<i>Histiostoma</i> sp.	<i>Chilo polychrysus</i>	Egg	Malaysia	Yunus and Hua (1980)
Erythraeidae ^b				
<i>Erythraeus ojimai</i> Kishida	<i>Chilo suppressalis</i>	Larva	Japan	Kishida (1929)
Pyemotidae ^b				
<i>Pyemotes</i> sp.	<i>Scirpophaga incertulas</i>	Larva	Australia	Li (1970)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Pyemotes ventricosus</i> (Newport)	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962)
[= <i>Pediculoides ventricosus</i>]	<i>Chilo suppressalis</i>	NM	South and Southeast Asia	Yasumatsu (1967c)
NEMATODA (Nematodes)				
Cephalobidae				
<i>Panagrolaimus</i> sp. ^b	<i>Chilo partellus</i>	NM	India	Mathur et al (1966), Neupane (1982)
Mermithidae ^b				
<i>Agamermis</i> sp.	<i>Chilo auricilius</i>	Larva	India	Rao (1972)
	<i>Chilo partellus</i>	Larva	India	Rao (1972)
	<i>Chilo suppressalis</i>	Larva	India	Rao (1964b, 1972), Grist and Lever (1969)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1963, 1972)
		Larva	Philippines	Kumhof (1986)
		Larva	South and Southeast Asia	Yasumatsu (1967c)
		Larva	Thailand	Lippold (1972)
	<i>Sesamia inferens</i>	Larva	India	Rao (1972)
<i>Agamermis unka</i> Kaburaki and Imamura	<i>Chilo suppressalis</i>	NM	Japan	Walker (1959), Grist and Lever (1969)
	Stem borers	Larva	Thailand	Lippold (1972)
<i>Amphimermis zuimushi</i> Kaburaki and Imamura	<i>Chilo suppressalis</i>	Larva	Japan	Imamura (1932a,b), Kaburaki and Imamura (1932), Kaburaki (1934), Rao (1965), Tateishi et al (1955), Yasumatsu and Torii (1968), Grist and Lever (1969)
		Larva	South and Southeast Asia	Yasumatsu (1967c)
		Larva	Thailand	Lippold (1972)
<i>Gordius</i> sp.	<i>Diatraea saccharalis</i>	Larva	Japan	Grist and Lever (1969)
	<i>Scirpophaga incertulas</i>	Larva	South and Southeast Asia	Yasumatsu (1967c)
		NM	Taiwan-China	Shiraki (1917), Grist and Lever (1969)
	Stem borers	Larva	Thailand	Lippold (1972)
<i>Hexamermis microamphidis</i> ^e	<i>Diatraea saccharalis</i>	NM	Argentina	Jaynes (1933)
<i>Hexamermis</i> sp.	<i>Chilo partellus</i>	Larva	India	Bhatnagar et al (1985)
	<i>Diatraea saccharalis</i>	Larva	Pakistan	Grist and Lever (1969)
		Larva	Philippines	Kumhof (1986),
	<i>Eldana saccharina</i>	Larva	Africa	Betbeder-Matibet (1981)
	<i>Scirpophaga incertulas</i>	Larva	India	Bhatnagar et al (1985)
	<i>Sesamia inferens</i>	NM	India	Rao (1964d), Rao and Nagaraja (1969)
<i>Hexamermis cathetospiculae</i> Poinar and Chang	<i>Scirpophaga incertulas</i>	NM	Malaysia, USA	Poinar and Chang (1985)
<i>Hexamermis</i> complex	<i>Busseola fusca</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Chilo partellus</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Eldana saccharina</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
	<i>Sesamia calamistis</i>	Larva	East Africa	Mohyuddin and Greathead (1970)
<i>Hexamermis micro</i> Steiner	<i>Diatraea saccharalis</i>	NM	Argentina	Jaynes (1933)
<i>Mermis</i> sp.	<i>Chilo partellus</i>	NM	India	Sharma et al (1966)
	<i>Chilo polychrysus</i>	Adult	Malaysia	Pagden (1930), Rao (1972)
	<i>Scirpophaga incertulas</i>	NM	Malaysia	Pagden (1930), Grist and Lever (1969)
		Larva	South and Southeast Asia	Yasumatsu (1967c)
		Larva	Thailand	Lippold (1972)
	<i>Sesamia calamistis</i>	NM	Mauritius	Williams and Mamet (1962), Rao and Nagaraja (1969)
Unidentified mermithid	<i>Chilo auricilius</i>	Larva	India	Rao and Israel (1977b)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo polychrysus</i>	Larva	India	Israel and Padmanabhan (1976), Rao and Israel (1977a), Greathead (1979)
<i>Parasitorhabditis</i> sp.	<i>Chilo auricilius</i>	Larva	India	Anonymous (1977), Rao et al (1977)
	<i>Scirpophaga incertulas</i>	Larva	India	Anonymous (1977), Rao et al (1977), Rombach (1987)
	<i>Sesamia inferens</i>	Larva	India	Nayak et al (1977), Nayak and Rao (1978), Nayak et al (1983)
		NM	India	Anonymous (1977), Rao et al (1977)
<i>Rhabdhitis</i> sp.	<i>Chilo partellus</i>	NM	India	Mathur et al (1966), Neupane (1982)
Unidentified nematode	<i>Chilo</i> sp.	NM	Bangladesh	Islam (1977), Rombach (1987)
	<i>Chilo suppressalis</i>	Larva	Bangladesh	Catling and Alam (1977)
		NM	Japan	Imamura (1932), Rombach (1987)
		Larva/Pupa	Malaysia	Rothschild (1971)
	<i>Scirpophaga</i> sp.	Larva	India	Rao (1963)
		NM	Malaysia	Van Vreden and Ahmadzabidi (1986)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao (1963)
		Larva	Malaysia	Pagden (1930), Rothschild (1970, 1971)
		Larva/Pupa	Thailand	Yasumatsu et al (1981)
		NM	Bangladesh	Alam (1967), Catling and Alam (1977), Islam (1977), Rombach (1987)
	<i>Scirpophaga innotata</i>	Larva/Pupa	Thailand	Yasumatsu et al (1981)
	<i>Sesamia inferens</i>	Larva	Malaysia	Rothschild (1971)
Steinemematidae ^b	Stem borers	Larva/Pupa	Thailand	Wongsiri (1980)
<i>Neoaplectana</i> sp.	<i>Chilo partellus</i>	Larva	India	Mathur et al (1966), Neupane (1982)
<i>Neoaplectana carpocapsae</i> Weiser	<i>Chilo auricilius</i>	Larva	India	Rao and Israel (1977b)
	<i>Chilo suppressalis</i>	Larva/Pupa	Japan	Torii (1975a), Poinar (1979)
		Larva	Philippines	Gabriel (1968, 1978)
	<i>Diatraea saccharalis</i>	Larva	Guadeloupe	Laumond et al (1979)
		Larva	Guadeloupe, USA	Poinar (1979)
		Larva	USA	Dutky et al (1956)
	<i>Elasmopalpus lignosellus</i>	Larva	Guadeloupe	Laumond et al (1979), Poinar (1979)
	<i>Scirpophaga incertulas</i>	Larva	India	Rao and Manjunath (1966), Rao (1972)
		Larva, Adult	India	Poinar (1979)
		Adult	India	Rao et al (1971)
		Larva	Japan	Torii (1975a), Poinar (1979)
		NM	Philippines	Kumhof (1986)
	<i>Scirpophaga nivella</i>	Larva	India	Rao and Manjunath (1966), Poinar (1979)
	<i>Sesamia inferens</i>	Larva/Pupa	Japan	Torii (1975a), Poinar (1979)
<i>Neoaplectana glaseri</i> Steiner	<i>Diatraea saccharalis</i>	Larva	Brazil	Anonymous (1985), Pizano et al (1985)
		Larva	USA	Poinar (1979)
PATHOGENS				
BACTERIA ^b				
<i>Bacillus subtilis</i> (Ehrenberg)	<i>Chilo auricilius</i>	NM	India	Anonymous (1977)
	<i>Scirpophaga incertulas</i>	NM	India	Anonymous (1977)
	<i>Sesamia inferens</i>	NM	India	Anonymous (1977)
<i>Bacillus thuringiensis</i> Berliner	<i>Busseola fusca</i>	Larva	Nigeria	Harris (1962)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo polychrysus</i>	Larva	Philippines	IRRI (1975)
	<i>Chilo suppressalis</i>	Larva	Philippines	IRRI (1975)
		Larva	NM	Nishida and Torii (1970)
	<i>Diatraea saccharalis</i>	Larva	Colombia	CIAT (1981)
	<i>Scirpophaga incertulas</i>	NM	Philippines	Kumhof (1986)
	<i>Sesamia inferens</i>	Larva	Philippines	IRRI (1975)
	Stem borers	Larva	Thailand	Lippold (1972)
<i>Bacillus thuringiensis</i> var. <i>alesti</i> (Berliner)	<i>Diatraea saccharalis</i>	Larva	USA	Charpentier et al (1973)
<i>Bacillus thuringiensis</i> var. <i>kurstaki</i> Berliner	<i>Chilo auricilius</i>	Larva	India	Nayak et al (1978), Krieg and Langenbruch (1981)
	<i>Scirpophaga incertulas</i>	Larva	India	Nayak et al (1978)
	<i>Sesamia inferens</i>	Larva	India	Nayak et al (1978), Yadava (1978)
<i>Bacillus thuringiensis</i> var. <i>thuringiensis</i> Berliner	<i>Chilo auricilius</i>	Larva	India	Kalra and Kumar (1963), Krieg and Langenbruch (1981)
	<i>Chilo suppressalis</i>	Larva	Japan	Bounias and Guennelon (1974), Takaki (1975), Krieg and Langenbruch (1981)
		NM	Philippines	Gabriel (1968)
	<i>Diatraea saccharalis</i>	Larva	USA	Krieg and Langenbruch (1981)
Bacteria, unidentified	<i>Rupela albinella</i>	Larva	Colombia	CIAT (1981)
Septicemic bacteria	Stem borers	Larva	NM	Nishida and Torii (1970)
<i>Serratia marcescens</i> Bizio	<i>Chilo auricilius</i>	NM	India	Anonymous (1977)
	<i>Chilo partellus</i>	Larva	India	Ansari et al (1987)
	<i>Scirpophaga incertulas</i>	NM	India	Anonymous (1977)
	<i>Sesamia inferens</i>	NM	India	Anonymous (1977)
<i>Stoleptococcus</i> sp. FUNGI ^b	Stem borers	Larva	Thailand	Lippold (1972)
<i>Aspergillus flavus</i> Link ex Fr.	<i>Busseola fusca</i>	Larva/Pupa	Nigeria	Harris (1962)
	<i>Chilo suppressalis</i>	Larva	NM	Nishida and Torii (1970)
		NM	Japan	Tateishi et al (1951)
<i>Aspergillus parasiticus</i> ^e	<i>Rupela albinella</i>	Larva	Surinam	Hummelen (1974)
	<i>Scirpophaga nivella</i>	NM	India	Rao (1965)
<i>Aspergillus</i> sp.	<i>Chilo suppressalis</i>	Larva	Japan	Tateishi et al (1955), Nickel (1964)
	<i>Diatraea saccharalis</i>	Larva	Colombia	Lopez et al (1983)
	Stem borers	NM	Thailand	Lippold (1972)
<i>Aspergillus sydowi</i> (Bain and Sart) Thom and Church	<i>Busseola fusca</i>	Pupa	Nigeria	Harris (1962)
<i>Beauveria bassiana</i> (Balsamo) Vuillemin	<i>Chilo auricilius</i>	Larva	India	Anonymous (1977), Rao and Israel (1977b)
		NM	India	Nayak and Srivastava (1979b)
		NM	India, Iran, Philippines	Rombach (1987)
		NM	Iran	Rezwany and Schahosseini (1977)
		Larva	Japan	Tateishi et al (1951)
		NM	Philippines	Gabriel (1968)
	<i>Chilo suppressalis</i>	Larva	China	Chen et al (1984a)
		Larva	Japan	Tateishi et al (1951)
		Egg	Korea	Chang and Lee (1973)
		Larva	Philippines	Gabriel (1968, 1978), Rao (1964a, 1965)
	<i>Diatraea saccharalis</i>	NM	Brazil	Alves et al (1985)
		Larva	Colombia	CIAT (1981)
	<i>Scirpophaga incertulas</i>	Larva	India	Anonymous (1977)
		Larva	Philippines	Kumhof (1986)
		Larva	NM	Nishida and Torii (1970)
	<i>Scirpophaga nivella</i>	NM	India	Rao (1965)
	<i>Sesamia inferens</i>	Larva	India	Anonymous (1977)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Beauveria brongiartii</i> (Sacc.) Petch	Stem borers	Larva	Philippines	Gabriel (1978)
	<i>Chilo auricilius</i>	Larva	Philippines	Reissig et al (1986)
	<i>Diatraea saccharalis</i>	Larva	India	Yadava et al (1979)
	<i>Scirpophaga incertulas</i>	NM	Brazil	Alves et al (1985)
	<i>Sesamia inferens</i>	Larva	India	Yadava et al (1979)
<i>Botrytis delacroixii</i> ^e	<i>Diatraea saccharalis</i>	NM	Argentina	Jaynes (1933)
<i>Botrytis stephanoderis</i> Bally	<i>Scirpophaga innotata</i>	Larva	Dutch East Indies	Schwarz (1924)
<i>Cephalosporium lecanii</i> Zimmerman	<i>Diatraea saccharalis</i>	NM	Antigua	Box (1937)
		Larva	Guyana	Box (1926)
<i>Cephalosporium</i> sp.		Larva/Pupa	Puerto Rico	Jones (1915)
		Larva	NM	Box (1932a)
	<i>Scirpophaga incertulas</i>	NM	Philippines	Kumhof (1986)
	<i>Chilo suppressalis</i>	Larva	Taiwan-China	Yen and Ooi (1967, 1968), Hou (1986)
		<i>Scirpophaga incertulas</i>	NM	Bangladesh	Catling and Alam (1977)
<i>Enteromorpha</i> sp.	Stem borers	NM	Thailand	Lippold (1972)
	<i>Chilo</i> sp.	NM	South Africa	Thomas and Poinar (1972)
<i>Fusarium oxysporum</i> Schlecht.	<i>Diatraea saccharalis</i>	Larva	Colombia	Lopez et al (1983)
<i>Fusarium</i> sp.	<i>Chilos</i> sp.	NM	China	Lee (1983), Rombach (1987)
	<i>Diatraea saccharalis</i>	NM	Brazil	Alves et al (1985)
<i>Hirsuta</i> [=? <i>Hirsutella</i>] <i>barberi</i> ^e	<i>Scirpophaga incertulas</i>	Larva	NM	Nishida and Torii (1970)
	<i>Chilo</i> sp.	NM	Indonesia	Thomas and Poinar (1972), Rombach (1987)
	<i>Chilo suppressalis</i>	Larva	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
	<i>Scirpophaga incertulas</i>	Larva	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
	<i>Scirpophaga innotata</i>	Larva	Malaysia	Entomology Division, Department of Agriculture, Sarawak (1966)
<i>Metarhizium anisopliae</i> (Metschnikoff) Sorokin	<i>Acigona ignefusalis</i>	Larva	Nigeria	Harris (1962)
	<i>Chilo suppressalis</i>	Larva	Philippines	Gabriel (1968), Rombach (1987)
<i>Mycesoma</i> sp.		NM	Taiwan-China	Wang and Yen (1972), Hou (1986)
	<i>Diatraea saccharalis</i>	NM	Argentina	Sosa Gomez and Alves (1985)
		NM	Brazil	Alves et al (1985)
	<i>Scirpophaga incertulas</i>	Larva	NM	Nishida and Torii (1970)
	<i>Scirpophaga nivella</i>	NM	Taiwan-China	Hou (1986)
<i>Myiophagus urainicus</i> ^e	<i>Sesamia inferens</i>	Larva	Philippines	Gabriel (1968), Rombach (1987)
	Stem borers	NM	Thailand	Lippold (1972)
<i>Nomurea pracina</i> ^e	<i>Chilo</i> sp.	NM	Japan	Steinhaus and Marsh (1962)
<i>Oospora destructor</i> ^e	<i>Chilo suppressalis</i>	NM	Japan	Tateishi et al (1951)
		NM	Philippines	Kumhof (1986),
	<i>Scirpophaga incertulas</i>	Larva	India	Rao and Israel (1977a)
	<i>Chilo suppressalis</i>	Larva	Japan	Morimoto (1957, 1959), Yasumatsu and Torii (1968)
		NM	Japan	Tateishi et al (1951)
<i>Paecilomyces barberi</i> (Giard) [= <i>Isaria barberi</i> Giard] [= <i>Cordyceps barberi</i> Giard]	<i>Chilo auricilius</i>	Larva	Malaysia	Rothschild (1971)
	<i>Chilo suppressalis</i>	Larva	Malaysia	Rothschild (1971)
	<i>Diatraea saccharalis</i>	NM	Antigua	Box (1937)
		Larva	Guyana	Box (1926)
		Larva/Pupa	Puerto Rico	Jones (1915)
	<i>Scirpophaga incertulas</i>	Larva	Malaysia	Rothschild (1971)
	<i>Sesamia inferens</i>	Larva	Malaysia	Rothschild (1971)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
<i>Paecilomyces farinosus</i> (Holm ex S.F. Gray) Brown and Smith [= <i>Isaria furinosus</i>]	<i>Chilo suppressalis</i>	Larva	China	Chen et al (1984a)
		Larva	Japan	Tateishi and Murata (1955), Wada (1957), Kamano and Inoue (1956), Grist and Lever (1969), Rombach (1987)
<i>Paecilomyces fumosea</i> (Casimir) [= <i>Isaria fumosea</i> Casimir]	Stem borers <i>Chilo suppressalis</i>	Larva/Pupa	Japan	Tateishi et al (1955)
		NM	Japan	Tateishi et al (1951), Schmutterer (1977)
		NM	Japan	Kamano and Inoue (1955)
		NM	Japan	Grist and Lever (1969)
<i>Paecilomyces</i> sp. [= <i>Isaria</i> sp.] [= <i>Cordyceps</i> sp.]	<i>Busseola fusca</i>	NM	Thailand	Tateishi et al (1951)
		Larva	East Africa	Lippold (1972)
		Larva	India	Mohyuddin and Greathead (1970)
		Larva	Philippines	Rao (1965)
		Larva	Colombia	Gabriel (1968, 1978)
		Larva	Philippines	Lopez et al (1983)
<i>Penicillium</i> sp.	Stem borers <i>Chilo suppressalis</i> <i>Diatraea saccharalis</i> <i>Scirpophaga incertulas</i>	Larva	Philippines	Rao (1964a, 1965)
		NM	Philippines	Yanagihara (1934), Rao and Nagaraja (1969)
		NM	Thailand	Nagaraja (1969)
		NM	Philippines	Reissig et al (1986)
		Larva	Thailand	Lippold (1972)
		Larva	Philippines	Gabriel (1968), Rombach (1987)
<i>Spicaria farinosa</i> ^e <i>Spicaria prasina</i> ^e <i>Spicaria rubido-purpurea</i> ^e	<i>Scirpophaga incertulas</i> <i>Chilo suppressalis</i> <i>Scirpophaga incertulas</i>	NM	Colombia	Lopez et al (1983)
		Larva	Philippines	Delfinado (1959), Gabriel (1968, 1978)
		Larva	Philippines	Kumhof (1986)
PROTOZOA ^b	<i>Diatraea saccharalis</i> <i>Diatraea saccharalis</i> <i>Chilo suppressalis</i> <i>Chilo zacconius</i>	NM	Philippines	Nishida and Torii (1970)
		NM	NM	Nishida and Torii (1970)
		Larva	NM	Nishida and Torii (1970)
		NM	Africa	Togebaye and Bouix (1983), Rombach (1987)
<i>Nosema bombycis</i> ^e <i>Nosema maniereae</i> Togebaye & Bouix	<i>Chilo partellus</i> <i>Chilo suppressalis</i>	Larva	India	Easwaramoorthy et al (1987)
		Larva	NM	Nishida and Torii (1970)
VIRUS ^b	<i>Chilo iridescent virus</i> <i>Chilo suppressalis</i>	Larva	Japan	Fukaya and Nasu (1966), Mitsuhashi (1966a,b), Fukaya (1968), Hama (1968), Tojo and Kodama (1968), Yasumatsu and Torii (1968), Nishida and Torii (1970), Ohba (1975a,b,c,d), Ohba and Aizawa (1982), Van Vreden and Ahmadzabidi (1986)
		NM Larva	Japan Japan	Mitsuhashi and Koyama (1967) Aizawa and Nakazato (1963), Fukaya and Nasu (1966), Mitsuhashi (1966a,b), Hama (1968)
Cytoplasmic polyhedrosis virus (CPV) Granulosis virus	<i>Maliarpha separatella</i> <i>Chilo sacchariphagus indicus</i>	Larva	Ivory coast	Pollet (1981)
		Larva	India	Easwaramoorthy and David (1979), Easwaramoorthy and Nandagopal (1986)

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Table 5 continued

Natural enemy	Host(s)	Stage(s) attacked	Country/continent	Reference(s)
	<i>Chilo suppressalis</i>	Larva	Japan	Nishida and Torii (1970), Van Vreden and Ahmadzabidi (1986)
Nuclear polyhedrosis virus	<i>Chilo</i> sp.	NM	Japan	Steinhaus and Marsh (1962)
	<i>Chilo suppressalis</i>	Larva	Japan	Ohba (1975d)
		Larva	NM	Nishida and Torii (1970)
	<i>Scirpophaga incertulas</i>	Larva	India	Nayak and Srivastava (1979a), Godse and Nayak (1983)
Virus, unidentified	<i>Sesamia inferens</i>	NM	India	Anonymous (1977)
		Larva	India	Godse and Nayak (1983)
		NM	India	Anonymous (1977)
AVES	<i>Rupela albinella</i>	Larva	Colombia	CIAT (1981)
Sturnidae ^a				
<i>Acridotheres tristis</i> (Linnaeus)	<i>Chilo</i> sp.	Adult	Hawaii-USA	Rao (1964d)
	<i>Chilo suppressalis</i>	NM	Hawaii-USA	Van Zwaluwenburg et al (1928)
<i>Buchanga atra</i> ^a	<i>Scirpophaga incertulas</i>	Adult	Taiwan-China	Rao (1964d)
<i>Nerula erinomus</i> (Tsugumi)	<i>Chilo suppressalis</i>	Larva	Japan	Kuwana (1930a,b)
<i>Spodiopsar cineracous</i> (Makudori)	<i>Chilo suppressalis</i>	Larva	Japan	Kuwana (1930a,b)

^aPredator, ^bParasite, ^cHost stage attacked, parasitic and predatory behavior not mentioned, ^dDoubtful record, ^eAuthority could not be traced

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Index

All the references in the bibliography are numbered and indexed according to stem borer species, country where reported, and subjects.

While most of the keywords pertaining to subjects are self-evident, some require explanation:

An article summarizing a subject is indexed under *review*. Geographical distribution is indexed as *occurrence*. Distribution within a crop is indexed as *spatial*. Stem borer growth and development are indexed as *development*. Biotypes or ecotypes are indexed under *adaptation*. Life table studies are indexed under *survivorship*. Behavior of larvae after eclosion (an important aspect for control) is indexed under *larval establishment*. Stem borer physiology is indexed as *physiology*. Ingestion and digestion are indexed under *nutrition*. Surveillance and monitoring are indexed under *sampling*. Areas where cold weather is a limiting factor in stem borer biology are indexed under *temperature*.

The keywords make it possible to search for specific needs, through cross-indexing. Aspects of *biology* are indexed, as well as those of *taxonomy* and *morphology*. Aspects of *reproduction* and *dormancy* can be matched with *biology* or *physiology*.

Light trap studies are cross-indexed with *sampling* or *physical control*, depending on intent. Pheromone traps used as a sampling tool are cross-indexed with *pheromone* under *biology* and with *sampling*. Use of pheromones as a control method is cross-indexed with *pheromone* and *chemical control*. Hand removal or trapping is indexed as *mechanical control*.

Under *chemical control*, *toxicity* identifies articles where the action of an insecticide is discussed. Methods of insecticide application are found under *application*. *Nontarget* effects of insecticides include phytotoxicity, residues, and effects on natural enemies. Effects on natural enemies is cross-indexed with *biological control*.

While mode of host plant resistance was not always apparent, articles with that information are indexed under *varietal resistance*.

Cultural control methods are extensively categorized: *water management* includes both flooding and drainage; *fertility* encompasses both adding and reducing fertilizer.

Aspects of cropping intensity and multiple rice cropping are indexed under *crop rotation*. Parameters of the physical environment are listed under *abiotic environment*.

References classified by stem borer species

1. *Acigona ignefusalis*: 0065, 0158, 1050, 1107, 1326, 1530, 1532, 2209, 2212, 2788, 2956, 2957
2. *Acigona loftini*: 0183, 0267, 0376, 0377, 0622, 1173, 1523, 1530, 1648, 2023, 2131, 2292, 2461, 2557, 2749, 2848, 3130, 3448, 3517
3. *Ancylolomia chrysographella*: 0906, 1530, 1648, 1832, 2995, 3521
4. *Bathytricha truncata*: 1982, 2061
5. *Busseolo fusca*: 0065, 0158, 0260, 0277, 0318, 0592, 0979, 1050, 1094, 1101, 1107, 1109, 1210, 1314, 1530, 1532, 1545, 1665, 1937, 2081, 2209, 2210, 2212, 2289, 2390, 2391, 2749, 2791, 2956, 2957, 3061, 3211, 3275, 3286, 3287, 3316, 3395, 3410, 3518, 3564
6. *Catagela adjurella*: 3520
7. *Chilo agamemnon*: 0193, 0297, 0298, 0299, 0300, 0301, 0345, 0785, 0830, 0833, 0834, 0835, 0856, 0881, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1531, 1852, 1975, 2118, 2212, 2758, 2796, 2797, 2956, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3685
8. *Chilo aleniellus*: 0065, 0069, 0072, 0297, 0298, 0300, 0301, 0306, 0361, 1545
9. *Chilo auricilius*: 0083, 0087, 0088, 0090, 0091, 0092, 0097, 0145, 0199, 0229, 0232, 0236, 0243, 0249, 0250, 0297, 0298, 0299, 0300, 0301, 0342, 0391, 0431, 0465, 0472, 0473, 0505, 0591, 0597, 0634, 0637, 0638, 0639, 0640, 0641, 0642, 0643, 0644, 0645, 0677, 0678, 0680, 0681, 0682, 0685, 0718, 0793, 0812, 0813, 0881, 0910, 0911, 0915, 1011, 1024, 1025, 1050, 1059, 1061, 1062, 1133, 1134, 1135, 1168, 1176, 1237, 1242, 1244, 1245, 1340, 1370, 1387, 1457, 1458, 1463, 1472, 1520, 1523, 1581, 1582, 1647, 1648, 1656, 1681, 1723, 1883, 1938, 1964, 1975, 2023, 2107, 2112, 2113, 2125, 2146, 2158, 2209, 2224, 2246, 2247, 2251, 2269, 2277, 2289, 2290, 2328, 2337, 2338, 2340, 2355, 2358, 2413, 2509, 2510, 2511, 2512, 2551, 2590, 2591, 2595, 2725, 2736, 2739, 2740, 2743, 2744, 2746, 2748, 2749, 2751, 2752, 2755, 2758, 2762, 2763, 2805, 2807, 2814, 2815, 2848, 2873, 2906, 2908, 2967, 2976, 2989, 3056, 3120, 3125, 3163, 3209, 3256, 3277, 3286, 3288, 3313, 3317, 3380, 3381, 3460, 3513, 3597, 3607, 3631, 3634, 3637, 3638, 3642, 3644, 3678.
10. *Chilo diffusilineus*: 0020, 0028, 0029, 0032, 0033, 0034, 0069, 0070, 0072, 0082, 0157, 0158, 0297, 0298, 0300, 0301, 0306, 0361, 0363, 0368, 0564, 0694, 0719, 0781, 0884, 0886, 0888, 1050, 1550, 2023, 2212, 2590, 2633, 2788, 2848, 2921, 2922, 2933, 2956, 3268, 3386
11. *Chilo luneriferalis*: 0065, 0072, 0297, 0298, 0300, 0301
12. *Chilo mesoplagalis*: 0065, 0072, 0297, 0298, 0300, 0301, 0306
13. *Chilo partellus*: 0072, 0097, 0153, 0162, 0163, 0167, 0190, 0208, 0232, 0233, 0236, 0240, 0242, 0260, 0263, 0277, 0278, 0280, 0297, 0298, 0299, 0300, 0301, 0343, 0361, 0387, 0388, 0389, 0390, 0391, 0418, 0431, 0465, 0466, 0472, 0473, 0487, 0549, 0550, 0629, 0757, 0799, 0812, 0813, 0824, 0884, 0886, 0888, 0915, 0916, 1040, 1048, 1050, 1073, 1092, 1093, 1099, 1133, 1134, 1157, 1205, 1208, 1209, 1210, 1280, 1285, 1287, 1310, 1314, 1315, 1384, 1386, 1388, 1458, 1523, 1530, 1551, 1552, 1599, 1647, 1648, 1664, 1681, 1704, 1763, 1805, 1806, 1860, 1890, 1919, 1933, 1964, 1975, 2023, 2111, 2115, 2197, 2208, 2209, 2210, 2212, 2214, 2224, 2247, 2269, 2277, 2289, 2290, 2317, 2344, 2347, 2348, 2355, 2360, 2373, 2375, 2390, 2391, 2392, 2441, 2532, 2533, 2579, 2590, 2591, 2617, 2642, 2677, 2690, 2699, 2709, 2736, 2740, 2744, 2746, 2748, 2749, 2751, 2755, 2758, 2767, 2773, 2848, 2906, 2925, 2949, 2956, 2957, 2976, 3018, 3031, 3036, 3037, 3059, 3060, 3061, 3130, 3134, 3137, 3138, 3180, 3209, 3275, 3284, 3317, 3319, 3421, 3460, 3461, 3462, 3508, 3510, 3517, 3523, 3543, 3572, 3631, 3637, 3638, 3640, 3642
14. *Chilo plejadellus*: 0019, 0057, 0271, 0274, 0297, 0298, 0300, 0301, 0320, 0322, 0323, 0324, 0377, 0783, 0855, 0881, 1030, 1031, 1050, 1090, 1228, 1238, 1313, 1331, 1539, 1543, 1710, 1975, 2132, 2269, 2292, 2434, 2435, 2436, 2437, 2438, 2439, 2557, 2590, 2616, 2848, 2879, 3170, 3517, 3520, 3521, 3551, 3715
5. *Chilo polychrysus*: 0001, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0099, 0100, 0101, 0102, 0103, 0104, 0106, 0119, 0126, 0141, 0176, 0181, 0191, 0216, 0232, 0236, 0241, 0242, 0243, 0246, 0297, 0298, 0300, 0301, 0343, 0345, 0396, 0406, 0428, 0429, 0431, 0432, 0469, 0489, 0490, 0491, 0518,

- 0590, 0594, 0599, 0604, 0642, 0647, 0662, 0663, 0664, 0665, 0666, 0667, 0672, 0673, 0674, 0688, 0714, 0722, 0733, 0737, 0750, 0751, 0796, 0812, 0813, 0821, 0831, 0849, 0876, 0881, 0985, 1011, 1021, 1048, 1050, 1065, 1133, 1134, 1135, 1156, 1166, 1167, 1168, 1171, 1197, 1242, 1245, 1251, 1310, 1334, 1338, 1339, 1346, 1348, 1350, 1368, 1373, 1458, 1464, 1467, 1470, 1472, 1485, 1516, 1530, 1536, 1558, 1578, 1583, 1584, 1605, 1606, 1607, 1608, 1609, 1648, 1654, 1656, 1690, 1691, 1706, 1707, 1710, 1724, 1725, 1733, 1736, 1737, 1740, 1741, 1757, 1759, 1762, 1792, 1800, 1825, 1829, 1830, 1831, 1860, 1861, 1875, 1876, 1904, 1971, 1972, 1973, 1974, 1975, 1982, 1999, 2000, 2002, 2004, 2005, 2007, 2008, 2018, 2020, 2021, 2023, 2040, 2041, 2049, 2089, 2119, 2130, 2138, 2139, 2145, 2209, 2220, 2224, 2260, 2297, 2328, 2352, 2355, 2356, 2366, 2367, 2413, 2454, 2455, 2483, 2510, 2511, 2512, 2557, 2567, 2570, 2575, 2579, 2580, 2590, 2591, 2601, 2638, 2653, 2663, 2665, 2736, 2743, 2744, 2748, 2749, 2751, 2752, 2755, 2757, 2758, 2771, 2776, 2811, 2812, 2815, 2819, 2848, 2873, 2930, 2956, 2976, 2976, 3041, 3042, 3056, 3067, 3068, 3071, 3101, 3126, 3163, 3172, 3209, 3210, 3277, 3287, 3288, 3293, 3380, 3445, 3446, 3449, 3463, 3467, 3495, 3523, 3544, 3546, 3581, 3582, 3583, 3597, 3598, 3606, 3632, 3635, 3639, 3641, 3643, 3644, 3645, 3677, 3678, 3679
16. *Chilo psammathis*: 0072, 0297, 0298, 0300, 0301, 0306
17. *Chilo sacchariphagus indicus*: 0166, 0204, 0233, 0254, 0297, 0298, 0300, 0301, 0344, 0391, 0417, 0431, 0718, 0822, 0823, 0825, 0916, 0921, 1020, 1022, 1133, 1134, 1385, 1523, 1530, 1582, 1647, 1648, 1702, 1883, 2121, 2209, 2245, 2246, 2290, 2591, 2749, 2751, 2758, 2976, 3138, 3419, 3460, 3567
18. *Chilo suppressalis* : 0002, 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0018, 0021, 0023, 0024, 0025, 0026, 0027, 0038, 0039, 0041, 0045, 0055, 0056, 0058, 0059, 0060, 0061, 0063, 0065, 0074, 0077, 0078, 0097, 0104, 0105, 0107, 0119, 0124, 0125, 0126, 0127, 0131, 0132, 0135, 0136, 0141, 0142, 0143, 0148, 0150, 0168, 0169, 0170, 0173, 0177, 0178, 0179, 0182, 0188, 0189, 0191, 0196, 0199, 0205, 0210, 0211, 0212, 0213, 0214, 0225, 0233, 0236, 0239, 0241, 0242, 0243, 0245, 0246, 0249, 0250, 0252, 0258, 0259, 0260, 0261, 0264, 0265, 0268, 0269, 0270, 0273, 0274, 0275, 0288, 0295, 0297, 0298, 0299, 0300, 0301, 0313, 0315, 0316, 0317, 0345, 0346, 0359, 0382, 0384, 0386, 0390, 0391, 0394, 0396, 0399, 0401, 0402, 0403, 0404, 0405, 0406, 0408, 0409, 0412, 0423, 0431, 0449, 0459, 0460, 0461, 0462, 0463, 0469, 0477, 0490, 0491, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0511, 0512, 0515, 0518, 0527, 0528, 0529, 0532, 0534, 0535, 0536, 0537, 0544, 0553, 0557, 0558, 0560, 0562, 0563, 0566, 0571, 0572, 0573, 0574, 0576, 0578, 0579, 0580, 0581, 0582, 0583, 0584, 0585, 0586, 0587, 0588, 0589, 0590, 0591, 0595, 0596, 0597, 0598, 0599, 0600, 0601, 0602, 0603, 0605, 0607, 0608, 0609, 0615, 0628, 0629, 0630, 0631, 0633, 0634, 0635, 0647, 0648, 0650, 0655, 0657, 0662, 0665, 0667, 0669, 0673, 0674, 0675, 0686, 0687, 0688, 0689, 0693, 0695, 0699, 0704, 0706, 0707, 0708, 0713, 0714, 0716, 0717, 0720, 0721, 0722, 0724, 0726, 0727, 0728, 0729, 0730, 0731, 0732, 0733, 0750, 0751, 0761, 0771, 0772, 0774, 0775, 0779, 0784, 0787, 0794, 0795, 0796, 0799, 0811, 0812, 0813, 0814, 0818, 0819, 0821, 0822, 0826, 0827, 0828, 0829, 0832, 0836, 0839, 0840, 0841, 0842, 0844, 0845, 0846, 0847, 0848, 0849, 0851, 0852, 0857, 0859, 0860, 0863, 0866, 0868, 0881, 0890, 0893, 0895, 0898, 0900, 0901, 0902, 0903, 0909, 0910, 0911, 0912, 0913, 0915, 0916, 0917, 0918, 0922, 0923, 0926, 0927, 0928, 0929, 0930, 0931, 0932, 0933, 0934, 0935, 0936, 0937, 0938, 0939, 0940, 0941, 0942, 0943, 0944, 0945, 0946, 0947, 0948, 0949, 0950, 0951, 0952, 0953, 0954, 0955, 0956, 0957, 0958, 0959, 0960, 0961, 0962, 0963, 0964, 0965, 0966, 0967, 0968, 0969, 0970, 0971, 0973, 0974, 0975, 0976, 0977, 0980, 0981, 0982, 0985, 0986, 0988, 0990, 1002, 1003, 1010, 1011, 1020, 1021, 1027, 1034, 1035, 1036, 1037, 1038, 1039, 1044, 1046, 1048, 1049, 1050, 1051, 1054, 1058, 1065, 1070, 1072, 1074, 1075, 1076, 1079, 1080, 1086, 1087, 1088, 1089, 1092, 1093, 1096, 1097, 1098, 1100, 1103, 1104, 1105, 1110, 1111, 1112, 1113, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1133, 1134, 1135, 1137, 1138, 1139, 1150, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1162, 1163, 1164, 1166, 1168, 1171, 1175, 1177, 1178, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1192, 1193, 1194, 1195, 1196, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1211, 1212, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1229, 1230, 1231, 1233, 1234, 1235, 1243, 1252, 1253, 1254, 1255, 1256, 1257, 1275, 1276, 1277, 1278, 1279, 1281, 1282, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1307, 1310, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1329, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343,

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19. *Chilo zacconius*: 0034, 0064, 0065, 0069, 0070, 0071, 0072, 0080, 0082, 0157, 0162, 0163, 0290, 0297, 0298, 0300, 0301, 0306, 0309, 0310, 0311, 0355, 0357, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0368, 0419, 0636, 0694, 0754, 0755, 0770, 0781, 1050, 1065, 1147, 1150, 1286, 1550, 2023, 2115, 2355, 2765, 2777, 2787, 2788, 2805, 2839, 2862, 2863, 2864, 2921, 2922, 3115, 3116, 3117, 3118, 3181, 3268, 3306, 3384, 3385, 3386, 3391, 3392, 3393, 3394, 3490, 3491, 3509, 3532, 3533, 3534, 3535, 3537, 3690
20. *Diatraea lineolata*: 0267, 0325, 0326, 0336, 0340, 0622, 1050, 1092, 1702, 1703, 1780, 2273, 2355, 2515, 2590, 2784, 2800, 2848, 2928, 2956, 3424, 3448, 3519
21. *Diatraea saccharalis*: 0057, 0120, 0121, 0128, 0151, 0174, 0184, 0251, 0266, 0267, 0272, 0274, 0276, 0289, 0292, 0302, 0303, 0304, 0305, 0312, 0320, 0321, 0323, 0325, 0326, 0327, 0328, 0329, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0343, 0347, 0348, 0349, 0372, 0375, 0376, 0377, 0424, 0507, 0522, 0610, 0612, 0616, 0617, 0618, 0622, 0623, 0625, 0654, 0690, 0778, 0783, 0808, 0815, 0838, 0855, 0858, 0896, 0897, 0925, 0978, 0985, 0989, 1029, 1030, 1041, 1043, 1047, 1050, 1055, 1065, 1090, 1092, 1136, 1140, 1141, 1142, 1150, 1165, 1174, 1213, 1214, 1215, 1216, 1228, 1238, 1239, 1240, 1259, 1311, 1312, 1313, 1330, 1331, 1521, 1526, 1527, 1528, 1537, 1539, 1542, 1543, 1648, 1700, 1701, 1702, 1703, 1710, 1780, 1883, 1936, 1964, 1967, 1974, 1975, 1998, 2023, 2043, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2099, 2122, 2125, 2134, 2135, 2154, 2209, 2248, 2270, 2271, 2272, 2273, 2274, 2275, 2289, 2292, 2342, 2355, 2434, 2435, 2436, 2437, 2438, 2439, 2505, 2515, 2540, 2542, 2557, 2567, 2590, 2618, 2623, 2624, 2627, 2628, 2694, 2695, 2727, 2749, 2750, 2765, 2778, 2784, 2785, 2790, 2798, 2800, 2804, 2809, 2848, 2864, 2869, 2919, 2928, 2930, 2956, 3023, 3058, 3121, 3122, 3123, 3275, 3279, 3280, 3284, 3285, 3286, 3287, 3317, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3377, 3423, 3424, 3425, 3429, 3430, 3441, 3448, 3459, 3508, 3552, 3565, 3570, 3575, 3576, 3577, 3588, 3595, 3678, 3717
22. *Diopsis apicalis*: 0157, 0355, 0373, 0419, 0420, 0421, 0696, 0755, 0887, 1205, 1206, 1208, 1545, 1902, 2081, 2225, 2233, 2787, 2789, 2801, 2929, 2936, 3436, 3492, 3533, 3534
23. *Diopsis circularis*: 0755
24. *Diopsis ichneumonea*: 0755, 2787, 2936
25. *Diopsis macrophthalma*: 0028, 0029, 0032, 0033, 0034, 0062, 0065, 0066, 0069, 0070, 0071, 0072, 0079, 0080, 0081, 0082, 0108, 0109, 0110, 0111, 0112, 0113, 0114, 0115, 0116, 0117, 0118, 0355, 0361, 0366, 0373, 0419, 0420, 0421, 0552, 0556, 0565, 0621, 0696, 0753, 0754, 0755, 0770, 0781, 0881, 0882, 0883, 0884, 0885, 0886, 0887, 0888, 0920, 1050, 1065, 1150, 1157, 1205, 1206, 1208, 1209, 1284, 1285, 1286, 1287, 1288, 1289, 1531, 1545, 1901, 1902, 1977, 2023, 2225, 2231, 2232, 2233, 2373, 2375, 2590, 2765, 2777, 2787, 2801, 2920, 2921, 2922, 2929, 2932, 2934, 2935, 3115, 3117, 3118, 3131, 3278, 3387, 3390, 3492, 3509, 3532, 3533, 3534, 3536, 3538, 3698

26. *Diopsis servillei*: 0065, 0755, 2787, 2789, 2814, 2815
27. *Elasmopalpus lignosellus*: 0262, 0272, 0338, 0422, 0613, 0622, 0690, 0780, 0806, 0837, 0838, 0896, 0897, 1041, 1042, 1050, 1055, 1056, 1065, 1141, 1150, 1157, 1391, 1537, 1936, 1939, 2023, 2047, 2097, 2098, 2123, 2125, 2137, 2226, 2292, 2390, 2505, 2622, 2627, 2765, 2780, 2809, 2848, 2856, 2864, 2919, 2938, 2956, 2957, 3023, 3062, 3123, 3279, 3285, 3442, 3566
28. *Eldana saccharina*: 0065, 0163, 0276, 0277, 0292, 0366, 0376, 0417, 0754, 1107, 1210, 1314, 1532, 1665, 2023, 2209, 2210, 2212, 2289, 2355, 2391, 2862, 2863, 2864, 2956, 3275
29. *Maliarpha separatella*: 0028, 0029, 0030, 0031, 0032, 0064, 0065, 0067, 0068, 0069, 0071, 0072, 0080, 0082, 0144, 0158, 0159, 0160, 0161, 0162, 0163, 0164, 0165, 0166, 0274, 0290, 0292, 0343, 0350, 0351, 0352, 0354, 0355, 0356, 0357, 0358, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0369, 0370, 0371, 0419, 0421, 0431, 0552, 0770, 0777, 0781, 0815, 0875, 0881, 0884, 0920, 1048, 1050, 1065, 1093, 1107, 1150, 1157, 1205, 1206, 1207, 1208, 1209, 1210, 1283, 1284, 1285, 1286, 1287, 1314, 1315, 1531, 1545, 1550, 1648, 1902, 1937, 1975, 2023, 2041, 2079, 2209, 2212, 2225, 2231, 2355, 2373, 2374, 2375, 2391, 2557, 2567, 2590, 2632, 2633, 2634, 2635, 2636, 2698, 2765, 2777, 2839, 2848, 2870, 2880, 2921, 2922, 2956, 2957, 3061, 3115, 3117, 3118, 3181, 3278, 3318, 3386, 3387, 3388, 3389, 3390, 3391, 3436, 3490, 3491, 3509, 3511, 3532, 3533, 3534, 3535, 3537, 3640, 3671, 3698
30. *Niphadoses palleucus*: 1802
31. *Rupela albinella*: 0120, 0121, 0184, 0415, 0522, 0610, 0611, 0612, 0653, 0710, 0815, 0881, 0993, 1041, 1043, 1050, 1092, 1150, 1240, 1259, 1316, 1373, 1537, 1700, 1701, 1975, 1998, 2023, 2123, 2332, 2333, 2334, 2355, 2544, 2557, 2567, 2590, 2727, 2749, 2784, 2794, 2869, 3024, 3121, 3122, 3408, 3425, 3426, 3427, 3428, 3429, 3459, 3521, 3587, 3588, 3595, 3718, 3719
32. *Scirpophaga fusciflua*: 1980
33. *Scirpophaga gilviberbis*: 0038, 0431, 0624, 1092, 1093, 1980, 3644, 3699
34. *Scirpophaga incertulas*: 0001, 0002, 0003, 0004, 0012, 0013, 0024, 0015, 0016, 0035, 0036, 0037, 0038, 0039, 0040, 0041, 0042, 0043, 0044, 0045, 0046, 0047, 0048, 0049, 0050, 0051, 0052, 0053, 0054, 0060, 0063, 0065, 0072, 0076, 0077, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0098, 0099, 0100, 0101, 0102, 0103, 0104, 0105, 0106, 0107, 0119, 0122, 0123, 0124, 0125, 0126, 0127, 0129, 0130, 0131, 0133, 0134, 0136, 0137, 0138, 0139, 0140, 0141, 0142, 0145, 0146, 0147, 0149, 0152, 0154, 0155, 0172, 0176, 0180, 0181, 0185, 0186, 0187, 0191, 0192, 0194, 0195, 0196, 0197, 0198, 0199, 0200, 0202, 0203, 0204, 0205, 0206, 0207, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0223, 0225, 0226, 0227, 0228, 0231, 0232, 0233, 0234, 0235, 0236, 0238, 0241, 0242, 0245, 0246, 0247, 0248, 0249, 0250, 0252, 0253, 0254, 0255, 0256, 0257, 0263, 0265, 0268, 0269, 0273, 0274, 0279, 0280, 0283, 0284, 0285, 0286, 0287, 0291, 0294, 0295, 0296, 0345, 0346, 0364, 0378, 0380, 0381, 0382, 0383, 0384, 0385, 0391, 0392, 0394, 0395, 0396, 0397, 0398, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0410, 0411, 0412, 0417, 0418, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0461, 0462, 0463, 0464, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0488, 0489, 0490, 0491, 0492, 0493, 0498, 0503, 0504, 0505, 0506, 0508, 0509, 0510, 0511, 0512, 0514, 0517, 0518, 0519, 0520, 0521, 0523, 0524, 0525, 0526, 0527, 0528, 0530, 0531, 0533, 0539, 0540, 0541, 0542, 0543, 0544, 0545, 0546, 0547, 0550, 0551, 0553, 0554, 0557, 0559, 0560, 0561, 0562, 0563, 0568, 0569, 0570, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0590, 0591, 0593, 0594, 0595, 0597, 0598, 0599, 0615, 0619, 0620, 0624, 0627, 0629, 0631, 0632, 0633, 0634, 0639, 0642, 0643, 0644, 0645, 0648, 0649, 0652, 0655, 0656, 0657, 0658, 0659, 0660, 0661, 0662, 0663, 0664, 0665, 0666, 0667, 0668, 0669, 0670, 0671, 0672, 0673, 0674, 0675, 0676, 0677, 0679, 0680, 0681, 0682, 0683, 0684, 0685, 0688, 0689, 0692, 0697, 0698, 0700, 0703, 0704, 0706, 0707, 0709, 0711, 0712, 0714, 0715, 0716, 0721, 0722, 0723, 0724, 0725, 0726, 0731, 0732, 0733, 0734, 0735, 0736, 0739, 0740, 0741, 0742, 0743, 0744, 0745, 0747, 0748, 0749, 0750, 0751, 0752, 0758, 0759, 0760, 0762, 0763, 0764, 0766, 0767, 0768, 0769, 0771, 0773, 0776, 0782, 0789, 0790, 0791, 0792, 0796, 0797, 0798, 0799, 0800, 0801, 0802, 0803, 0804, 0805, 0807, 0809, 0810, 0811, 0812, 0813, 0815, 0816, 0817, 0818, 0819, 0820, 0821, 0831, 0833, 0834, 0835, 0842, 0847, 0848, 0849,

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35. *Scirpophaga innotata*: 0001, 0002, 0038, 0039, 0040, 0042, 0088, 0089, 0097, 0104, 0119, 0129, 0131, 0141, 0148, 0181, 0185, 0191, 0199, 0215, 0223, 0225, 0229, 0232, 0233, 0236, 0241, 0242, 0247, 0249, 0252, 0263, 0265, 0274, 0292, 0380, 0382, 0391, 0404, 0406, 0411, 0412, 0413, 0418, 0431, 0459, 0462, 0471, 0477, 0498, 0518, 0519, 0520, 0521, 0599, 0614, 0624, 0655, 0661, 0662, 0663, 0664, 0665, 0666, 0667, 0683, 0688, 0697, 0706, 0707, 0722, 0731, 0732, 0733, 0734, 0738, 0763, 0773, 0786, 0787, 0796, 0847, 0848, 0849, 0854, 0881, 0893, 0922, 0923, 0985, 0986, 1003, 1027, 1028, 1050, 1065, 1070, 1077, 1078, 1082, 1083, 1084, 1085, 1089, 1098, 1100, 1106, 1133, 1134, 1135, 1143, 1168, 1242, 1246, 1306, 1307, 1308, 1309, 1310, 1315, 1337, 1338, 1341, 1343, 1345, 1350, 1354, 1355, 1357, 1358, 1368, 1373, 1374, 1464, 1467, 1469, 1470, 1480, 1485, 1530, 1544, 1547, 1548, 1549, 1584, 1606, 1607, 1608, 1648, 1650, 1710, 1714, 1715, 1741, 1792, 1800, 1802, 1803, 1805, 1806, 1894, 1940, 1942, 1962, 1963, 1975, 1980, 1981, 1982, 1983, 1984, 2018, 2021, 2023, 2041, 2042, 2048, 2049, 2068, 2070, 2073, 2074, 2076, 2084, 2089, 2102, 2103, 2108, 2125, 2198, 2216, 2218, 2220, 2224, 2230, 2251, 2349, 2355, 2410, 2412, 2413, 2433, 2478, 2479, 2481, 2498, 2551, 2555, 2557, 2562, 2564, 2567, 2570, 2579, 2580, 2590, 2595, 2637, 2663, 2665, 2746, 2749, 2751, 2757, 2776, 2783, 2810, 2811, 2812, 2814, 2815, 2819, 2843, 2844, 2848, 2859, 2860, 2873, 2878, 2904, 2905, 2906, 2939, 2976, 3022, 3038, 3052, 3054, 3056, 3065, 3066, 3067, 3068, 3070, 3071, 3074, 3101, 3104, 3164, 3165, 3209, 3286, 3287, 3292, 3305, 3317, 3380, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3421, 3422, 3431, 3433, 3434, 3435, 3437, 3438, 3439, 3430, 3445, 3494, 3495, 3521, 3545, 3569, 3573, 3598, 3631, 3634, 3638, 3640, 3642, 3643, 3644, 3688, 3689
36. *Scirpophaga nivella*: 0040, 0237, 0267, 0343, 0389, 0418, 0431, 0475, 0548, 0622, 0718, 0916, 1227, 1262, 1384, 1519, 1520, 1598, 1762, 1890, 1964, 1980, 2021, 2023, 2044, 2107, 2117, 2211, 2215, 2241, 2289, 2355, 2591, 2627, 2692, 2700, 2736, 2749, 2754, 2758, 2906, 2976, 2995, 3105, 3106, 3317, 3380, 3540, 3585, 3644
37. *Scirpophaga occidentella*: 0020, 0070, 0163, 0290, 0354, 0360, 0368, 0565, 0770, 0884, 0920, 1531, 1545, 1980, 2633, 3491, 3521, 3533, 3534
38. *Sesamia botanephaga*: 0034, 0065, 0069, 0070, 0072, 0082, 0158, 0160, 0319, 0354, 0366, 0368, 0393, 0552, 1050, 1108, 1314, 1531, 1545, 1902, 1937, 2023, 2209, 2212, 2355, 2391, 2633, 2756, 2786, 2848, 2863, 2864, 2956, 2957, 2976, 3211
39. *Sesamia calamistis*: 0020, 0028, 0029, 0033, 0034, 0064, 0065, 0069, 0070, 0071, 0072, 0080, 0082, 0157, 0158, 0160, 0162, 0163, 0164, 0165, 0166,

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41. *Sesamia inferens*: 0001, 0002, 0022, 0038, 0039, 0040, 0045, 0046, 0061, 0065, 0077, 0083, 0084, 0085, 0086, 0087, 0090, 0091, 0092, 0096, 0099, 0100, 0103, 0104, 0106, 0126, 0132, 0141, 0145, 0156, 0158, 0171, 0175, 0178, 0181, 0191, 0201, 0204, 0205, 0209, 0210, 0216, 0223, 0224, 0225, 0232, 0233, 0236, 0242, 0244, 0250, 0252, 0254, 0265, 0274, 0281, 0282, 0343, 0345, 0346, 0374, 0380, 0382, 0390, 0391, 0396, 0402, 0403, 0404, 0405, 0406, 0414, 0418, 0431, 0432, 0459, 0462, 0469, 0471, 0472, 0475, 0477, 0489, 0490, 0491, 0498, 0500, 0505, 0513, 0518, 0521, 0527, 0538, 0560, 0563, 0573, 0575, 0576, 0590, 0594, 0597, 0599, 0615, 0622, 0626, 0634, 0639, 0642, 0643, 0646, 0648, 0651, 0655, 0657, 0662, 0663, 0664, 0665, 0666, 0667, 0669, 0673, 0677, 0680, 0681, 0688, 0697, 0701, 0702, 0705, 0706, 0707, 0716, 0722, 0726, 0731, 0732, 0733, 0750, 0751, 0755, 0771, 0773, 0797, 0798, 0804, 0811, 0812, 0813, 0814, 0818, 0821, 0848, 0849, 0860, 0863, 0867, 0868, 0869, 0881, 0890, 0892, 0893, 0908, 0910, 0911, 0912, 0913, 0916, 0923, 0968, 0972, 0982, 0983, 0984, 0985, 0986, 0995, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1011, 1020, 1021, 1022, 1026, 1027, 1033, 1044, 1048, 1050, 1060, 1064, 1065, 1070, 1080, 1081, 1086, 1089, 1091, 1095, 1096, 1097, 1098, 1100, 1133, 1134, 1135, 1143, 1144, 1155, 1164, 1166, 1167, 1168, 1171, 1204, 1212, 1217, 1229, 1230, 1242, 1306, 1307, 1308, 1309, 1310, 1332, 1333, 1334, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1346, 1348, 1354, 1357, 1368, 1373, 1374, 1388, 1437, 1456, 1457, 1458, 1463, 1467, 1469, 1470, 1472, 1476, 1480, 1485, 1494, 1514, 1519, 1523, 1530, 1533, 1535, 1538, 1547, 1548, 1550, 1556, 1558, 1579, 1600, 1605, 1606, 1607, 1608, 1609, 1613, 1614, 1648, 1653, 1690, 1704, 1706, 1707, 1710, 1715, 1717, 1719, 1723, 1725, 1736, 1737, 1739, 1740, 1741, 1757, 1762, 1767, 1805, 1806, 1824, 1825, 1829, 1830, 1859, 1860, 1861, 1876, 1883, 1889, 1890, 1899, 1904, 1905, 1921, 1927, 1938, 1962, 1963, 1964, 1966, 1970, 1971, 1972, 1974, 1985, 1987, 1989, 1997, 2000, 2002, 2003, 2004, 2015, 2016, 2017, 2018, 2020, 2021, 2023, 2031, 2037, 2045, 2049, 2060, 2062, 2063, 2064, 2067, 2068, 2070, 2071, 2074, 2076, 2078, 2089, 2108, 2112, 2113, 2114, 2119, 2125, 2130, 2139, 2145, 2146, 2153, 2156, 2158, 2164, 2165, 2190, 2209, 2211, 2213, 2215, 2220, 2224, 2228, 2230, 2247, 2251, 2277, 2289, 2290, 2316, 2328, 2330, 2336, 2337, 2338, 2339, 2341, 2346, 2349, 2350, 2351, 2355, 2357, 2366, 2367, 2410, 2412, 2433, 2455, 2479, 2480, 2481, 2482, 2483, 2509, 2510, 2511, 2519, 2521, 2529, 2530, 2550, 2552, 2555, 2556, 2557, 2558, 2561, 2562, 2564, 2570, 2575, 2579, 2580, 2583, 2590, 2595, 2608, 2627, 2636, 2641, 2663, 2665, 2697, 2709, 2719, 2721, 2725, 2733, 2735, 2736, 2739, 2740, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2756, 2757, 2760, 2771, 2773, 2776, 2805, 2810, 2811, 2812, 2813, 2814, 2815, 2819, 2827, 2833, 2843, 2844, 2848, 2859, 2871, 2905, 2930, 2956, 2957, 2967, 2976, 2977, 2986, 3016, 3017, 3020, 3038, 3041, 3042, 3045, 3056, 3067, 3068, 3071, 3101, 3105, 3107, 3125, 3126, 3127, 3128, 3143, 3149, 3163, 3165, 3183, 3191, 3192, 3200, 3208, 3209, 3210, 3243, 3245, 3257, 3274, 3281, 3282, 3286, 3287, 3288, 3293, 3307, 3314, 3317, 3320, 3322, 3323, 3382, 3419, 3421, 3432, 3445, 3460, 3462, 3466, 3468, 3476, 3495, 3496, 3513, 3519, 3522, 3540, 3543, 3549, 3562, 3567, 3568, 3578, 3580, 3581, 3583, 3585, 3586, 3592, 3597, 3598, 3603, 3604, 3607, 3623, 3626, 3629, 3636, 3637, 3638, 3640, 3642, 3643, 3644, 3654, 3663, 3668, 3676, 3677, 3678, 3689, 3705, 3706, 3712
42. *Sesamia nonagrioides*: 0068, 0075, 0309, 0314, 0366, 0990, 0991, 0992, 1010, 1094, 2023, 2133, 2142, 2209, 2225, 2343, 2590, 2674, 2756, 2796, 2957, 3129, 3171, 3211
43. *Sesamia penniseti*: 2863

References classified by countries

1. Afghanistan: 0297, 0299, 0301, 0652, 1093, 1134, 2084, 2220, 2976, 3136
2. Algeria: 0343, 3171
3. Angola: 0158, 0363, 0366, 0979, 2930, 3211
4. Antigua: 0330, 0331, 0332, 0333, 0335, 1530, 3372, 3373
5. Argentina: 01211, 0262, 0292, 0328, 0341, 0343, 0372, 1044, 1140, 1141, 1142, 1215, 1526, 1527, 1528, 1530, 2355, 2798, 3114, 3459
6. Australia: 0119, 0274, 0299, 0413, 0614, 0624, 0738, 1082, 1083, 1084, 1085, 1092, 1521, 1522, 1802, 1803, 1940, 1941, 1942, 1980, 1981, 1982, 1983, 1984, 2061, 2220, 2221, 2355, 2749, 3136, 3305, 3545, 3563, 3569, 3638
7. Austria: 0148
8. Bahamas: 0622
9. Bangladesh: 0044, 0045, 0046, 0083, 0084, 0085, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0098, 0099, 0100, 0101, 0102, 0103, 0104, 0105, 0106, 0146, 0149, 0152, 0181, 0207, 0241, 0245, 0285, 0286, 0287, 0378, 0427, 0428, 0429, 0431, 0432, 0434, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0518, 0594, 0732, 0736, 0865, 0869, 0870, 0871, 0872, 0876, 0877, 0879, 1048, 1093, 1131, 1161, 1245, 1350, 1354, 1361, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1462, 1553, 1555, 1558, 1570, 1578, 1609, 1705, 1706, 1707, 1708, 2018, 2021, 2139, 2700, 2751, 2752, 2771, 2781, 2805, 2930, 2965, 2966, 2967, 3270, 3271, 3272, 3273, 3523, 3582
10. Barbados: 0262, 0266, 0267, 0292, 0326, 0327, 0622, 2209, 2355, 2750, 2758, 3058, 3370, 3371, 3372, 3373, 3374, 3375
11. Belize: 0613, 2137, 2292
12. Benin: 0072, 0355, 0366, 2777, 3278
13. Bolivia: 0267, 0292, 0613, 2790, 3123, 3279, 3280
14. Brazil: 0120, 0151, 0174, 0251, 0267, 0272, 0289, 0292, 0341, 0343, 0347, 0348, 0349, 0610, 0613, 0622, 0690, 0780, 0837, 0838, 0896, 0897, 1050, 1330, 1530, 2058, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2226, 2211, 2273, 2355, 2542, 2618, 2790, 2809, 2919, 2338, 3023, 3442, 3523, 3563, 3717
15. British Sudan: 2371
16. Brunei: 2749, 2930
17. Burkina Faso: 0065, 0070, 0072, 0082, 0276, 0306, 0355, 0366, 0694, 0781, 2801, 2930, 3698
18. Burundi: 0366, 0393, 2930
19. Cambodia: 1093, 1097, 1131, 2084, 2355, 2357, 2749, 2848, 2930, 3136, 3520
20. Cameroon: 0065, 0082, 0158, 0309, 0354, 0355, 0362, 0363, 0366, 0753, 0754, 0755, 0756, 0920, 0979, 1050, 1147, 2212, 2232, 2355, 2366, 2698, 2750, 2787, 2801, 2930, 2931, 2934, 2935, 2936, 3118, 3211, 3278, 3698
21. Canada: 2132
22. Canary Islands: 3211
23. Cape Province:
24. Central African Republic: 3278
25. Chad: 0293, 0366, 2801
26. Chile: 1042, 3442
27. China: 0137, 0138, 0140, 0186, 0187, 0245, 0299, 0345, 0366, 0385, 0475, 0488, 0493, 0494, 0500, 0504, 0500, 0530, 0531, 0532, 0533, 0534, 0535, 0536, 0537, 0538, 0539, 0540, 0543, 0544, 0545, 0546, 0553, 0554, 0557, 0559, 0560, 0561, 0562, 0563, 0568, 0569, 0570, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0595, 0656, 0734, 0735, 0768, 0769, 0782, 0789, 0790, 0791, 0861, 0889, 0900, 0901, 0902, 0903, 0904, 0924, 1002, 1050, 1052, 1053, 1054, 1093, 1133, 1145, 1161, 1229, 1230, 1233, 1234, 1235, 1236, 1237, 1357, 1365, 1367, 1369, 1374, 1410, 1530, 1534, 1535, 1538, 1556, 1681, 1930, 1931, 1932, 1985, 1986, 1987, 1988, 1989, 1992, 1993, 1997, 2009, 2012, 2013, 2014, 2017, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2036, 2037, 2038, 2045, 2052, 2055, 2084, 2188, 2220, 2221, 2224, 2315, 2330, 2355, 2356, 2366,

- 2529, 2615, 2678, 2679, 2693, 2749, 2751, 2752, 2756, 2805, 2930, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2984, 2985, 2986, 2987, 3009, 3109, 3136, 3167, 3215, 3224, 3244, 3249, 3250, 3289, 3317, 3321, 3322, 3323, 3324, 3325, 3366, 3367, 3368, 3419, 3443, 3508, 3520, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3544, 3556, 3557, 3589, 3590, 3591, 3592, 3593, 3594, 3600, 3601, 3602, 3636, 3659, 3660, 3661, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3716
28. Colombia: 0121, 0184, 0267, 0292, 0375, 0415, 0522, 0610, 0611, 0612, 0613, 0622, 0993, 1043, 1044, 1259, 1537, 2043, 2292, 2355, 2784, 2869, 3459
29. Comoro Islands: 0162, 0163, 0167, 0277, 0297, 0301
30. Congo: 0366
31. Costa Rica: 0344, 0610, 0613, 1648, 2123, 2292, 2355, 3442
32. Cuba: 0128, 0332, 0424, 0622, 0623, 1050, 1213, 1240, 1526, 1530, 2271, 2292, 2355, 2622, 2623, 2624, 2785, 2864, 2928, 3286, 3287, 3424, 3448
33. Dominican Republic: 0622, 2292, 2355, 2749
34. Ecuador: 0292, 0613, 1316
35. Egypt: 0193, 0295, 0555, 0785, 0830, 0833, 0834, 0835, 0836, 0856, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1852, 2118, 2355, 2749, 2756, 3211, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3517, 3561, 3650, 3686
36. El Salvador: 0344, 0613, 1648, 2123, 2292, 2505, 3442
37. Ethiopia: 0158, 0301, 1980, 2930, 3521
38. Fiji: 0500, 1044, 2220, 2221, 2355
39. France: 0075, 0311, 0315, 0316, 0317, 0359, 0635, 0650, 0794, 0895, 0990, 0991, 0992, 1049, 1058, 2276, 2343, 2629, 2786, 2957, 3211, 3306
40. French Antilles: 0690, 2355
41. Gabon: 0292, 0366, 3278
42. Gambia: 0070, 0366, 0373, 0875, 2839, 2930, 2931, 3278, 3698
43. Germany: 0275, 1656
44. Ghana: 0017, 0028, 0029, 0065, 0069, 0072, 0158, 0318, 0355, 0363, 0366, 0979, 1107, 1530, 1901, 1902, 2210, 2232, 2233, 2391, 2756, 2758, 2763, 2862, 2863, 2864, 2929, 2930, 2931, 3211, 3278, 3436, 3698
45. Gold Coast: 1530, 1648, 2756, 2957, 3211
46. Greater Antilles: 0622
47. Greece: 3129
48. Guadeloupe: 0622, 0690, 1936, 2627
49. Guam-USA: 0374
50. Guatemala: 0292, 0344, 0610, 0613, 1648, 2123, 2292, 2355, 2515, 3442
51. Guinea Bissau: 0070, 0072, 0082, 0875, 3278, 3535
52. Guyana: 0241, 0292, 0302, 0303, 0304, 0305, 0312, 0325, 0326, 0343, 0613, 0616, 0617, 0618, 0622, 0654, 0690, 0710, 0778, 0875, 1050, 1240, 1530, 1700, 1701, 2122, 2270, 2271, 2273, 2355, 2782, 2727, 2149, 2751, 3058, 3121, 3122, 3181, 3278, 3285, 3286, 3287, 3369, 3377, 3698
53. Haiti: 0613, 0622, 2271, 2355, 2749
54. Hawaii-USA: 0273, 0288, 0500, 0686, 0687, 0717, 0975, 0976, 0977, 1050, 1295, 1763, 1906, 2220, 2221, 2223, 2366, 2596, 2749, 3177, 3178, 3179, 3286, 3287, 3317, 3449, 3508, 3522, 3544, 3638, 3641
55. Honduras: 0610, 0613, 2123, 3442
56. Hongkong: 1096, 2220, 2221, 2745, 2749, 2930, 3288, 3582, 3638
57. India: 0012, 0013, 0014, 0015, 0016, 0022, 0043, 0047, 0048, 0049, 0050, 0051, 0052, 0053, 0054, 0076, 0078, 0123, 0133, 0134, 0145, 0147, 0153, 0154, 0156, 0166, 0172, 0185, 0192, 0194, 0195, 0196, 0197, 0198, 0199, 0200, 0201, 0202, 0203, 0204, 0205, 0206, 0215, 0217, 0218, 0219, 0220, 0221, 0222, 0229, 0230, 0231, 0232, 0233, 0234, 0235, 0236, 0237, 0238, 0240, 0241, 0252, 0253, 0254, 0255, 0256, 0267, 0268, 0278, 0279, 0280, 0281, 0282, 0291, 0292, 0294, 0296, 0297, 0301, 0343, 0387, 0388, 0389, 0390, 0391, 0392, 0394, 0395, 0430, 0441, 0465, 0466, 0469, 0470, 0471,

0472, 0473, 0474, 0476, 0478, 0479, 0480, 0481,
0482, 0483, 0484, 0487, 0500, 0508, 0509, 0510,
0511, 0512, 0513, 0514, 0515, 0516, 0518, 0523,
0524, 0525, 0547, 0548, 0549, 0550, 0551, 0591,
0593, 0619, 0620, 0622, 0658, 0659, 0660, 0661,
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0700, 0703, 0704, 0705, 0709, 0711, 0712, 0713,
0718, 0739, 0740, 0741, 0742, 0743, 0744, 0745,
0746, 0752, 0757, 0758, 0759, 0760, 0762, 0763,
0764, 0767, 0773, 0792, 0793, 0807, 0809, 0810,
0811, 0812, 0813, 0822, 0823, 0824, 0825, 0865,
0867, 0873, 0874, 0880, 0905, 0906, 0907, 0908,
0909, 0910, 0911, 0912, 0913, 0914, 0915, 0916,
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1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011,
1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019,
1020, 1022, 1024, 1025, 1033, 1045, 1048, 1050,
1057, 1059, 1060, 1061, 1062, 1063, 1064, 1066,
1067, 1068, 1069, 1091, 1092, 1093, 1131, 1132,
1133, 1134, 1146, 1161, 1176, 1179, 1180, 1181,
1244, 1247, 1248, 1258, 1260, 1261, 1262, 1264,
1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272,
1273, 1274, 1348, 1350, 1360, 1361, 1363, 1365,
1367, 1369, 1374, 1384, 1385, 1386, 1387, 1388,
1389, 1464, 1465, 1466, 1467, 1468, 1469, 1470,
1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478,
1479, 1480, 1481, 1482, 1483, 1484, 1485, 1513,
1514, 1523, 1524, 1525, 1530, 1533, 1540, 1546,
1547, 1548, 1549, 1550, 1551, 1552, 1573, 1574,
1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582,
1597, 1598, 1599, 1609, 1611, 1612, 1647, 1648,
1649, 1651, 1652, 1653, 1664, 1681, 1697, 1698,
1704, 1705, 1710, 1711, 1712, 1713, 1717, 1718,
1719, 1720, 1723, 1726, 1730, 1731, 1732, 1763,
1791, 1832, 1833, 1857, 1883, 1884, 1887, 1888,
1889, 1890, 1891, 1892, 1893, 1895, 1896, 1897,
1898, 1899, 1905, 1935, 1964, 1965, 1966, 1981,
2015, 2016, 2021, 2059, 2060, 2066, 2075, 2080,
2083, 2084, 2085, 2107, 2109, 2110, 2113, 2114,
2115, 2124, 2126, 2127, 2128, 2140, 2141, 2151,
2152, 2153, 2155, 2156, 2157, 2158, 2159, 2160,
2161, 2162, 2197, 2199, 2200, 2201, 2202, 2203,
2204, 2205, 2206, 2207, 2220, 2221, 2254, 2258,
2259, 2260, 2261, 2262, 2263, 2264, 2266, 2267,
2268, 2272, 2277, 2278, 2281, 2282, 2283, 2284,
2285, 2286, 2287, 2288, 2289, 2290, 2295, 2296,
2297, 2314, 2317, 2318, 2319, 2320, 2321, 2322,
2323, 2324, 2325, 2326, 2327, 2328, 2329, 2336,
2337, 2338, 2339, 2340, 2341, 2347, 2355, 2358,
2359, 2360, 2366, 2390, 2477, 2499, 2500, 2501,
2502, 2503, 2504, 2507, 2508, 2509, 2511, 2517,
2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525,
2526, 2527, 2528, 2530, 2531, 2532, 2533, 2548,

2549 2550, 2579, 2583, 2584, 2585, 2586, 2587,
2588, 2591, 2592, 2593, 2594, 2601, 2602, 2609,
2610, 2611, 2612, 2613, 2614, 2627, 2642, 2643,
2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651,
2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659,
2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667,
2668, 2669, 2670, 2671, 2672, 2673, 2675, 2676,
2677, 2681, 2682, 2683, 2684, 2685, 2686, 2687,
2688, 2689, 2690, 2691, 2692, 2699, 2701, 2703,
2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711,
2712, 2714, 2715, 2716, 2717, 2719, 2720, 2721,
2722, 2723, 2724, 2725, 2726, 2728, 2729, 2730,
2731, 2733, 2734, 2735, 2736, 2737, 2738, 2739,
2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747,
2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755,
2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763,
2764, 2767, 2769, 2770, 2772, 2713, 2774, 2775,
2802, 2805, 2817, 2818, 2819, 2820, 2821, 2822,
2823, 2824, 2825, 2826, 2827, 2840, 2841, 2842,
2843, 2844, 2848, 2850, 2851, 2852, 2853, 2861,
2870, 2872, 2873, 2874, 2875, 2877, 2881, 2882,
2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890,
2891, 2892, 2902, 2903, 2906, 2907, 2908, 2916,
2917, 2918, 2925, 2930, 2940, 2946, 2947, 2948,
2949, 2950, 2951, 2952, 2953, 2955, 2958, 2959,
2960, 2961, 2975, 2976, 2978, 2979, 2980, 2981,
2982, 2983, 3009, 3014, 3015, 3016, 3020, 3021,
3027, 3029, 3030, 3031, 3032, 3033, 3034, 3035,
3036, 3037, 3038, 3039, 3040, 3043, 3044, 3045,
3046, 3047, 3048, 3049, 3051, 3053, 3124, 3125,
3126, 3130, 3132, 3133, 3134, 3135, 3136, 3137,
3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145,
3146, 3147, 3148, 3165, 3176, 3180, 3208, 3209,
3281, 3282, 3283, 3284, 3286, 3287, 3290, 3291,
3292, 3314, 3317, 3319, 3320, 3396, 3397, 3398,
3400, 3401, 3404, 3406, 3450, 3451, 3452, 3453,
3454, 3455, 3456, 3457, 3458, 3460, 3461, 3462,
3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477,
3478, 3479, 3480, 3481, 3482, 3483, 3484, 3485,
3486, 3487, 3488, 3489, 3493, 3494, 3503, 3504,
3505, 3508, 3510, 3520, 3523, 3540, 3543, 3562,
3563, 3572, 3582, 3603, 3604, 3605, 3606, 3607,
3637, 3638, 3640, 3642, 3651, 3652, 3653, 3692,
3693, 3694, 3695, 3696, 3697, 3699

58. Indonesia: 0001, 0129, 0241, 0267, 0292, 0297,
0343, 0518, 0599, 0655, 0697, 0698, 0718, 0766,
0776, 0786, 0787, 0854, 0858, 0863, 0876, 1050,
1077, 1078, 1089, 1093, 1106, 1131, 1133, 1134,
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1800, 1835, 1894, 1962, 1963, 1981, 2021, 2084,
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61. Israel: 2626, 2796, 2797
62. Italy: 0297, 0314, 2674, 3211
63. Ivory Coast: 0065, 0069, 0071, 0072, 0082, 0158, 0163, 0276, 0292, 0354, 0355, 0357, 0361, 0363, 0366, 0376, 0552, 0621, 0920, 1326, 2225, 2632, 2633, 2634, 2635, 2636, 2801, 2920, 2921, 2922, 2930, 2931, 3131, 3211, 3268, 3278, 3306, 3318, 3538
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65. Japan: 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0018, 0024, 0025, 0026, 0027, 0055, 0056, 0058, 0059, 0060, 0061, 0074, 0124, 0130, 0142, 0170, 0171, 0173, 0182, 0188, 0189, 0264, 0268, 0273, 0274, 0299, 0317, 0343, 0384, 0500, 0503, 0518, 0558, 0596, 0606, 0615, 0720, 0732, 0779, 0784, 0827, 0828, 0829, 0839, 0840, 0841, 0842, 0843, 0844, 0845, 0926, 0927, 0928, 0929, 0930, 0931, 0932, 0933, 0934, 0935, 0936, 0937, 0938, 0939, 0940, 0941, 0942, 0943, 0944, 0945, 0946, 0947, 0948, 0949, 0950, 0951, 0952, 0953, 0954, 0955, 0956, 0957, 0958, 0959, 0960, 0961, 0962, 0963, 0964, 0965, 0966, 0967, 0968, 0969, 0970, 0971, 0972, 0973, 0974, 0980, 0981, 1048, 1050, 1069, 1071, 1072, 1074, 1075, 1079, 1086, 1087, 1088, 1103, 1104, 1105, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1137, 1138, 1139, 1175, 1177, 1178, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1218, 1219, 1220, 1221, 1222, 1223, 1226, 1243, 1275, 1276, 1277, 1278, 1279, 1281, 1282, 1291, 1292, 1293, 1294, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1390, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1463, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1515, 1518, 1530, 1536, 1541, 1557, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1572, 1573, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1598, 1600, 1601, 1602, 1603, 1610, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1655, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1692, 1693, 1694, 1695, 1696, 1699, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1760, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1801, 1804, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1834, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1853, 1854, 1855, 1856, 1858, 1862, 1863, 1864, 1865, 1866, 1857, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1885, 1886, 1900, 1903, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1990, 1991, 2064, 2065, 2077, 2082, 2084, 2100, 2101, 2105, 2106, 2108, 2116, 2143, 2144, 2147, 2148, 2149, 2150, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2174, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2189, 2194, 2195, 2196, 2219, 2220, 2221, 2222, 2224, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2242, 2249, 2250, 2252, 2253, 2255, 2256, 2257, 2279

- 2280, 2291, 2293, 2294, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2331, 2335, 2355, 2356, 2361, 2362, 2363, 2366, 2368, 2369, 2370, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2393, 2394, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2411, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2457, 2458, 2460, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2627, 2749, 2750, 2755, 2805, 2845, 2846, 2847, 2848, 2849, 2854, 2855, 2858, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2923, 2924, 2930, 2941, 2942, 2943, 2944, 2945, 2954, 2976, 2990, 2991, 2992, 2993, 2994, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3007, 3008, 3011, 3012, 3028, 3064, 3130, 3136, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3174, 3175, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3192, 3193, 3194, 3195, 3196, 3197, 3198, 3199, 3201, 3203, 3204, 3205, 3206, 3207, 3212, 3213, 3214, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3229, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3286, 3287, 3294, 3295, 3296, 3297, 3299, 3300, 3301, 3302, 3303, 3304, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3317, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3378, 3399, 3402, 3403, 3405, 3445, 3449, 3508, 3515, 3516, 3520, 3522, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3549, 3550, 3562, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3629, 3630, 3632, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3642, 3645, 3646, 3647, 3648, 3649, 3662, 3664, 3665, 3666, 3667, 3670, 3672, 3673, 3674, 3675, 3679, 3680, 3681, 3682, 3683, 3684
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68. Kuriles-USSR: 0500,2220
69. Lambek Island: 2220
70. Lang Island: 2220
71. Laos: 0716, 1093, 1097, 1859, 2084, 2930
72. Liberia: 0065, 0070, 0072, 0073, 0241, 0366, 0419, 0636, 2444, 3118, 3131, 3278, 3509, 3511, 3534, 3536, 3698
73. Loochoo Islands: 3629
74. Madagascar: 0065, 0082, 0144, 0158, 0159, 0160, 0161, 0162, 0163, 0164, 0165, 0166, 0167, 0273, 0274, 0277, 0308, 0309, 0310, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0361, 0362, 0363, 0366, 0369, 0370, 0371, 0416, 0417, 0777, 0875, 0921, 1050, 1147, 2041, 2209, 2355, 2750, 2756, 2788, 2801, 2930, 2931, 3211, 3523
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78. Martinique: 0622, 0690
79. Mauritius: 0070, 0158, 0163, 0277, 0297, 0343, 0366, 0417, 0500, 0691, 1050, 2120, 2121, 2209, 2220, 2245, 2246, 2247, 2355, 2750, 2756, 2930, 2931, 3211, 3317, 3508, 3545, 3567, 3568, 3642
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81. Mexico: 0183, 0267, 0341, 0342, 0344, 0376, 0377, 0613, 0622, 1173, 1523, 1530, 1648, 1780, 2121, 2123, 2131, 2220, 2292, 2355, 2461, 2749, 2794, 3130, 3408, 3442, 3448, 3521, 3642
82. Morocco: 0343, 2142, 2355, 2788
83. Mozambique: 0366, 0719, 1040
84. Myanmar (Burma ho tan): 0297, 0343, 0366, 0500, 0657, 0793, 0876, 0878, 1021, 1022, 1023, 1093, 1095, 1133, 1134, 1263, 1361, 1365, 1369, 1374, 1571, 1763, 1938, 2084, 2119, 2220, 2221, 2355, 2477, 2749, 2930, 2963, 3017, 3136, 3293, 3317, 3543
85. Nepal: 1070, 1134, 1348, 1350, 1357, 1365, 1374, 2347, 2348, 2641, 2930, 2977, 3438
86. Netherlands: 0344, 1648, 2749
87. Nicaragua: 0326, 0344, 0613, 0622, 1648, 1702, 2274, 2355, 3442
88. Niger: 0241, 0366
89. Nigeria: 0020, 0028, 0064, 0065, 0066, 0068, 0069, 0070, 0071, 0072, 0079, 0080, 0081, 0082, 0108, 0109, 0110, 0111, 0117, 0118, 0158, 0241, 0273, 0274, 0309, 0355, 0363, 0366, 0859, 0875, 0979, 1050, 1107, 1108, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1326, 1530, 1531, 1532, 1665, 2210, 2212, 2232, 2355, 2756, 2842, 2864, 2880, 2931, 2957, 3115, 3116, 3117, 3118, 3131, 3211, 3278, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3535, 3698
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91. Panama: 0610, 0613, 2123, 2292, 2332, 2333, 2334, 2355
92. Papua New Guinea: 1081, 2749, 2871, 2930, 3182, 3671
93. Paraguay: 0613
94. Peru: 0241, 0338, 0339, 0340, 0341, 0613, 0622, 0778, 1174, 1215, 1311, 1526, 1527, 1528, 2134, 2135, 2355, 3565, 3566
95. Philippines: 0002, 0003, 0004, 0021, 0063, 0107, 0125, 0126, 0127, 0131, 0135, 0136, 0141, 0155, 0168, 0169, 0175, 0177, 0178, 0179, 0180, 0191, 0224, 0225, 0226, 0227, 0228, 0241, 0242, 0243, 0244, 0245, 0246, 0247, 0248, 0249, 0250, 0257, 0258, 0259, 0260, 0261, 0265, 0269, 0270, 0273, 0274, 0297, 0343, 0380, 0381, 0382, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0410, 0411, 0412, 0414, 0423, 0425, 0426, 0459, 0460, 0461, 0462, 0463, 0477, 0498, 0500, 0517, 0518, 0634, 0649, 0651, 0688, 0689, 0695, 0698, 0699, 0706, 0707, 0708, 0714, 0722, 0723, 0724, 0725, 0726, 0731, 0732, 0747, 0761, 0774, 0775, 0795, 0814, 0815, 0816, 0817, 0818, 0819, 0820, 0821, 0832, 0847, 0850, 0852, 0853, 0876, 0890, 0898, 0919, 0922, 0982, 0983, 0984, 0985, 0986, 0987, 0988, 1003, 1032, 1039, 1131, 1133, 1134, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1162, 1163, 1164, 1172, 1212, 1231, 1232, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1374, 1415, 1418, 1420, 1461, 1578, 1604, 1605, 1606, 1607, 1608, 1609, 1650, 1738, 1739, 1740, 1741, 1748, 1751, 1752, 1763, 1904, 1968, 1981, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2040, 2041, 2046, 2048, 2049, 2050, 2051, 2054, 2056, 2057,

- 2084, 2089, 2090, 2117, 2129, 2191, 2192, 2193, 2217, 2220, 2221, 2230, 2294, 2345, 2346, 2355, 2356, 2366, 2433, 2477, 2478, 2479, 2480, 2481, 2506, 2534, 2535, 2536, 2537, 2543, 2545, 2546, 2547, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2580, 2581, 2582, 2583, 2589, 2595, 2598, 2599, 2600, 2603, 2604, 2605, 2606, 2607, 2637, 2696, 2718, 2744, 2745, 2749, 2751, 2756, 2758, 2765, 2768, 2776, 2779, 2792, 2793, 2805, 2806, 2808, 2816, 2828, 2829, 2830, 2831, 2832, 2848, 2865, 2866, 2867, 2868, 2906, 2926, 2927, 2930, 2962, 2988, 3005, 3004, 3022, 3025, 3026, 3054, 3055, 3136, 3168, 3183, 3298, 3317, 3380, 3381, 3382, 3383, 3407, 3409, 3464, 3465, 3466, 3467, 3468, 3469, 3495, 3496, 3497, 3498, 3499, 3500, 3501, 3508, 3520, 3522, 3548, 3582, 3583, 3598, 3599, 3628, 3637, 3638, 3640, 3642
96. Portugal: 3211, 3502
97. Puerto Rico: 0251, 0292, 0326, 0327, 0622, 0778, 1047, 1240, 1542, 1967, 2099, 2355, 2694, 2695, 3423, 3442, 3575, 3576, 3577
98. Republic of Guinea: 0556, 0979
99. Republic of South Africa: 0366, 0765, 0979, 2081, 2121, 2209, 2212, 2788, 3211, 3284, 3286, 3287, 3395, 3410, 3518
100. Republic of Togo: 0069, 0070, 0158, 0788, 3211, 3278, 3698
101. Reunion: 0163, 0277, 0297, 0307, 0416, 0691, 2053, 2756, 2930, 2931, 3568
102. Rhodesia: 2758
103. Rwanda: 0393, 0875, 2930
104. Ryukyu Islands-Japan: 0273, 0274, 0500, 2078, 2220, 2221, 2930, 3317, 3545, 3546, 3629, 3633, 3638
105. Sakhalin-USSR: 2220
106. Sarawak-Malaysia: 0796, 0848, 0849, 2001, 2220, 2251, 2810, 2811, 2812, 2813, 2814, 2815
107. Saudi Arabia: 0366, 2930
108. Senegal: 0070, 0071, 0072, 0082, 0157, 0158, 0309, 0355, 0361, 0362, 0363, 0366, 0770, 0875, 2355, 2389, 2801, 2930, 2931, 3118, 3131, 3181, 3463, 3490, 3491, 3492, 3532, 3533, 3535, 3690, 3691, 3698
109. Sicily Island-Italy: 0297
110. Sierra Leone: 0029, 0030, 0032, 0033, 0034, 0062, 0065, 0070, 0071, 0072, 0115, 0116, 0158, 0355, 0366, 0875, 1048, 1147, 1545, 2210, 2212, 2232, 2355, 2751, 2801, 2880, 3118, 3131, 3278, 3511, 3532, 3533, 3535
111. Singapore: 0297, 2220, 2221, 2355, 2930, 3520
112. Solomon Islands: 2062, 2063, 2749, 2930, 3127, 3128
113. Somalia: 0309, 0343, 0555, 2756, 2930, 3131
114. Spain: 0023, 0150, 0299, 0313, 0727, 0728, 0729, 0730, 0851, 0857, 1036, 1037, 1038, 1051, 2133, 2136, 2440, 2619, 2620, 2621, 2732, 2756, 2876, 3211
115. Sri Lanka: 0035, 0139, 0273, 0274, 0343, 0500, 0518, 0715, 0721, 0748, 0866, 0891, 0892, 0893, 0894, 1091, 1093, 1131, 1133, 1134, 1161, 1176, 1249, 1250, 1357, 1360, 1361, 1529, 1648, 1681, 2084, 2220, 2221, 2228, 2355, 2390, 2713, 2744, 2749, 2751, 2848, 2906, 2930, 2976, 3009, 3136, 3317, 3508, 3520, 3558, 3559, 3560, 3637, 3638, 3640, 3642, 3699
116. St. Christopher-Nevis-Anguilla: 0330, 0333, 0622, 2864
117. Sudan: 0065, 0082, 0157, 0158, 0208, 0297, 0301, 0362, 0365, 0555, 1761, 2212, 2347, 2355, 2756, 2787, 2789, 2801, 2930, 3018, 3211, 3463
118. Surinam: 0613, 1240, 1998, 2292, 2751, 3425, 3426, 3427, 3428, 3429, 3430, 3587, 3588, 3595, 3718, 3719
119. Swaziland: 0355
120. Switzerland: 0772
121. Taiwan-China: 0273, 0274, 0297, 0343, 0495, 0496, 0497, 0500, 0505, 0526, 0527, 0528, 0529, 0541, 0542, 0566, 0567, 0597, 0598, 0599, 0600, 0601, 0602, 0603, 0604, 0605, 0705, 0860, 1050, 1076, 1096, 1133, 1134, 1211, 1227, 1290, 1360, 1361,

- 1463, 1530, 1609, 1648, 1681, 1763, 1906, 1919, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1979, 1994, 1995, 1996, 2010, 2011, 2035, 2084, 2220, 2221, 2223, 2224, 2241, 2355, 2366, 2390, 2482, 2597, 2625, 2749, 2756, 2758, 2848, 2930, 2937, 2976, 2995, 3009, 3010, 3105, 3106, 3107, 3108, 3136, 3191, 3200, 3223, 3225, 3226, 3227, 3228, 3241, 3242, 3243, 3246, 3247, 3248, 3317, 3508, 3522, 3524, 3540, 3543, 3544, 3545, 3547, 3562, 3582, 3629, 3634, 3637, 3638, 3642, 3654, 3655, 3656, 3657, 3658, 3668, 3669
122. Tanzania: 0297, 0301, 0366, 0420, 0421, 0564, 0882, 0979, 1109, 1530, 2210, 2212, 2355, 2391, 2749, 2791, 2930, 2931, 2957, 2976, 3698
123. Thailand: 0176, 0284, 0297, 0383, 0433, 0435, 0441, 0442, 0443, 0444, 0446, 0447, 0448, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0467, 0468, 0485, 0486, 0518, 0749, 0750, 0751, 0876, 0899, 1093, 1131, 1133, 1134, 1161, 1176, 1224, 1225, 1327, 1328, 1348, 1350, 1354, 1355, 1360, 1363, 1369, 1415, 1536, 1578, 1654, 1733, 1734, 1735, 1736, 1737, 1748, 1762, 1763, 1860, 1861, 1934, 1980, 2019, 2020, 2021, 2044, 2084, 2130, 2220, 2221, 2223, 2355, 2365, 2366, 2367, 2543, 2608, 2630, 2631, 2638, 2639, 2640, 2680, 2749, 2751, 2766, 2848, 2906, 2930, 3136, 3169, 3173, 3520, 3553, 3554, 3555, 3578, 3579, 3580, 3581, 3582, 3584, 3638, 3640, 3643, 3644
124. Tonga: 1044
125. Trinidad and Tobago: 0262, 0267, 0326, 0327, 0334, 0335, 0341, 0622, 0925, 1050, 1239, 1702, 1703, 1973, 1974, 2270, 2355, 2749, 3285
126. Turkey: 2039
127. Uganda: 0065, 0158, 0297, 0301, 0309, 0366, 1101, 1107, 1314, 1532, 1648, 1939, 2208, 2210, 2212, 2347, 2355, 2391, 2931, 2957, 2976, 3211, 3316, 3543
128. UK: 2273, 2275, 2355
129. Uruguay: 3284
130. USA: 0019, 0057, 0262, 0267, 0271, 0274, 0320, 0321, 0322, 0323, 0324, 0338, 0343, 0348, 0376, 0377, 0422, 0507, 0622, 0783, 0806, 0808, 0855, 0918, 0925, 0978, 1029, 1030, 1031, 1050, 1090, 1136, 1165, 1213, 1214, 1215, 1216, 1228, 1238, 1240, 1312, 1313, 1331, 1391, 1420, 1527, 1528, 1530, 1539, 1543, 1648, 1883, 1969, 2047, 2131, 2154, 2248, 2271, 2342, 2348, 2355, 2434, 2435, 2436, 2437, 2438, 2439, 2461, 2544, 2616, 2628, 2750, 2780, 2800, 2804, 2879, 3062, 3170, 3285, 3376, 3441, 3448, 3521, 3523, 3551, 3570, 3642, 3715
131. USSR: 0846, 2220, 2749, 2834
132. Venezuela: 0128, 0326, 0329, 0336, 0337, 0339, 0340, 0341, 0610, 0613, 0622, 1055, 1056, 2271, 2292, 2355, 2540, 2778, 2856, 3286, 3287
133. Vietnam: 0132, 0346, 0518, 0630, 0631, 0632, 0633, 0771, 0797, 0798, 0799, 0800, 0801, 0802, 0803, 0804, 0805, 0862, 0864, 0865, 1093, 1097, 1131, 1133, 1134, 1161, 1251, 1350, 1354, 1355, 1361, 1367, 1374, 1530, 1648, 1705, 1981, 2084, 2316, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2516, 2749, 2930, 2976, 3136, 3245, 3506, 3507, 3513, 3514, 3585, 3586
134. Virgin Islands-USA: 2154
135. West Indies: 0338, 0622, 0989, 1530, 1648
136. Western Samoa: 1044
137. Yugoslavia: 2756
138. Zaire: 0158, 0363, 0366, 0393, 0875, 1101, 2930, 3278
139. Zambia: 0366, 2931
140. Zanzibar: 2931
141. Zimbabwe: 0592, 0979, 1530, 2391, 3211

References classified by subjects

1. Abiotic Environment: See Altitude, Flooding, Humidity, Light, Moon, Photoperiod, Rainfall, Soil Type, Temperature
2. Adaptation: 0718, 0933, 0937, 0940, 0945, 0952, 0969, 0980, 1117, 1122, 1430, 1432, 1785, 1786, 1787, 1788, 1873, 2406, 2457, 2484, 2486, 3258, 3379, 3610, 3613
3. Alternate Host: 0006, 0063, 0065, 0072, 0075, 0083, 0108, 0115, 0119, 0128, 0154, 0158, 0160, 0162, 0167, 0175, 0181, 0183, 0185, 0201, 0204, 0224, 0236, 0240, 0243, 0260, 0262, 0276, 0278, 0282, 0300, 0302, 0304, 0306, 0307, 0316, 0319, 0320, 0325, 0327, 0329, 0330, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0343, 0344, 0348, 0376, 0377, 0378, 0390, 0414, 0416, 0417, 0418, 0422, 0426, 0431, 0475, 0502, 0513, 0549, 0555, 0560, 0563, 0572, 0591, 0592, 0597, 0604, 0619, 0622, 0624, 0637, 0638, 0640, 0654, 0668, 0669, 0671, 0672, 0685, 0690, 0691, 0698, 0718, 0741, 0753, 0755, 0757, 0765, 0774, 0778, 0783, 0788, 0797, 0799, 0806, 0825, 0826, 0836, 0848, 0856, 0905, 0906, 0909, 0910, 0911, 0912, 0913, 0915, 0916, 0921, 0925, 0958, 0978, 0983, 0985, 0992, 1007, 1009, 1011, 1012, 1020, 1022, 1026, 1040, 1047, 1050, 1059, 1060, 1061, 1062, 1064, 1075, 1091, 1099, 1101, 1107, 1108, 1109, 1133, 1134, 1142, 1144, 1176, 1197, 1209, 1210, 1214, 1216, 1217, 1240, 1244, 1264, 1265, 1295, 1312, 1313, 1314, 1326, 1370, 1384, 1385, 1386, 1387, 1388, 1391, 1469, 1472, 1514, 1519, 1526, 1530, 1532, 1533, 1542, 1543, 1583, 1584, 1599, 1615, 1647, 1648, 1652, 1653, 1665, 1675, 1677, 1701, 1702, 1703, 1723, 1761, 1763, 1772, 1777, 1779, 1807, 1816, 1826, 1875, 1889, 1906, 1919, 1921, 1926, 1928, 1933, 1939, 1964, 1970, 1971, 1974, 1980, 1981, 1982, 1984, 1999, 2019, 2042, 2044, 2047, 2053, 2060, 2078, 2081, 2084, 2100, 2107, 2111, 2115, 2117, 2120, 2121, 2123, 2125, 2132, 2133, 2137, 2138, 2142, 2154, 2158, 2176, 2210, 2211, 2212, 2213, 2214, 2215, 2232, 2241, 2245, 2248, 2271, 2273, 2274, 2289, 2297, 2342, 2343, 2347, 2348, 2358, 2391, 2395, 2413, 2441, 2461, 2479, 2481, 2504, 2505, 2510, 2511, 2515, 2532, 2540, 2542, 2578, 2596, 2608, 2622, 2623, 2638, 2675, 2677, 2694, 2695, 2699, 2700, 2709, 2721, 2736, 2747, 2748, 2749, 2756, 2773, 2776, 2778, 2780, 2782, 2790, 2791, 2795, 2800, 2804, 2809, 2810, 2813, 2815, 2828, 2833, 2856, 2862, 2863, 2864, 2870, 2879, 2919, 2925, 2928, 2930, 2931, 2934, 2938, 2946, 2956, 2957, 2976, 2977, 3009, 3018, 3031, 3037, 3041, 3042, 3050, 3061, 3062, 3073, 3129, 3130, 3131, 3171, 3181, 3191, 3200, 3203, 3208, 3209, 3211, 3221, 3230, 3232, 3275, 3280, 3288, 3289, 3291, 3292, 3310, 3313, 3316, 3317, 3319, 3370, 3380, 3395, 3410, 3424, 3430, 3441, 3442, 3444, 3445, 3448, 3449, 3460, 3462, 3463, 3476, 3492, 3508, 3510, 3517, 3518, 3540, 3561, 3564, 3565, 3566, 3568, 3570, 3571, 3572, 3575, 3578, 3579, 3580, 3583, 3584, 3597, 3626, 3629, 3633, 3662, 3676, 3677, 3678, 3693, 3694, 3695, 3696, 3697, 3698, 3706, 3717
4. Altitude: 0205, 2956, 3526
5. Application: 0005, 0007, 0008, 0010, 0011, 0046, 0055, 0142, 0169, 0182, 0211, 0228, 0233, 0283, 0371, 0431, 0599, 0610, 0659, 0680, 0840, 0857, 1126, 1138, 1152, 1161, 1196, 1220, 1344, 1346, 1347, 1353, 1515, 1550, 1554, 1557, 1646, 1659, 1819, 1820, 1858, 1874, 1877, 1878, 1884, 1926, 2002, 2072, 2105, 2196, 2262, 2299, 2355, 2422, 2513, 2543, 2553, 2630, 2631, 2703, 2772, 2780, 2838, 2848, 2850, 2852, 2860, 2918, 2991, 3052, 3116, 3126, 3445, 3580, 3622
6. Augmentation: 0262, 0327, 0332, 0335, 0341, 0561, 0622, 0623, 0642, 1029, 1168, 1312, 1472, 1503, 1523, 1609, 1736, 1825, 1889, 1926, 1927, 1971, 1974, 1989, 1999, 2211, 2230, 2245, 2254, 2341, 2348, 2355, 2415, 2470, 2509, 2511, 2512, 2542, 2642, 2748, 2781, 2785, 2790, 2928, 2996, 3009, 3135, 3277, 3314, 3370, 3371, 3374, 3449, 3490, 3508, 3531, 3557, 3570, 3638, 3644, 3713
7. Biochemistry: 0022, 1950, 1951, 3281, 3294, 3295, 3301, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3378, 3591, 3680, 3681, 3683
8. Biological Control: See Augmentation, Hyperparasite, Introduction, Nematode, Non-target, Parasite, Pathogen, Predator
9. Biology: See Adaptation, Development, Dispersal, Dormancy, Feeding Behavior, Karyology, Larval Establishment, Pheromone, Reproduction, Seasonal Abundance, and Survivorship
10. Botanical: 0219, 0532, 0577, 0713, 0787, 1207, 1233, 1356, 1888, 1968, 2139, 2147, 2148, 2149, 2254, 2330, 2425, 2449, 2480, 2884, 3064, 3366, 3368, 3578

11. Chemical Control: 0003, 0004, 0005, 0007, 0008, 0010, 0011, 0013, 0018, 0029, 0033, 0046, 0047, 0048, 0049, 0050, 0051, 0052, 0053, 0054, 0055, 0072, 0073, 0074, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0091, 0098, 0101, 0103, 0106, 0119, 0121, 0122, 0123, 0124, 0129, 0131, 0132, 0135, 0136, 0138, 0141, 0142, 0143, 0146, 0150, 0155, 0158, 0159, 0163, 0164, 0168, 0169, 0181, 0182, 0188, 0189, 0209, 0211, 0213, 0214, 0215, 0219, 0220, 0226, 0227, 0228, 0231, 0232, 0233, 0234, 0239, 0253, 0255, 0256, 0257, 0264, 0268, 0272, 0273, 0277, 0279, 0283, 0284, 0285, 0289, 0291, 0294, 0295, 0313, 0316, 0336, 0346, 0350, 0351, 0352, 0355, 0365, 0366, 0367, 0369, 0370, 0371, 0377, 0378, 0382, 0383, 0386, 0391, 0395, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0407, 0416, 0417, 0423, 0425, 0431, 0446, 0453, 0455, 0459, 0464, 0468, 0469, 0470, 0477, 0486, 0490, 0491, 0492, 0501, 0502, 0507, 0508, 0510, 0511, 0519, 0520, 0524, 0525, 0532, 0545, 0560, 0563, 0571, 0572, 0573, 0575, 0576, 0577, 0578, 0581, 0582, 0583, 0587, 0589, 0595, 0597, 0599, 0601, 0602, 0603, 0610, 0611, 0612, 0655, 0658, 0659, 0660, 0661, 0662, 0663, 0664, 0665, 0666, 0667, 0668, 0669, 0670, 0671, 0672, 0673, 0674, 0675, 0676, 0677, 0678, 0680, 0681, 0682, 0685, 0688, 0692, 0698, 0699, 0704, 0713, 0725, 0726, 0727, 0729, 0730, 0738, 0750, 0759, 0760, 0763, 0764, 0772, 0773, 0776, 0777, 0780, 0781, 0787, 0792, 0795, 0818, 0827, 0828, 0832, 0835, 0840, 0841, 0842, 0843, 0848, 0849, 0852, 0853, 0855, 0857, 0859, 0860, 0866, 0869, 0870, 0880, 0881, 0889, 0890, 0892, 0893, 0894, 0896, 0897, 0900, 0915, 0916, 0928, 0929, 0934, 0935, 0954, 0970, 0971, 0972, 0973, 0983, 0996, 0998, 0999, 1001, 1002, 1003, 1005, 1006, 1009, 1016, 1025, 1027, 1028, 1036, 1038, 1044, 1045, 1050, 1051, 1065, 1072, 1079, 1080, 1085, 1098, 1099, 1124, 1126, 1127, 1128, 1129, 1130, 1137, 1138, 1139, 1143, 1149, 1151, 1152, 1153, 1154, 1155, 1161, 1162, 1163, 1165, 1166, 1167, 1168, 1170, 1173, 1177, 1178, 1189, 1191, 1192, 1193, 1194, 1195, 1196, 1198, 1199, 1204, 1207, 1208, 1212, 1217, 1218, 1219, 1220, 1222, 1226, 1233, 1238, 1247, 1258, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1273, 1274, 1278, 1281, 1285, 1286, 1294, 1307, 1329, 1332, 1333, 1334, 1336, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1346, 1347, 1351, 1353, 1356, 1359, 1362, 1364, 1368, 1376, 1378, 1380, 1392, 1403, 1404, 1405, 1425, 1427, 1428, 1429, 1434, 1438, 1439, 1446, 1447, 1448, 1449, 1450, 1451, 1454, 1455, 1460, 1461, 1464, 1465, 1468, 1469, 1471, 1474, 1475, 1478, 1480, 1483, 1488, 1494, 1495, 1496, 1497, 1498, 1499, 1505, 1506, 1512, 1515, 1524, 1525, 1534, 1549, 1550,

1553, 1554, 1555, 1557, 1561, 1569, 1574, 1575, 1576, 1580, 1590, 1591, 1611, 1612, 1618, 1645, 1646, 1649, 1650, 1653, 1658, 1659, 1660, 1673, 1674, 1675, 1678, 1679, 1680, 1684, 1685, 1691, 1692, 1694, 1696, 1701, 1706, 1709, 1716, 1717, 1718, 1719, 1721, 1724, 1728, 1729, 1730, 1732, 1733, 1734, 1735, 1736, 1737, 1749, 1750, 1753, 1757, 1758, 1765, 1766, 1767, 1768, 1769, 1750, 1771, 1772, 1773, 1775, 1776, 1778, 1783, 1792, 1793, 1794, 1795, 1799, 1800, 1801, 1804, 1813, 1814, 1819, 1820, 1822, 1823, 1825, 1827, 1828, 1833, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1851, 1853, 1854, 1856, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1867, 1870, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1884, 1887, 1888, 1889, 1891, 1892, 1898, 1904, 1914, 1915, 1925, 1926, 1927, 1928, 1929, 1932, 1935, 1940, 1943, 1944, 1946, 1952, 1953, 1954, 1956, 1957, 1958, 1959, 1960, 1961, 1966, 1968, 1971, 1977, 1979, 1982, 1983, 1984, 1989, 1995, 1996, 1999, 2000, 2002, 2004, 2006, 2007, 2008, 2019, 2023, 2026, 2027, 2035, 2042, 2048, 2049, 2056, 2057, 2062, 2063, 2065, 2071, 2072, 2074, 2075, 2076, 2082, 2083, 2098, 2105, 2108, 2109, 2110, 2111, 2112, 2113, 2117, 2122, 2125, 2134, 2135, 2139, 2140, 2141, 2146, 2147, 2148, 2149, 2153, 2157, 2178, 2179, 2183, 2184, 2186, 2187, 2188, 2189, 2193, 2196, 2201, 2203, 2213, 2217, 2225, 2230, 2231, 2234, 2236, 2242, 2243, 2253, 2254, 2258, 2262, 2263, 2264, 2265, 2266, 2267, 2280, 2281, 2291, 2293, 2294, 2295, 2297, 2299, 2301, 2302, 2303, 2305, 2310, 2315, 2318, 2319, 2321, 2322, 2331, 2334, 2342, 2347, 2349, 2355, 2356, 2361, 2362, 2369, 2370, 2395, 2402, 2403, 2410, 2411, 2413, 2418, 2419, 2422, 2423, 2424, 2425, 2430, 2431, 2432, 2440, 2449, 2450, 2451, 2454, 2455, 2456, 2459, 2480, 2481, 2482, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2507, 2508, 2513, 2514, 2523, 2525, 2527, 2531, 2538, 2539, 2543, 2552, 2553, 2554, 2555, 2558, 2559, 2561, 2565, 2573, 2574, 2575, 2576, 2579, 2581, 2582, 2585, 2592, 2595, 2596, 2598, 2604, 2605, 2610, 2611, 2619, 2620, 2621, 2625, 2630, 2631, 2642, 2643, 2660, 2661, 2662, 2665, 2672, 2679, 2683, 2685, 2687, 2688, 2696, 2701, 2703, 2704, 2708, 2710, 2711, 2712, 2714, 2717, 2718, 2719, 2723, 2724, 2726, 2730, 2731, 2737, 2738, 2741, 2756, 2757, 2768, 2770, 2772, 2773, 2776, 2779, 2780, 2781, 2783, 2784, 2792, 2793, 2794, 2800, 2802, 2804, 2809, 2813, 2820, 2823, 2828, 2838, 2839, 2845, 2846, 2847, 2848, 2849, 2850, 2852, 2853, 2854, 2855, 2857, 2859, 2860, 2865, 2866, 2867, 2868, 2869, 2872, 2874, 2876, 2877, 2882, 2884, 2887, 2888, 2891, 2892, 2894, 2895, 2896, 2902, 2903, 2910, 2911, 2913, 2916, 2917, 2918, 2922, 2930,

2946, 2947, 2951, 2952, 2953, 2969, 2971, 2974, 2978, 2981, 2990, 2991, 3002, 3011, 3019, 3042, 3043, 3045, 3049, 3051, 3052, 3053, 3064, 3065, 3066, 3067, 3068, 3102, 3103, 3104, 3113, 3116, 3124, 3126, 3132, 3142, 3146, 3147, 3150, 3151, 3153, 3154, 3155, 3156, 3157, 3158, 3163, 3165, 3170, 3181, 3184, 3188, 3189, 3193, 3197, 3198, 3199, 3205, 3206, 3207, 3208, 3210, 3219, 3220, 3223, 3225, 3226, 3227, 3228, 3229, 3233, 3236, 3237, 3240, 3241, 3242, 3243, 3245, 3246, 3247, 3248, 3249, 3250, 3271, 3272, 3274, 3275, 3276, 3289, 3292, 3298, 3299, 3300, 3301, 3302, 3304, 3314, 3345, 3347, 3350, 3356, 3357, 3366, 3367, 3368, 3387, 3388, 3390, 3396, 3400, 3405, 3407, 3409, 3421, 3425, 3439, 3442, 3443, 3445, 3450, 3452, 3455, 3462, 3470, 3472, 3473, 3474, 3475, 3478, 3480, 3481, 3482, 3483, 3487, 3489, 3491, 3492, 3493, 3494, 3495, 3496, 3505, 3512, 3532, 3533, 3534, 3535, 3536, 3539, 3558, 3559, 3560, 3578, 3579, 3580, 3587, 3588, 3595, 3596, 3597, 3600, 3622, 3624, 3625, 3627, 3635, 3638, 3639, 3644, 3652, 3653, 3654, 3661, 3663, 3666, 3675, 3676, 3677, 3679, 3680, 3681, 3682, 3713, 3714, 3716 (See also Application, Botanical, Insecticide Resistance, Microbial, Non-target, Seed Treatment, Synergism, Timing, Toxicity)

12. Crop Rotation: 0161, 0204, 0216, 0222, 0252, 0489, 0510, 0512, 0546, 0555, 0563, 0612, 0617, 0691, 0697, 0698, 0783, 0896, 1021, 1023, 1043, 1053, 1059, 1065, 1070, 1172, 1197, 1307, 1308, 1314, 1356, 1362, 1364, 1366, 1376, 1441, 1468, 1474, 1476, 1530, 1709, 1710, 1711, 1759, 1805, 1829, 1833, 1875, 1893, 1899, 1989, 1997, 2005, 2019, 2028, 2030, 2040, 2041, 2042, 2048, 2049, 2062, 2074, 2084, 2125, 2213, 2244, 2245, 2297, 2529, 2534, 2535, 2557, 2598, 2601, 2602, 2839, 2919, 3009, 3044, 3163, 3208, 3241, 3243, 3247, 3248, 3289, 3290, 3292, 3325, 3366, 3412, 3417, 3418, 3420, 3578, 3594, 3670, 3689, 3701

13. Cultural Control: See Crop Rotation, Fertility, Harvesting, Herbicide, Mulch, Planting Density, Planting Time, Sanitation, Synchronous Planting, Trap Crop, Tillage, Water Management, Weeding

14. Damage: 0012, 0015, 0016, 0018, 0028, 0029, 0030, 0033, 0039, 0041, 0042, 0063, 0065, 0066, 0067, 0068, 0072, 0083, 0084, 0085, 0096, 0102, 0105, 0109, 0111, 0112, 0114, 0116, 0117, 0119, 0124, 0137, 0147, 0152, 0158, 0161, 0162, 0172, 0175, 0181, 0203, 0204, 0207, 0210, 0215, 0222, 0223, 0224, 0227, 0228, 0229, 0231, 0232, 0233, 0237, 0241, 0250, 0252, 0265, 0270, 0274, 0276, 0293, 0314, 0316, 0323, 0325, 0327, 0332, 0336,

0346, 0355, 0356, 0364, 0365, 0366, 0367, 0371, 0377, 0378, 0390, 0391, 0396, 0400, 0406, 0411, 0412, 0416, 0418, 0419, 0425, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0436, 0437, 0438, 0440, 0442, 0443, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0455, 0458, 0467, 0468, 0471, 0472, 0477, 0478, 0483, 0485, 0486, 0494, 0502, 0517, 0526, 0530, 0531, 0533, 0557, 0564, 0572, 0580, 0585, 0591, 0595, 0598, 0616, 0623, 0631, 0644, 0645, 0650, 0652, 0670, 0671, 0674, 0678, 0682, 0683, 0685, 0694, 0697, 0710, 0711, 0712, 0720, 0726, 0742, 0743, 0744, 0747, 0751, 0752, 0753, 0755, 0762, 0766, 0767, 0774, 0783, 0794, 0797, 0799, 0807, 0812, 0815, 0816, 0819, 0820, 0825, 0830, 0834, 0849, 0851, 0862, 0863, 0864, 0865, 0867, 0869, 0870, 0871, 0872, 0873, 0874, 0877, 0878, 0879, 0881, 0883, 0884, 0885, 0886, 0889, 0892, 0893, 0895, 0897, 0903, 0904, 0905, 0910, 0912, 0913, 0916, 0921, 0931, 0932, 0938, 0941, 0949, 0981, 0995, 0997, 1002, 1003, 1004, 1009, 1015, 1018, 1021, 1027, 1032, 1039, 1040, 1045, 1049, 1050, 1060, 1065, 1067, 1070, 1085, 1089, 1099, 1103, 1104, 1105, 1107, 1117, 1121, 1125, 1132, 1142, 1156, 1161, 1167, 1168, 1174, 1197, 1201, 1202, 1204, 1209, 1231, 1232, 1238, 1240, 1244, 1248, 1249, 1258, 1260, 1261, 1276, 1277, 1282, 1284, 1285, 1291, 1307, 1313, 1326, 1328, 1334, 1339, 1340, 1341, 1342, 1345, 1347, 1351, 1359, 1364, 1366, 1368, 1370, 1372, 1376, 1377, 1379, 1380, 1384, 1391, 1413, 1431, 1436, 1437, 1438, 1443, 1445, 1460, 1469, 1470, 1475, 1482, 1483, 1514, 1521, 1529, 1533, 1544, 1548, 1549, 1557, 1570, 1571, 1574, 1577, 1581, 1610, 1653, 1669, 1670, 1671, 1672, 1675, 1677, 1682, 1684, 1686, 1687, 1688, 1691, 1700, 1701, 1705, 1708, 1711, 1712, 1715, 1724, 1725, 1726, 1727, 1729, 1743, 1744, 1745, 1752, 1759, 1760, 1762, 1773, 1774, 1779, 1782, 1793, 1796, 1801, 1806, 1817, 1825, 1829, 1831, 1843, 1847, 1855, 1859, 1862, 1863, 1867, 1868, 1869, 1872, 1873, 1874, 1881, 1887, 1889, 1899, 1902, 1904, 1917, 1918, 1921, 1924, 1927, 1928, 1933, 1938, 1948, 1964, 1971, 1973, 1974, 1976, 1981, 1983, 1984, 1988, 1990, 1991, 1993, 1997, 2000, 2008, 2014, 2018, 2019, 2023, 2025, 2026, 2029, 2036, 2038, 2047, 2049, 2052, 2057, 2069, 2070, 2073, 2076, 2080, 2084, 2085, 2088, 2090, 2104, 2106, 2108, 2113, 2116, 2121, 2127, 2128, 2132, 2142, 2145, 2146, 2154, 2172, 2176, 2183, 2188, 2189, 2190, 2198, 2199, 2218, 2230, 2233, 2252, 2256, 2273, 2285, 2289, 2297, 2304, 2328, 2331, 2347, 2348, 2349, 2350, 2351, 2353, 2354, 2357, 2359, 2362, 2367, 2373, 2390, 2394, 2395, 2417, 2418, 2426, 2427, 2428, 2435, 2436, 2437, 2439, 2446, 2448, 2453, 2455, 2472, 2474, 2479, 2482, 2498, 2503, 2504, 2511,

- 2515, 2526, 2528, 2529, 2545, 2547, 2549, 2567, 2573, 2592, 2593, 2596, 2598, 2605, 2607, 2614, 2615, 2622, 2626, 2632, 2633, 2635, 2636, 2640, 2655, 2656, 2658, 2664, 2671, 2679, 2680, 2681, 2683, 2702, 2704, 2706, 2710, 2715, 2720, 2727, 2732, 2734, 2743, 2748, 2758, 2759, 2761, 2762, 2771, 2776, 2780, 2781, 2786, 2793, 2794, 2799, 2800, 2804, 2815, 2816, 2830, 2835, 2837, 2844, 2853, 2857, 2865, 2871, 2897, 2898, 2900, 2905, 2919, 2929, 2930, 2943, 2944, 2946, 2951, 2953, 2956, 2958, 2959, 2960, 2961, 2963, 2964, 2965, 2967, 2984, 3004, 3009, 3022, 3027, 3029, 3030, 3032, 3034, 3035, 3041, 3042, 3070, 3076, 3082, 3083, 3085, 3087, 3092, 3096, 3099, 3101, 3110, 3111, 3117, 3118, 3120, 3127, 3131, 3150, 3166, 3172, 3174, 3181, 3185, 3186, 3209, 3212, 3218, 3219, 3220, 3235, 3240, 3245, 3270, 3271, 3273, 3291, 3292, 3308, 3312, 3315, 3319, 3321, 3322, 3323, 3328, 3344, 3345, 3346, 3347, 3348, 3352, 3353, 3355, 3359, 3364, 3365, 3366, 3367, 3381, 3383, 3385, 3390, 3391, 3394, 3398, 3401, 3404, 3412, 3423, 3429, 3437, 3438, 3439, 3442, 3445, 3448, 3449, 3454, 3467, 3471, 3481, 3483, 3488, 3497, 3501, 3511, 3523, 3525, 3556, 3559, 3571, 3573, 3578, 3580, 3581, 3586, 3587, 3589, 3598, 3599, 3602, 3626, 3628, 3652, 3653, 3654, 3655, 3676, 3677, 3686, 3700, 3705
15. Deepwater: 0032, 0062, 0064, 0067, 0072, 0093, 0290, 0428, 0429, 0430, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0447, 0448, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0467, 0468, 0516, 0711, 0712, 0807, 0875, 1066, 1266, 1327, 1328, 1364, 1460, 1461, 1833, 2044, 2353, 2354, 2525, 2557, 2630, 2631, 2766, 2781, 3032, 3033, 3169, 3173, 3270, 3271, 3272, 3273, 3283, 3344, 3532, 3537
16. Development: 0006, 0019, 0063, 0065, 0072, 0083, 0092, 0111, 0114, 0158, 0176, 0204, 0209, 0231, 0236, 0243, 0276, 0311, 0313, 0325, 0355, 0363, 0366, 0371, 0377, 0387, 0390, 0406, 0412, 0418, 0422, 0459, 0478, 0502, 0555, 0560, 0570, 0595, 0597, 0631, 0690, 0691, 0702, 0755, 0779, 0783, 0829, 0850, 0881, 0921, 0956, 0957, 0958, 1020, 1040, 1050, 1058, 1088, 1099, 1107, 1118, 1119, 1183, 1187, 1188, 1240, 1314, 1319, 1370, 1395, 1398, 1399, 1400, 1402, 1405, 1410, 1424, 1458, 1519, 1520, 1538, 1541, 1567, 1568, 1592, 1624, 1625, 1626, 1629, 1637, 1661, 1662, 1663, 1665, 1673, 1699, 1703, 1743, 1744, 1745, 1746, 1747, 1777, 1784, 1785, 1786, 1788, 1789, 1821, 1826, 1835, 1855, 1857, 1873, 1875, 1889, 1900, 1919, 1933, 1940, 1964, 1971, 1992, 2009, 2013, 2014, 2029, 2042, 2045, 2047, 2081, 2084, 2101, 2111, 2142, 2144, 2214, 2226, 2229, 2237, 2238, 2241, 2245, 2255, 2259, 2282, 2297, 2300, 2304, 2347, 2349, 2363, 2368, 2377, 2378, 2379, 2385, 2438, 2441, 2443, 2510, 2515, 2520, 2557, 2560, 2567, 2598, 2621, 2642, 2675, 2686, 2697, 2750, 2756, 2762, 2768, 2771, 2776, 2794, 2797, 2815, 2816, 2881, 2946, 2950, 2951, 3009, 3046, 3054, 3086, 3091, 3100, 3133, 3162, 3210, 3213, 3214, 3215, 3223, 3294, 3310, 3319, 3321, 3329, 3351, 3394, 3408, 3412, 3417, 3420, 3448, 3462, 3497, 3614, 3629, 3665, 3670
17. Diet: 0190, 0308, 0310, 0311, 0321, 0513, 0540, 0609, 0636, 0782, 1224, 1225, 1240, 1283, 1322, 1339, 1396, 1397, 1579, 1585, 1586, 1588, 1589, 1595, 1596, 1616, 1882, 2015, 2254, 2260, 2392, 2636, 2697, 2968, 2972, 2973, 3020, 3125, 3358, 3360, 3430, 3529, 3530, 3684, 3710
18. Dispersal: 0009, 1037, 1517, 1598, 1601, 1602, 1689, 1745, 2029, 2125, 2143, 2181, 2250, 2261, 2476, 2511, 2513, 2636, 2642, 2816, 2849, 2864, 2954, 3170, 3355, 3428, 3609, 3611, 3623, 3646, 3647, 3648, 3692
19. Dormancy: 0027, 0044, 0065, 0074, 0209, 0314, 0390, 0431, 0495, 0496, 0501, 0570, 0597, 0619, 0620, 0735, 0801, 0929, 0940, 0941, 0943, 0945, 0946, 0950, 0952, 0955, 0960, 0965, 0966, 0967, 0969, 0980, 0990, 0991, 1007, 1024, 1025, 1052, 1072, 1083, 1107, 1116, 1120, 1235, 1255, 1297, 1298, 1308, 1312, 1320, 1321, 1323, 1324, 1382, 1466, 1500, 1501, 1541, 1584, 1593, 1594, 1596, 1614, 1617, 1650, 1709, 1742, 1750, 1782, 1784, 1785, 1786, 1808, 1809, 1811, 1812, 1894, 1923, 1983, 1984, 2023, 2028, 2030, 2031, 2044, 2064, 2075, 2163, 2170, 2194, 2195, 2215, 2257, 2293, 2307, 2347, 2348, 2377, 2395, 2404, 2429, 2445, 2447, 2496, 2497, 2519, 2521, 2601, 2602, 2771, 2816, 2826, 2827, 2841, 2923, 2994, 3047, 3192, 3194, 3202, 3236, 3239, 3258, 3295, 3297, 3303, 3310, 3320, 3331, 3333, 3334, 3335, 3337, 3338, 3339, 3341, 3348, 3378, 3379, 3412, 3417, 3427, 3525, 3593, 3616, 3617, 3618, 3619, 3620, 3650, 3660, 3687, 3689
20. Feeding Behavior: 0366, 0377, 0390, 0462, 0514, 0584, 0691, 0755, 1125, 1791, 1851, 1869, 1872, 2075, 3004, 3448
21. Fertility: 0033, 0076, 0193, 0295, 0415, 0418, 0425, 0485, 0486, 0509, 0510, 0512, 0593, 0611, 0661, 0662, 0663, 0665, 0671, 0682, 0745, 0833, 0896, 0927, 1015, 1016, 1065, 1161, 1177, 1184, 1187, 1188, 1189, 1191, 1195, 1206, 1248, 1324, 1375,

- 1376, 1399, 1400, 1440, 1441, 1452, 1468, 1469, 1473, 1474, 1481, 1540, 1710, 1724, 1777, 1871, 1873, 1899, 1919, 1937, 2019, 2023, 2041, 2047, 2094, 2109, 2113, 2125, 2140, 2141, 2155, 2183, 2192, 2295, 2320, 2381, 2502, 2517, 2524, 2557, 2643, 2651, 2666, 2681, 2707, 2776, 2783, 2840, 2841, 2865, 2866, 2885, 2890, 2894, 2901, 2942, 2945, 2947, 2948, 2979, 2980, 3006, 3016, 3018, 3021, 3048, 3091, 3141, 3148, 3170, 3176, 3181, 3362, 3388, 3406, 3454, 3559, 3686
22. Flooding: 0164, 0168, 0203, 1146, 2022, 2029, 2068, 2306, 2658, 2924, 3009, 3344
23. Forecasting: 0149, 0212, 0265, 0499, 0526, 0530, 0534, 0538, 0539, 0574, 0597, 0680, 0681, 0819, 0844, 0845, 0868, 0937, 0938, 0939, 0940, 0942, 0944, 0948, 0949, 0951, 0955, 0959, 0960, 0963, 0964, 1000, 1077, 1169, 1223, 1231, 1234, 1292, 1356, 1359, 1419, 1432, 1433, 1440, 1487, 1490, 1541, 1568, 1657, 1675, 1677, 1691, 1697, 1698, 1742, 1755, 1772, 1779, 1801, 1807, 1843, 1845, 1847, 1848, 1863, 1864, 1866, 1904, 1908, 1979, 1992, 1993, 1994, 2007, 2014, 2019, 2033, 2034, 2055, 2113, 2150, 2172, 2176, 2182, 2213, 2257, 2330, 2363, 2364, 2374, 2381, 2407, 2433, 2484, 2513, 2652, 2656, 2666, 2781, 2815, 2858, 2878, 2889, 2941, 2961, 2985, 3028, 3065, 3068, 3072, 3112, 3152, 3160, 3201, 3202, 3204, 3216, 3222, 3257, 3275, 3308, 3309, 3310, 1312, 3315, 3322, 3323, 3326, 3327, 3345, 3347, 3348, 3349, 3402, 3404, 3440, 3556, 3598, 3599, 3602, 3608, 3640, 3666, 3667, 3688, 3702
24. Harvesting: 0072, 0119, 0418, 0570, 0631, 0803, 0881, 0924, 1050, 1080, 1155, 1195, 1284, 1376, 1456, 1463, 1530, 1541, 1542, 1710, 1772, 1773, 1775, 1928, 1981, 1983, 1984, 2019, 2042, 2071, 2084, 2404, 2475, 2496, 2519, 2557, 2602, 3009, 3239, 3310, 3588
25. Herbicide: 1405
26. Hormone: 0024, 0025, 0026, 0027, 0473, 0474, 0495, 0965, 0966, 1024, 1025, 1304, 1790, 932, 2170, 2401, 2824, 2825, 2826, 2827, 2915, 3339, 3616, 3617, 3618, 3619, 3620
27. Humidity: 0012, 0176, 0203, 0218, 0779, 1502, 1639, 1640, 1698, 1996, 2192, 2282, 2284, 2327, 2636, 2881, 3173, 3324, 3613
28. Hybrid: 0557, 1248, 2038, 3215
29. Hyperparasite: 0332, 0372, 0515, 0754, 1107, 1142, 1472, 1504, 1528, 1599, 2211, 2212, 2246, 2355, 2624, 2736, 2748, 2928, 3419, 3448
30. Insect Growth Regulator: 1790, 1932, 2369
31. Insecticide Resistance: 0143, 0188, 0189, 0213, 0386, 0477, 0892, 0954, 1189, 1195, 1495, 1512, 1749, 1775, 1822, 1823, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1870, 1952, 2082, 2187, 2294, 2370, 2488, 2489, 2490, 2493, 2494, 2495, 2896, 2974, 3299, 3682
32. Introduction (or Classical Biological Control): 0072, 0077, 0107, 0162, 0163, 0166, 0262, 0267, 0326, 0330, 0332, 0333, 0335, 0341, 0416, 0527, 0622, 0691, 0778, 0814, 0925, 1029, 1168, 1213, 1215, 1337, 1339, 1340, 1420, 1523, 1527, 1528, 1573, 1606, 1609, 1825, 1971, 1974, 1999, 2121, 2154, 2209, 2210, 2211, 2212, 2273, 2355, 2356, 2642, 2692, 2749, 2756, 2790, 2873, 2928, 3005, 3058, 3179, 3275, 3288, 3370, 3372, 3373, 3375, 3419, 3448, 3449, 3460, 3490, 3508, 3570, 3638, 3642, 3677
33. Juvenile Hormone: 1932, 2825, 2827, 2915, 3339, 3617, 3618, 3619
34. Karyology: 1912, 2207
35. Larval Establishment: 0009, 0559, 0570, 1037, 1339, 1471, 1580, 1744, 1745, 1873, 1889, 1958, 1960, 2029, 2042, 2125, 2143, 2238, 2255, 2261, 2298, 2304, 2377, 2378, 2379, 2380, 2385, 2476, 2686, 2816, 2836, 2842, 2912, 2943, 2944, 2945, 3009, 3093, 3155, 3353, 3605, 3625, 3692
36. Light 0202, 0829, 1491, 1500, 1562, 1563, 1566, 1567, 1598, 1601, 1602, 1630, 1698, 1791, 1849, 1903, 2204, 3214, 3310, 3646, 3647
37. Light Trap: 0036, 0054, 0072, 0098, 0099, 0177, 0179, 0186, 0192, 0194, 0200, 0202, 0204, 0212, 0231, 0237, 0238, 0260, 0294, 0352, 0371, 0455, 0491, 0492, 0502, 0551, 0570, 0572, 0619, 0631, 0680, 0681, 0682, 0685, 0736, 0847, 0848, 0849, 0892, 0898, 0902, 0905, 1010, 1020, 1068, 1074, 1079, 1149, 1161, 1164, 1167, 1210, 1241, 1244, 1262, 1263, 1264, 1307, 1356, 1358, 1359, 1426, 1442, 1486, 1517, 1518, 1563, 1566, 1636, 1675, 1688, 1691, 1767, 1791, 1803, 1850, 1860, 1875, 1887, 1889, 1903, 1919, 1921, 1940, 1984, 1994, 1996, 2007, 2037, 2040, 2074, 2084, 2085, 2124, 2125, 2130, 2151, 2184, 2199, 2200, 2202, 2204, 2205, 2206, 2215, 2314, 2325, 2326, 2329, 2330,

- 2347, 2348, 2365, 2367, 2393, 2472, 2477, 2479, 2482, 2507, 2508, 2511, 2513, 2529, 2647, 2652, 2686, 2771, 2775, 2782, 2783, 2813, 2815, 2822, 2879, 2887, 2888, 2889, 2904, 2954, 2999, 3009, 3040, 3041, 3065, 3070, 3143, 3144, 3195, 3210, 3288, 3321, 3412, 3428, 3453, 3457, 3525, 3526, 3558, 3578, 3590, 3676, 3677, 3685, 3688 (See also Sampling, Physical Control)
38. Mechanical Control: 0084, 0187, 0200, 0204, 0222, 0231, 0384, 0697, 0698, 0737, 0739, 0746, 0799, 0800, 0803, 0901, 0905, 0907, 1012, 1036, 1050, 1068, 1096, 1172, 1262, 1516, 1530, 1561, 1584, 1650, 1653, 1669, 1710, 1772, 1919, 1926, 1927, 1928, 1965, 1971, 1979, 1996, 2019, 2042, 2059, 2060, 2113, 2124, 2125, 2287, 2316, 2330, 2331, 2429, 2479, 2480, 2485, 2557, 2613, 2676, 2773, 2853, 3009, 3181, 3210, 3398, 3412, 3506, 3685
39. Metamorphosis: 0947, 1024, 1949, 1951
40. Microbial: 3314
41. Modelling: 0539, 0997, 1000, 1234, 1372, 2835, 2837, 2893, 3111, 3112, 3556, 3598, 3599
42. Moon: 0202, 0237, 0238, 1518, 2204
43. Morphology: 0023, 0038, 0085, 0243, 0297, 0298, 0300, 0301, 0311, 0315, 0316, 0318, 0379, 0390, 0624, 0651, 0731, 0732, 0755, 0777, 0826, 0919, 0922, 0956, 0957, 1050, 1059, 1074, 1092, 1125, 1133, 1135, 1587, 1648, 1666, 1667, 1681, 1763, 1830, 1901, 1980, 2046, 2194, 2222, 2259, 2269, 2366, 2368, 2443, 2541, 2544, 2550, 2589, 2597, 2755, 2776, 2811, 2812, 2995, 3008, 3056, 3057, 3161, 3195, 3211, 3282, 3318, 3528, 3546, 3547, 3548, 3567, 3578, 3614, 3615, 3631, 3645 (See also Taxonomy)
44. Mulch: 1275, 1276, 1277
45. Nematode: 0065, 0151, 0280, 0808, 1048, 1217, 1302, 1303, 1472, 1528, 1560, 1564, 1713, 1936, 2112, 2113, 2115, 212, 2246, 2338, 2341, 2347, 2355, 2356, 2509, 2510, 2618, 2627, 2628, 2659, 2740, 2743, 2746, 2749, 2750, 2751, 2754, 2756, 2758, 2759, 2764, 2815, 3009, 3314, 3568, 3604, 3606, 3638, 3649
46. Nervous System: 3226, 3592, 3621, 3679, 3680, 3681, 3682
47. Nontarget: 0431, 0601, 0602, 0603, 1165, 1733, 1734, 1735, 1736, 1753, 1769, 1814, 1825, 1827, 1828, 1864, 1982, 1983, 1984, 1999, 2134, 2585, 2598, 3011, 3043, 3156, 3193, 3249, 3276, 3304, 3539, 3600, 3638, 3654, 3663
48. Nutrition: 0782, 0961, 1182, 1184, 1185, 1186, 1190, 1393, 1394, 1395, 1397, 1398, 1401, 1406, 1408, 1444, 1596, 1812, 1815, 1916, 2533, 3683, 3684
49. Occurrence: 0019, 0020, 0023, 0029, 0030, 0038, 0040, 0057, 0062, 0065, 0072, 0082, 0083, 0084, 0090, 0093, 0094, 0095, 0097, 0098, 0114, 0119, 0128, 0137, 0139, 0140, 0148, 0157, 0162, 0167, 0195, 0196, 0197, 0198, 0205, 0208, 0210, 0221, 0229, 0231, 0232, 0233, 0240, 0254, 0262, 0271, 0274, 0282, 0288, 0290, 0300, 0301, 0303, 0305, 0312, 0314, 0320, 0322, 0327, 0332, 0336, 0338, 0340, 0346, 0354, 0357, 0360, 0361, 0366, 0371, 0373, 0374, 0377, 0393, 0410, 0412, 0420, 0421, 0431, 0441, 0448, 0459, 0475, 0489, 0500, 0502, 0505, 0522, 0544, 0564, 0568, 0599, 0613, 0614, 0615, 0624, 0625, 0626, 0627, 0628, 0629, 0634, 0652, 0657, 0691, 0716, 0728, 0740, 0751, 0770, 0771, 0778, 0794, 0796, 0797, 0811, 0826, 0838, 0839, 0846, 0856, 0881, 0882, 0889, 0899, 0906, 0908, 0909, 0910, 0920, 0922, 0969, 0975, 0995, 1008, 1013, 1030, 1032, 1042, 1050, 1055, 1060, 1076, 1081, 1082, 1084, 1095, 1096, 1097, 1099, 1102, 1106, 1107, 1114, 1131, 1133, 1134, 1135, 1140, 1141, 1142, 1168, 1209, 1240, 1250, 1259, 1307, 1310, 1316, 1331, 1410, 1421, 1463, 1485, 1514, 1519, 1526, 1535, 1537, 1548, 1549, 1557, 1558, 1581, 1583, 1584, 1654, 1666, 1690, 1700, 1701, 1704, 1707, 1717, 1719, 1732, 1762, 1763, 1764, 1802, 1806, 1830, 1835, 1844, 1873, 1902, 1919, 1921, 1923, 1924, 1934, 1938, 1940, 1955, 1963, 1964, 1967, 1969, 1971, 1975, 1980, 1982, 1984, 2018, 2020, 2021, 2039, 2047, 2063, 2084, 2119, 2123, 2125, 2126, 2133, 2136, 2142, 2161, 2162, 2177, 2184, 2229, 2245, 2270, 2273, 2275, 2285, 2292, 2296, 2297, 2312, 2313, 2316, 2351, 2373, 2375, 2388, 2390, 2391, 2395, 2416, 2461, 2477, 2478, 2479, 2505, 2515, 2530, 2541, 2544, 2548, 2557, 2567, 2589, 2590, 2596, 2598, 2606, 2614, 2615, 2626, 2629, 2633, 2634, 2637, 2700, 2715, 2749, 2751, 2758, 2761, 2771, 2776, 2777, 2780, 2786, 2796, 2797, 2798, 2801, 2809, 2813, 2815, 2816, 2869, 2870, 2871, 2879, 2880, 2883, 2908, 2930, 2931, 2949, 2951, 2956, 2962, 2965, 2975, 2976, 2984, 2986, 2992, 2995, 3009, 3017, 3023, 3032, 3039, 3050, 3056, 3101, 3112, 3115, 3123, 3127, 3128, 3129, 3131, 3171, 3172, 3182, 3190, 3211, 3268, 3278, 3283, 3287, 3288, 3293, 3305, 3310, 3317, 3381, 3382, 3398, 3415, 3431, 3432, 3433, 3434, 3435, 3436, 3445, 3458, 3463,

3476, 3502, 3506, 3508, 3511, 3540, 3559, 3561,
3571, 3572, 3574, 3575, 3578, 3580, 3581, 3585,
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50. Outbreak: 0018, 0083, 0096, 0102, 0152, 0203,
0204, 0207, 0231, 0241, 0406, 0428, 0442, 0530,
0572, 0591, 0595, 0710, 0862, 0863, 0864, 0865,
0867, 0869, 0870, 0871, 0872, 0873, 0874, 0877,
0878, 0879, 0886, 0895, 0907, 0931, 0938, 0949,
1103, 1121, 1132, 1197, 1248, 1249, 1277, 1570,
1571, 1675, 1677, 1691, 1701, 1705, 1712, 1724,
1762, 1927, 1928, 1993, 2008, 2014, 2029, 2146,
2183, 2198, 2218, 2256, 2472, 2529, 2656, 2658,
2710, 2946, 2951, 2963, 3027, 3029, 3030, 3070,
3120, 3218, 3219, 3220, 3245, 3291, 3321, 3322,
3323, 3352, 3365, 3383, 3602, 3676

51. Parasite: 0028, 0029, 0030, 0031, 0032, 0033, 0035,
0056, 0065, 0072, 0077, 0078, 0083, 0084, 0085,
0086, 0092, 0100, 0101, 0107, 0114, 0119, 0128,
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0162, 0163, 0164, 0165, 0166, 0167, 0171, 0172,
0174, 0180, 0181, 0184, 0186, 0199, 0204, 0208,
0222, 0225, 0242, 0245, 0246, 0247, 0249, 0251,
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0392, 0401, 0412, 0415, 0416, 0417, 0418, 0422,
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2004, 2017, 2019, 2023, 2032, 2042, 2047, 2050,
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2154, 2156, 2158, 2183, 2195, 2197, 2208, 2209,
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2675, 2678, 2690, 2691, 2692, 2693, 2700, 2705,
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52. Pathogen: 0058, 0059, 0060, 0061, 0065, 0120, 0145, 0153, 0173, 0310, 0317, 0325, 0330, 0335, 0336, 0349, 0365, 0375, 0377, 0422, 0431, 0502, 0507, 0554, 0558, 0570, 0622, 0808, 0822, 0823, 0824, 0825, 0953, 0968, 0982, 0986, 1027, 1033, 1048, 1050, 1065, 1086, 1107, 1227, 1346, 1422, 1472, 1528, 1542, 1582, 1721, 1807, 1810, 1883, 1930, 1985, 1986, 2043, 2099, 2112, 2113, 2165, 2166, 2167, 2171, 2212, 2239, 2240, 2241, 2243, 2276, 2319, 2336, 2337, 2339, 2340, 2347, 2355, 2356, 2396, 2397, 2398, 2399, 2400, 2407, 2441, 2462, 2509, 2636, 2725, 2739, 2740, 2743, 2745, 2749, 2750, 2751, 2756, 2758, 2773, 2776, 2790, 2805, 2806, 2807, 2816, 2939, 2989, 3009, 3114, 3125, 3130, 3196, 3253, 3254, 3256, 3279, 3284, 3296, 3306, 3314, 3372, 3423, 3445, 3508, 3516, 3524, 3550, 3603, 3604, 3607, 3629, 3637, 3638, 3642, 3657, 3658, 3704
53. Pest Management: 0002, 0021, 0028, 0033, 0146, 0277, 0345, 0365, 0490, 0492, 0510, 0511, 0512, 0561, 0571, 0572, 0574, 0680, 0689, 0748, 0814, 0818, 0896, 0998, 0999, 1000, 1027, 1044, 1065, 1161, 1164, 1204, 1376, 1468, 1546, 1549, 1735, 1736, 1737, 1765, 1766, 1767, 1768, 1771, 1772, 1778, 1833, 1861, 1898, 1984, 1989, 2007, 2019, 2130, 2157, 2243, 2330, 2356, 2413, 2524, 2559, 2573, 2668, 2679, 2781, 2834, 2839, 2857, 2865, 2866, 2874, 3099, 3163, 3250, 3366, 3367, 3442, 3559, 3560, 3579, 3644
54. Pheromone: 0037, 0170, 0177, 0178, 0179, 0258, 0259, 0260, 0261, 0275, 0365, 0408, 0409, 0455, 0538, 0649, 0789, 0790, 1034, 1035, 1044, 1090, 1210, 1337, 1340, 1347, 1351, 1356, 1358, 1359, 1362, 1364, 1619, 1623, 1632, 1633, 1634, 1635, 1636, 1642, 1643, 1909, 1943, 1944, 1946, 2191, 2295, 2309, 2344, 2345, 2346, 2401, 2408, 2409, 2442, 2506, 2516, 2629, 3192, 3216, 3217, 3259, 3260, 3262, 3263, 3264, 3265, 3266, 3267, 3376, 3399, 3592, 3690, 3691, 3712
55. Photoperiod: 0176, 0218, 0237, 0238, 0496, 0791, 1319, 1320, 1491, 1500, 1630, 1784, 2192, 2386, 2994, 3342
56. Physical Control: 0175, 0186, 0200, 0204, 0222, 0231, 0294, 0371, 0431, 0502, 0547, 0563, 0570, 0572, 0619, 0631, 0643, 0698, 0736, 0743, 0902, 0905, 1010, 1012, 1020, 1050, 1068, 1079, 1241, 1244, 1262, 1264, 1463, 1486, 1518, 1530, 1561, 1563, 1566, 1632, 1636, 1675, 1688, 1767, 1772, 1791, 1803, 1834, 1849, 1850, 1889, 1903, 1919, 1921, 1964, 1971, 1979, 1996, 2007, 2037, 2074, 2124, 2125, 2151, 2202, 2204, 2205, 2206, 2316, 2330, 2331, 2395, 2477, 2479, 2480, 2482, 2510, 2624, 2773, 2775, 2782, 2822, 2954, 3009, 3021, 3040, 3070, 3195, 3210, 3292, 3321, 3398, 3412, 3418, 3525, 3526, 3578, 3590, 3644, 3685, 3701 (See also Light Trap)
57. Physiology: 0022, 0024, 0025, 0026, 0027, 0037, 0074, 0473, 0474, 0495, 0496, 0782, 0943, 0946, 0947, 0950, 0952, 0960, 0961, 0962, 0965, 0966, 0967, 0974, 1024, 1025, 1125, 1182, 1184, 1185, 1186, 1190, 1304, 1393, 1394, 1395, 1397, 1398, 1401, 1406, 1408, 1444, 1562, 1565, 1566, 1594, 1596, 1628, 1629, 1750, 1790, 1808, 1809, 1811, 1812, 1813, 1815, 1916, 1932, 1949, 1950, 1951, 2029, 2163, 2164, 2165, 2168, 2169, 2170, 2236, 2369, 2401, 2402, 2457, 2458, 2533, 2824, 2825, 2826, 2827, 2845, 2846, 2915, 2993, 3057, 3109, 3167, 3194, 3226, 3281, 3294, 3295, 3301, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3378, 3492, 3591, 3592, 3612, 3616, 3617, 3618, 3619, 3620, 3621, 3650, 3679, 3680, 3681, 3682, 3683, 3684 (See also Biochemistry, Dormancy, Hormone, Insect Growth Regulator, Juvenile Hormone, Metamorphosis, Nervous System, Nutrition, Reproduction, Respiration, Symbiont, and Vision)
58. Planting Density: 0033, 0043, 0112, 0159, 0161, 0415, 0484, 0611, 0664, 0670, 0677, 0722, 1065, 1177, 1206, 1248, 1346, 1375, 1441, 1467, 1468, 1469, 1474, 1479, 1577, 1710, 1777, 1873, 1885, 1886, 1893, 1919, 1937, 2050, 2051, 2666, 2816, 2878, 2945, 3038, 3181, 3238, 3289, 3390, 3412, 3484, 3558, 3588, 3595, 3625
59. Planting Material: 0204, 0327
60. Planting Time: 0033, 0065, 0072, 0119, 0295, 0346, 0377, 0418, 0476, 0520, 0571, 0659, 0661, 0662, 0664, 0665, 0666, 0667, 0668, 0669, 0670, 0671, 0673, 0674, 0675, 0677, 0682, 0738, 0744, 0786, 0896, 1020, 1027, 1050, 1085, 1099, 1100, 1107, 1167, 1183, 1195, 1218, 1235, 1260, 1262, 1265, 1279, 1307, 1329, 1375, 1376, 1399, 1435, 1437, 1440, 1441, 1459, 1466, 1467, 1468, 1474, 1542, 1544, 1584, 1641, 1651, 1688, 1693, 1695, 1710,

1711, 1714, 1752, 1766, 1767, 1772, 1777, 1868, 1873, 1885, 1886, 1887, 1889, 1893, 1926, 1937, 1983, 1984, 1999, 2019, 2042, 2071, 2074, 2080, 2084, 2112, 2125, 2183, 2279, 2330, 2331, 2347, 2406, 2413, 2421, 2452, 2512, 2513, 2529, 2557, 2567, 2593, 2598, 2633, 2643, 2666, 2783, 2804, 2809, 2840, 2841, 2904, 2905, 2919, 2945, 3009, 3018, 3150, 3181, 3207, 3214, 3289, 3290, 3292, 3321, 3323, 3359, 3365, 3386, 3411, 3412, 3413, 3414, 3416, 3417, 3418, 3421, 3422, 3456, 3578, 3589, 3601, 3626, 3673, 3686, 3701

61. Population Ecology: 1899

62. Predator: 0083, 0242, 0244, 0248, 0249, 0273, 0274, 0325, 0365, 0366, 0375, 0377, 0389, 0412, 0422, 0424, 0471, 0502, 0552, 0570, 0594, 0596, 0599, 0601, 0602, 0603, 0612, 0646, 0647, 0654, 0680, 0691, 0705, 0724, 0734, 0755, 0825, 0848, 0849, 0907, 0978, 1048, 1050, 1056, 1065, 1107, 1155, 1161, 1165, 1168, 1175, 1203, 1231, 1232, 1240, 1295, 1329, 1344, 1347, 1356, 1364, 1370, 1468, 1472, 1488, 1536, 1551, 1552, 1557, 1599, 1720, 1733, 1734, 1778, 1781, 1864, 1920, 1921, 1962, 1964, 1974, 1982, 1984, 2001, 2050, 2051, 2081, 2086, 2087, 2112, 2145, 2154, 2186, 2212, 2283, 2316, 2330, 2342, 2347, 2355, 2390, 2403, 2405, 2441, 2477, 2115, 2536, 2583, 2598, 2624, 2740, 2743, 2749, 2750, 2760, 2767, 2771, 2776, 2781, 2788, 2815, 2828, 2829, 2831, 2832, 2856, 2894, 2956, 2989, 3009, 3031, 3036, 3055, 3126, 3193, 3224, 3249, 3286, 3287, 3288, 3375, 3445, 3449, 3517, 3522, 3576, 3578, 3579, 3582, 3604, 3629, 3637, 3638, 3640, 3642, 3643, 3644, 3663, 3678, 3707, 3708

63. Quarantine: 0183, 0288, 0917, 0918, 0975, 1114, 2461, 2515

64. Rainfall: 0012, 0218, 0235, 1107, 1307, 1541, 1789, 1996, 2084, 2154, 2192, 2282, 2284, 2529, 2636, 2647, 2650, 2656, 2658, 2864, 2874, 2956, 3009, 3288, 3326, 3412, 3422, 3427

65. Rainfed Lowland: 0204, 0226, 0294, 0892, 1005, 1006, 1007, 1008, 1009, 1013, 1067, 1132, 1356, 1358, 1364, 1366, 1368, 1549, 1578, 1826, 2004, 2021, 2024, 2025, 2048, 2157, 2799, 2810, 2977

66. Ratoon: 0108, 0471, 0510, 0723, 0724, 0753, 0803, 1314, 1474, 1893, 2062, 2810, 2813

67. Rearing: 0065, 0190, 0245, 0262, 0308, 0310, 0311, 0316, 0321, 0500, 0513, 0540, 0609, 0636, 0701, 0714, 0732, 0782, 0892, 0958, 0988, 1058, 1088,

1182, 1185, 1190, 1224, 1225, 1240, 1283, 1317, 1322, 1333, 1337, 1339, 1344, 1356, 1393, 1394, 1395, 1396, 1397, 1398, 1406, 1462, 1472, 1528, 1579, 1585, 1586, 1588, 1589, 1592, 1595, 1596, 1604, 1615, 1616, 1815, 1860, 1882, 2015, 2107, 2129, 2163, 2210, 2254, 2260, 2392, 2509, 2636, 2697, 2909, 2911, 2914, 2927, 2968, 2970, 2972, 2973, 3020, 3100, 3319, 3358, 3360, 3399, 3430, 3468, 3529, 3530, 3580, 3584, 3656, 3684, 3710
(See also Diet)

68. Reproduction: 0113, 0117, 0119, 0170, 0177, 0178, 0179, 0204, 0215, 0258, 0259, 0260, 0261, 0275, 0408, 0409, 0422, 0466, 0502, 0586, 0612, 0649, 0783, 0789, 0790, 0927, 1034, 1037, 1038, 1090, 1099, 1240, 1253, 1254, 1256, 1336, 1337, 1340, 1347, 1356, 1358, 1359, 1362, 1364, 1463, 1492, 1493, 1559, 1603, 1619, 1620, 1621, 1622, 1623, 1624, 1627, 1628, 1629, 1630, 1631, 1633, 1634, 1635, 1638, 1639, 1640, 1642, 1643, 1664, 1669, 1722, 1849, 1875, 1889, 1909, 1910, 1911, 1913, 2016, 2054, 2072, 2096, 2191, 2206, 2250, 2286, 2297, 2333, 2344, 2345, 2346, 2347, 2377, 2378, 2383, 2384, 2401, 2408, 2409, 2442, 2499, 2501, 2506, 2516, 2629, 2686, 2756, 2771, 2815, 2919, 2929, 2942, 3009, 3012, 3109, 3167, 3170, 3192, 3217, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3321, 3349, 3376, 3399, 3464, 3465, 3592, 3629, 3669, 3672, 3674, 3690, 3691, 3712

69. Respiration: 0074, 0974, 1949, 2029, 3331, 3332

70. Review: 0020, 0021, 0034, 0064, 0067, 0069, 0072, 0080, 0082, 0085, 0086, 0093, 0094, 0095, 0097, 0161, 0164, 0205, 0226, 0232, 0233, 0236, 0277, 0289, 0316, 0345, 0365, 0367, 0428, 0429, 0438, 0442, 0445, 0446, 0447, 0450, 0518, 0565, 0570, 0615, 0692, 0698, 0711, 0733, 0819, 0821, 0881, 0884, 0922, 0923, 0952, 0958, 6985, 1044, 1046, 1048, 1050, 1065, 1133, 1150, 1155, 1157, 1161, 1230, 1445, 1467, 1530, 1561, 1648, 1656, 1707, 1710, 1739, 1740, 1775, 1777, 1861, 1902, 1937, 1975, 1977, 2023, 2044, 2084, 2091, 2096, 2125, 2157, 2192, 2216, 2224, 2251, 2355, 2356, 2364, 2366, 2394, 2395, 2412, 2413, 2513, 2519, 2557, 2559, 2567, 2578, 2603, 2776, 2807, 2847, 2848, 2865, 2874, 2930, 3009, 3063, 3310, 3313, 3381, 3494, 3517, 3523, 3578, 3631, 3635, 3637, 3638, 3642

71. Sampling: 0014, 0036, 0039, 0054, 0072, 0098, 0099, 0149, 0177, 0179, 0192, 0194, 0202, 0203, 0204, 0212, 0231, 0235, 0237, 0238, 0261, 0270, 0352, 0365, 0371, 0406, 0408, 0409, 0430, 0435, 0448, 0455, 0459, 0471, 0476, 0478, 0490, 0491,

0492, 0500, 0502, 0521, 0534, 0538, 0551, 0553, 0568, 0572, 0599, 0623, 0630, 0631, 0648, 0681, 0682, 0685, 0712, 0730, 0817, 0821, 0826, 0832, 0847, 0848, 0849, 0892, 0898, 0958, 0997, 1035, 1039, 1044, 1074, 1085, 1100, 1121, 1149, 1161, 1164, 1165, 1167, 1169, 1197, 1200, 1208, 1209, 1210, 1244, 1257, 1263, 1293, 1307, 1328, 1346, 1356, 1358, 1372, 1426, 1432, 1442, 1443, 1486, 1489, 1517, 1562, 1566, 1632, 1636, 1675, 1677, 1691, 1736, 1791, 1793, 1797, 1803, 1817, 1824, 1846, 1875, 1881, 1887, 1934, 1938, 1940, 1979, 1984, 1989, 1990, 1994, 2021, 2034, 2040, 2049, 2066, 2068, 2074, 2084, 2085, 2130, 2182, 2184, 2189, 2199, 2200, 2201, 2202, 2205, 2206, 2215, 2233, 2309, 2314, 2326, 2327, 2329, 2347, 2351, 2365, 2367, 2391, 2393, 2406, 2433, 2454, 2455, 2471, 2472, 2482, 2507, 2508, 2511, 2513, 2529, 2537, 2557, 2609, 2647, 2652, 2686, 2771, 2775, 2783, 2813, 2821, 2822, 2849, 2887, 2888, 2889, 2904, 2905, 2949, 2999, 3009, 3028, 3035, 3041, 3065, 3115, 3143, 3144, 3185, 3216, 3263, 3266, 3288, 3307, 3308, 3309, 3311, 3323, 3349, 3381, 3412, 3414, 3415, 3428, 3453, 3457, 3459, 3477, 3558, 3578, 3590, 3597, 3635, 3676, 3677, 3688
(See also Light Trap and Pheromone)

72. Sanitation: 0033, 0072, 0083, 0084, 0119, 0158, 0159, 0204, 0222, 0276, 0320, 0325, 0332, 0336, 0363, 0377, 0391, 0431, 0502, 0520, 0570, 0571, 0612, 0617, 0631, 0698, 0744, 0748, 0783, 0798, 0803, 0881, 1036, 1038, 1043, 1068, 1072, 1083, 1099, 1146, 1200, 1228, 1260, 1293, 1297, 1312, 1313, 1382, 1423, 1456, 1463, 1468, 1474, 1476, 1542, 1650, 1710, 1752, 1772, 1805, 1806, 1834, 1875, 1887, 1889, 1893, 1921, 1922, 1937, 1953, 1964, 1965, 1984, 1999, 2005, 2019, 2030, 2042, 2059, 2071, 2074, 2112, 2153, 2243, 2245, 2331, 2389, 2395, 2403, 2413, 2477, 2480, 2496, 2497, 2557, 2567, 2601, 2624, 2699, 2756, 2780, 2781, 2809, 2839, 2864, 2923, 2956, 3009, 3133, 3210, 3236, 3289, 3319, 3321, 3398, 3412, 3418, 3427, 3428, 3429, 3445, 3462, 3506, 3560, 3569, 3578, 3588, 3595, 3685, 3687

73. Seasonal Abundance: 0012, 0036, 0045, 0054, 0065, 0072, 0080, 0083, 0085, 0094, 0098, 0099, 0104, 0137, 0138, 0159, 0177, 0181, 0186, 0187, 0192, 0198, 0216, 0218, 0223, 0235, 0237, 0238, 0254, 0274, 0319, 0371, 0390, 0403, 0406, 0412, 0428, 0431, 0435, 0436, 0438, 0442, 0443, 0447, 0450, 0451, 0452, 0454, 0455, 0459, 0462, 0463, 0483, 0492, 0497, 0502, 0521, 0534, 0535, 0536, 0539, 0553, 0556, 0559, 0597, 0599, 0620, 0621, 0642, 0648, 0656, 0664, 0680, 0720, 0728, 0742, 0807, 0811, 0812, 0821, 0839, 0898, 0922, 0933,

0937, 0939, 0940, 0942, 0944, 0948, 0949, 0951, 0952, 0959, 0963, 0964, 0977, 0993, 0994, 1000, 1010, 1020, 1037, 1040, 1053, 1059, 1074, 1077, 1078, 1100, 1115, 1116, 1117, 1121, 1122, 1149, 1167, 1168, 1201, 1205, 1211, 1216, 1231, 1232, 1234, 1237, 1239, 1245, 1251, 1257, 1277, 1279, 1290, 1292, 1293, 1296, 1306, 1307, 1310, 1318, 1325, 1344, 1346, 1347, 1358, 1389, 1390, 1419, 1430, 1432, 1433, 1435, 1440, 1442, 1445, 1458, 1472, 1476, 1487, 1490, 1532, 1541, 1545, 1574, 1607, 1632, 1641, 1657, 1675, 1695, 1711, 1712, 1725, 1736, 1754, 1755, 1773, 1774, 1775, 1779, 1784, 1785, 1786, 1787, 1806, 1818, 1825, 1834, 1843, 1845, 1857, 1868, 1871, 1881, 1887, 1900, 1904, 1908, 1933, 1938, 1964, 1990, 2033, 2034, 2049, 2055, 2067, 2068, 2071, 2080, 2085, 2107, 2141, 2146, 2150, 2173, 2174, 2176, 2182, 2183, 2185, 2213, 2215, 2229, 2230, 2233, 2235, 2284, 2289, 2300, 2309, 2326, 2328, 2352, 2353, 2357, 2363, 2365, 2367, 2373, 2374, 2376, 2377, 2379, 2381, 2383, 2384, 2386, 2387, 2391, 2393, 2406, 2441, 2443, 2445, 2452, 2455, 2460, 2461, 2472, 2473, 2484, 2511, 2513, 2521, 2530, 2535, 2557, 2587, 2598, 2609, 2636, 2637, 2647, 2652, 2658, 2666, 2681, 2699, 2734, 2743, 2748, 2771, 2783, 2815, 2816, 2821, 2835, 2837, 2843, 2858, 2864, 2879, 2883, 2889, 2904, 2912, 2924, 2941, 2956, 2975, 2985, 2990, 2999, 3007, 3009, 3016, 3018, 3028, 3039, 3040, 3047, 3054, 3068, 3071, 3072, 3075, 3076, 3121, 3122, 3143, 3144, 3150, 3152, 3159, 3160, 3175, 3187, 3201, 3203, 3204, 3222, 3257, 3277, 3283, 3288, 3289, 3290, 3305, 3309, 3310, 3312, 3313, 3315, 3321, 3322, 3323, 3325, 3326, 3327, 3354, 3359, 3361, 3362, 3363, 3389, 3398, 3402, 3403, 3404, 3417, 3422, 3448, 3456, 3457, 3477, 3558, 3598, 3599, 3602, 3608, 3629, 3645, 3659, 3666, 3667, 3670, 3676, 3677, 3685, 3688, 3702

74. Seed Treatment: 1339

75. Soil Type: 0134, 0296, 1473, 2154

76. Spatial: 0063, 0065, 0114, 0119, 0157, 0204, 0225, 0274, 0336, 0366, 0377, 0412, 0416, 0417, 0431, 0500, 0502, 0518, 0536, 0560, 0599, 0610, 1040, 1107, 1168, 1309, 1318, 1490, 1599, 1610, 1644, 1664, 1739, 1796, 1824, 1845, 1846, 1848, 1924, 1964, 1980, 2064, 2084, 2181, 2210, 2230, 2245, 2297, 2298, 2304, 2390, 2465, 2475, 2513, 2700, 2734, 2748, 2756, 2758, 2780, 2800, 2843, 2906, 2919, 2931, 2956, 2976, 3136, 3166, 3218, 3349, 3460, 3580, 3633, 3669

77. Sterile Technique: 0607, 0608, 1242, 1252, 1253, 1254, 1256, 1336, 1931, 2213, 2483, 2697, 3057
78. Survivorship: 0063, 0455, 0478, 0535, 0537, 0715, 0825, 0922, 0964, 1236, 1255, 1307, 1321, 1323, 1339, 1382, 1625, 1626, 1826, 1855, 1866, 1873, 1904, 2029, 2044, 2071, 2298, 2347, 2379, 2380, 2385, 2387, 2407, 2441, 2475, 2482, 2520, 2636, 2874, 2893, 2992, 3173, 3394, 3402, 3497
79. Synchronous Planting: 0520, 0530, 0572, 0691, 0698, 1065, 1172, 1195, 1359, 1362, 1530, 1542, 1710, 1711, 1712, 1725, 1775, 1893, 1971, 1989, 2005, 2040, 2041, 2042, 2279, 2482, 2776, 2839, 2857, 3163, 3289, 3290, 3310, 3366, 3367, 3412, 3413, 3416, 3418
80. Synergism: 1836, 1842
81. Taxonomy: 0023, 0038, 0065, 0085, 0092, 0158, 0243, 0297, 0298, 0299, 0300, 0301, 0315, 0316, 0318, 0366, 0379, 0413, 0612, 0624, 0651, 0653, 0696, 0719, 0731, 0732, 0793, 0826, 0858, 0887, 0908, 0909, 0914, 0915, 0922, 0979, 1050, 1074, 1091, 1092, 1093, 1094, 1133, 1135, 1147, 1168, 1362, 1387, 1388, 1648, 1666, 1681, 1763, 1830, 1832, 1980, 2092, 2222, 2228, 2269, 2366, 2529, 2541, 2544, 2589, 2590, 2591, 2597, 2636, 2698, 2755, 2771, 2776, 2800, 2812, 2880, 2919, 2937, 2995, 3056, 3180, 3211, 3281, 3282, 3412, 3519, 3520, 3521, 3528, 3546, 3547, 3567, 3578, 3615, 3631, 3645, 3699, 3715 (See also Morphology)
82. Temperature: 0009, 0176, 0203, 0218, 0235, 0455, 0497, 0558, 0562, 0779, 0844, 1000, 1052, 1080, 1111, 1113, 1118, 1119, 1307, 1368, 1413, 1425, 1502, 1538, 1541, 1621, 1639, 1640, 1698, 1722, 1764, 1777, 1779, 1784, 1789, 1879, 1889, 1926, 1927, 1928, 1996, 2014, 2044, 2047, 2084, 2150, 2168, 2169, 2192, 2282, 2284, 2386, 2416, 2529, 2636, 2647, 2650, 2656, 2835, 2837, 2881, 2954, 2956, 2992, 2993, 3162, 3170, 3173, 3190, 3201, 3310, 3324, 3326, 3329, 3334, 3336, 3352, 3500, 3609, 3610, 3613
83. Tidal Swamp: 0034, 1089, 3574
84. Tillage: 0019, 0045, 0164, 0200, 0294, 0355, 0366, 0391, 0422, 0488, 0510, 0512, 0520, 0546, 0591, 0595, 0617, 0631, 0632, 0665, 0672, 0697, 0698, 0725, 0744, 0803, 0804, 0805, 0881, 0894, 0896, 0902, 0905, 1043, 1050, 1080, 1085, 1099, 1235, 1244, 1246, 1260, 1307, 1441, 1514, 1530, 1650, 1709, 1710, 1772, 1805, 1874, 1889, 1893, 1937, 1979, 1983, 1984, 1997, 2005, 2028, 2030, 2042, 2060, 2071, 2074, 2213, 2244, 2316, 2330, 2429, 2480, 2519, 2529, 2557, 2602, 2679, 2781, 2804, 2809, 2919, 2951, 3009, 3289, 3320, 3321, 3412, 3427, 3428, 3506, 3569, 3578, 3595, 3685, 3689, 3701, 3713
85. Timing: 0239, 0730, 0760, 0853, 1149, 1168, 1194, 1218, 1222, 1333, 1356, 1692, 1859, 1914, 1935, 1961, 2262, 2318, 2513, 2538, 3246, 3298, 3452
86. Toxicity: 0189, 1127, 1128, 1129, 1130, 1192, 1226, 1813, 1851, 1956, 1957, 1958, 2236, 2303, 2845, 2846
87. Trap Crop: 0158, 0493, 0546, 0555, 1016, 1017, 1018, 1019, 1161, 1530, 1710, 1979, 1981, 2019, 2241, 2245, 2330, 2689, 2756, 3021, 3518, 3701
88. Upland: 0028, 0034, 0062, 0064, 0069, 0070, 0072, 0080, 0082, 0161, 0205, 0229, 0244, 0250, 0272, 0289, 0565, 0613, 0685, 0771, 0777, 0796, 0837, 0838, 0876, 0892, 0897, 1065, 1070, 1205, 1208, 1209, 1275, 1276, 1277, 1289, 1330, 1368, 1370, 1514, 1537, 1547, 1549, 1557, 1654, 1800, 2023, 2025, 2064, 2091, 2093, 2096, 2098, 2226, 2251, 2359, 2498, 2519, 2575, 2577, 2603, 2653, 2712, 2792, 2793, 2810, 2813, 2882, 2921, 3050, 3118, 3123, 3214, 3268, 3279, 3432, 3536, 3573, 3676, 3677
89. Varietal Resistance: 0001, 0002, 0021, 0028, 0033, 0053, 0063, 0065, 0069, 0070, 0071, 0072, 0079, 0081, 0102, 0103, 0105, 0109, 0110, 0111, 0116, 0117, 0118, 0121, 0125, 0126, 0127, 0146, 0158, 0159, 0161, 0164, 0181, 0184, 0191, 0204, 0206, 0217, 0222, 0230, 0233, 0241, 0250, 0269, 0276, 0277, 0281, 0293, 0295, 0296, 0324, 0346, 0365, 0366, 0377, 0380, 0381, 0391, 0394, 0401, 0415, 0431, 0439, 0444, 0446, 0456, 0457, 0458, 0469, 0476, 0477, 0478, 0479, 0481, 0482, 0492, 0498, 0502, 0509, 0516, 0517, 0518, 0523, 0541, 0542, 0555, 0557, 0563, 0566, 0570, 0571, 0572, 0578, 0579, 0580, 0584, 0585, 0586, 0588, 0590, 0597, 0605, 0610, 0612, 0658, 0659, 0660, 0663, 0664, 0666, 0667, 0668, 0669, 0670, 0673, 0674, 0676, 0678, 0680, 0681, 0682, 0685, 0695, 0703, 0706, 0707, 0708, 0709, 0711, 0712, 0733, 0735, 0748, 0749, 0752, 0758, 0761, 0762, 0773, 0774, 0775, 0777, 0783, 0785, 0809, 0810, 0811, 0813, 0818, 0833, 0850, 0861, 0881, 0891, 0892, 0896, 0923, 0930, 0938, 1004, 1009, 1014, 1016, 1018, 1028, 1031, 1046, 1050, 1054, 1065, 1066, 1148, 1150, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1168, 1171, 1176, 1264, 1272, 1280, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1305, 1307, 1327, 1329,

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3392, 3393, 3394, 3401, 3404, 3406, 3439, 3442, 3446, 3459, 3464, 3466, 3467, 3469, 3471, 3478, 3479, 3485, 3489, 3491, 3495, 3496, 3497, 3498, 3499, 3503, 3504, 3509, 3515, 3538, 3552, 3553, 3554, 3555, 3558, 3559, 3560, 3578, 3580, 3639, 3644, 3651, 3653, 3664

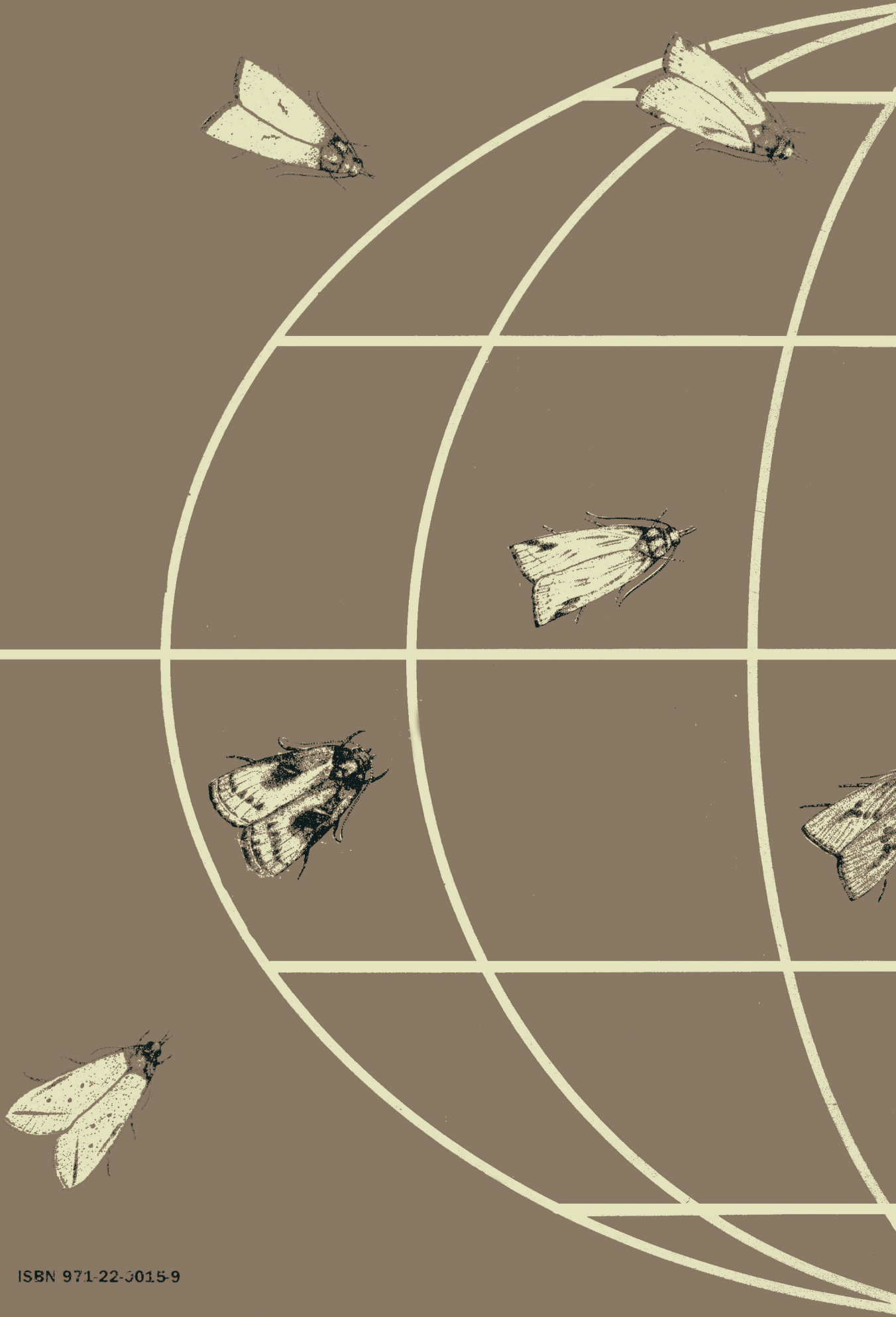
90. Vision: 1562, 1565, 1566, 3612

91. Water Balance: 1808, 1809

92. Water Management: 0019, 0072, 0159, 0203, 0204, 0231, 0345, 0346, 0363, 0422, 0502, 0520, 0546, 0560, 0570, 0571, 0572, 0617, 0671, 0573, 0722, 0748, 0783, 0802, 0861, 0916, 1020, 1036, 1050, 1110, 1111, 1112, 1113, 1146, 1155, 1161, 1221, 1313, 1375, 1463, 1474, 1514, 1530, 1584, 1650, 1710, 1725, 1752, 1834, 1873, 1893, 1894, 1921, 1937, 1964, 1983, 1984, 1989, 1997, 2019, 2029, 2030, 2031, 2042, 2068, 2112, 2125, 2180, 2316, 2330, 2331, 2477, 2479, 2480, 2513, 2524, 2529, 2679, 2780, 2786, 2816, 2853, 2865, 2866, 2923, 2945, 3009, 3121, 3181, 3191, 3210, 3289, 3292, 3321, 3344, 3366, 3367, 3412, 3413, 3414, 3451, 3462, 3484, 3551, 3559, 3578, 3588, 3595, 3685, 3701, 3704, 3705, 3713

93. Weeding: 0378, 0417, 0572, 0631, 0632, 0633, 0691, 0698, 0741, 0806, 1050, 1313, 1370, 1468, 1474, 1516, 1650, 1653, 1789, 1826, 1981, 1984, 1999, 2245, 2477, 2480, 2756, 2810, 2853, 2919, 3210, 3292, 3506, 3559, 3578, 3595, 3698

94. Wild Rice: 0070, 0072, 0081, 0363, 0680, 0753, 1085, 1150, 1289, 1359, 1362, 1366, 1484, 1738, 1981, 1984, 2044, 2504, 2808, 2921, 3117, 3444, 3640, 3693, 3697



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