

Citrus Orchard and Packing Shed Hygiene Management

SA Citrus Industry Development Board (SACIDB) – May 2007

The problem

Many citrus export markets have strict requirements regarding the presence of various insects on imported fruit. To access these markets the Australian Citrus Industry is required to implement procedures to ensure that fruit is essentially free from insects. In some cases even non economic insects can trigger required action depending on the country involved. This information sheet provides advice on sanitation and hygiene procedures to remove insects of concern from export fruit.

Non economic insects previously intercepted on Australian Citrus which have triggered responses from importing countries have included scavenging Tarsonemidae mites and predatory *Cecidomya* sp on exports to the USA and more recently Island fly found on exports to Japan.

In particular, Island fly—*Dirioxa pomia* (Walker 1849)—(Diptera: Tephritidae) is listed as an insect of quarantine concern in markets such as China and New Zealand. Despite Island fly only being known to infest fruit which has suffered rind damage, its presence in some citrus exports has resulted in destruction or costly re-direction of consignments.

Island fly is associated with damaged fruit and is considered a secondary pest in Australia. It is vital that orchard and packing house management measures are applied to prevent damaged fruit ending up in consignments. This can be achieved by establishing good orchard and packing house hygiene to reduce potential breeding sites.

The Insect



Island fly is reported to occur in the Australasian – Oceania region. It is only known to infest unsound fruit from a broad range of hosts and is therefore not considered to be of direct economic importance in Australia. However, some trading partners have this species listed as a quarantine pest in their legislation.

The key points about Island fly are:

- Eggs are deposited into wound sites of fruit. These may be splits, small punctures or areas of weakened rind.
- Island fly maggots look very similar to those of Queensland Fruit Fly. Experienced entomologists can distinguish between species based on examination of the posterior spiracle arrangement.

- Island fly is most common in summer and autumn and can be seen in orchards walking over the leaves and fruit .
- Adults are 5.5–8.5 mm long and smaller than Queensland Fruit Fly. Island fly is distinguished by a brownish yellow thorax and an abdomen with a black tip. The wings are strikingly mottled with dark brown and black fogging.
- The ovipositor of the fly is short and blunt, hence this species is unable to pierce the rind of sound fruit to deposit eggs.

Orchard and Packing House Management

It is important that orchards designated for export markets are free from fallen horticultural produce and split or rind damaged fruit must not be packed for export under any circumstances. All unsound fruit must be disposed of to avoid a build up of potential breeding sites.

Growers should take particular care to ensure that boundary rows are kept clean and varieties such as Leng navels, which tend to split, should be given special attention.

Packing sheds should ensure that they have effective grower registration systems to ensure unsuitable orchards can be traced and removed from export programs.

Bins delivered at packing sheds should be inspected on arrival for the presence of Island fly. Damaged fruit should be sampled and cut under a good light sources to check if any larvae or eggs are present.

Fruit culled for dumping and any other accumulated fruit waste should be removed regularly and disposed well away from packing facilities. In accordance with good packing practice, packing lines and equipment should be cleaned down regularly to remove fruit residues.

Fruit run over the packing line should be washed under high pressure washes, with surfactants added to dips and washes, to enhance the removal of insects.

Conclusion

Island fly is not known to damage or lay eggs in sound citrus. Its presence in damaged fruit in export consignments is highly likely to create serious repercussions with respect to how Australian Citrus is exported. Some key trading partners consider Island fly a quarantine pest and failure to prevent this species from entering export market programs, could result in loss of these markets and/or the implementation of extremely difficult and expensive export requirements.

Good hygiene practices are expected to be the most effective long-term strategy to remove Island fly from orchards and associated export produce. If adopted by all growers and packers over a whole district, it is expected to significantly reduce the presence of Island fly.

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