

Identification of Wedds

Muhammad Ashiq



Plant Physiology Section

Ayub Agricultural Research Institute Faisalabad

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آکاش نیل، امر نیل <i>Cuscuta reflexa</i>	کھبل <i>Cynodon dactylon</i>	گھوسیں <i>Cyperus difformis</i>	بھوسیں <i>Cyperus iria</i>
مورک یا چھوٹا ڈیلا <i>Cyperus rotundus</i>	مدھانہ گھاس <i>Dactyloctenium aegyptium</i>	دھتورا (سفید دھتورا) <i>Datura alba</i>	دھب، درب، بیرون <i>Desmostachy bipinnata</i>
پہلاوان <i>Dicanthium annulatum</i>	تاندلہ <i>Digera arvensis</i>	کارا بارا <i>Digitaria adscendens</i>	جنگلی سوائیک یا سوائکی <i>Echinochloa colona</i>
ڈھڈن <i>Echinochloa crus-galli</i>	دریائی بوٹی، کالا بھنگرا <i>Eclipta prostrata</i>	گل بکاؤلی <i>Eichhornia crassipes</i>	ترکنڈی پاکک <i>Emex spinulosa</i>
ہزاروانی دودھک <i>Euphorbia granulata</i>	چھتری دودھک <i>Euphorbia helioscopia</i>	لال دودھک <i>Euphorbia hirta</i>	چھوٹی بھوسیں <i>Fimbristylis dichotoma</i>
شاہترہ، پت پا پڑہ <i>Fumaria indica</i>	لیٹی یا گیلیم <i>Galium aparine</i>	اونٹ کٹارا، اونٹ چرا <i>Heliotropium europaeum</i>	جالا، ہانڈریلا <i>Hydrilla verticillata</i>

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نرم دھب <i>Imparita cylindrica</i>	چنچ پھلی، لاشانا <i>Lantana camara</i>	جنگلی مٹریا مٹری، دوکئی <i>Lathyrus aphaca</i>	کلر گھاس <i>Leptochloa chinensis</i>
لمب گھاس <i>Leptochloa panicea</i>	دھنک، ممتی یا لکنئی بوٹی <i>Lofium temulentum</i>	سوٹھل، خبازی یا چڑی چوگا <i>Malva neglecta</i>	چو پتی <i>Marsilia minuta</i>
مینا <i>Medicago polymorpha</i>	سینجی <i>Melilotus indica</i>	جنگلی پودینہ <i>Mentha longifolia</i>	نیلوفر، کمیان <i>Nymphaea stellata</i>
آرد پینکی، موٹھر، گیدڑ تمباکو <i>Orobanchae aegyptiaca</i>	کھٹی بوٹی <i>Oxalis corniculata</i>	پارتمینیم، کاجر بوٹی، چک پاندنی <i>Parthenium hysterophorus</i>	نرو گھاس <i>Paspalum paspaloides</i>
دبسی ٹی، سنی بوٹی <i>Phalaris minor</i>	کیکن بوٹی <i>Phyla nudiflora</i>	رس بھری، بھمولا <i>Physalis minima</i>	پوآ گھاس، بھونیں، نیلی گھاس <i>Poa annua</i>
درانک، رانی WY <i>Polygonum plebejum</i>	دُوب گھاس، گھونیں <i>Polygonum monspeliensis</i>	لوٹک، قلفہ <i>Portulaca oleracea</i>	چمبل، گھوڑسی <i>Ranunculus muricatus</i>
میننی <i>Rhynchosia capitata</i>	جنگلی پانک <i>Rumex dentatus</i>	سرکنڈا، کانا <i>Sacharum munja</i>	ایرو پڈ <i>Sagittaria guyanensis</i>
بھلے بوٹی <i>Schoenoplectus juncoides</i>	ڈیلا، بڑا ڈیلا <i>Scirpus maritimus</i>	لومڑ گھاس <i>Setaria verticillata</i>	جنگلی سرسوں، خوب کلاں <i>Sisymbrium irio</i>
مکو، پیلک <i>Solanum nigrum</i>	دائی دودھک <i>Sonchus arvensis</i>	کنڈیالی دودھک <i>Sonchus asper</i>	برو، کالا مچا <i>Sorghum halepense</i>
کلری بوٹی <i>Spergula arvensis</i>	مرچ بوٹی <i>Sphenoclea zeylanica</i>	پھولن بوٹی <i>Stellaria media</i>	اٹ سٹ <i>Trianthema portulacastrum</i>
بھکھڑا <i>Tribulus terrestris</i>	میننی <i>Trigonella monantha</i>	ڈب <i>Typha species</i>	چاندنی بوٹی <i>Veronica aggestis</i>
ریواڑی <i>Vicia sativa</i>	اکسن، آڑی، اسگندھ <i>Withania somnifera</i>	مجت بوٹی <i>Xanthium strumarium</i>	بسکھپرا <i>Zelia pentendra</i>
متفرق جڑی بوٹیاں <i>Miscellaneous weeds</i>	جڑی بوٹیوں کی فہرست <i>Checklist of weeds</i>	حوالہ جات <i>Literature cited</i>	

Achyranthes aspara

Family: *Amaranthaceae*
English name: Prickly chaff flower
Vernacular name: *Puthh kanda*



Importance: It is a less important perennial and troublesome weed of non-croplands and neglected corners of summer crops.

Control: It is tolerant to pendimethalin & metolachlor. It may be controlled through the spray of paraquat or glyphosate in non-croplands and directed application among crop rows.

Alhagi maurorum

{Syn. *A. pseudalhagi* Desv.}

Family: *Papilionaceae*

English name: Camel thorn, prickly clover

Vernacular name: *Juvaban, Juvansa*



Importance : It is a deep-rooted, perennial and bushy weed of least disturbed fertile wastelands, roadsides and canal banks. It is sometimes found as a minor weed in wheat in rainfed areas.

Control: Praquat, glyphosate in the non croplands while fluroxypy + MCPA in late sown wheat.

Alternanthera sessilis

Family: *Amaranthaceae*

English name: Alternanthera

Vernacular name: *Gandal booti*



Importance: This is rapidly emerging as summer perennial, weed of water courses, rice fields, vegetables, maize, sugarcane and most other water loving crops. At present it is included into "C-category" of weeds.

Control: It may be controlled through the application of bispyrabac sodium in rice, pendimethalin or S-metolachlor in vegetables, maize cotton, atrazine+S-metolachlor in maize and sugarcane.



Anagallis arvensis

Family: *Primulaceae*

English name: Blue pimpernel, poison chickweed, common pimpernel, poison weed, shepherd's clock

Vernacular name: *Billi booti, Dhabber, Krishna neel*



Importance: It is a well known, winter annual weed of "B -category". It is frequently found all over *Punjab* in wheat and winter crops.

Control: Pendimethalin in winter vegetables and oilseeds, tribenuron , bromoxynil+MCPA, thifensulfuron in wheat.

Arundo donax

(*Thysanolaena maxima*)

Family: Poaceae

English name: Common reed

Vernacular name: Narra, Narru



Importance: This is minor weed of “D-category” in the non-croplands, along the banks of water streams and sometimes inside the summer crops.

Control: Repeated application of full doses of both glyphosate plus paraquat gives more reliable results than individual application of either one

Asphodelus tenuifolius (Syn. *A. fistulosus* L.)

Family: *Liliaceae*

English name: Jungle onion, onion weed, asphodel, wild onion

Vernacular name: *Piazji, Bbokat*



Importance : It is an important weed of " *B-category* ", but may be classified in "*A-category*" in the gram belt of *Punjab*.

Control: Bromoxynil+MCPA, triasulfuron, fluroxypyr in wheat; oxadiargyl pendimethalin , S-metolachlor in oilseeds and pulses.

Avena fatua L.

Family: *Gramineae / Poaceae*

English name: Common wild oats

Vernacular name: *Jangli jai, Javi, Javdri*



Importance It is one of the most important weeds of wheat. It is included in “*A-category*”. It inflicts heavy losses to wheat in central *Punjab* and cotton zone.

Control: Post emergence application of fenoxaprop, sulfosulfuron, clodinafop, isoproturon, mesosulfuron+iodosulfuron may successfully be done in wheat



Brachiaria reptans

(Syn . *Panicum reptans* L.

Family: Poaceae

English name: Signal grass

Vernacular name:

Madbani cheera, Madbani, Chbota Madbana



Importance: It is summer annual weed of "B category" and found all over Punjab in maize cotton, sugarcane and other crops of loam soils . More frequently in irrigated Punjab.

Control : Pedimethalin, S-metolechlor in cotton, maize, summer vegetables and pulses, ametryn+atrazinein sugarcane, haloxyfop in cotton.

Bromus catharticus
(Syn. *B. unioloides*)

Family: *Poaceae*

English name: Rescue grass, Schrader's brome
Cheat grass

Vernacular name: *Slai ghas, Chavli*



Importance: It is a minor weed of "C category" found in wheat in salt affected areas of *Punjab* especially in *DG Khan* division.

Control: Metribuzin, sulfosulfuron, mesosulfuron+iodosulfuron in wheat.

Calotropis procera

Family: *Asclepiadaceae*
English name: Caltrop, giant milk-weed
Vernacular name: *Aak, Akra*



Importance: It is a deep-rooted, perennial weed of wastelands, roadsides and non-croplands. It prefers least disturbed locations. More frequently found in sandy loam soils of southern Punjab.

Control: Alternate spray of glyphosate @ 2300 gram a.i./ha and paraquat @ 494 g/ha with an interval of 15 days effectively control at advanced stage.

Cannabis sativa

Family: *Cannabinaceae*
English name: Neck weed, hemp, marijuana
Vernacular name: *Bhang, Chars*



Importance : This is a minor, robust and shrubby summer perennial , smelling weed of less disturbed locations and frequently found along the roadsides, non-cropland, gardens and less disturbed corners of summer vegetable crops.

Control: Paraquat or glyphosate as early or late post emergence in non-croplands and directed spray among crop rows. Pre emergence use of pendimethalin or S-metolachlor in summer vegetables.

Carthamus oxyacantha

Family: *Compositae/ Asteraceae*

English name: Wild safflower, spiny carthamus

Vernacular name: *Pobli, Satianasi, Kandhari*



Importance: It is major weed of "B-category" in rainfed areas of *Punjab*. It hampers harvesting and threshing process of wheat.

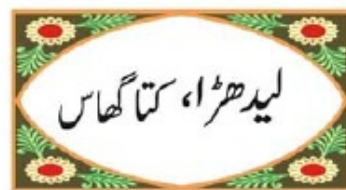
Control : Bromoxynil+MCPA, triasulfuron , fluroxypyr+MCPA, sulfosulfuron in wheat and glyphosate in non croplands.

Cenchrus ciliaris

Family: *Poaceae*

English name: Sandbur

Vernacular name: *Kutta ghaas, Lebhbra*



Importance: It is a minor weed of “C-category” mostly found in salt affected wastelands. It degrades seedcotton quality and hinders picking process in cotton.

Control: Pre emergence application of pendimethalin, S-metolachlor in cotton, maize, pulses and vegetables. Post emergence application of haloxyfop, fenoxaprop in cotton and most other dicot crops.



Chenopodium murale (Syn *C. lucidum*)

Family: *Chenopodiaceae*

English name: Fat hen, nettle leaved goose foot.

Vernacular name: *Krind, Chanda betwa*



Importance: It is an important "B- category" weed of winter crops. It is found all over *Punjab* but more frequently in salt affected fields of irrigated areas.

Control: Bromoxynil+MCPA, triasulfuron, fluroxypyr +MCPA, sulfosulfuron in wheat while pendimethalin, S-metolachlor in pulses and vegetables.

Cichorium intybus

Family: *Compositae/Asteraceae*

English name: Blue daisy, chicory, wild chicory

Vernacular name: *Kasni, Tukhm e kasni*



Importance: It is less important weed of "B-category" in berseem and other winter crops all over irrigated Punjab. It affects the fodder and seed quality of berseem.

Control: Bromoxynil+MCPA in wheat, pendimethalin, S-metolachlor in vegetables and use of clean seed in berseem.



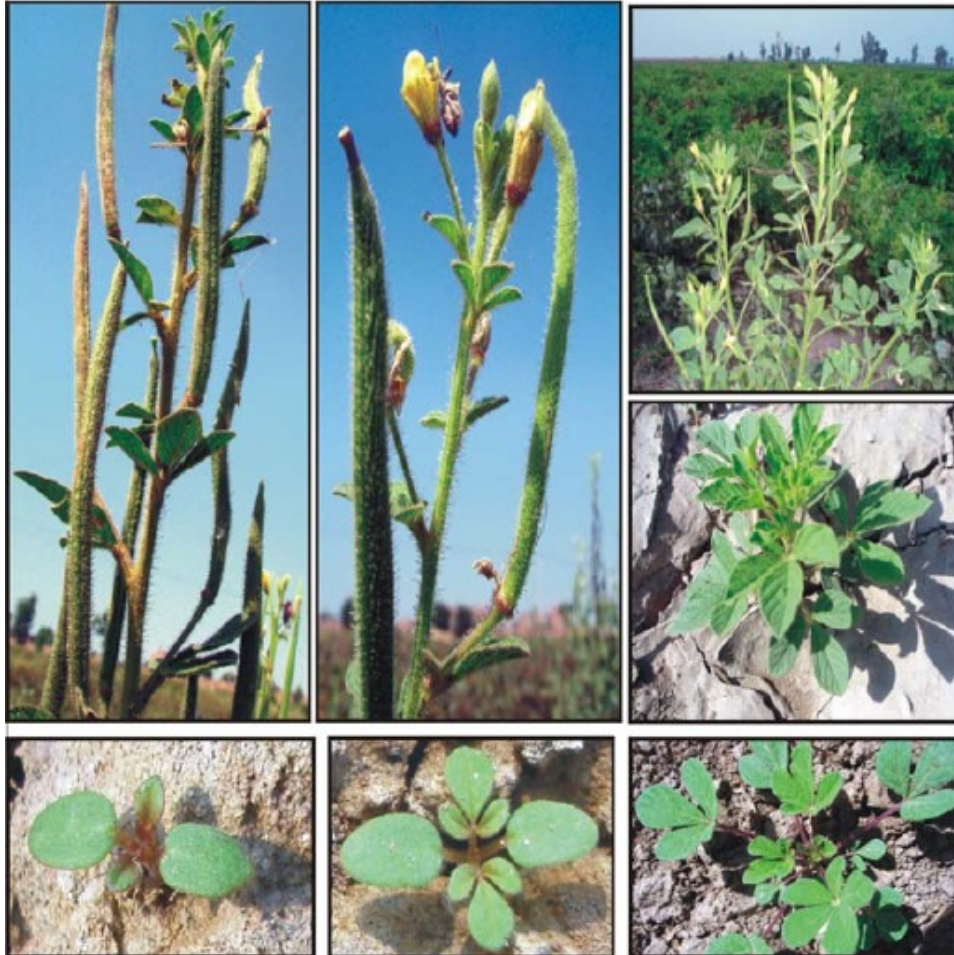
Cleome viscosa

(Syn: *Polanesia viscosa*)

Family: *Capparidaceae*

English name: Spider flower, sticky cleome, dog mustard, ground dove feed, tick weed, yellow mesam

Vernacular name: Hulhul, Bogra



Importance: It is a well known weed of "C-category" and found more frequently in sandy loam soils of southern Punjab in the cotton belt.

Control: Pendimethalin, trifluralin, acetochlor in cotton, maize, vegetables and ametryn+ atrazine in sugarcane.

Commelina communis

Family: *Commelinaceae*
English name: Asiatic dayflower
Vernacular name: *Kanchra*



Importance: It is a minor weed of “D-category” in water courses, rice, sugarcane, summer vegetables and orchards.

Control: Pre emergence use of pendimethalin or S-metolachlor in potato, vegetables. Post emergence application of glyphosate in non-croplands and water courses.

Convolvulus arvensis

(Syn. *Convolvulus minor*)



Family: *Convolvulaceae*

English name: Field bindweed, green-vine & wild morning glory.

Vernacular name: *Lehli, Wamehri, Baiy, Krari, Hiranpadi*



Importance: It is widely distributed troublesome, objectionable and perennial weed of "A-category" mainly in winter crops. In addition to lodging of wheat, it interferes with its harvesting and threshing.

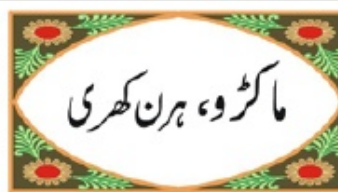
Control: Carfentrazone in wheat, barley, maize and sugarcane, bromoxynil + MCPA, fluroxypyr + MCPA in wheat and high dose of glyphosate in non-croplands.

Convolvulus pluricaulis

Family: *Convolvulaceae*

English name: Summer bindweed

Vernacular name: Makrru, Hirankhuri



Importance: It is a summer annual weed of "*C-category*". Being a mimic plant, it is becoming a problem weed in cotton fields of southern Punjab.

Control: This weed is tolerant to most of the pre emergence herbicides of cotton. Directed application of glyphosate, Oxyfluorfen may help a lot.

Conyza stricta (Syn. *Conyza ambigua*)

Family: *Compositae*

English name: Tall fleabane, horseweed, hairy fleabane

Vernacular name: *Loosan booti, sonsli*



Importance: It is annual dicot weed of spring crops like spring sunflower, maize, vegetables and orchards. This is a minor weed of C -category in waste lands and around field borders.

Control: It is tolerant to metribuzin, diuron, ethoxy sulfuron. It can be controlled through the pre emergence use of pendimethalin or S-metolachlor in potato, vegetables and maize crops of spring season. Glyphosate in non-croplands.

Corchorus antichorus

{Syn . *C. depressus* (L.) Stocks}

Family: *Tiliaceae*

English name : Wild jute, Jew's mallow

Vernacular name: *Bhao phalli, Jngli patsan*



Importance: It is a “C-category ” annual weed of cotton crop. During the rainy-season it may sporadically also be seen in rice, sugarcane and vegetables in irrigated Punjab.

Control: This weed is tolerant to ethoxy sulfuron but it can be controlled through the pre-emergence application of pendimethalin or S-metolachlor in cotton, vegetables and maize.

Coronopus didymus

(Syn. *Senibera didyma* L.)

Family: *Cruciferae*

English name: Swine cress.

Vernacular name: *Jangli balon, Gandi booti Naksari*



Importance: It is "*B -category*" weed of vegetables , gardens and many winter crops. Central irrigated *Punjab* is more seriously infested with this menace.

Control: Pendimethalin, S-metolachlor, metribuzin in winter pulses, oilseed rapes and vegetables. Bromoxynil +MCPA, tribenuron, triasulfuron, metribuzin in wheat.

Cucumis melo

Var. *agrestis*

Family: *Cucurbitaceae*
English name: Wild cucurbit
Vernacular name: *Chibber*



Importance : This is annual dicot weed of summer crops but emerging as a noxious weed in cotton. Being a tendril climber plant, it overruns cotton and leads to severe reduction in growth at early stages.

Control: Dry hoeing or hand weeding is more effective. It is a *hard-to-kill* weed through pre-emergence herbicides in cotton. Careful directed spray of paraquat or, **Oxyfluorfen** glyphosate in between cotton crop rows, may help a lot to get rid of this weed.

Cuscuta campestris

(Syn . *C. arvensis* Engelm.)

Family: *Cuscutaceae*

English name: Dodder, field dodder

Vernacular name: *Tukhm-e-Kasoos, Amar bale*



Importance: This is an a chlorophyllous summer perennial, parasitic weed of myrtle, Lucerne and a wide range (hundreds of dicotyledonous species) of host plants. It perpetuates through seeds as well as through stem cuttings. It impairs seed value, reduces yield and quality. Its seeds germinate in October and in March. Germinated seedlings embed their *haustoria* into the stem of host plants and absorb water and nutrients until the death of host.

Control: Pre *raini* application of pendimethalin at least one month before sowing of lucerne. Badly infested patches of the fodders should be treated with paraquat or glyphosate.

Cynodon dactylon

Syn. *Cynodon erectus* (1830), *Capriola dactylon* (1891)

Family: *Poaceae/Graminae*

English name: Bermuda grass, couch grass, Bahamas grass, quick grass, star grass, wire-grass

Vernacular name: *Khabbal, Talla ghaas, Haryali*



Importance: It is the second most important weed of croplands and non croplands in the world. In Punjab, it is found as "*A-category*" perennial weed in summer crops esp. in sugarcane, gardens and water courses.

Control: Ametryn+atrazine in sugarcane, haloxyfop in cotton, glyphosate in gardens and non-croplands

Cyperus difformis

(Syn. *C. complanatus*)



Family: *Cyperaceae*

English name: Small flower umbrella plant, small flower flat sedge, small-flowered nutsedge, umbrella sedge

Vernacular name: *Ghoain, Deeli, Mothee*



Importance: It is included in "B-category" in the rice and sugarcane fields especially in the rice zone of Punjab. It prefers submersed habitat of silty and clayey soils.

Control: Butachlor, Bispyrabac sodium, ethoxy sulfuron in rice, pendimethalin in vegetables and S-metolachlor in sugarcane.

Cyperus iria

Family: *Cyperaceae*

English name: Flat sedge, umbrella sedge,

Vernacular name: *Bhoir*, *Burachoocha* (Bengali), *Deeli*



Importance : It is a major weed of "B-category". Though it is a major weed of rice, but it may also be found in sugarcane and vegetables in rice zone of Punjab.

Control: Butachlor, Bispyribac sodium, ethoxy sulfuron in rice, pendimethalin and S-metolachlor in vegetables .

Cyperus rotundus

Family: *Cyperaceae*

English name: Purple nut sedge, sedge grass, nut grass ,

Vernacular name: *Mork, Deela, Chbota deela, Nagar motha*



Importance: It is a C4 plant and one of the most pernicious and troublesome weeds of the world. All summer crops are affected.

Control: Ethoxy sulfuron in rice, sugarcane, rice nurseries and grassy lawns. S-metolachlor in cotton and vegetables. Directed post emergence application of glyphosate in non-croplands.

Dactyloctenium aegyptium

{Syn. *D. aegyptiaca*, *Eleusine aegyptia* }

Family: *Poaceae*

English name: Egyptian finger grass, coast button grass

Vernacular name: *Madhana ghaas*, *Nangli*, *Makra*



Importance: Major weed of "A -category". It is well distributed in loam and sandy loam soils of rain fed as well as irrigated Punjab All the summer are affected except rice

Control: pendimethalin, S-metolachlor in cotton, maize, pulses, vegetables, ametryn + atrazine @ 4.94kg/ha in sugarcane and haloxyfop or fenoxaprop in cotton.

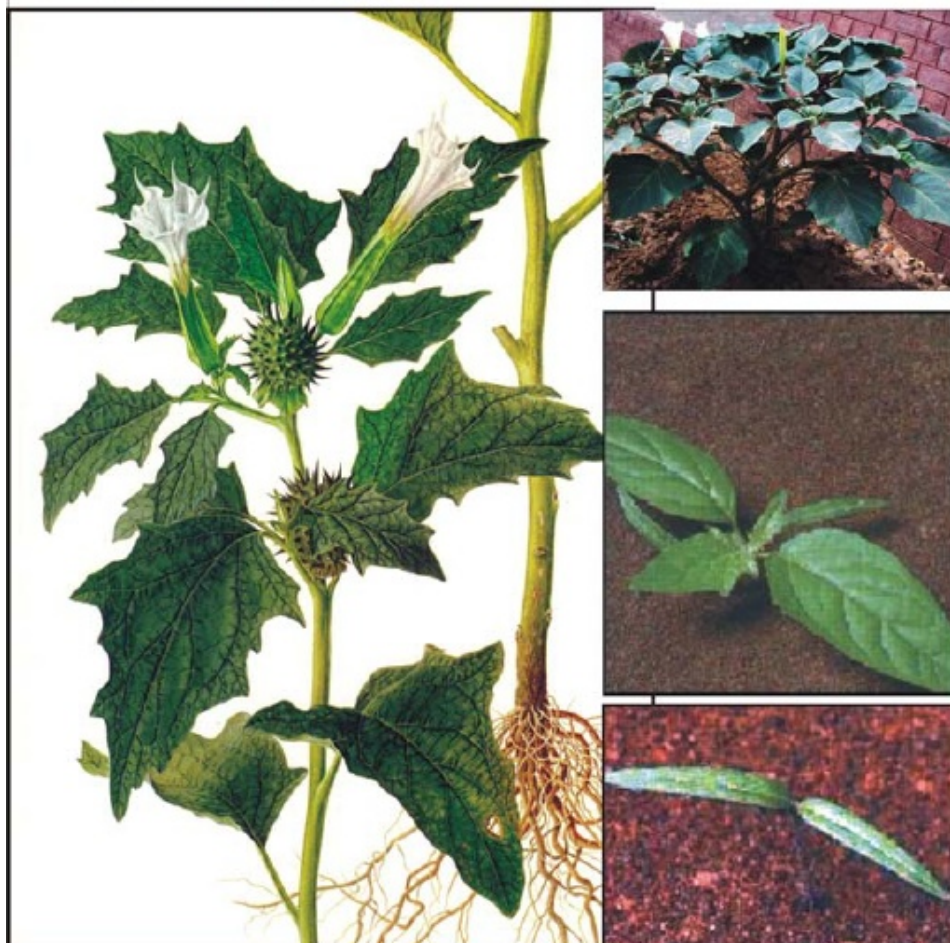
Datura fastuosa

(Syn. *D. alba* Rumphius ex Nees)

Family: Solanaceae

English name: Thorn apple, jimson weed

Vernacular name: *Sufaid dhatoora*



Importance : In Punjab it is summer perennial weed of *D-category* mainly found in the least disturbed wastelands and sometimes in summer crops.

Control Acetochlor, atrazine, S -metolachlor in maize and sorghum. Post emergence application of paraquat or glyphosate in non croplands.

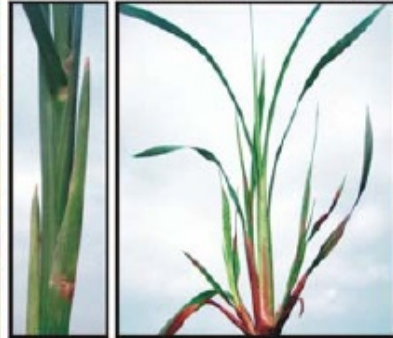
Desmostachya bipinnata

Syn *Eragrostis bipinnata* (L.) Muschl

Family: Poaceae

English name: Deep root grass

Vernacular name: *Dbabb, Drabb, Durva*



Importance: It is a perennial grass with stout and scaly rhizomes. It is a trouble some and hard-to-kill weed of periphery of neglected corners, non-crop lands, watercourses, graveyards, in all over Punjab. It more serious as a weed in rain fed crops and sandy-clay loam soils.

Control: Application of glyphosate @ 2300 gram a.i/ha. Better results are expected when applied on actively growing stage especially few days after Rainfall.

Dichanthium annulatum

(Syn. *Andropogon annulatus*)

Family: *Poaceae*

English name: Dichanthium

Vernacular name: *Pehlwan, Bra jerga*



Importance: This is perennial weed of field borders, neglected corners of cultivated fields, grassy lawns, wastelands and ratoon crop of sugarcane. It prefers least disturbed locations. A single plant may give rise to more than 50 tillers. Hairy ligules and 4-6 fid digitate brownish spike are the major signs of identification.

Control: Spot treatment of glyphosate during actively growing stage in the grassy lawns and carpet application in non-croplands. Pre-emergence application of S-metolachlor in the newly established lawns.

Digera arvensis

(Syn. *D. muricata* (L.) Mart.)

Family: *Amaranthaceae*

English name: Digera

Vernacular name: *Tandla*



Importance: It is "*B-category*" weed. It is found all over Punjab in sandy loam soils and frequently found in the mungbean belt of *THALL* area. Maize, cotton, sugarcane, summer vegetables and pulses are also attacked by this weed.

Control: S-metolachlor, acetochlor in cotton, maize and vegetables. Atrazine alone or atrazine+S-metolachlor in sugarcane and maize.

Digitaria adscendens

Family: *Poaceae*

English name: Large crab grass, finger grass, summer grass, tropical finger grass & Polish millet.

Vernacular name: *Moti khabbal, Kara bara, Surruwari*



Importance: It is "B-category" in Punjab. Summer vegetables, sunflower, orchards, cotton, sugarcane, maize and summer pulses are affected.

Control: S-metolachlor and pendimethalin in cotton, maize, pulses and vegetable crops, ametryn+atrazine in sugarcane and haloxyfop as selective post emergence in cotton.

Echinochloa colona (Syn. *Panicum colonum* L.)



Family: *Poaceae*

English name: Jungle rice, Shama millet, swamp grass, little barnyard grass

Vernacular name: *Swanki, Kala swank, Jangli swank, Sharma, Deccan ghas*



Importance: It is the major weed of "A -category". It is one of the most competitive weeds in rice, sugarcane, cotton, maize, vegetables, pulses and fodders.

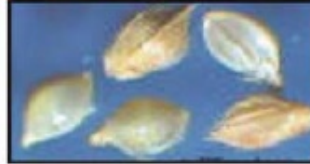
Control: Butachlor as pre and bispyrabac sodium as post emergence in rice, S-metolachlor in cotton, maize, pulses and several vegetables and ametryn+atrazine in sugarcane.

Echinochloa crus-galli (Syn. *Panicum crusgalli*)

Family: *Poaceae*

English name: Barnyard grass, lock spur, cockspur, American barnyard millet, wild millet

Vernacular name: Dhiddan, Kayada, Chitta swank



Importance: It is a *C4* plant of "A-category", consumes nutrients and light more efficiently than rice. It is the most widespread *mimic weed* of rice worldwide. It may infest all water loving summer crops in irrigated *Punjab*

Control: Butachlor as pre and bispyrabac sodium as post emergence in rice, S-metolachlor in cotton, maize, pulses and several vegetables and ametryn+atrazine in sugarcane and haloxyfop in cotton.

Eclipta prostrata

(Syn. *E. alba*, *E. erecta*)

Family: *Compositae*

English name: Bitter weed

Vernacular: *Bhangra, Daryai booti*



Importance : This is summer perennial dicot, "*C-category*" prostrate weed of perennial watercourses and hydrophilic crops like rice, sugarcane and jute.

Control: It is moderately resistant to butachlor, trifluralin, oxadiazon, pendimethalin and S-metolachlor. However, it can be fairly controlled by using bispyrabac sodium as post emergence or pyrazosulfuron, molinate, bentazone 3 to 5 days after transplanting of rice.

Eichhornia crassipes

(Syn. *Pontederia crassipes*, *P. elongata*.)

Family: *Pontederiaceae*

English name: Water hyacinth, Water orchard, Nile lily.

Vernacular name: *Gul-e-Bekavli*, *Gulbkoli*



Importance: It is a floating weed of lakes and rivers, especially those enriched with plant nutrients. It may also be a weed in flooded rice.

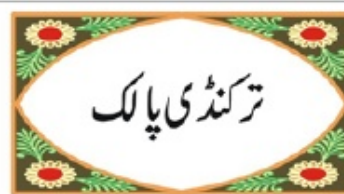
Control: Ester form of 2,4-D, mixture of 2,4-D and paraquat, aminotriazol, ametryn and terbutryn in the village ponds. Alternate application of paraquat and glyphosate is also effective.

Emex spinosus
Emex astralis

Family: Polygonaceae

English name: Emex, prickly spinach

Vernacular name: *Trkandi Palak, Kafir kanda, Trkandi, Bhakbra palk*



Importance It is "*C -category*" weed in Khoshab area and rainfed Punjab. Central Punjab is not seriously infested with this new menace.

Control: This weed is tolerant to most pre emergence herbicides. However, it can be controlled by Bromoxynil +MCPA, carfentrazone, metsulfuron, triasulfuron at its early stage in wheat.

Euphorbia granulata

(Syn. *E. prostrata*)

Family: *Euphorbiaceae*

English name: Garden spurge

Vernacular name: *Hazardani dodhak*



Importance It is "B-category" weed in cotton, sugarcane, orchards, grassy lawns and summer vegetables. It is found in fertile and frequently irrigated soils.

Control: Pendimethalin, S-metolachlor in pulses, cotton, maize and several vegetable crops. Bromoxynil+MCPA or fluroxypyr +MCPA in grassy lawns and orchards.

Euphorbia helioscopia

Family: *Euphorbiaceae*

English name: Sun spurge, wart-spurge, wart weed, umbrella milkweed

Vernacular name: *Chhatri dodbak, Chhatriwall, Chhattar*



Importance: It is a well known but minor weed of "C-category". Being its latex bitter in taste, this weed is not browsed by animals. It may be found in wheat, winter oilseeds, orchards and pulses with lesser intensity. But vegetables, berseem and orchards are more affected.

Control: Pendimethalin, S-metolachlor in winter pulses, oilseed rapes and several vegetable crops. Bromoxynil+MCPA or fluroxypyr +MCPA in wheat.

Euphorbia hirta

(Syn. *Euphorbia pilulifera* L.)

Family: *Euphorbiaceae*

English name: Red spurge, asthma weed, garden spurge, hairy spurge, snake weed, milkweed

Vernacular name: *Lal dodhak, Lal dudhi, Ban dudhi*



Importance: It is a minor weed of "C and D -category" in cultivated fields, perennial crops, grasslands, roadsides, gardens, lawns, fallow lands, ditch banks and waste places during summer season. It prefers less disturbed vicinities especially roadside verges, non-croplands, sunny to lightly shaded dry conditions, and is an early colonizer of bare ground.

Control: Pre emergence application of pendimethalin, S-metolachlor or acetochlor in cotton, maize and several vegetables. Post emergence application of atrazine or atrazine+ S-metolachlor in sugarcane and maize.

Fimbristylis dichotoma
(Syn. *F. bisumbellata* Bubl.)

Family: *Cyperaceae*

English name: Hoor grass, fimbristylis, tall fringe rush

Vernacular name: *Chhoti bhain, Kalooro*



Importance: It is classified as "B to C-category" weed of rice in rice zone.

Control: ethoxy sulfuron as pre and bispyrabac sodium as post emergence in rice, rice nurseries and S-metolachlor in vegetables and sugarcane.

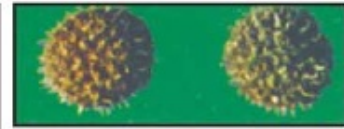


Galium aparine

Family: *Rubiaceae*

English name: Bedstraw, cleavers, catch weed, grip-weed

Vernacular name: *Hurburya, Wamebri, Warri booti, Lpaiti*



Importance: It is a minor weed of “C-category” in wheat crop. It is emerging as threat weed in near future. It is frequently found in *SON valley*, northern Punjab, sporadically in salt affected soils of central irrigated Punjab.

Control: This weed is tolerant to several herbicides. However it may be controlled through fluroxypyr + MCPA, sulfosulfuron, triasulfuron, metsulfuron and mesosulfuron+iodosulfuron.

Heliotropium indicum

{Syn. *Heliophyllum indicum* (L.) DC.}

Family: Boraginaceae

English name: Indian heliotrope, devil weed, scorpion weed

Vernacular name: Oont Ktara, Oont chara, Hathisunda



Importance : It is well-known weed of "B-category" in sandy and loam soils of rain fed, semi-irrigated, but frequently in *Thall* area of *Punjab*. This is C4 plant with rapid initial growth. Its life span is from January to July August.

Control: Bromoxynil+MCPA, sulfosulfuron in wheat and pendimethalin, S-metolachlor in pulses and several vegetable crops.

Hydrilla verticillata

Family: *Hydrochloritaceae*

English name: Water thyme, aquatic weed

Vernacular name: *Jala*



Importance: It is submersed, perennial leafy weed of slow running watercourses and still water bodies. It is one of the most troublesome aquatic weeds of water bodies in the world. It impedes watercourses, hinders navigation, interferes with hydro-electric schemes and fisheries.

Control: Application of diuron or paraquat either @ 5 ppm or ester form of 2,4-D @ 20 ppm and bensulfuron-methyl.

Imperita cylindrica

Family: *Poaceae*
English name: Cotton grass , blade grass
Vernacular name: *Nrm dbabb, Drabb*



Importance: It is a summer perennial grass having scaly rhizomes. It prefers well moist locations like banks of watercourses, periphery of cultivated fields and non-crop lands.

Control: Repeated application of glyphosate @ 2000 gram a.i/ha during April and August. Better results are expected when applied on actively growing stage especially few days after rainfall.

Lathyrus aphaca

Family: *Papilionaceae*

English name: Crow pea, yellow vetchling, chickling pea

Vernacular name: *Dokanni, Jangli matar, Matri booti, Gagla*



Importance: It is well-known weed of “B-category” in wheat sown after rice. It impairs the seed and flour quality of wheat.

Control: Fluroxypyr+MCPA, tribenuron, meso+iodosulfuron sulfosulfuron in wheat. Pendimethalin, S-metolachlor in winter pulses and vegetable crops.

Leptochloa chinensis

Family: *Poaceae*
English name: Henbit
Vernacular name: *Kallar ghass*



Importance: This is summer perennial weed of “D-category” in sugarcane, fodders, maize, cotton and summer vegetables especially in the waterlogged and salt affected areas.

Control: S-metolachlor in sugarcane, cotton, pendimethalin in vegetables, It is tolerant to bispyribac. It may be controled by butachlor in rice

Leptochloa panicea

Family: *Poaceae*
English name Asian sprangletop
Vernacular name: *Lamb ghass*



Importance: This is summer annual weed of "A-category" in maize, cotton, sugarcane, fodders and vegetable crops. This is C4 plant and resembles kallar ghaas, the *Diplachne fusca* but it is smaller than the later.

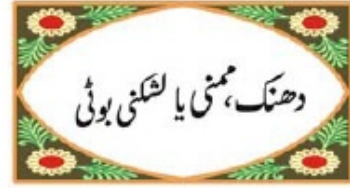
Control: Atrazine+ S-metolachlor in maize , S-metolachlor in cotton , pendimethalin in vegetables , ametryn+atrazine in sugarcane , butachlor, bispyrabac sodium in rice.

Lolium temulentum

Fam. y: *Poaceae*

English name: Annual rye grass, poison rye grass, darnel

Vernacular name: *Dhanak, Lishkani booti, Mammi, mochni, rye ghas, ubban*



Importance: It is minor weed of “C-category” but it is gradually emerging as important weed. Mainly found in wheat in *Gujrat* and adjacent districts, sporadically distributed all over Punjab in wheat.

Control: This weed is tolerant to isoproturon and fenoxaprop. However, it may be controlled through mesosulfuron+iodosulfuron, clodinafop in wheat.

Medicago polymorpha

(Syn *M. denticulata* (L.) Willd)

Family: *Papilionaceae*

English name: Black medick, bur clover & yellow trefoil.

Vernacular name: *Maima*



Importance It is very important and well-known weed of “B-category”. It is found all over *Punjab* including rain fed areas. Frequently found in *Sialkot*. And *Narowal* districts.

Control: Triasulfuron, metsulfuron, mesosulfuron+iodosulfuron, Fluroxypyr+MCPA, tribenuron, sulfosulfuron in wheat. Pendimethalin, S-metolachlor in winter pulses and several vegetable crops.

Melilotus indica

(Syn. *M. parviflora* Desf.)

Family: Leguminosae

English name: Yellow sweet clover, Indian sweet clover, and common sweet clover

Vernacular name: Zard senji, Senji



Importance: It is well known weed of “B -category”. It is found all over Punjab in wheat fields and other winter crops particularly in irrigated areas of *Faisalabad* and central Punjab.

Control: Bromoxynil+MCPA, metribuzin, fluroxypyr + MCPA, traisulfuron, tribenuron in wheat , pendimethalin, S-metolachlor in winter pulses and several vegetable crops.

Mentha longifolia

Family: *Labiatae*

English name: Wild mint, tula mint

Vernacular name: *Jangli podina*



Importance: This is a fast growing, aromatic, summer perennial dicot weed of "D-category" watercourses and moist shady places. It resembles cultivated mint (*Mentha piperita*) with the differences of leaf size and odor. It is comparatively more weak stemmed, broadleaved and less sun loving. Unlike cultivated species, this is propagated through seeds as well as through suckers/stems.

Control: Post emergence use of paraquat @ 1.0% or glyphosate @ 2.0% solution in watercourses and gardens.

Nymphaea stellata

Syn. (*N. alba*, *N-nouchali*)

Family: *Nymphaeaceae*

English name: White water lily

Vernacular name: *Kammian, Neelofar*



Importance: It is submersed, emerging as summer perennial weed of water bodies, ponds, and sluggish streams and sometimes rice fields.

Control: Paraquat or glyphosate and ester form of 2,4 -D gives more durable control in the water bodies.



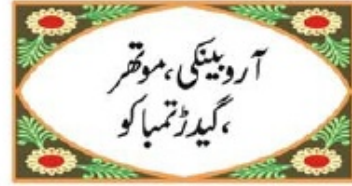
Orobanche aegyptiaca

(Syn. *O. parasitica* Fischer)

Family: *Orobanchaceae*

English name: Broom wort, Egyptian broom rape

Vernacular name: *Giddar tambaku, Hadda, Mothher*



Importance : It is root parasitic weed of solanaceous crops like potato, tobacco and tomato and comes under “ C-category ” of weeds. As a local case, in *SOAN valley* and in *NWFP* it comes under “B -category” as a noxious and highly objectionable weed.

Control : Application of pendimethalin in vegetables, alkyl alcohol 2-3 weeks after transplanting the nursery of tobacco. Post emergence spray of glyphosate or paraquat in badly infested patches.

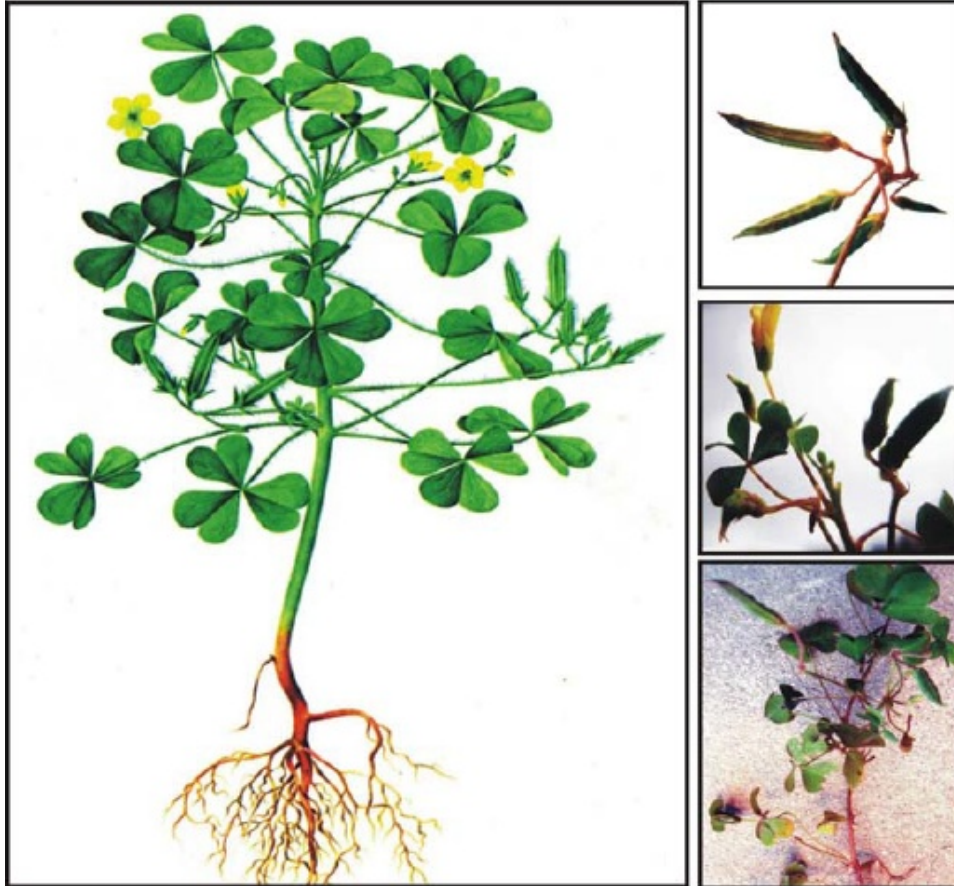
Oxalis corniculata

(Syn. *Oxalis procumbens*)

Family: Oxalidaceae

English name: European wood sorrel

Vernacular name: *Khatti booti, Khatkal*



Importance: This is summer perennial dicot weed of watercourses and moist shady places. Trifoliate compound leaves have an *acidic taste* due to which its name *Khatti booti* is followed.

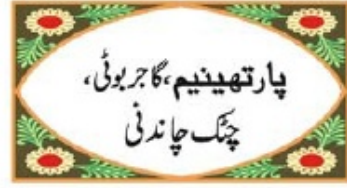
Control: Pre emergence application of pendimethalin, S - metolachlor and atrazine in the respective crops. Post-emergence application of glyphosate in the watercourses, hedges and orchards.

Parthenium hysterophorus

Family: *Compositae*

English name: Ragweed, congress grass

Vernacular name: *Chatak chandni, Pandhari phool*



Importance: This is summer perennial weed presently of "D-category" in wastelands, roadsides and non-croplands. It has gigantic allelopathic potential, grows faster than most useful plants and competes out crops.

Control: It is tolerant to many pre emergence herbicides . However, it can be controlled through the spray of paraquat or glyphosate @ 2% solution at advanced growth stages in non-croplands or directed spray among crop rows.

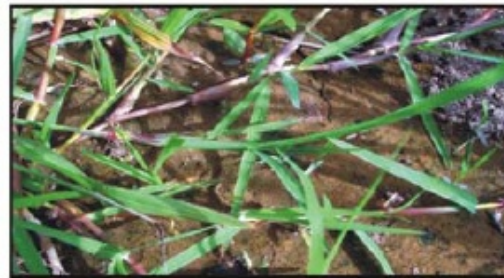
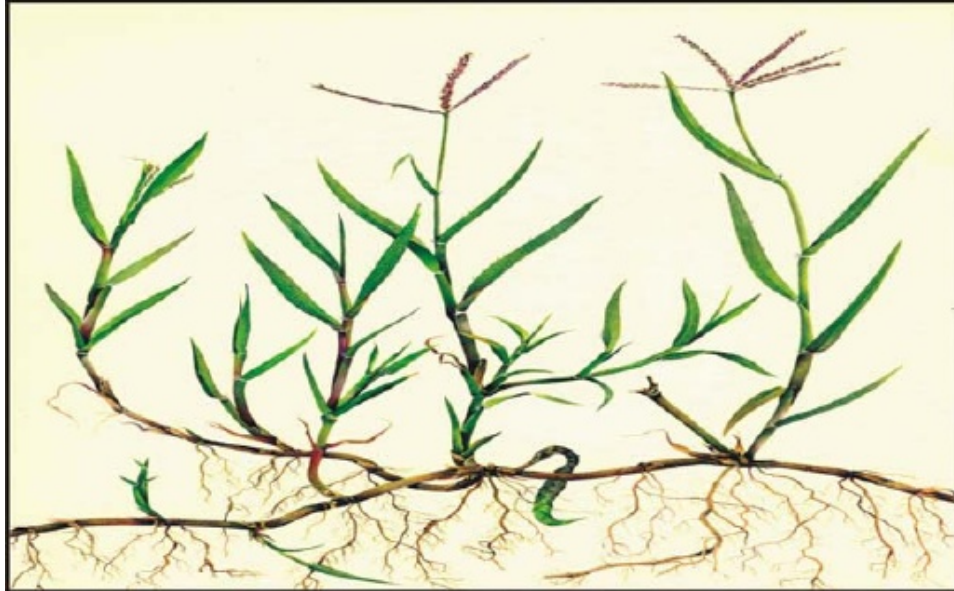
Paspalum paspaloides

(Syn. *P. distichum* auct. Non.)

Family: *Poaceae*

English names: Water grass, knotgrass, water couch joint, grass, ditch grass, couch Paspalum, ginger grass, silt grass, victoria grass, wiregrass

Vernacular name: *Narru ghaas, Narroo*



Importance: It is a non-submerged aquatic plant commonly occurring in rice and sugarcane fields. It is included in "A to B-category". This is *C4* plant with very rapid growth, adapted to semi-aquatic environments

Control: Butachlor, acetochlor, pretilachlor and oxadiargyl or post em application of bispyrabac sodium in rice. Repeated spray of glyphosate in water courses.

Phalaris minor

Family: *Poaceae*

English name: Bird's seed grass, lesser canary grass, little seed canary grass

Vernacular name: *Dumbi sittee, Sittee booti, kanki*



Importance It is the most serious and harmful weed of "A-category" in wheat all over *Punjab*. Allelopathic effects of its root exudates have been reported in wheat. It may drastically reduce the yield (from 15-50%) in wheat. It is also found in gram, lentils and barley. It may also be found as a secondary i.e.; "C-category" weed in winter vegetables esp. in peas, onion, potato, oilseeds, fodders and other winter crops.

Control: Isoproturon, metribuzin, fenoxaprop, clodinafop, meso+iodosulfuron, sulfosulfuron in wheat, pendimethalin, S-metolachlor, haloxyfop in vegetables.

Phyla nudiflora

(Syn. *Lippia nudiflora* (L.) Rich.)

Family: *Verbenaceae*

English name: Prostate vervane

Vernacular name: *Bukkan booti, Wakann*



Importance: This is summer perennial weed of field boundaries, neglected corners, non-stirred public places like parks and lawns. It prefers least disturbed locations.

Control: Fluroxypyr + MCPA or glyphosate in non-cropland, field boundaries and watercourses. Bromoxynil + MCPA, mixture of 2,4-D and MCPA gives long shot control in the lawns and public parks.

Physalis minima L.

Family: *Solanaceae*
English name: Wild goose berry, gooseberry, sun berry
Vernacular name: *Rasbbari, Bhambola*



Importance: It is summer annual minor weed of “C-Category”. It is found in cotton, maize, sugarcane, summer vegetables and oilseed crops.

Control: Preemergence application of pendimethalin or S-metolachlor in cotton, maize and several vegetable crops. Post emergence applications of atrazine + S-metolachlor in maize & sugarcane.

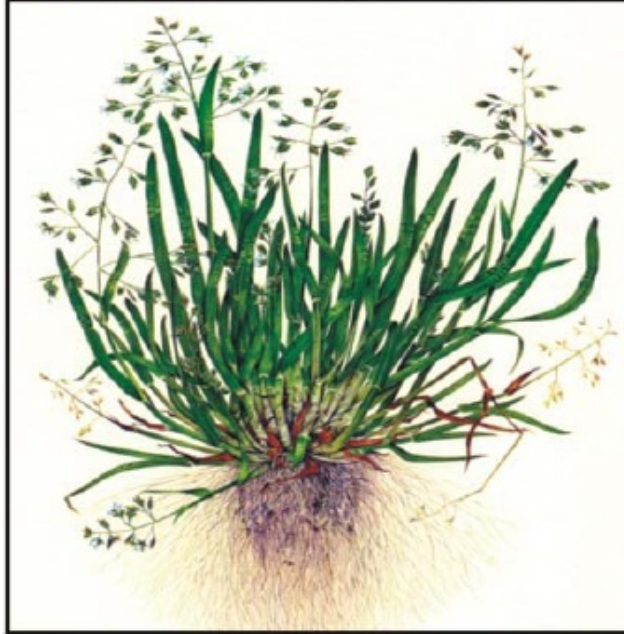
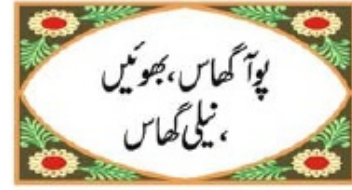
Poa annua

(Syn. *P. infirma* H.B.K)

Family: *Poaceae*

English name: Meadow grass, spear grass, blue grass, annual winter grass

Vernacular name: *Bhojn, Poa ghaas, Neeli ghaas.*



Importance: It is a minor weed of “*C-category*” but emerging as an important weed. Watercourses, rangelands, public parks and forest plantations are its favourite habitats. It infests fruit gardens, water channels, grassy lawns, moist shady places and wheat also found in winter vegetables.

Control: This is tolerant to most of the post em herbicides. It can be controlled by metribuzin and penoxaden in wheat.

Polygonum plebejum

Family: *Polygonaceae*
English name: Prostate knotweed, smartweed
Vernacular name: *Dranak, Ranipbul, Drani booti*



Importance: This is annual, dicot, and prostate weed primarily of spring crops like spring potato, sunflower, tobacco and early sown summer vegetables. Also found in other winter crops like wheat and vegetables.

Control: This weed is tolerant to many wheat herbicides like Isoproturon and bromoxynil+MCPA. However it may be controlled through pendimethalin or S- metolachlor in vegetable s while fluroxypyr + MCPA in wheat.

Polypogon monspeliensis
(Syn. *Alopecurus monspeliensis*)

Family: *Poaceae*

English name: Winter grass, foxtail fescue, annual beard grass, rabbit foot grass

Vernacular name: *Dumb ghaas, Gboin.*



Importance : It comes under "B to C -category" of weeds in moist shady places in wheat. It is found in fertile and heavy soils of intensively irrigated areas of *Punjab*. Also found in water channels and winter vegetables in moist and shady places.

Control: Isoproturon, metribuzin, clodinafop, fenoxaprop or sulfosulfuron in wheat and pendimethalin or S-metolachlor or haloxyfop in vegetables

Portulaca oleracea

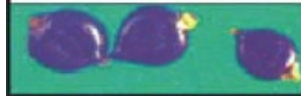
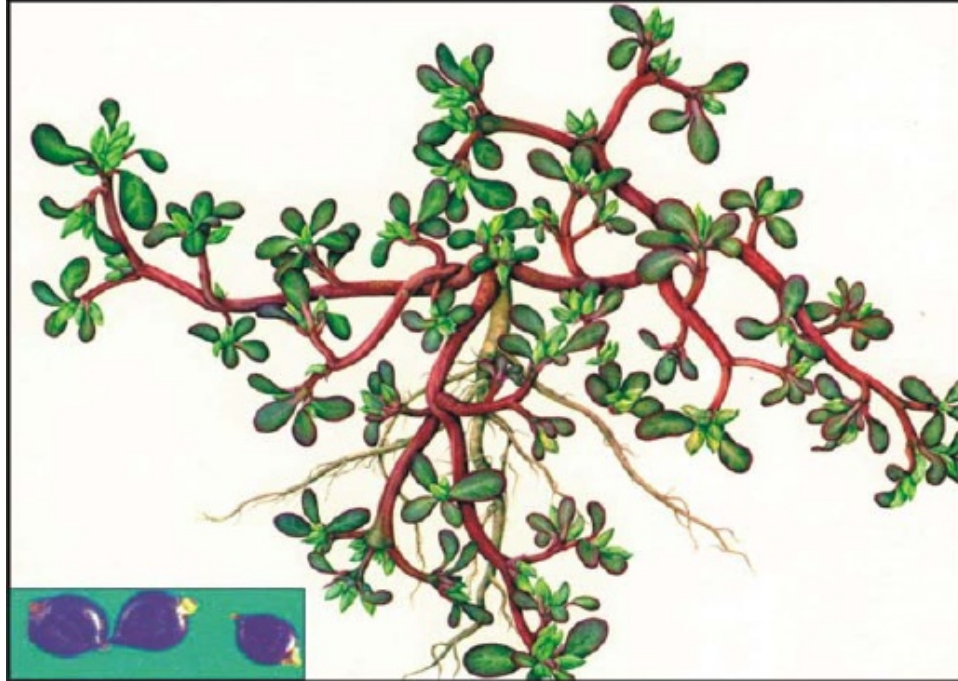
(Syn. *Portulaca marginata* HBK.)



Family: *Portulacaceae*

English name: Common purslane, garden purslane, pursley

Vernacular name: *Qulfa, Loonak.*

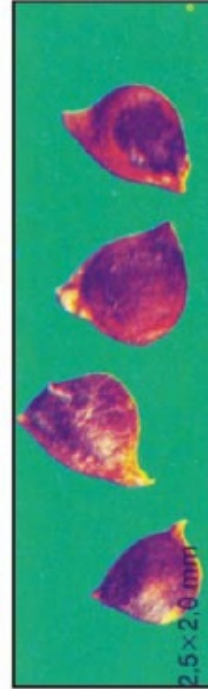


Importance: Important weed of "B - category". This is C₄ plant that is why, it has rapid growth rate. It is found all over Punjab esp. it affects vegetables more seriously than major crops. One plant can produce between 100,000 to 242,000 seeds in one season.

Control: Pendimethalin, S-metolachlor in cotton, maize, pulses and several vegetable crops. Post emergence application of atrazine or atrazine + S-metolachlor effective in sugarcane and maize.

Renunculus muricatus

Family: *Renunculaceae*
English name: Rough seeded buttercup
Vernacular name: *Chambi, Ghor summi*



Importance: This is minor weeds of "D-category" in the aquatic cropped area during the winter season. However, it is an important weed of water ponds, water courses, forest plantations and orchards.

Control: Pendimethalin in oilseeds, pulses and vegetables, bromoxynil+ MCPA in the wheat and paraquat in the water courses and non croplands.

Rhynchosia capitata

Family: *Papilionacea*

English name: Rhynchosia

Vernacular name: *Maini*



Importance: Important summer annual, twinning weed of grassy lawns and non-disturbed places. It prefers least disturbed locations. It tends to perennate in protected localities. Once established in a grassy lawn, becomes very difficult to get rid of this menace.

Control: This weed is tolerant to *phenoxy* group of herbicides. Metribuzin or diuron or fluoroxypyr plus MCPA may be sprayed in the grassy lawns.

Rumex dentatus

Family: Polygonaceae

English name: Broad-leaved dock, bitter dock, field sorrel

Vernacular name: Jangli palak, Changeri



Importance: It is an important weed of “B - category” but emerging as noxious weed in wheat. Found in winter vegetables, wheat, orchards, watercourses and moist shady places in northern to central irrigated Punjab.

Control: Isoproturon, metribuzin, fluroxypyr+MCPA, tribenuron, triasulfuron, metsulfuron in wheat. Pre emergence application of pendimethalin, S-metolachlor in winter pulses and several vegetable crops.

Sachharum benghalense

(Syn. *S. munja* Roxb.)

Family: Poaceae

English name: Tiger grass, Munj

Vernacular name: Sarkanda, Srood, Sar, Kana ghas



Importance: Important perennial weed of dry wastelands, roadsides, along watercourses, canal banks, field borders and other non-disturbed places. If it is once established in an area, very hard to eliminate.

Control: Application of glyphosate @ 2.5 to 3.0% solution. Better controlled when herbicide is applied 1 – 2 days after a heavy rainfall. It requires repeated spray with an interval of 20 days in case of advanced growth stages



Schoenoplectus juncoides

Family: *Juncaceae*
English name: Soft rush
Vernacular name: Rush booti, Bhookal booti



Importance: This is summer annual weed of rice crop and marshy places. Its black seeds are frequently dispersed through irrigation water from one field to another. It grows in shallow patches in rice and may shaply reduce rice yield.

Control: Pre-emergence application of butachlor, pretilachlor or post emergence spray of bispyrabac sodium or ethoxysulfuron in rice. It can also be controlled if water is kept standing during first 3-4 weeks after transplanting of rice.

Scirpus maritimus

(Syn. *Scirpus compactus*)

Family: *Cyperaceae*

English name: Bulrush, earth almond, salt marsh bulrush, sea club-rush

Vernacular name: *Deela, Kasern deela*



Importance: It is very noxious, pernicious weed of "A-category" in rice zone. It is a semi-aquatic weed especially of poorly drained rice fields and wetlands. More frequently found in canal irrigated districts of Punjab. The field, which is once infested, remains polluted with this menace for years.

Control: Ethoxysulfuron ethyl as pre emergence, bispyrabac sodium as post emergence in rice. S-metolachlor, ethoxysulfuron in sugacane.

Setaria viridis

(Syn. *Panicum viride* L.)



Family: *Poaceae*

English name: Green foxtail bottle grass, bristle grass, green panicum, green pigeon grass, robust foxtail

Vernacular name: *Loomar ghaas, Bandri, Lehdhra*



Importance Well known and troublesome weed of "B-category". It degrades seed cotton quality and hinders the picking process.

Control: Pre emergence application of pendimethalin, S-metolachlor in cotton, maize, pulses and vegetables; ametryn+atrazine in sugarcane. Post emergence application of haloxyfop, fenoxaprop in cotton and most other dicot crops.

Sisymbrium irio

Family: Cruciferae

English name: Hedge mustard, London roquette, wild mustard

Local name: Khoob kalan, Jangli sarson.



Importance It is a minor weed of “C - category”. of rainfed areas. It may also be found in the neglected corners of fields, roadsides and hedges in irrigated Punjab.

Control: Post emergence application of Bromoxynil+MCPA or fluroxypyr+MCPA, tribenuron or thifensulfuron, metribuzin in wheat. Pre emergence application of pendimethalin ,S-metolachlor in winter pulses and several vegetable crops.

Solanum nigrum

Family: *Solanaceae*

English name: Black nightshade, blackberry nightshade, garden nightshade

Vernacular name: *Mako, Peelak.*



Importance: It is a well known and perennial but as a minor weed of "C - category". Often found in the uncultivated, neglected corners, along watercourses, gardens. Sometimes it grows in vegetables, cotton, sugarcane and maize all over *Punjab*.

Control: Pre emergence application of pendimethalin, S-metolachlor in cotton, maize, pulses and vegetables, atrazine in sugarcane, paraquat or glyphosate in watercourses and non-croplands.



Sonchus asper

(Syn. *Sonchus parviflorus* Lej.)

Family: *Compositae*

English name: Annual sow thistle, milk thistle, spiny sow thistle.

Vernacular name: *Kandiali dodbak, Dodbak*



Importance: Well known weed but not much harmful. It is included in "C-category" as minor weed. It prefers cool and less disturbed shallow places like orchards and watercourses. Also found in wheat and winter vegetables.

Control: Post emergence application of bromoxynil+MCPA or fluroxypyr + MCPA in wheat, paraquat or glyphosate in watercourses and non-croplands. Pre emergence application of pendimethalin, S-metolachlor in pulses and vegetable crops.

Sorghum halepense

(Syn. *Andropogon halepensis* (L.) Brot.)

Family: *Poaceae*/Graminae

English name: Johnson grass, Arabian millet

Vernacular name: *Baru, Kala muchha*



Importanc: It is one of the world's 10 worst weeds. It is a well-known and important weed of "B-category" in Punjab. When established in an area, becomes difficult to get rid of it due to vigorous rhizome system. It is found in loam and sandy loam soil of rain fed areas. Sugarcane, cotton, rain fed pulses and oilseeds are infested.

Control: Mixture of glyphosate and paraquat gives better results than glyphosate alone on non croplands, pre emergence application of pendimethalin, S-metolachlor prevent its seed germination in summer crops.

Spergula arvensis

Family: Caryophyllaceae

English name: Corn spurry

Local name: *Kalri booti, Jangli dhania*



Importance: It is minor weed of “C-category”. It flourishes in salt affected soils. It is only found in wheat and fodder in salt affected areas of irrigated Punjab and unable to germinate and grow in healthy soils.

Control: Post emergence application of Bromoxynil+MCPA g or fluroxypyr+MCPA in wheat. Pre emergence application of pendimethalin, S-metolachlor in winter pulses and several vegetables.



Stellaria media

(Syn. *Alsine media* L.)

Family: *Caryophyllaceae*

English name: Starwort, common chickweed,

Vernacular name: *Phullan booti* star weed, satin flower



Importance: It is a minor weed of "BC-category" in central to northern Punjab. It flourishes in cool, moist and moderately shaded environments like orchards, nurseries, forests, plantation and under trees, shrubs and moist shady places of the central Punjab

Control: Pre emergence application of pendimethalin, S-metolachlor in winter pulses and several vegetables. Post emergence application of Bromoxynil+MCPA or fluroxypyr+MCPA, tribenuron or thifensulfuron

Trianthema portulacastrum

Family: *Aizoaceae*

English name: Horse purslane, giant pigweed

Vernacular name: *Itsit, Boodal, Visaa, Sanathi.*



Importance: This is the most pernicious and harmful weed of "A- category". This is C₄ plant with gigantly rapid growth rate. Summer rains aggravate its growth as a weed. It is a strong competitor of all upland summer crops like cotton, maize, younger orchards, potato, sugarcane and summer vegetables.

Control: Pre emergence application of pendimethalin, S-metolachlor in cotton, maize, pulses and several vegetables. Post emergence application of atrazine, atrazine+S-metolachlor and nicosulfuron in maize and sugarcane.

Tribulus terrestris

(Syn. *Tribulus lanuginosus* L.)

Family: Zygophyllaceae

English name: Common puncture vine, puncture clover, small caltrop, caltrop, ground bur-nut, Mexican sandbur puncture weed, yellow vine

Vernacular name: Bhakbra, Gokbra



Importance: It is troublesome weed of “B-category ” in Punjab . Found in arid and semi arid conditions of sandy and loam soils of irrigated as well as rain fed districts especially in Thall and Barani areas of Punjab. Found in cotton, maize sugarcane and many other crops with variable degree of infestation.

Control :It is tolerant to S-metolachlor and pendimethalin. Pre emergence application of imazethapyr and imazaquin. Directed post emergence application of glyphosate among crop rows.

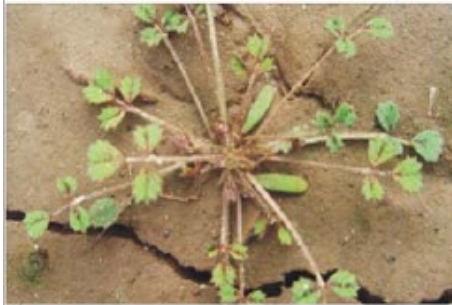
Trigonella monantha
(Syn. *T. incisa* Benth.)



Family: *Papilionaceae*

English name: Trefoil

Vernacular name: *Maini*



Importance: This is winter annual dicot weed of “C-category” in wheat, oil seeds, other rain fed crops and BARANI TRACT of Punjab. As a sporadic weed, it may also be seen in grassy lawns and water deficient sandy loam soils of central Punjab. Its seeds germinate from November to February, flowering in March-April and sickle shaped pods are developed in April-May.

Control: Pre emergence use of pendimethalin, S-metolachlor in the respective crops. Post emergence application of Bromoxynil+MCPA in wheat.



Veronica agrestis

Family: *Scrophulariaceae*

English name: Field speedwell

Vernacular name: Chandni



Importance: This is winter annual dicot weed of lawns, public parks, and wheat fields in the sub humid region of northern Punjab, weeds.

Control: Post emergence use of fluroxypyr + MCPA or bromoxynil + MCPA in the lawns and public places.

Vicia sativa

Family: *Papilionaceae*

English name: Common vetch, field vetch

Vernacular name: *Revari, Chbtri-matri*



Importance: Well-known weed in impairing the quality of wheat seed. It is a “B to C-category” weed. Well distributed all over *Punjab* particularly in rain fed areas.

Control: Post emergence application of bromoxynil+MCPA, fluroxypyr + MCPA or early post emergence application of tribenuron or mesosulfuron+ iodosulfuron in wheat. Pre emergence application of pendimethalin, S-metolachlor in winter pulses and several vegetables.

Withania somnifera

Family: *Solanaceae*
English name: Winter cherry
Vernacular name: *Aksan, Asgand*

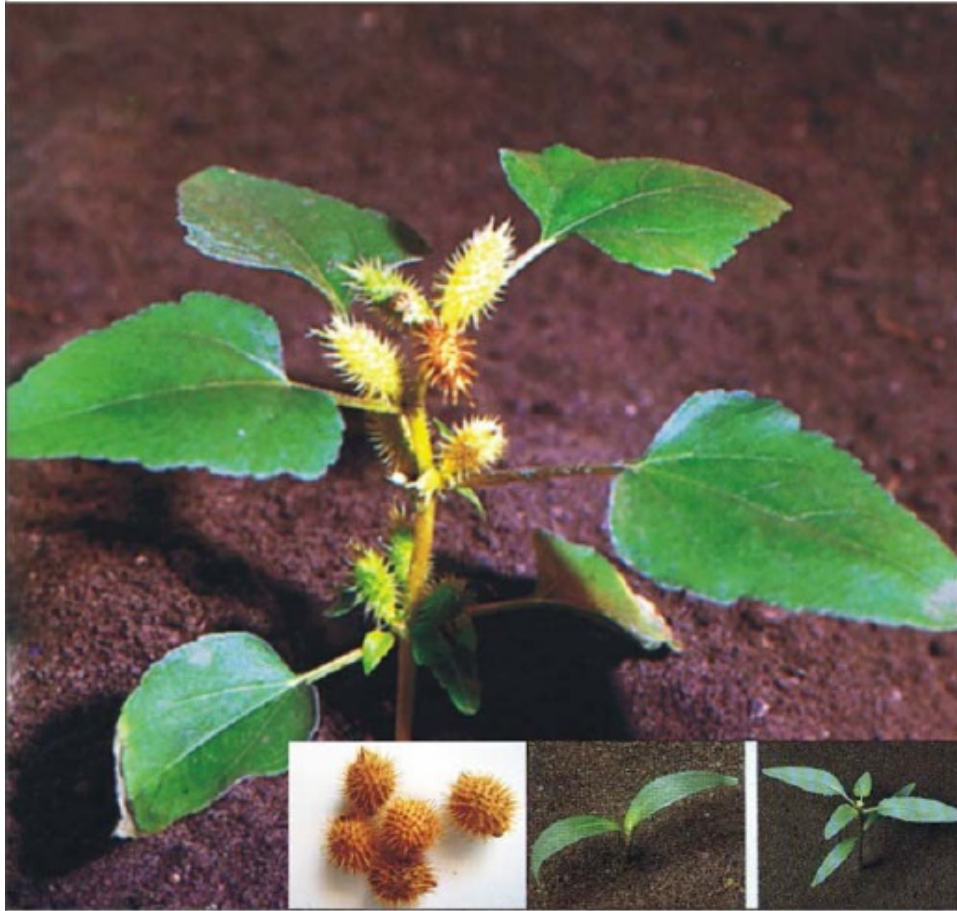


Importance: This is summer perennial bushy weed of orchards, forests, moist shady places and poorly stirred cultivated fields of sugarcane, summer vegetables, wastelands and neglected corner along the water channels.

Control: This weed is tolerant to S-metolachlor. However, it may be controlled through the directed spray of paraquat or glyphosate in non croplands and among crop rows.

Xanthium strumarium

Family: *Compositae*
English name: Common cocklebur, heart leaf cocklebur
Vernacular name: *Mohabbat booti, Chhota Gokbru*



Importance: This is summer annual dicot weed of maize, tobacco, cotton, sugarcane, non-cropped wastelands and neglected corners of cultivated fields. Its spiny seeds adhere to the wool of grazing sheep and also get mixed with picked seed cotton.

Control: This weed is particularly tolerant to most of the pre-emergence herbicides. It may be controlled through the directed spray of glyphosate among the cotton crop rows. Early post emergence use of atrazine in maize and sugarcane.

Zaleya pentendra

(Syn. *Trianthema pentendra* L.)

Family: Nyctaginaceae

English name: Creeping spider ling

Vernacular name: *Biskhapra*



Importance: This is summer perennial dicot weed of wastelands and neglected corners of sparsus sugarcane and cotton. It resembles *Trianthema portulacastrum* (*Itsit*) in leaf shape and several other features but it is propagated through seed as well as through perennial rootstocks. Its branches are woody and expand in a larger radius. It cannot establish its feet in frequently stirred (cultivated) soils.

Control: Post emergence spray of paraquat @ 494 gram or glyphosate @ 1331 gram a.i/ha on non-cropland or atrazine @ 939 gram a.i/ha in sugarcane.

Miscellaneous weeds



Accasia nilotica

سگری، پہاڑی کبکیر



Ageratum species



Amaranthus spinosus

Spiny amaranth تاردار چولانی



Ammania species



Astragalus species

Locoweed رت پھلانی



Chenopodium ambrosoides

لامنی یا تھو Ammerican wormseed



Commelina species

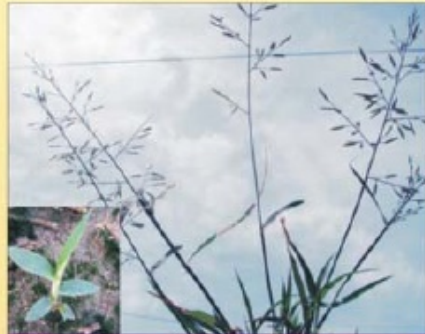


Eleusine indica

Goose grass انڈین دھماکہ



Equisetum species



Eragrostis pilosa

Love grass چڑی کاس



Haloxylon species

Haloxylon لانی



کھجور بوٹی



Leptochloa chinensis
کلرکھاس



Melilotus alba سفید سینیچی



Paspalum paspaloides



Pistia species جنگلی سلاد
Duck salad



Phyllanthus species
جنتی



Peganum harmala ہرمل
Wild rue



Saccharum spontaneum کاهنی



Salsola species
Soap stone لانا



Saponaria vaccaria
Soapwort کالاتکرہ



Sporobolus helvolus



Verbena officinalis



Vicia hirsuta رواڑی

**Results of
Bioessay
Of
Herbicides**

Acetochlor

Trade names: It has been approved in single formulations as *Appeal, Acetor, Caster, Dachlor, Player, Relax, Shintachlor, Welacelor*, and in mixed formulation as *Zip up* (acetochlor + pendimethalin) for weed control in rice, maize and cotton.

Susceptible weeds: It controls a large number of annual grass and dicot weeds but grasses are more susceptible than dicots. Though it is not as safe on crops as butachlor, metolachlor and pendimethalin but the weeds are controlled with the following comparative degree of susceptibility:

Alternanthera sessilis 80 %, *Amaranthus viridis* (90%), *Brachiaria*

Dactyloctenium aegyptium (80%), *Cyperus difformis* (95%), *Cyperus iria* (95%), *Digitaria adscendens* (80%), *Echinochloa colona*, *Echinochloa crus galli* (90%), *Fimbristylis dichotoma* 90 %, *Leptochloa chinensis* 90%, *Leptochloa panicea* (80%), *Marsilia minuta* 80%, *Portulaca oleracea* (80%), *Schoenoplectus juncooides* 90%, *Setaria viridis* (90%) and *Trianthema portulacastrum* (80%).

Tolerant: Some of the weeds are not effectively controlled due to variable degree of tolerance. Comparative susceptibility of tolerant weeds is given as below:

Cleome viscosa (20%), *Convolvulus arvensis* (10%), *Convolvulus pluricaulis* (10%), *Cucumis melo* Var. *Agrestis* (20%), *Cyperus rotundus* (50%), *Eclipta prostrata* (50%), *Euphorbia granulata* (60%), *Galium aparine* (10%), *Parthenium hysterophorus* (40%), *Sorghum*

halepense (rhizomes) 10%, (seeds) 70%, *Tribulus terrestris* (10%), *Scirpus maritimus* (50%), *Xanthium strumarium* (20%) and many other weeds.

Ametryn+atrazine

Trade name: Atrazine has been approved in Punjab with several single formulations as *Awax*, *Balance*, *Bestrazine*, *Clark*,

Divert, *Opal*, *Security* and mixed formulations as *Click* (atrazine+acetochlor), *Gesaprim* (atrazine + terbutryne), *Primextra gold* (atrazine + metolachlor), *Supermix* (atrazine + alachlor+acetochlor), *Gesapax combi*, *Marter*, *Scope*, *Visa combi*, *Welpex*, *Wiper* (atrazine +ametryn) and *Heera*, *weedout* (atrazine + propisochlor).

Susceptible weeds: Atrazine alone is not as effective as in combined formulations. The post emergence application of combined formulation as ametryn + atrazine @ 2000 gram active ingredient/ha gave the comparative control of weeds under proper application conditions. Results of bioessay study are given as below:

Amaranthus viridis 100 %, *Avena species* 100 %, *Brachiaria species* 100 %, *Chenopodium species* 100 %, *Convolvulus arvensis* 30-60 %, *Conyza stricta* 30-80 %, *Cyperus iria* 100 %, *Cynodon dactylon* 30-60 %, *Cyperus rotundus* 30-60 %, *Dactyloctenium aegyptium* 50-90 %, *Digera arvensis* 100 %, *Digitaria species* 100 %, *Echinochloa colona* 100 %, *Echinochloa crus galli* 100 %, *Euphorbia granulata* 100 %, *Alternanthera sessilis* 50-80 %, *Leptochloa panicea* 100 %, *Parthenium hysterophorus* 80 % at younger stage, *Phalaris minor* 90-100 %, *Portulaca oleracea* 90-100 %, *Rumex dentatus* 90-100 %, *Trianthema portulacastrum* 90-100 % and many others with variable intensity, growth stage and application conditions.

Tolerant weeds: The following weeds were not fully controlled. Hence, they were considered as tolerant weeds.

Alternanthera sessilis 50%, *Cirsium arvense* 20%, *Convolvulus arvensis* 40%, *Conyza stricta* 50%, *Cynodon dactylon* 30%, *Cyperus rotundus* 30%, *Dicanthium annulatum* 50%, *Eclipta prostrata* 50%, *Leptochloa chinensis* 10%, *Sonchus asper* 25%, *Sorghum halepense* 10%, *Tribulus terrestris* 30%

Atrazine + S-metolachlor

Trade name: *Primextra gold*

Susceptible weeds: *Amaranthus viridis* 100%, *Brachiaria species* 100%, *Chenopodium album* 95%, *Coronopus didymus* 90%, *Dactyloctenium* 90%, *Digera arvensis* 100%, *Digitaria species* 100%, *Echinochloa species* 100%, *Eclipta prostrata* 75%, *Euphorbia granulata* 80%, *Leptochloa panicea* 100%, *Parthenium hysterophorus* 75%, *Polypogon monspeliensis* 100%, *Portulaca oleracea* 100%, *Setaria viridis* 90%, *Trianthema portulacastrum* 95%.

As early post emergence: *Amaranthus viridis* 100%, *Brachiaria species* 80%, *Chenopodium album* 95%, *Coronopus didymus* 98%, *Cucumis melo* var. *Agrestis* 90%, *Dactyloctenium aegyptium* 80%, *Digera arvensis* 95%, *Digitaria species* 80%, *Echinochloa species* 90%, *Euphorbia granulata* 90%, *Leptochloa panicea* 80%, *Parthenium hysterophorus* 90%, *Polypogon monspeliensis* 90%, *Portulaca oleracea* 100%, *Setaria viridis* 70%, *Trianthema portulacastrum* 95%.

As late post emergence: *Amaranthus viridis* 80%, *Chenopodium album* 75%, *Convolvulus* 75%, *Coronopus didymus* 80%, *Cucumis melo* var. *Agrestis* 80%, *Digera arvensis* 90%, *Polypogon monspeliensis* 80%, *Portulaca oleracea* 85%, *Euphorbia granulata* 70%, *Trianthema* 90%.

Tolerant weeds as

Preemergence: *Achyranthes aspera* 40%, *Cleome viscosa* 50%, *Convolvulus arvensis* 0%, *Cucumis melo* var. *Agrestis* 60%, *Cyperus rotundus* 50%, *Sorghum halepense* rhizomes 10%, *Tribulus terrestris* 10%, *Xanthium strumarium* 10%

Early post emergence: *Cyperus rotundus* 20%, *Convolvulus arvensis* 10%, *Leptochloa chinensis* 50%, *Setaria viridis* 60%, *Sporobolus helvolus* 50%

As late post emergence: *Cyperus rotundus* 10%, *Echinochloa species* 40%, *Dactyloctenium aegyptium* 30%, *Leptochloa chinensis* 10%, *Leptochloa panicea* 30%, *Parthenium hysterophorus* 50%, *Setaria viridis* 20%, *Sporobolus helvolus* 10%, *Xanthium strumarium* 50%

Bispyribac-sodium

Trade name: This herbicide has been approved as *Astral*, *Clover*, *Expose*, *Nominee*, *Pyrapack*, *Sponsor*, *Tune*, *Zebra* and other names

Susceptible weeds: *Alternanthera sessilis* (Gandal booti) 90%, *Amaranthus viridis* 90%, *Cyperus iria* 95%, *Cyperus rotundus* (Mork) 90%, *Digera arvensis* (Tandla) 90%, *Digitaria adscendens* (karabara) 80%, *Echinochloa colona* (Swanki) 95%, *Echinochloa crus galli* (Dhiddan) 98%, *Euphorbia granulate* (Hazardani) 80%, *Fimbristylis dichotoma* (Chhoti bhuiyan) 95%, *Leptochloa panicea* (Lamb ghas) 80% at younger stage, *Solanum nigrum* (Mako) 98%, *Sphenoclea zeylanica* (Mirch booti) 90%, *Trianthema portulacastrum* (Itsit) 95%, *Tribulus terrestris* (Bhakhra) 75% and many other dicot and grassy weeds with variable degree of susceptibility.

Tolerant weeds: Some of the weeds are incompletely killed as following:

Convolvulus arvensis (Lehli) 20%, *Cynodon dactylon* (Khabble) 20%, *Dactyloctenium aegyptium* (Madhana) 20%, *Leptochloa chinensis* (Kallar ghas) 30%, *Leptochloa panicea* (Lamb ghas) 80% at advanced stage 30%, *Paspalum distichum* (Narru), *Portulaca oleracea* (Qulfa) 60%, *Sorghum halepense* (Barru) 10 % and *Sporobolus helvolus* (Barra Lamb ghas) 30% are fairly tolerant to this herbicide.

Bromoxynil+MCPA

Trade name: *Agritox, DMA-6, Agroxone, Metaxon, Weeder, Bucril super or Selector or Quattro and many others (+ bromoxynil), Erbitox combi (+2, 4-D), Dicopur-M (+2, 4-D).*

Susceptible weeds: Annual and perennial dicot weeds in wheat like *Anagallis arvensis* (90%), *Asphodelus tenuifolius*, *Carthamus oxyacantha* (80%), *Chenopodium album*, *Chenopodium murale* (100%), *Cirsium arvense* (90%), *Convolvulus arvensis* (80%), *Cyperus rotundus* in rice and sugarcane (70%), *Emex spinosa* at younger stage (80%),

Euphorbia granulata in grassy lawns (95%), *Galium aparine* (80%), *Heliotropium europaeum* (90%), *Medicago polymorpha* (80%), *Melilotus indica*, *Rumex dentatus*, *Sonchus asper* (90%) and a wide range of annual dicot weeds.

Tolerant: *Emex spinosa* at advanced stage (30%), *Lathyrus aphaca* (40%), *Malva neglecta* (50%), *Polygonum plebejum* (20%), *Veronica agrestis* (20%) and *Parthenium hysterophorus* in non croplands (50%) are fairly tolerant esp. at their advanced growth stage.

Butachlor

Trade name: *Machete, Pillarsate Client, Paddy guard, Hooter, Topchlor, Volta, Welchlor* and many other names.

Susceptible weeds:

a. Under high moisture: When butachlor is applied in rice its activity is improved due to adequate moisture required for its proper functioning.

Amaranthus viridis (80%), *Brachiaria reptans* (80%), *Cyperus difformis* (100%), *Cyperus iria* (100%), *Dactyloctenium aegyptium* (80%), *Echinochloa colona* (90%), *Echinochloa crus galli* (95%), *Fimbristylis dichotoma* (100%), *Leptochloa panicea* (90%).

b. Under low moisture: When butachlor is applied in maize, cotton and vegetables, its activity is sharply reduced due to inadequate moisture.

Amaranthus viridis (60%), *Brachiaria specie* (60%), *Coronopus didymus* (50%), *Cyperus difformis* (70%), *Cyperus iria* (60%), *Dactyloctenium*

aegyptium (60%), *Digera arvensis* (40%), *Digitaria adscendens* (50%), *Echinochloa colona* (70%), *Echinochloa crus galli* (75%), *Euphorbia granulate* (40%), *Leptochloa panicea* (60%), *Paspalum distichum* (80%), *Physalis minima* (50%), *Portulaca oleracea* (60%), *Rumex dentatus* (50%) *Setaria sp.* (40%), *Trianthema portulacastrum* (60%).

Tolerant weeds: *Convolvulus arvensis* (10%), *Cynodon dactylon* (20%), *Cyperus rotundus* (10%), *Galium aparine* (20%), *Parthenium hysterophorus* (30%) and *Tribulus terrestris* (10%).

Carfentrazone

Trade name: *Aim, Aurora, Garner, Affinity* (+ isoproturon)

Susceptible weeds: The following weeds are effectively killed at their younger growth stage. For example *Anagallis arvensis*, *Chenopodium album* 80%, *Chenopodium murale* 95%, *Coronopus didymus* 90%, *Convolvulus arvensis* 85% (especially at its advanced stages), *Emex spinosa* 90%, *Euphorbia helioscopia* 80%, *Fumaria indica* 80%, *Melilotus indica* 80%, *Polygonum plebejum* 70%, *Spergula arvensis* 90%, *Vicia sativa* 80%.

Tolerant: The following weeds are not effectively controlled especially at their advanced growth stage: *Asphodelus tenuifolius* 40%, *Carthamus oxyacantha* 15%, *Cirsium arvense* 5%, *Galium aparine* 50%, *Lathyrus aphaca established* 40%, *Medicago polymorpha* 50%, *Malva neglecta* 40%, *Portulaca oleracea* 30%, *Trianthema portulacastrum* 30%, *Tribulus terrestris* 40%,.

Ethoxysulfuron ethyl

Trade name: *Cogent, Curfew, Stallion, Sunstar, Sunstar gold*

Susceptible weeds: A large number of weeds are susceptible to this herbicide. *Chenopodium murale* 95%, *Cyperus rotundus* 80%, *Cyperus iria*, *Cyperus difformis* 90%, *Digera arvensis* 80%, *Trianthema portulacastrum* 80% at its younger stage, *Euphorbia granulata* 80%, *Tribulus terrestris* 80%, and

Tolerant: All types of grassy weeds, *Amaranthus viridis*, *Convolvulus arvensis*, *Conyza stricta* 40%, *Corchorus antichorus* 10%, *Portulaca oleracea* 20%, established *Chenopodium album* 30% and *Trianthema portulacastrum* 30% at its advanced stage.

Fenoxa, Clodinafop, Penoxaden

Trade name: Fenoxaprop formulations are *Chinlima*, *Fulong*, *Furore super*, *Gramicide*, *Pujing*, *Puma super*, *Swift* and *Brake*, clodinafop formulations are *Topik*, *Topcide*, *Bracelet*, *Sonak*, *Milwan*, *Cutter*, haloxyfop formulations are *Percept*, *Dakota* other names and penoxaden as *Axial*.

Susceptible weeds: Annual and perennial grasses like wild oats birds, seed grass, foxtail, winter grass, Johnson grass (seedling) jungle rice, barnyard grass, bermuda grass (at higher doses) and Egyptian grass.

Tolerant: Annual and perennial dicot weeds, moreover annual blue grass (*Poa*) and cheat grass (*Bromus*) are also tolerant.

Fluroxypyr+MCPA

Trade name: *Starane-M*, *Permit* (+ MCPA), *Clean wave* (+ aminopyralid) *Hurler*, *Setexal*, *Advance*, *Crusade*, *Talstar*, *Sicklin*, *Printagal*,

Susceptible weeds: Annual and perennial dicot weeds in wheat like *Anagallis arvensis* (95%), *Asphodelus tenuifolius*, *Carthamus oxyacantha* (80%), *Chenopodium album*, *Chenopodium murale* (100%), *Convolvulus arvensis* (80%), *Cyperus rotundus* in rice and sugarcane (70%), *Emex spinosa* at younger stage (80%), *Euphorbia granulata* in grassy lawns (95%), *Euphorbia helioscopia* (90%), *Galium aparine* (80%), *Heliotropium europaeum* (90%), *Lathyrus aphaca* (85%), *Medicago polymorpha* (80%), *Melilotus indica*, *Polygonum plebejum* (90%), *Rhynchosia capitata* 90%, *Rumex dentatus*, *Sonchus asper* (95%), *Stellaria media* (100%), *Vicia sativa* (90%) and a wide range of other annual dicot weeds.

Tolerant:: *Cirsium arvense* (70%), *Emex spinosa* (50%) at advanced stage, *Malva neglecta* (60%), *Veronica agrestis* (70%) and *Parthenium hysterophorus* in non croplands (50%) are fairly tolerant esp. at their advanced growth stage

Glyphosate

Trade names: *Carpet, Clean up, Dominate gold, Fix up, Glycel, Gluconal, Grip up, Hold up, Mera, Round up, Round up Powermax* and several other names. A large number of trials have revealed that at lower doses *Round up* was found relatively better than the same dose of any other formulation of glyphosate. At higher doses, the results of *Round up* and *Roundup Power max* were found at par with other formulations but again had an edge i.e; residual weed killing effect was found more long shot than any other formulation. The comparative performance gap of higher doses was not as wide as in case of lower doses. It was revealed that Roundup was found as more professional vegetation killer than any other formulation of glyphosate.

Susceptible weeds: All annual and most of the perennial weeds have been found susceptible at higher dose. However, perennial weeds are not fully killed at its lower doses. *Tribulus terrestris*, *Heliotropium indicum* and *Trianthema portulacastrum* are killed earlier than *Parthenium*, *Convolvulus arvensis* and *Alternanthera sessilis*. Overall, grass family weeds are relatively more susceptible than dicot weeds. Common weeds of gardens, watercourses and non-cropland areas are controlled at recommended doses as following:

Achyranthes aspara 95%, *Alhagi maurorum* 85%, *Amaranthus viridis* 99%, *Arundo donax* 80%, *Cannabis sativa* 90%, *Cirsium arvense* 95%, *Convolvulus pluricaulis* 90%, *Coronopus didymus* 99%, *Cynodon dactylon*

90%, *Cyperus rotundus* 80%, *Digitaria pruriens* 90%, *Echinochloa colona* 99%, *Eclipta alba* 90%, *Eragrostis*

crassipes 80%, *Euphorbia dracunculoides* 90%, *Heliotropium indicum* 99%

Malva neglecta 90%, *Oxalis corniculata* 90%, *Parthenium hysterophorus* 90%, *Phyla nudiflora* 90%, *Poa annua* 95%, *Polypogon monspeliensis* 100%, *Saccharum benghalense* 85%, *Solanum nigrum* 95%, *Sonchus arvensis* 100%, *Stellaria media* 100%, *Tribulus terrestris* 99%, *Typha domingensis* 75%, *Withania somnifera* 90%, *Xanthium* 99%.

Tolerant weeds: Some of the weeds are not properly killed by glyphosate at recommended doses. Their relative control %age is as following: *Convolvulus arvensis* 60%, *Calatropis procera* 90%, *Cuscuta campestris* 50%, *Lantana camara* 50%, *Sorghum halepense* 75%, and common reed are relatively tolerant at normal dose.

Isoproturon

Trade name: *Arelon, Tolkan, Buticide, Graminon, Nocilan, Herbex, Milron, Partner, Proton, Strong, Passport, Javelin (+ diflufenican), Affinity (+carfentrazone), Cleaner (+bensulfuron)* and others

Susceptible weeds: *Anagallis arvensis* 90%, *Avena fatua* 85%, *Chenopodium album*, *Chenopodium murale* 90%, *Euphorbia helioscopia* 85%, *Malva neglecta* 30%, *Medicago polymorpha* 80%, *Melilotus indica* 90%, *Poa annua* 95%, *Phalaris minor* 90%, *Polypogon monspeliensis* 95%, *Rumex dentatus* 95% and *Spergula arvensis* 85%.

Tolerant weeds: *Convolvulus arvensis* 10%, *Bromus japonicus* 10%, *Emex spinulosa* 30%, *Fumaria indica* 30%, *Galium aparine* 20%, *Lathyrus aphaca* 20%, *Polygonum plebejum* 10%.

Metribuzin

Trade name: *Sencor, Locker, Magnet, Buke, Mistral, Retard, Split* and many other names.

Susceptible weeds: *Anagallis arvensis* 95%, *Bromus catharticus* 90%, *Chenopodium album*, *Chenopodium murale* 90%, *Coronopus didymus* 100%, *Emex spinulosa* 50%, *Euphorbia helioscopia* 85%, *Medicago polymorpha* 80%, *Melilotus indica* 85%, *Parthenium hysterophorus* 80%, *Poa annua* 85%, *Phalaris minor* 85%, *Polypogon*

monspelliensis 100%, *Rumex dentatus* 95%, *Spergula arvensis* 80%, *Stellaria media* 100%, *Vicia sativa* 80% and many other weeds.

Tolerant: Less effective against *Asphodelus tenuifolius* 70%, *Avena fatua* 10% *Carthamus oxyacantha* 60%, *Cirsium arvense* 20%, *Convolvulus arvensis* 10%, *Emex spinosus* 50, *Euphorbia granulata* 10%, *Fumaria indica* 20%, *Galium aparine* 20%, *Lathyrus aphaca* 30%, *Lolium temulentum* and *Malva neglecta* 50% especially at their advanced stage, *Parthenium hysterophorus* 40%, *Polygonum plebejum* 20%.

Metsulfuron methyl

Trade name: Single and combined formulations like *Ally*, *Brush off*, *Escort*, *Grainstar*, *Gropper*, *Jubilee*, *Land gold*, *Laren max*, *Malban*, *Pointer ultra*, *Quit* and many other names with combinations.

Susceptible weeds: Most of the annual dicot weeds are killed in wheat. Comparative efficacy of its combined formulation (+ tribenuron) is given as below:

Anagallis arvensis (95%), *Asphodelus tenuifolius*, *Carthamus oxyacantha* (80%), *Cirsium arvense* (80%) *Chenopodium album* (95%), *Chenopodium murale* (90%), *Emex spinosa* at younger stage (80%),

~~*Galium aparine* (95%), *Lathyrus aphaca* (90%), *Medicago polymorpha* (80%), *Fumaria indica*, *Rumex dentatus*, *Sonchus asper* (95%), *Spergula arvensis* 80%, *Stellaria media* 100%, *Vicia sativa* 80%.~~

Tolerant weeds: *Convolvulus arvensis* (50%), *Emex spinosa* at advanced stage (50%), *Fumaria indica* 40%, *Malva neglecta* (50%), *Polygonum plebejum* (50%), *Veronica agrestis* (60%) and *Parthenium hysterophorus* (60%) are fairly tolerant especially at their advanced growth stage.

Nicosulfuron

Trade name: This herbicide has been registered as *Partner*, *Cyclon* for weed control in maize.

Susceptible weeds: A large number of weeds are susceptible to this herbicide. *Cyperus rotundus* 80%, *Cyperus iria*, *Cyperus difformis*

90%, *Digera arvensis* 90%, *Echinochloa* species 90% *Leptochloa panicea* 90%, *Trianthema portulacastrum* 80% at its younger stage, *Euphorbia granulata* 80%, *Tribulus terrestris* 80%

Tolerant weeds: *Amaranthus viridis* 60%, *Chenopodium album* 30%, *Convolvulus arvensis* 50%, *Conyza stricta* 40%, *Corchorus antichorus* 10%, *Dactyloctenium aegyptium* 50%, *Portulaca oleracea* 30%.

Paraquat dichloride

Trade name: *Gramoxone, Delux, Mantiquat, Piltaxone, Pointer, Remote and many other names*

Susceptible weeds : Most of the annual and seed germinated perennial monocot and dicot weeds are fairly susceptible at their younger growth stage. It works better when younger weeds are actively growing preferably in well moist soils.

Tolerant: Although this is entire vegetation killer but some of the perennial weeds perpetuating through the underground parts are fairly tolerant. Established perennial weeds especially *Cyperus rotundus* (*Deela, Mork*), *Desmostachya bipinnata* (*Dhabb Drabb*),

Convolvulus arvensis (*Lebli*) and *Sorghum halepense* (*Baru ghas*) are tolerant due to underground propagules. Incomplete coverage results in poor control. Out of annual weeds *Coronopus didymus* is also fairly tolerant to paraquat and may resprout due to deep root system especially at advanced stage. Some of the annual grasses are also tolerant at advanced growth stage preferably under drought conditions.

Pendimethalin

Trade name: It has been approved as *Lotus, Panida grande, Razor, Smash, Stomp, Stop, Pendilin, Top* for broad spectrum weed control

mostly in summer. Some of its mixed formulations have also been approved like *Depend* (pendimethalin + prometryn),

Galaxy (pendimethalin + clomazone) and *Zip up* (pendimethalin + acetochlor).

Susceptible weeds: A large number of small seeded annual and some of the perennial weeds are controlled with variable degree of susceptibility at pre emergence stage.

For example *Amaranthus viridis* 90%, *Brachiaria species* 95%, *Cuscuta campestris* 95%, *Cyperus difformis*, *Cyperus iria*, *Dactyloctenium*, *Digitaria species*, *Echinochloa colona*, *Echinochloa crus galli* 90%,

Fimbristylis, *Leptochloa panicea*, *Medicago polymorpha* 80%, *Melilotus indica* 95%, *Portulaca oleracea*, *Setaria* 90%, *Salanum nigrum* 100%, *Sorghum halepense* (Seed germination) 80%, *Trianthema portulacastrum* 95% and a wide range of annual weeds.

Tolerant: The following weeds are not effectively killed by this herbicide. Comparative susceptibility % at pre emergence application is given below. *Avena fatua* 10%, *Cleome viscosa* 70%, *Conyza ambigua* 15%, *Cirsium arvense* 5%, *Convolvulus arvensis* (Seed germinated) 10%, *Convolvulus arvensis* (underground parts only) 0%, *Convolvulus pluricaulis* 0%, *Cynodon dactylon* 10%, *Cyperus rotundus* 5%, *Digera arvensis* 10%, *Eclipta prostate* 5% , *Euphorbia granulata*

40%, *Euphorbia spinulosa* 10%, *Galium aparine* 10%, *Heliotropium indicum*, *Mussaenda indica*, *Paspalum* 10%, *Parthenium hysterophorus* 20%, *Paspalum distichum* 20%, *Physalis minima* 50%, *Saponaria vaccaria* 10%, *Sesbania aegyptica* 15%, *Sorghum halepense* (Rhizomes) 5%, *Tribulus terrestris* 15%, *Withania somnifera* 10%, *Xanthium strumarium* 10%.

Post emergence activity

a. Early post emergence: Being a mitotic herbicide, pendimethalin is capable of controlling a large number of annual and many of the small seeded perennial weeds with variable degree at early post emergence stage. For example, within two weeks of germination *Amaranthus viridis* may be killed by 70 %, *Brachiaria ramosa* 80 %, *Brachiaria reptans* 70%, seed germinated *Convolvulus arvensis* 60%, *Cuscuta campestris* 80

%, *Cyperus difformis* 50 %, *Cyperus iria* 30 %, *Dactyloctenium aegyptium* 90 %, *Digera arvensis* 60 %, *Digitaria adscendense* 80 %, *Emex spinulosa* 80%, *Euphorbia granulata* 75 %, *Fimbristylis* 50 %, *Leptochloa panicea* 80 %, *Portulaca oleracea* 80 %, *Setaria pumila* 80 %, seed germinated *Sorghum halepense* 60 %, *Tribulus terrestris* 60%, *Trianthema portulacastrum* 90 % and a wide range of annual weeds.

b. **Late post emergence:** The following weeds are not effectively killed at late post emergence stage i.e; 15 days or later due to variable degree of tolerance. *Amaranthus viridis* 40 %, *Avena fatua* 50 %, *Brachiaria reptans* 30%, *Cleome viscosa* 30%, *Conyza ambigua* 10%, *Cirsium arvense* 10 %, *Convolvulus arvensis* 10%, *Convolvulus pluricaulis* 10%, *Cynodon dactylon* 10 %, *Cyperus rotundus* 5 %, *Dactyloctenium aegyptium* 30 %, *Digitaria adscendense* 50 %, *Euphorbia granulata* 40 %, *Digera arvensis* 20% , *Echinochloa colona* 10%, *Echinochloa crus galli* 10%, *Eclipta prostrata* 10%, *Euphorbia granulata* 30%, *Emex spinulosa* 20%, *Galium aparine* 10 %, *Heliotropium indicum* 30 %, *Leptochloa panicea* 50 % *Mukia maderaspatana* 30%, *Parthenium hysterophorus*

40%, *Paspalum distichum* 10%, *Pharbitis nil* 50%, *Portulaca oleracea* 30%, *Saptharia vaccaria* 30%, *Sisymbrium aegyptica* 50%, seed germinated *Sorghum halepense* 10%, *Tribulus terrestris* 20%, *Withania somnifera* 30%, and *Xanthium strumarium* 20%.

Penoxulum

Trade name: This herbicide has been approved as Ryzelan @ 25 ml/acre for pre emergence application in transplanted rice. It may also be used in rice nursery as well as in direct seeded rice @ 40 ml/acre as early post emergence. Pre emergence application in standing water gave the following results:

Susceptible weeds: *Alternanthera sessilis* (Gandal booti) 80%, *Amaranthus viridis* 80%, *Cyperus iria* 90%, *Digera arvensis* (Tandla) 90%, *Echinochloa colona* (Swanki) 95%, *Echinochloa crus galli*

(*Dhiddan*) 98%, *Fimbristylis dichotoma* (*Chhoti bhuiyan*) 90%, *Leptochloa chinensis* (*Kallar ghass*) 80%, *Leptochloa panicea* (*Lamb ghas*) 80%, *Portulaca oleracea* (*Qulfa*) 80%, *Sphenoclea zeylanica* (*Mirch booti*) 90%, *Trianthema portulacastrum* (*Itsit*) 90% and many other dicot and grassy weeds with variable degree of susceptibility.

Tolerant weeds: Some of the weeds are incompletely killed even when applied as pre emergence stage. Its post emergence control is very poor except on *Echinochloa* species.

Cynodon dactylon (*Khabble*) 20%, *Cyperus rotundus* (*Mork*) 60%, *Dactyloctenium aegyptium* (*Madhana*) 20%, *Leptochloa chinensis* (*Kallar ghass*) 20% at advanced stage, *Leptochloa panicea* (*Lamb ghas*) 50% at advanced stage 30%, *Paspalum distichum* (*Narru*) 70%, *Scirpus maritimus* (*Deela*) 40 %, *Sorghum halepense* (*Barru*) 10 % and *Sporobolus halvulus* (*Barra Lamb ghas*) 30% are fairly tolerant to this herbicide.

Pyrazosulfuron

Trade name: *Cober, Shoreup, Sword, Terminator* and many other

names.
Susceptible weeds: This is just a satisfactory weedicide of rice crop under aqueous conditions but gives unsatisfactory weed control in rice nursery and transplanted crop under alternate wetting and drying. The over all performance of this herbicide is given below:

Alternanthera sessilis 85%, *Brachiaria specie* 80%, *Cyperus difformis* 100%, *Cyperus iria* 100%, *Cyperus rotundus* 80% *Digera arvensis* 70%, *Digitaria species* 70%, *Echinochloa colona* 80%, *Echinochloa crus galli* 70%, *Euphorbia granulate* 70%, *Fimbristylis dichotoma* 100%, *Leptochloa panicea* 80%, *Portulaca oleracea* 80%, *Trianthema portulacastrum* 75% and many other weeds.

Tolerant: *Corchoru antichorus* 10%, *Cynodon dactylon* 20%, *Cyperus rotundus* 10%, *Dactyloctenium aegyptium* 50% *Paspalum distichum* 50%.

S-metolachlor

Trade name: *Dual gold, Field master (metolachlor), Guard plus, Bicep II Magnum (combination).*

Susceptible weeds: This is one of the most effective herbicides. A large number of annual and many of the minute seeded weeds are controlled with variable degree at pre emergence stage. For example *Amaranthus viridis* 90%, *Brachiaria species* 90%, *Coronopus didymus* 90%, *Cyperus difformis*, *Cyperus iria*, *Cyperus rotundus* 85%, *Dactyloctenium*, *Digera arvensis*, *Digitaria species*, *Echinochloa colona*, *Echinochloa crus galli* 90%, *Euphorbia granulata* 80%, *Fimbristylis*, *Leptochloa panicea*, *Portulaca oleracea*, *Setaria* 90%, *Salanum nigrum* 98%, *Sorghum halepense (Seed germination)* 85%, *Trianthema portulacastrum* 85% and a wide range of annuals.

Tolerant: The following weeds are not effectively killed by this herbicide. Comparative susceptibility % at pre emergence application is given below. *Avena fatua* 10%, *Conyza ambigua* 15%, *Cirsium arvense* 5%, *Cleome viscosa* 5%, *Convolvulus arvensis (Seed germinated)* 10%, *Convolvulus arvensis (Underground parts)* 0%,

Convolvulus pluricaulis 0%, *Conyza ambigua* 10%, *Digera arvensis* 10%, *Echinochloa crus galli* 5%, *Euphorbia granulata* 40%, *Eriosema spumulosum* 10%, *Galium aparine* 10%, *Heliotropium indicum* 30%, *Mukia maderaspatana* 10%, *Parthenium hysterophorus* 20%, *Paspalum distichum* 20%, *Physalis minima* 50%, *Saponaria vaccaria* 10%, *Sesbania aegyptica* 15%, *Sorghum halepense (Rhizomes)* 5%, *Tribulus terrestris* 15%, *Withania somnifera* 10%, *Xanthium strumarium* 10%.

Sulfosulfuron

Trade name: *Leader, Tegnitor, Sulfon (Maverick, Monitor, Outrider)*

Susceptible weeds: *Anagallis arvensis* 90%, *Avena fatua* 90%, *Bromus catharticus* 90%, *Chenopodium murale* 90%, *Cirsium arvense* 85% , *Euphorbia helioscopia* 90%, *Fumaria indica* 90%, *Galium aparine* 90%, *Lathyrus aphaca* 80%, *Lolium temulentum* 80% ,

Medicago polymorpha 80%, *Melilotus indica* 95%, *Poa annua* 80%, *Phalaris minor* 90%, *Polygonum plebejum* 80%, *Polypogon monPELLIENSIS* 100%, *Spergula arvensis* 80%, *Vicia sativa* 80% and many others.

Tolerant: Less effective against *Asphodelus tenuifolius* 70%, *Carthamus oxyacantha* 60%, *Chenopodium album* 70%, *Convolvulus arvensis* 35%, *Emex spinulosa* 75%, *Malva neglecta* 30% especially at their advanced stage and *Rumex dentatus* 70%.

Triasulfuron

Trade name: *Logran*

Susceptible weeds: Most of the annual dicto weeds are killed in wheat. The comparative efficacy of is given as below: *Anagallis arvensis* (95%), *Asphodelus tenuifolius*, *Carthamus oxyacantha* (80%), *Cirsium arvense* (85%) *Chenopodium album* (95%), *Chenopodium murale* (100%), *Emex spinosa* at younger stage (70%), *Euphorbia helioscopia* (85%), *Galium aparine* (90%), *Lathyrus aphaca* (85%), *Medicago polymorpha* (85%), *Melilotus indica* 90%, *Polygonum plebejum* (80%), *Rumex dentatus*, *Sonchus asper* (90%), *Spergula arvensis* 80%, *Veronica agrestis* (80%), *Vicia sativa* 85%.

Tolerant: *Convolvulus arvensis* (20%), *Emex spinosus* at advanced stage (50%), *Fumaria indica* 80%, *Malva neglecta* (60%) and *Parthenium hysterophorus* in non croplands (50%), *Solanum nigrum* (70%) are fairely tolerant esp. at their advanced growth stage.

Tribenuron

Trade name: *Ascent, Shield, Express, Grainstar, Pointer*

Susceptible weeds: Most of the annual dicto weeds are killed in wheat. The comparative efficacy of is given as below: *Anagallis arvensis* (90%), *Asphodelus tenuifolius*, *Carthamus oxyacantha* (70%), *Cirsium arvense* (85%) *Chenopodium album* (95%), *Chenopodium murale* (90%), *Emex spinosa* at younger stage (50%), *Euphorbia helioscopia* (80%), *Galium aparine* (80%), *Lathyrus aphaca* (80%), *Medicago polymorpha* (80%), *Melilotus indica* (90%), *Polygonum plebejum* (80%),

Rumex dentatus (90%), *Sonchus asper* (80%), *Spergula arvensis* (80%), *Veronica agrestis* (80%), *Vicia sativa* 80%.

Tolerant: *Convolvulus arvensis* (20%), *Emex spinosa* at advanced stage (50%), *Fumaria indica* 80%, *Malva neglecta* (60%) and *Parthenium hysterophorus* in non croplands (50%) are fairly tolerant esp. at their advanced stage.

Trifluralin

Trade names: *Earlan, Ipifluor, Olitref, Orifan, Treflan, Trifluran, Triand* and many other trade names.

Susceptible weeds: A large number of annual and many of the minute seeded weeds are controlled with variable degree of susceptibility by pendimethalin at pre emergence stage. For example *Amaranthus viridis* 90%, *Brachiaria species* 95%, *Cleome viscosa* 70%, *Cyperus difformis*, *Cyperus iria*, *Dactyloctenium*, *Digitaria species*, *Echinochloa colona*, *Echinochloa crus galli*, *Fimbristylis*, *Leptochloa panicea*, *Portulaca oleracea*, *Setaria* 90%, *Sorghum halepense* (Seed germination) 80%, *Trianthema portulacastrum* 85% and a wide range of annual weeds.

Tolerant weeds: The following weeds are not effectively killed by this herbicide. Comparative susceptibility % at pre emergence application is given below. *Conyza ambigua* 15%, *Convolvulus arvensis* (Seed germinated) 10%, *Convolvulus arvensis* (growing from underground parts) 0%, *Convolvulus pluricaulis* 0%, *Cynodon dactylon* 10%, *Cyperus rotundus* 10%, *Digera arvensis* 10%, *Eclipta prostrata* 5%, *Euphorbia granulata* 50%, *Emex spinulosa* 10%, *Galium aparine* 10%, *Heliotropium indicum* 30%, *Mukia maderaspatana* 10%, *Parthenium hysterophorus* 20%, *Paspalum distichum* 20%, *Physalis minima* 50%, *Saponaria vaccaria* 15%, *Sesbania aegyptica* 15%, *Sorghum halepense* (Rhizomes) 5%, *Tribulus terrestris* 15%, *Withania somnifera* 10%, *Xanthium strumarium* 10%.

Checklist of Punjab Weeds, 2013

Botanical name & family	English name	Local name
<i>Achyranthes aspara</i> L. (<i>Amaranthaceae</i>)	Prickly chaff flower, devel's horse whip	<i>Putth Kanda,</i> <i>Puttha kand,</i> <i>Chirchita</i>
<i>Alhagi maurorum</i> Medic. { <i>Syn. A camelorum</i> Fischer.} <i>Fabaceae</i>	Prickly clover, camelthorn bush, Persian manna	<i>Juvansa,</i> <i>Juvahan</i>
<i>Alternanthera sessilis</i>	Alternanthera	<i>Gandal booti</i>
<i>Amaranthus spinosus</i> L. (<i>Amaranthaceae</i>)	Spiny amaranth, spiny pigweed, prickly amaranth	<i>Cholai,</i> <i>Kandiali cholai</i>
<i>Amaranthus viridis</i> L. (<i>Amaranthaceae</i>)	Slender amaranth, pigweed	<i>Jangli cholai,</i> <i>Tandulia, Cholai</i>
<i>Ammania baccifera</i> L.	Ammania	<i>Booti</i>
<i>Anagallis arvensis</i> L. (<i>Primulaceae</i>)	Blue pimpernel, poisonweed	<i>Billi booti,</i> <i>Dhabber,</i>
<i>Argemone mexicana</i> L (<i>Papaveraceae</i>)	Prickly poppy, Devil's fig, Mexican poppy	<i>Sialkanta</i>
<i>Arundo donax</i> {(<i>Syn. Phragmites karka</i> (Retz.);} Trin. <i>Poaceae</i>	<i>Arundo, joint rerd</i>	<i>Narra</i>
<i>Asphodelus tenuifolius</i> L. (<i>Syn. A. fistulosus</i> L.) (<i>Liliaceae</i>)	Asphodel, jungle onion, onion weed, wild onion	<i>Piazi, Bhokat</i>
<i>Astragalus spp.</i> <i>Papilionaceae</i>	Milk vetch	<i>Rotphullai</i>
<i>Avena fatua</i> L. (<i>Poaceae</i>)	Wild oat	<i>Jangli jai, Javdri</i>
<i>Atriplex crassifolia</i> C. A. <i>Mey.</i> (<i>A. crassipes</i> , <i>A.</i> <i>patula</i>) <i>Chenopodiaceae</i>	Atriplex, salt bush	<i>Lani</i>

<i>Bidens biternata</i> (Lour.) Merriell & Sheriff ex Roxh. (Compositae/asteraceae)	Hairy beggarticks, blackjack, cobbler's peg	<i>Dipmal, Phutium</i>
<i>Boerhavia procumbens</i> <i>Banks ex Roxb</i> (Syn. <i>B.diffusa</i> <i>L., Trianthema pentandra</i>) (Nyctaginaceae)	Creeping spiderling, spreading hogweed	<i>Biskhapra,</i> <i>Bashkhira</i>
<i>Brachiaria ramosa</i> (L.) Stapf (Syn. <i>Panicum ramosum</i> L.) (Poaceae)	Browntop millet, Signal grass	<i>Bajra ghaas,</i> <i>Bandri</i>
<i>Brachiaria reptans</i> (L.) Gardener & Hubb.(Poaceae)	<i>Brachiaria</i>	<i>Chhota mdhana</i>
<i>Brassica nigra</i> (L.) Koch. (Syn. <i>Sisymbrium nigrum</i>) (Cruciferae/brassicaceae)	Black mustard, wild mustard,	<i>Kali sarson,</i> <i>Jangli sarson,</i>
<i>Bromus japonicus</i> Thunb. (Syn. <i>Bromus secalinus</i>)	bird's rane Cheat grass , Rye grass, Japanies brome	<i>Kali rai</i> <i>Sidi ghaas, Slai</i> <i>sitte</i>
<i>Calatropis procera</i> (Asclepiadaceae)	Caltrope	<i>Aak, Akra</i>
<i>Cannabis sativa</i> L. (Syn. <i>C. indica</i>) (Cannabinaceae)	Neck weed, indian hemp, marijuana	<i>Bhang, Charas,</i> <i>Hasheesh</i>
<i>Carthamus oxyacantha</i> Bieb. (Compositae/Asteraceae)	Wild safflower, spiny carthamus	<i>Pohli, atianasi,</i> <i>Kandiari</i>
<i>Cenchrus ciliaris</i> L. Syn. <i>Pennisetum ciliare</i> (L.) Link (Poaceae)	Sandbur, Buffelgrass, Anjangrass, African foxtail	<i>Dhaman</i>
<i>Cenchrus pennisetiformis</i> <i>Hochst. & Steud. ex Steud</i>	Sandbur, burgrass buffel grass	<i>Anjan ghaas,</i> <i>Kutta ghaas</i>
<i>Centaurea iberica</i> Trev. ex Spreng.(Compositae/asterac eae)	Cornflower, iberian star-thistle	<i>Pohla,</i> <i>Othh kanda</i>

<i>Centaureum pulchellum</i> (Swartz) Druce Syn. (<i>Erythraea ramosissima</i> Pers)	Showy centaury, <i>branched centuary</i>	<i>Ratan jot</i>
<i>Centella asiatica</i> L. (Syn. <i>Hydrocotyl asiatica</i> L.)	Asiatic pennywort	<i>Brahmi booti</i>
<i>Cerastium vulgatum</i> L. (<i>Caryophyllaceae</i>)	Field chickweed	<i>Phullan booti</i>
<i>Chenopodium album</i> L. (Syn. <i>C. reticulum</i>) (<i>Chenopodiaceae</i>)	Common goosefoot, lamb's quarter	<i>Bathu, Bathwa, Chandan bathu</i>
<i>Chenopodium murale</i> L. (Syn. <i>C. lucidum</i>) (<i>Chenopodiaceae</i>)	Fathen, nettle leaved goosefoot	<i>Krund, Chanda betva</i>
<i>Cichorium intybus</i> L	Chicory, blue daisy,	<i>Kasni,</i>
(<i>Compositae/Asteraceae</i>) <i>Cirsium arvense</i> (L.) Scop. {Syn. <i>Cnicus</i> <i>arvensis</i> (L.)Hoffm.} (<i>Compostae/asteraceae</i>)	succory Creeping thistle, Canada thistle, California thistle, field thistle	<i>Tukhm e kasni Leh, Bhur bhur</i>
<i>Cleome viscosa</i> L. (<i>Cappariaceae</i>)	Spider flower, sticky cleome, dogmustard	<i>Hulhul, Bogra</i>
<i>Commelina benghalensis</i> L. (Syn. <i>C. prostata</i>) (<i>Commelinaceae</i>)	Asiatic dayflower, benghal dayflower, tropical spiderwort	<i>Kamlina, Kanchra, krishnaghass</i>
<i>Convolvulus arvensis</i> L. (Syn. <i>Convolvulus minor</i>) (<i>Convolvulaceae</i>)	Field bindweed, Chardvel, common bindweed	<i>Lehli, Baili Wanvehri, Hiranpadi</i>
<i>Convolvulus pluricaulis</i> Chois	Summer bindweed, Shankhpushpi	<i>Hirankhuri</i>
<i>Corchorus antichorus</i> <i>Raeusch</i> {Syn. <i>C. depressus</i> (L.) Stocks}(<i>Tiliaceae</i>)	Jew's mallow	<i>Bhao phalli, Baphali</i>
<i>Corchorus tridens</i> L. (<i>Tiliaceae</i>)	Wild jute	<i>Jangli patsan</i>

<i>Conyza ambigua</i> DC. (<i>Syn. Conyza bonariensis</i>) <i>Compositae/Asteraceae</i>)	Tall fleabane, hairy fleabane, Argentine fleabane	<i>Loosan booti,</i> <i>Sonsali</i>
<i>Coronopus didymus</i> (L.) Smith { <i>Syn. Senecio</i> <i>didyma</i> (L.)Pers.} <i>Cruciferae</i>)	Swine cress	<i>Jangli halon,</i> <i>Naksari, Gandi</i> <i>booti</i>
<i>Cucumis melo</i> Var. <i>Agrestis</i>	Wild cucurbit	<i>Chibbher</i>
1. <i>Cuscuta</i> <i>campestris</i> Yuncker (<i>Syn. C. arvensis</i>) 2. <i>Cuscuta reflexa</i> (<i>Cuscutaceae</i>)	Dodder (thin stemmed), dodder (thick stemmed)	Tukhm-e-kasos <i>Akaash bale,</i> <i>Amarbale,</i> <i>Aftimoon</i>
<i>Cynodon dactylon</i> (L.) Pers. (<i>Syn. Panicum dactylon</i>)	Bermuda grass, ,quick grass,wiregrass	<i>Khabbal,</i> <i>Haryali,</i>
(<i>Poaceae</i>) <i>Cyperus difformis</i> L. { <i>Syn. C. complanatus</i> Forssk} (<i>Cyperaceae</i>)	couch grass Small flower umbrella plant, Small flower flat sedge	<i>Talla</i> <i>Ghoon</i>
<i>Cyperus iria</i> L. (<i>Syn. Chlorocyperus iria</i>) (<i>Cyperaceae</i>)	Rice flat sedge, umbrella sedge	<i>Bhoin,</i> <i>Buro-choocha</i>
<i>Cyperus rotundus</i> L. (<i>Cyperaceae</i>)	Purple nutsedge, sedge grass, chufa nut grass	<i>Deela,</i> <i>Mork, Motha,</i> <i>Barik motha</i>
<i>Dactyloctenium aegyptium</i> (L.) Willd. { <i>Syn. D.</i> <i>aegyptium</i> Willd; <i>Eleusine</i> <i>egyptica</i> Desf.} (<i>Poaceae</i>)	Egyptian finger grass, coast buttongrass, crowfoot grass	<i>Madhanaghaas,</i> <i>Madhanicheera</i> <i>Nangli, Mkra</i>
<i>Datura fastuosa</i> L. (<i>Syn. D. alba</i> Rum ex Nees) (<i>Solanaceae</i>)	Thorn apple, madapple, jimson weed	<i>Sufaid dhatura</i>
<i>Desmostachya bipinnata</i> (L.) Stapf. { <i>Syn. Eragrostis</i> <i>bipinnata</i> Muschl} (<i>Poaceae</i>)	Deep root grass	<i>Dhabb, Drabh,</i> <i>Durva</i>

<i>Dichanthium annulatum</i> (Forsk) Stapf. (Syn. <i>Andropogon annulatus</i> Forsk.)(<i>Poaceae</i>)	Dicanthium	<i>Bra jerga,</i> <i>Pehlwan</i>
<i>Digera muricata</i> (L.) Mart. (Syn. <i>D. arvensis</i> Forsk.) (<i>Amaranthaceae</i>)	Digera	<i>Tandla Tandulia</i>
<i>Digitaria adscendens</i> (H.B.&K) Henr.(Syn. <i>Panicum adscendens</i>) (<i>Poaceae</i>)	Crab grass, finger grass, polish millet	<i>Moti khabbal,</i> <i>Karabara,</i> <i>Suruwari</i>
<i>Diplachne fusca</i> (L.) Beauv. ex Roem & Schult. (Syn. <i>Leptochloa fuscularis</i>) (<i>Poaceae</i>)	Henbit,sprangle top, beetle grass, salt meadow grass	<i>Kallar ghaas,</i> <i>Lumb ghaas</i>
<i>Echinochloa colona</i> (L.) Link. (Syn. <i>Panicum colonum</i> L.)(<i>Poaceae</i>)	Jungle rice grass, Deccan grass, millet rice, swamp grass	<i>Jangli swank,</i> <i>Kala swank,</i> <i>Swanki,Sharma</i>
<i>Echinochloa crus galli</i> (L.) Beauv. (Syn. <i>Panicum crus galli</i> L.) (<i>Poaceae</i>)	Barnyard grass, Ammerican barnyard millet, cockspur grass	<i>Dhiddan,</i> <i>Kayada</i>
<i>Eclipta prostrate</i> L. (Syn. <i>E.alba</i> Hassk.) (<i>Compositae/asteraceae</i>)	White head, false daisy, eclipta	<i>Daryai booti,</i> <i>Bhangra,</i> <i>Babri</i>
<i>Eichhornia crassipes</i> (Mart.) Solms.(<i>Pontederiaceae</i>)	Water hyacinth, water orchard	<i>Gulbekowli</i>
<i>Eleusine indica</i> (L.) Gaertn. (Syn. <i>Cynosorus indicus</i> L., <i>Eleusine fricana</i>)(<i>Poaceae</i>)	Goose grass, finger millet, crowfoot grass	<i>Madhanicheera</i> <i>Daimi madhana,</i> <i>Madhani, andla</i>
<i>Eleusine flagellifera</i> Nees. {Syn. <i>Ochthochloa compressa</i> (Forsk.) Hiln}	<i>Eleusine</i>	<i>Chhimber ghaas</i>
<i>Emex spinosa</i>	Emex species	<i>Trkand palaki,</i> <i>Kafar knda</i>

<i>Eragrostis pilosa</i> (L.) Beauv. (<i>Poaceae</i>)	Indian love grass, soft love grass	<i>Chiri ghaas</i>
<i>Euphorbia dracunculoides</i> Lamk. (<i>Euphorbiaceae</i>)	Green spurge	<i>Chhinkni booti,</i> <i>Kanghi dodhak</i>
<i>Euphorbia granulata</i> Forsk. (<i>Euphorbiaceae</i>)	Garden spurge (Red stemmed)	<i>Hazaardani</i> <i>dodhak</i>
<i>Euphorbia prostata</i> Forsk. (<i>Euphorbiaceae</i>)	Garden spurge (Green stemmed)	<i>Hazaardani</i> <i>dodhak</i>
<i>Euphorbia helioscopia</i> L. (<i>Euphorbiaceae</i>)	Sun spurge, Wart weed, umbrella milkweed	<i>Chhatri dodhak,</i> <i>Chhatriwall,</i> <i>Chattar booti</i>
<i>Euphorbia hirta</i> L. (Syn. <i>E. pilulifera</i> L.) (<i>Euphorbiaceae</i>)	Red spurge, garden spurge, snake weed	<i>Laal dodhak,</i> <i>Ban dudhi</i>
<i>Festuca cristata</i> L. {Syn. <i>Rostraria cristata</i> } {Syn. <i>Koeleria phleoides</i> } (VilL.) Pers} (<i>Poaceae</i>)	Winter grass, foxtail fescue	<i>Domb ghaas,</i> <i>Ghoin, Dumb</i>
<i>Fimbristylis dichotoma</i> (L.) Vahl. (<i>Cyperaceae</i>)	Forked fringerush, fibristylis, hoora grass	<i>Chhoti bhoin,</i> <i>Kalooro</i>
1. <i>Fumaria indica</i> (Hauskn) Pugsley 2. <i>Fumaria</i> <i>officinalis</i> L. (<i>Fumariaceae</i> / <i>papaveraceae</i>)	Fumitory, common fumitory	<i>Shahtra,</i> <i>Pitpapa</i>
<i>Galium aparine</i> L. (<i>Rubiaceae</i>)	Bedstraw, cleavers, catchweed	<i>Warribooti,</i> <i>Hurhurya, Lpaity</i>
<i>Gnaphalium indicum</i> L. (<i>Compositae/Asteraceae</i>)	Cudweed, Warwort	<i>Balraksha</i>
<i>Heliotropium indicum</i> L. <i>Heliotropium europaeum</i> L. (<i>Boraginaceae</i>)	Indian heliotrope, devel weed, heliotrope	<i>Oont ktara,</i> <i>Oont chara,</i> <i>Hathisund</i>
<i>Hydrilla verticillata</i> (L.) (<i>Hydrocharitaceae</i>)	Hydrilla, Water weed water thyme,	<i>Jala</i>

<i>Ipomoea carnea</i> Jacq. (<i>Convolvulaceae</i>)	Morning glory	<i>Besharmi booti</i>
<i>Ipomoea violacea</i>	Railway creepers	<i>Ishaq pecha</i>
<i>Lactuca serriola</i> L.	Chinese lettuce, Prickly lettuce	<i>Aabi salad,</i> <i>Jangli salad</i>
<i>Lantana camara</i> L. (Syn. <i>Camara vulgaris</i>) (<i>Verbenaceae</i>)	Wild sage, tickberry, lantana	<i>Panj phulli,</i> <i>Phulbakri,</i> <i>Phulaki</i>
<i>Lathyrus aphaca</i> L. (<i>Papilionaceae</i>)	Crow pea, yellow vetchling, chickling pea	<i>Jangli matar,</i> <i>Matri, Dokanni</i>
<i>Lathyrus sativus</i> L. (<i>Papilionaceae</i>)	Grass pea, chickling vetch	<i>Chraal, Kaseri</i>
<i>Launaea nudicaulis</i> (Forsk.) Muschler. (<i>Compositae</i>)	Yellow spurge	<i>Peeli dodhak,</i> <i>Batthal</i>
<i>Lepidium sativum</i> L. (<i>Cruciferae</i>)	Garden cress, Common cress	<i>Halon,</i> <i>Halim</i>
<i>Leptochloa panicea</i> (Retz.) Ohwi(Syn. <i>Poa chinensis</i>) (<i>Poaceae</i>)	Henbit, Asian sprangletop	<i>Lamb ghaas,</i>
<i>Leptochloa chinensis</i> (<i>Poaceae</i>)	Henbit, Chinese sprangletop	<i>Chhota kallar</i> <i>ghaas</i>
<i>Lippia nudiflora</i> (L.) Rich {Syn. <i>Phyla nudiflora</i> (L.) Greene}(<i>Verbenaceae</i>)	Prostate vervane	<i>Bukkan booti</i>
<i>Lolium temulentum</i> L. (<i>Poaceae</i>)	Annual rye grass, poison rye grass	<i>Dhanak, Mamn,</i> <i>Mochni, Lishkani</i>
<i>Malva neglecta</i> Wallr. (<i>Malvaceae</i>)	Dwarf mallow, country mallow	<i>Sonchal,</i> <i>Khubazi</i>
<i>Marsilia minuta</i> L. (<i>Marsiliaceae</i>)	Water clover, Paper wort	<i>Chopatti</i>
<i>Medicago polymorpha</i> L. (Syn. <i>M. denticulate</i> Willd.) (<i>Papilionaceae/fabaceae</i>)	Bur clover, bur clover & yellow trefoil.	<i>Maina</i>

<i>Melilotus alba</i> Medik (<i>Papilionaceae/fabaceae</i>)	White sweet clover	<i>Sufaid senji</i>
<i>Melilotus indica</i> L. (<i>Syn. M. parviflora</i> Desf.) (<i>Papilionaceae</i>)	Yellow sweetclover, Indian sweetclover, Common sweetclover	<i>Zard senji</i>
<i>Mentha longifolia</i> (L.) Huds (<i>Labitae</i>)	Tule mint, wild mint	<i>Jangli</i> <i>Podeena</i>
<i>Mukia maderaspatana</i> (L.) Roem.(<i>Cucurbitaceae</i>)		<i>Ishq Pecha</i>
<i>Nelumbo nucifera</i> Gaertn. (<i>Syn. Nelumbium nelumbo</i> L.) (<i>Nymphaeaceae</i>)	Water lily, sacred lotus, Indian lotus	<i>Kanwal,</i> <i>Kaudoday</i>
<i>Nicotiana</i> (<i>Solanaceae</i>)	Wild tobacco	<i>Giddar tambaku</i>
<i>Nonnea pulla</i> Lamk. (<i>Boraginaceae</i>)	-	<i>Luien booti</i>
<i>Nymphaea nouchali</i> Burm. f (<i>Nymphaeaceae</i>)	White water lily	<i>Kammian,</i> <i>Neelofar,</i> <i>Kutta Kammi</i>
<i>Orobanche aegyptiaca</i> Pers. (<i>Orobanchaceae</i>)	Broom rape, orobanchi	<i>Arobanki,</i> <i>Hadda</i>
<i>Oxalis corniculata</i> L. (<i>Syn. O. procumbens</i>) (<i>Oxalidaceae</i>)	Creeping wood sorrel, yellow wood sorrel	<i>Khatti booti</i>
<i>Oxalis corymbosa</i> DC. (<i>Syn. O. maritiana</i>) (<i>Oxalidaceae</i>)	Violet wood sorrel	<i>Khatkal</i>
<i>Oxalis pes caprae</i> L. (<i>Oxalidaceae</i>).	Bermuda Butter cup	<i>Khatkal,</i> <i>Khatti booti</i>
<i>Panicum antidotale</i> Retz. (<i>Poaceae</i>)	Blue panic, giant panic	<i>Bansi ghass</i>
<i>Panicum italicum</i> L. { <i>Syn. Setaria italica</i> (L.) Beauv.}(<i>Poaceae</i>)	Foxtail millet	<i>Kangni</i>

<i>Panicum ramosum</i> L. (Syn. <i>Brachioria ramosa</i> (L.) Stapf. (<i>Poaceae</i>))	Browntop millet	<i>Bandri</i>
<i>Panicum glaucum</i> L. (Syn. <i>Setaria glauca</i> (L.) Beauv) (<i>Poaceae</i>)	Yellow foxtail	<i>Loomar ghaas</i>
<i>Panicum verticillatum</i> L. {Syn. <i>Setaria verticillata</i> (L.) Beauv}(<i>Poaceae</i>)	Pigeon grass	<i>Lehdra</i>
<i>Panicum bisulcatum</i> Thumb	-	-
<i>Paraphollis incurva</i> Syn. <i>Leptorus incurvata</i>	Sickle grass	<i>Srmai khabble</i>
<i>Parthenium hysterophorus</i> L. (<i>Compositae</i>)	Parthenium weed, congress weed, carrot weed, ragweed	<i>Chatak chandni</i>
<i>Paspalidium flavidum</i> (Retz.) Camub. (<i>Poaceae</i>)	<i>Paspalidium</i>	
<i>Paspalum paspaloides</i> (Michx.) Scribn. (syn. <i>P.</i> <i>distichum</i> auct. Non. L)	Water couch, Knot grass, joint grass, ditch grass	<i>Naroo ghaas</i>
<i>Peganum hermala</i> L. (<i>Zygophyllaceae</i>)	Rue plant, wild rue	<i>Harmal</i>
<i>Pennisetum purpureum</i> Schum. (<i>Poaceae</i>)	Elephant grass, napier grass	<i>Hathhi ghaas</i>
<i>Phalaris minor</i> Retz. (<i>Poaceae</i>)	Birds seed grass, lesser canary grass, little seed canary grass	<i>Dumbi sittee,</i> <i>Skittee botti</i>
<i>Phyla nudiflora</i> (L.) Green. <i>Lippia nudiflora</i> (L.) Rich (<i>Verbenaceae</i>)	Prostate vervain	<i>Bukkan booti,</i> <i>Wakan</i>
<i>Physalis minima</i> L. (<i>Solanaceae</i>)	Cape goose berry, Goose berry, sun berry	<i>Rasbhri,</i> <i>Bhambola</i>
<i>Pistia stratiotes</i> L. (Syn. <i>P. occidentalis</i>) (<i>Arucaceae</i>)	Tropical ducksalad, prickly lettuce, nile cabbage	<i>Aabi slad,</i> <i>Jalkhumbi</i>

<i>Poa annua</i> L. (<i>Poaceae</i>)	Annual blue grass, annul meadowgrass, Wintergrass,spear grass	<i>Poa ghaas</i> , <i>Bhoin</i>
<i>Polygonum plebejum</i> L. (<i>Polygonaceae</i>)	Prostate knotweed, Smartweed,wireweed	<i>Dranak</i> , <i>Santhal</i> <i>Raniphul</i> , <i>Drani</i>
<i>Polypogon monspeliensis</i> (L.) Desf.(<i>Syn. Alopecurus</i> <i>monspeliensis</i> L.)(<i>Poaceae</i>)	Winter grass, foxtail fescue, rabbit foot grass	<i>Dumb ghaas</i> , <i>Ghoin</i>
<i>Portulaca oleracea</i> L. (<i>Syn. P. parviflora</i>) (<i>Portulacaceae</i>)	Common indian purslane, garden purslane, pursley	<i>Loonak</i> , <i>Qulfa</i>
<i>Ranunculus muricatus</i> L. (<i>Ranunculaceae</i>)	Rough seeded buttercup	<i>Chambal</i> , <i>Ghorsummi</i>
<i>Rhynchosia minima</i>	Rhynchosia (gaint)	<i>Paisa booti</i>
<i>Rhynchosia capitata</i> D.C. (<i>Syn. R aurea</i>)	Rhynchosia (lesser)	<i>Maini</i>
<i>Rumex dentatus</i> L. (<i>Polygonaceae</i>)	Broadleaf dock, bitter dock, field sorrel, toothed dock	<i>Jangli palak</i> , <i>Changeri</i>
<i>Saccharum bengalense</i> Retz.(<i>Syn. S. munja</i> Roxb.)(<i>Poaceae</i>)	Tiger grass, munj	<i>Sarkanda</i>
<i>Saccharum spontaneum</i> L. (<i>Poaceae</i>)	Giant reed, thatch grass	<i>Kahi</i>
<i>Sagittaria guayanensis</i> H.B.K.(<i>Syn. S. sagittifolia</i> L.)(<i>Alismataceae</i>)	Arrowhead, Lesser arrowhead	<i>Chiri napay</i> , <i>Chhota cut</i>
<i>Salsola baryosma</i> Roem. & Schantz (Syn. <i>S. foetida</i> DeL. Spreng.)(<i>Chenopodiaceae</i>)	Soap stone,sajji plant, salt wort	<i>Lana</i> , <i>Sajji</i>
<i>Saponaria vaccaria</i> L. (<i>Syn. Vaccaria hispanica</i> L.)	Soapwort, perfoliate, soapwort	<i>Kala takla</i> , <i>Sabooni</i> , <i>Takla</i>
<i>Schoenoplectus juncoides</i> Roxb (Syn. <i>J. erectus</i> Poir) (<i>Juncaceae</i>)	Soft rush, pinrush	<i>Bhookal booti</i>

<i>Scirpus maritimus</i> L. (<i>Syn. Scirpus compactus</i>) (<i>Cyperaceae</i>)	Bulrush, clubrush	<i>Deela</i> , <i>Kaseru deela</i>
<i>Sesbania bispinosa</i> (Jacq). F. Wight (<i>Syn. S. aculeata</i> Schreb.) (<i>Papilionaceae</i>)	Dunder fiber, Common sesban	<i>Dhancha</i>
<i>Sesbania sesban</i> (L.) Merrill (<i>Syn. S. aegyptiaca</i> Poir.) (<i>Papilionaceae</i>)	Common gaint, Egyptian sesban	<i>Jantar</i>
<i>Setaria pumila</i> (L.) Beauv. (<i>Syn. Panicum glaucum</i> L.) (<i>Poaceae</i>)	Yellow foxtail, Bottle grass, Bristle grass	<i>Zard loomar</i> <i>ghaas</i> , <i>Banara</i> , <i>Banari</i>
<i>Setaria italica</i> (L.) Beauv. (<i>Syn. Panicum italicum</i> L.) (<i>Poaceae</i>)	Italian millet, foxtail millet	<i>Kangni</i>
<i>Setaria viridis</i> (L.) Beauv. (<i>Poaceae</i>)	Green foxtail	<i>Loomar ghaas</i>, <i>Banari</i>
<i>Setaria verticillata</i> (L.) Beauv. (<i>Syn. Panicum</i> <i>verticillatum</i> L.) (<i>Poaceae</i>)	Sandbur, bristly foxtail	<i>Lehdra</i> , <i>Loomar ghaas</i>
<i>Shoenoplectus juncooides</i>	Arrowhead	<i>Panni booti</i>
<i>Silene conoidea</i> L. (<i>Caryophyllaceae</i>)	Catchfly, wildpink	<i>Bhoora takla</i>
<i>Silybum marianum</i> (L.) Gaertn. (<i>Compositae/Asteraceae</i>)	Spiny milk thistle, blessed milk thistle	<i>Kndiali</i>
<i>Sisymbrium irio</i> L. (<i>Cruciferae</i>)	Hedge mustard, London rocket	<i>Khoob Kalan</i> , <i>Jangli sarson</i>
<i>Solanum nigrum</i> L. (<i>Solanaceae</i>)	Black nightshade, garden night shade	<i>Mako</i> , <i>Ghati</i>
<i>Solanum xanthocarpum</i> L. (<i>Syn. Solanum surattense</i> Burm. F.) (<i>Solanaceae</i>)	Spiny weed	<i>Kndiari</i> , <i>Mamoli</i> , <i>Mahori</i>
<i>Sonchus arvensis</i> L. (<i>Compositae/asteraceae</i>)	Perennial sowthistle Field sowthistle	<i>Daimi dodhak</i> , <i>Peeli dodhak</i>

<i>Sonchus asper</i> Vill. (Compositae/Asteraceae)	Spiny sowthistle	<i>Kandiali dodhak</i>
<i>Sonchus oleraceus</i> L. (Syn. <i>S. parviflora</i>) (Compositae/Asteraceae)	Annualsowthistle, smooth sowthistle, common sowthistle	<i>Dodhak,</i> <i>Mahatra</i>
<i>Sorghum halepense</i> (L.) Pers.(Syn. <i>Andropogon</i> <i>halepensis</i>) (Poaceae)	Johnson grass, Arabian millet, Syrian grass	<i>Baru ghas,</i> <i>Kala mucha</i>
<i>Spergula arvensis</i> L. (Syn. <i>S. vulgaris</i>) (Caryophyllaceae)	Corn spurry	<i>Kalri booti,</i> <i>Jangli dhania</i>
<i>Sphenoclea zeylanica</i> Gaertn. (<i>Sphenocleaceae</i>)	Goose weed, Wedge wort	<i>Mirch booti</i>
<i>Sporobolus helvolus</i> (Trin) R & S (Syn. <i>S. diander</i> Retz) Beauv. (Poaceae)	Sporobolus, gaint sprangletop	<i>Lamb ghas</i>
<i>Stellaria media</i> L. (Syn. <i>Alsine media</i>) (Caryophyllaceae)	Common chickweed, starweed, starwort	<i>Phullan booti</i>
<i>Striga lutea</i> Lour. (Syn. <i>S. asiatica</i>) (Scrophulariaceae)	Witch weed, cane- killing weed	<i>Angari booti,</i> <i>Dhaulphali,</i> <i>Tarfula, Malli</i>
<i>Trianthema portulacastrum</i> L. (Syn. <i>T. monogyna</i>) (Aizoaceae)	Horse purslane, carpet weed, giant pigweed	<i>Itsit, Boodal,</i> <i>Visah, Sanathi</i>
<i>Tribulus terrestris</i> L. (Syn. <i>T. hipidulus</i>) (Zygophyllaceae)	Puncture vine, puncture clover, small calatroe	<i>Bhakhra,</i>
<i>Tribulus longipetalus</i> <i>Species Macropterus</i>		<i>Gokhru</i>
<i>Trigonella foenum-graecum</i> L. (Papilionaceae)	Fenugreek	<i>Methhi</i>

<i>Trigonella monantha</i> C.A. Mayer. (Syn. <i>T. incisa</i> Benth) (<i>Papilionaceae</i>)	Trefoil	<i>Maini</i>
<i>Typha domingensis</i> Pers. (Syn. <i>Typha angustifolia</i> C. &B.)(<i>Typhaceae</i>)	Cattail, reedmace elephant grass	<i>Dib</i>
<i>Veronica agrestis</i> L. (<i>Scrophulariaceae</i>)	Field speedwell, Persian speedwell	<i>Veronica,</i> <i>Sahadevi</i>
<i>Verbascum thapsus</i> L. (<i>Scrophulariaceae</i>)	Common mullein, great mullein	<i>Gidar tambakoo</i>
<i>Vicia hirsuta</i> (L.) Gray. (<i>Papilionaceae</i>)	Two seeded vetch	<i>Revari khurd</i>
<i>Vicia sativa</i> L. (<i>Papilionaceae</i>)	Common vetch, spring vetch	<i>Revari, Chhtri-</i> <i>matri</i>
<i>Vicia tetrasperma</i> (L.) Schreb. (<i>Papilionaceae</i>)	Four seeded vetch	<i>Revari</i>
<i>Withania somnifera</i> (L.) Dunal. (<i>Solanaceae</i>)	Winter cherry	<i>Aksan,</i> <i>Asgand</i>
<i>Xanthium strumarium</i> L. (Syn. <i>X. orientalis</i>) (<i>Compositae/Asteraceae</i>)	Common cocklebur, ditchbur	<i>Mohabbat</i> <i>booti, Path kando</i>
<i>Zelia pentendra</i> (Syn. <i>Trianthema pentendra</i>) (<i>Nyctaginaaceae</i>)	Creeping spiderling	<i>Biskhapra</i>

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