



Major Rice Weeds in Uganda



Promotion of Rice Development Project
National Crops Resources Research Institute

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August 2015 (2nd Edition)

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Preface

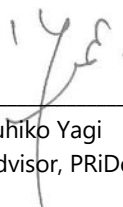
We welcome readers to this second edition of book focused on identification and management of common weeds of upland, lowland and irrigated rice in Uganda. Efforts have also been made to label them with the common local language in Luganda for ease of identification. Weeds are a major constraint to rice production in the country and significantly reduce crop yields. The farmers spend considerable amount of their income on weed control using hired and family manual labour which is expensive and time consuming. Information about weed control technologies and weed management procedures have been provided that farmers, extension agents and other users of this book will find useful. Although the reader will find much information on the ecology of rice weeds here, the primary purpose of the book is not to explain weed ecology. Rather, our intent is to present major weed species occurring in rice fields in the country and recommend the appropriate weed management practice. We believe that detail information provided for each weed species will be useful for practitioners and contribute to improved rice field management to achieve optimal crop yields.

This book is an outcome of promotion of rice development supported by Government of Japan and implemented by Government of Uganda through Ministry of Agriculture, Animal Industry and Fisheries and its agencies of National Agricultural Advisory Service and National Agricultural Research Organization. We thank reviewers who provided comments and feedback to the earlier versions of this book. We also thank JICA experts and Research Scientists at the National Crops Resources Research Institute who have worked tirelessly to catalogue weed species in rice fields in all the ecologies in the country to develop the first draft of the book. We hope you will find this book useful in managing weeds in fields for increased crop productivity.

Aug 2015



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Key to Species Listing

Scientific name: *genus and species*, family name

Common name

LUG: Luganda, if the name is present.

ENG: English, mainly used in the USA.

JPN: Japanese, followed "Weeds in the tropics" AICAF 1997.

Habitat: Found in rice fields.

upland = Upland rice field = dry land, either occasionally or never flooded.

rain-fed = Rain-fed lowland rice field = no bunded, no water-controlled, or seasonal lowland rice fields.

irrigated = Irrigated lowland rice field = wetland often bunded and regularly submerged during rice season.

Other areas are also added.

Type: Weed type of annual or perennial and herb, grass, sedge, vine or shrub.

Characteristic: Important description of the species

Reproduction: Seeds and/or vegetative propagation

Ecology: Important ecological character of the weed.

Use: How to use the plant or seeds

Control: Main control methods

Most pictures show mature plants and inflorescence or flowers.

Significance of Weed Control in Rice Farming

The weed flora in a rice field is greatly influenced by the rice cultural practices.

Weed damage for rice is severer in upland than rain-fed field:

Upland > Rain-fed > Irrigated

Dry seeded > Wet seeded > Transplanting

Most **weeds cannot grow under submerged condition**, except aquatic plants.

Key of weed control

Good rice cultivation technique means less weed control.

1. Think cropping system including rice.
2. Select the cultural methods.
3. Good levelling in the rice field.
4. Good water management in the field.
5. Early hand weeding brings easy weed control.

Weeding methods

1. Hand weeding
2. Mechanical weeding
3. Chemical weeding
4. Biological weed control



Herbicidal Information of Rice Cultivation

Common herbicides available in Uganda is shown below.

Glyphosate: Non-Selective, Pre-plant, Foliar applied
(Round Up, Weed Master, etc.)

Butachlor: Selective, Pre-emergence, Soil applied
(Butanil-70, Butanil-S, etc.)

Benthiocarb: Selective, Pre- & Post-emergence, Soil applied
(Hasunil, Satunil, etc.)

2,4-D: Selective, Post-emergence, Foliar applied
(2,4-D)

Propanil: Selective, Post-emergence, Foliar applied
(Butanil-70, Hasunil, Satunil, etc.)

Pre-plant herbicides are applied before the crop is planted.

Pre-emergence herbicides are applied after the crop has been planted but before weeds emerge.

Post-emergence herbicides are applied after weeds have emerged.

Selective herbicides will kill or stunt some plant species with little or no injury to others, especially the crop.

Non-selective herbicides will kill all plants in a field, including rice.

Foliar applied herbicides are applied to portion of the plant above the ground and absorbed by exposed tissues.

Soil applied herbicides are applied to the soil, usually taken up by the root or shoot of the emerging seedlings and used as pre-plant or pre-emergence treatment.

Care should always be taken whenever herbicides are used.

Please refer to the usage of each herbicides, and follow the instruction.



1. Abutilon indicum (L.) Sweet, Malvaceae

LUG: kifula

ENG: Country mallow

JPN: Shima-ichibi

Habitat: upland, waste land along roadside

Type: perennial herb

Characteristic:

Stems are erect, branched and 1 to 2 m long. Leaves are alternate with a long petiole.

Flowers are yellow, solitary and axillary in the upperpart of the stem.

Reproduction: seeds

Ecology: The plant grows well in sunny areas.

Control: hand weeding or 2, 4-D or Glyphosate



2. *Achyranthes aspera* L. Amaranthaceae
LUG: Kamiyo, Kikwatandigo
ENG: Prickly chaf-flower, Rattail JPN: Murasaki-inokozuchi

Habitat: **upland**, wasteland, along roadside

Type: annual or perennial herb

Characteristic:

Stems are erect or oblique, 50 to 150 cm long with many branches.

Leaves are opposite, thin and hairy on both sides.

Inflorescences appear as spikes with green flowers, they are terminal and up to 40 cm long.

Reproduction: seeds

Use: Young leaves are edible and used as a diuretic and an ointment.

Control: hand weeding, 2, 4-D or Glyphosate spray



3. *Aeschynomene americana* L. Leguminosae

ENG: Joint-vetch

JPN: Edauchi-kusanemu

Habitat: irrigated, pond, reservoir and creek

Type: perennial herb

Characteristic:

The plant is small flowers but, larger than *A. aspera* and sometime over 2 m tall.

Reproduction: seeds

Ecology: deep dormancy

Control: early removal by hand weeding, Benthiocarb or Butachlor



4. *Aeschynomene aspera* L. Leguminosae

ENG: Sola pith plant

Habitat: irrigated, pond, reservoir and creek

Type: annual herb

Characteristic:

The plant is 1 to 2 m tall. The plant resembles *A. indica* or *A. americana*, but it can be easily distinguished by a large and bright yellow papilionaceous corolla.

Reproduction: seeds

Ecology: deep dormancy

Control: early removal by hand weeding, Benthocarb or Butachlor



5. *Ageratum conyzoides* L. Asteraceae

LUG: Namirenbe

ENG: Tropic ageratum

JPN: Kakkou-azami

Habitat: upland, rain-fed, levee, along roadside

Type: annual herb

Characteristic:

Stems are 30 to 120 cm long.

Flowers are terminal, white or pale purple.

Flower heads consist of 60 to 70 tuberos flowers arranged in clusters.

Reproduction: seeds

Ecology & Use: The plant is toxic to livestock. Leaves are used as medicine for the treatment of cold, malaria, external wounds and skin diseases.

Control: hand weeding and 2, 4-D or Glyphosate



6. *Alternanthera sessilis* DC. Amaranthaceae

ENG: Alligator weed, Sessile joy weed JPN: Tsuru-nogeitou

Habitat: irrigated, wasteland, along levee

Type: annual herb

Characteristic:

The plant has many branched stolon from the node creep on the ground. Almost every node bears a flower cluster.

Reproduction: seeds

Ecology: They live around paddy field.

Control: hand weeding and 2, 4-D or Glyphosate



7. *Amaranthus gracilis* Desf. Amaranthaceae

LUG: Dodoyamagwa

ENG: Slender amaranth

JPN: Honaga inubiyu

Habitat: **upland**, along roadside

Type: annual herb

Characteristic:

Stems are erect, branched, 10 to 90 cm long.

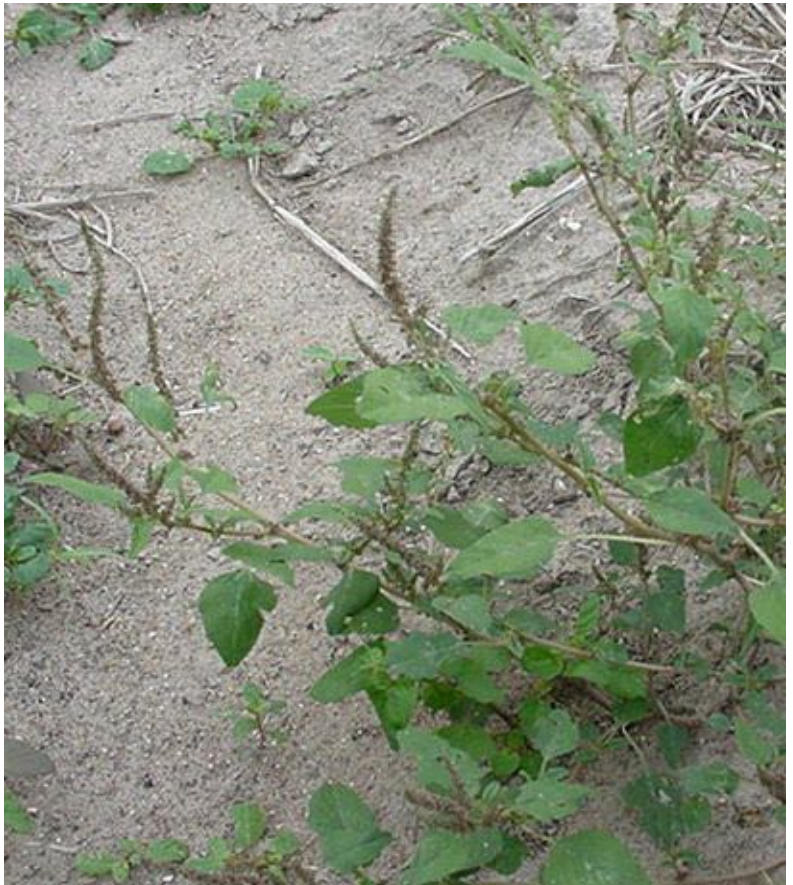
Petioles are slender with the same length as the leaf blades.

Inflorescences consist of terminal and axillary spikes arranged in dense clusters, about 10 cm long.

Reproduction: seeds

Ecology & Use: More than 10,000 seeds per plant are produced. Used as a vegetables.

Control: hand weeding and 2,4-D or Glyphosate



8. Amaranthus spinosus L. Amaranthaceae

LUG: Kibugga

ENG: Spiny amaranthus

JPN: Haribiyu

Habitat: **upland**, wasteland, along roadside

Type: annual herb

Characteristic:

The plant is 40 to 100 cm tall. Stems are glabrous and reddish.

Inflorescences are terminal, axillary arranged in clusters.

Reproduction: seeds

Ecology: It is an important weed in upland fields. The plant produces 200,000 seeds per plant.

Use: New leaves are vegetable.

Control: hand weeding and 2,4-D or Glyphosate



9. *Aspilia paludosa* Berhaut. Compositae

Habitat: upland, wasteland, along roadside

Type: perennial herb

Characteristic:

The plant is 50 to 100 cm tall. Stems are glabrous and reddish.

Inflorescences are terminal, axillary arranged in clusters.

Reproduction: seeds

Control: hand weeding and 2,4-D or Glyphosate



10. *Azolla pinnata* R. Br. Salviniaceae

LUG: Kitengeja

ENG: Azolla, Water fern

JPN: Aka-ukikusa

Habitat: irrigated, pond, reservoir, creek

Type: perennial floating fern

Characteristic:

Foliage changes from green to reddish purple with the season. Small scale-leaves are opposite arranged in two rows and 1 to 1.5 cm long.

Reproduction: vegetative

Ecology: Nitrogen-fixing blue green algae are symbionts in the cavity under the scale-leaves.

When the plant covers the water surface of the lowland rice fields, fertilizer nutrients are consumed and rice plant undergo lodging.

Use: The plant is used as green manure.

Control: Benthocarb, no need control.



11. *Bidens pilosa* L. Asteraceae

ENG: Hairy begger-ticks

JPN: Ko-sendangusa

Habitat: **upland**, wasteland, along roadside

Type: annual herb

Characteristic:

The plant is 30 to 120 cm tall. Leaves are opposite with a petiole and pinnate. Leaflets are ovate.

Reproduction: seeds

Ecology: Achenes are carried on human clothes to which they adhere and by animals.

Control: rotary cultivate, 2,4-D or Glyphosate spray



12. *Boerhavia diffusa* L. Nyctaginaceae

LUG: Namirembe

ENG: Creeping spider-ling, Red spider-ling

JPN: Beni-kasumi, Naha-kanokosou

Habitat: **upland**, along roadside

Type: perennial herb

Characteristic:

Stems are prostrate and 40 to 100 cm long.

Leaves are opposite, with a petiole 0.3 to 1.5 cm long.

Cyme inflorescence is axillary and bears small pink flowers.

Reproduction: seeds

Ecology: It is used as livestock feed and remedy in various areas.

Control: hand weeding or 2,4-D or Glyphosate



13. *Burnatia enneandra* Michaeli Alismataceae

Habitat: irrigated, pond, reservoir and creek

Type: perennial herb

Reproduction: seed and vegetative

Ecology: The species lives in often submerged soft soil.

Control: hand weeding or 2,4-D



14. *Calotropis gigantea* (Willd.) Dryand. ex W.T. Ait. Asclepiadaceae

ENG: Crown flower, Giant Indian milkweed JPN: Akon

Habitat: upland, wasteland, along roadside

Type: perennial shrub

Characteristic:

Stems are big, erect, branched and 0.5 to 3 m long.

Stems and leaves exude a white milky sap from the cut surface.

Flowers are terminal, lilac and with 5 to 12 cm long.

Reproduction: seeds and vegetative

Ecology: The plant grows on rather dry areas.

Use: Roots are used as medicine.

Fibers from the stem are used as a material for spinning thread.

Control: cutting the stem



15. *Canna indica* L. Cannaceae

LUG: Malango
ENG: Indian shot

JPN: Dandoku

Habitat: **upland**, wasteland, along riverside

Type: perennial herb

Characteristic:

Stems are erect and 1.5 to 2.0 m long.

The plant has long succulent rhizomes with white fibrous roots. One flower stalk arises from the leaf sheath and bears raceme on branched peduncles at the top.

Reproduction: seeds and rhizomes

Use: Rhizomes are edible and used as a material for starch.

Seeds are black and hard, and used for making artefacts such as strings of beads.

Control: digging rhizome and eat



16. *Cardiospermum halicacabum* L. Sapindaceae

LUG: Lunnyeteketo

ENG: Balloon vine

JPN: Ko-fuusen-kazura

Habitat: **upland**, wasteland, along roadside

Type: annual vine plant

Characteristic:

Stems are 1 to 3 m long, fistulous.

Leaves are alternate and with slender petioles.

Flowers arise from the end of axillary peduncle, are white and small.

Fruits are shaped like a lantern.

Reproduction: seeds

Use: Sometimes the plant is cultivated as an ornamental.

Control: hand weeding, Glyphosate



17. *Celosia argentea* L. Amaranthaceae

LUG: Lutungu tungu

ENG: Cock's-comb

JPN: Nogeitou

Habitat: **upland**, wasteland, along roadside

Type: annual herb

Characteristic:

Stems are erect, up to 1.5 m long, with longitudinal green line occasionally reddish.

Leaves are alternate, lanceolate, and acuminate.

Inflorescence is terminal and appears like a spike with red florets arranged in clusters.

Reproduction: seeds

Use: The seeds are used for the treatment of diarrhea.

Control: hand weeding, Benthocarb or Butachlor



18. Ceratopteris thalictroides (L.) Brongn. Parkeriaceae

ENG: Water sprite

JPN: Mizu-warabi

Habitat: irrigated, canal, pond

Type: annual or occasionally perennial

Characteristic:

Rhizome is short and aerial part is ascendent.

Leaves are fasciculate, soft and the petiole has 4 ridges.

The plant is 10 to 100 cm tall.

Ordinary leaves are sporophylls can be distinguished.

Reproduction: spores and adventitious buds formed at the furcate part of pinnate leaf

Ecology & Use: shallow water bodies. Young plant is edible as a vegetable.

Control: hand weeding, Benthocarb or Butachlor



19. *Cleome rutidosperma* DC.

Capparidaceae

LUG: Akayobyoy

ENG: Cleome

JPN: Afurika-fuucyoso

Habitat: **upland**, along roadside

Type: annual herb (origin of tropical Africa)

Characteristic:

Stems have many branches at the base, with bristles.

They are 20 to 100 cm long.

Flower is solitary on the axillary peduncle which is about 4 cm long and 1.5 cm in diameter.

Fruits are cylindrical, 4 to 5 mm in diameter and 5 to 7 cm long and contain many seeds.

Reproduction: seeds

Use: Young leaves are boiled as food and the roots are used as a vermifuge.

Control: hand weeding, 2, 4-D or Glyphosate spray



20. *Commelina africana* L. Commelinaceae

LUG: Nanda

ENG: Dayflower, Yellow commerina

Habitat: **upland**, the other upland crop fields

Type: annual herb

Characteristic:

Stems are 40 to 70 cm long, with many branches, prostrate and rooting at the nodes.

Flowers are 1.5 to 2 cm in diameter, yellow.

Reproduction: seeds

Control: hand weeding, 2,4-D or Glyphosate



21. *Commelina benghalensis* L. Commelinaceae

LUG: Nanda, Nonda

ENG: Dayflower, Bengal spiderwort

JPN: Maruba-tsuyukusa

Habitat: **upland**, no cultivated field, levees of lowland rice field

Type: annual or perennial herb

Characteristic:

Stems are 40 to 100 cm long, with many branches, prostrate and rooting at the nodes.

Flowers are 1.5 to 2 cm in diameter, violet color.

There are 3 petals and the upper two are 5 mm in diameter ultramarine color. Capsule about 1 cm long, contains 3 to 5 seeds.

Reproduction: seeds

Ecology: It is an alternate host of some pathogens and nematodes.

Control: hand weeding, 2,4-D or Glyphosate



22. *Commelina diffusa* Burm. f. Commelinaceae

LUG: Naada, Akalanda

ENG: Common spiderwort

JPN: Shima-tsuyukusa

Habitat: **upland**, levee of lowland rice field

Type: annual or perennial herb

Characteristic:

Stems are glabrous, smooth, 40 to 100 cm long.

The plant display morphological variation in the presence of hairs and shape of leaves.

Inflorescence which arises from the leaf axil bears several flowers.

Reproduction: seeds

Control: hand weeding, 2,4-D or Glyphosate



23. *Conyza sumatrensis* (Retz.) Walker Asterceae

ENG: Guernsey fleabane, Bengal spiderwort JPN: Oo-arechinogiku

Habitat: upland, along roadside, wasteland and forest border

Type: annual herb

Characteristic:

Stems are smooth, 60 to 200 cm long with thick hair.

Reproduction: seeds

Ecology: Cosmopolitan plants in all over the world.

Control: hand weeding, 2,4-D or Glyphosate



24. *Crassocephalum crepidioides* (Benth.) S. Moore Asteraceae

JPN: Benibana-borogiku

Habitat: upland, Levee, waste land

Type: annual or perennial herb
(native in Africa)

Characteristic:

Stems are glabrous, smooth, 30 to 100 cm long.

Leaves have short petiole.

Flowers are tubular and orange.

Achene is 2 mm long with white pappus 12 mm long.

Reproduction: seeds

Use: Leaves are used as vegetables and livestock feed.

Control: Eating is best control of the species.



25. Crotalaria zangibarica Benth. Legminosae

ENG: Rattlepods

JPN: Tanukimame

Habitat: upland, Along roadside, garden

Type: annual herb

Characteristic:

Stems are 60 to 120 cm long, with well branched.

Flowers are 1.5 to 2 cm in diameter. There are 3 petals. Calix about 1 cm long, contains 10 to 15 seeds.

Reproduction: seeds

Ecology: One of cleaning plant of soil.

Control: hand weeding



26. *Desmodium uncinatum* (Jacq.) DC

Legminosae

ENG: Spanish tick-clover

Habitat: upland, Along roadside, garden

Type: large perennial vine legume

Characteristic:

These cylindrical or angular stems are covered with short, hooked hairs that stick to hair or clothing.

Flowering stems up to 1 m high ending in fairly open racemes on a long peduncle with paired pink to bluish flowers.

Reproduction: seeds

Ecology: For *Striga hermonthica* control used mix cultivation maize with the species.

Control: Use the species for control of *S. hermonthica* in the upland rice cultivation.



27. Eclipta prostrata L.

Asteraceae

LUG: Makayi

ENG: False daisy

JPN: Takasaburo

Habitat: irrigated, rain-fed, marsh, levee wasteland, along roadside

Type: annual herb

Characteristic:

Stems are 20 to 90 cm long.

Flowers heads are about 1 cm in diameter.

Reproduction: seeds

Ecology: They live paddy band.

Control: hand weeding, 2,4-D or Benthocarb, Butachlor



28. *Eichhirnia crassipes* (Mart.) Solms

Pontederiaceae

LUG:

ENG: Water hyacinth

JPN: Hotei-aoi

Habitat: irrigated, rain-fed, pond, reservoir, creek

Type: free-floating perennial hydrophyte, rooted in shallow water

Reproduction: vegetative offshoots connected by stolons and seeds.

Ecology: seeds viable for up to 15 years.

Use: green manure.

Control: drainage and physical removal possible with small infestations



29. Enhydra fluctuans Lour. Asteraceae

ENG: Helencha, harkuch

JPN: Numa-kikuna

Habitat: rain-fed, canal, swamp wasteland,

Type: perennial herb

Characteristic:

Stems are cylindrical, prostrate on the ground, rooting at the node. The plant is 50 to 60 cm tall. Sessile flower heads, 1 cm in diameter, arise from the leaf axil.

Reproduction: seeds

Use: Young parts of the plant are edible and leaves are used as a medicine.

Control: hand weeding or 2,4-D spray



30. *Euphorbia geniculata* Ortega

Euphorbiaceae

LUG: Kisanda

ENG: Mexican fireplant

JPN: Shoujousou-modoki

Habitat: **upland**, wasteland, along roadside, levee of lowland rice field

Type: annual herb

Characteristic:

Stems are branched dichotomously and become 1 m long.

Internodes at the tip of stem are short and clustered leaves become ornamental leaves with a reddish purple leaf edge or sometimes white leaf blades.

Fruits are 3 to 5 cm in diameter, with three ridgedes.

Reproduction: seeds

Ecology: Foliage is poisonous. It becomes a comparatively harmful weed.

Control: hand weeding, 2,4-D or Glyphosate spray



31. *Euphorbia hirta* L.

Euphorbiaceae

LUG: Namafa, Kajanpuni

ENG: Garden spurge, Milk weed

JPN: Shima-nishikisou

Habitat: **upland**, wasteland, along roadside, garden

Type: annual herb

Characteristic:

The plant is prostrate in trampled land and is erect under favourable conditions (60 cm tall).

Whole plant is covered with soft hairs.

Inflorescences are axillary and capitate at the end of about 2 cm stalk.

Reproduction: seeds

Control: not so heavy, hand weeding



32. Euphorbia hypericifolia L.

Euphorbiaceae

ENG: Graceful spurge

JPN: Otogiriba-nisikisou

Habitat: **upland**, along roadside

Type: annual herb

Characteristic:

Stems are branched at the base and spread out, erect or prostrate and about 50 cm long.

Inflorescences are axillary with a small number of cyathia on the 2 to 5 mm stalks.

Fruits are 1.5 to 2.5 mm in diameter, with three ridges and hairs on the back.

Reproduction: seeds

Control: not so problem weed



33. *Galinsoga ciliata* (Raf.) Blake Asteraceae

ENG: Galinsoga

JPN: Hakidamegiku

Habitat: upland, along roadside, wasteland,

Type: annual herb

Characteristic:

Stems have many branches, are 50 cm long with covered soft hairs.

Reproduction: seeds

Ecology: The species likes cultivated fertile area.

Control: hand weeding or 2,4-D spray



34. *Gomphrena celosioides* Mart. Amaranthaceae

JPN: Sennichi-nogeitou

Habitat: **upland**, along roadside

Type: annual herb

Characteristic:

Stems are well branched and display a creeping habit.

Reproduction: seeds

Ecology: The plant toxic to houses.

Control: hand weeding or 2,4-D spray



35. Hewittia sublobata (L. f.) O. Ktze.

Convolvulaceae

LUG: Musota taruma

JPN: Tsurigane-hirugao

Habitat: upland, wasteland, along roadside

Type: perennial herb and vine

Characteristic:

Stems are usually dark purple, with somewhat prostrate hairs, creeping over the soil surface and rooting at the nodes.

Flowers arise from the leaf axle with a stalk 3 to 12 cm long, usually solitary.

Corolla is campanulate, about 5 cm in diameter, pale yellow to white and usually reddish brown in the centre.

Reproduction: seeds

Use: Vine is strong and occasionally used as binding wire.

Control: hand weeding



36. *Indigofera hirsuta* L.

LUG: Logobango
ENG: Hairy indigo

Leguminosae

JPN: Tanuki-komatsunagi

Habitat: upland, along roadside

Type: annual herb

Characteristic:

Flowers in a dense raceme to 30 cm long; corolla pink to reddish, standard to 5 mm long, Pods to 2 cm long, straight to somewhat curved, reflexed on axis, squarish in cross-section.

Reproduction: seeds

Use: The plant has been used as a source of indigo dye.

Control: not so problem weed



37. *Ipomoea aquatica* Forsk. Convolvulaceae

ENG: Swamp morning glory

JPN: Kushinsai

Habitat: irrigated, pond, reservoir, canal and creek

Type: annual or perennial vine herb

Characteristic: Stems are fistulous, spread over the ground or floating on water and rooting at the nodes. Leaves are alternate, with morphological variations, usually long hastate.

Flowers are funnel-shaped, 4 to 5 cm in diameter and white to purple in color.

Reproduction: stem fragments and seeds

Use: The plant is cultivated in the fields and used as a vegetable for Chinese dishes.

Control: hand weeding and eat.



38. *Ipomoea cairica* (L.) Sweet

Convolvulaceae

LUG: Akabowabowa

ENG: Railway creeper

JPN: Momiji-hirugao, Taiwan-asagao

Habitat: upland, rein-fed, levee, wasteland

Type: perennial climber herb

Characteristic:

Stems are glabrous or hairy at nodes, prostrate on the ground or creeping. Leaves have a long petiole, are alternate, palmately divided into 5 to 7 parts.

Flowers are funnel-shaped, about 5 cm in diameter, usually bluish purple or white colour.

Reproduction: seeds

Ecology: The plant produces flowers throughout the year.

Control: hand weeding



39. *Ipomoea digitata* L.

LUG: Mutasukakabo

Convolvulaceae

JPN: Yatsude-asagao

Habitat: **upland**, along roadside, the other upland crop fields

Type: perennial liana

Characteristic:

Stems are cylindrical, ridged and glabrous.

Leaves are alternate and petioles are 3 to 10 cm long.

Inflorescence appears like a cyme with long stalk at the leaf axil.

Corolla is 5 to 6 cm long and pale red to purple-red.

Reproduction: seeds

Use: Root containing starch is poisonous and used as a medicine.

Control: hand weeding



40. *Jatropha gossypifolia* L.

Euphorbiaceae

LUG: Kisogasoga

ENG: Cotton-leaved jatropha

JPN: Akaba-yatorofa

Habitat: **upland**, wasteland, along roadside

Type: perennial shrub

Characteristic:

Stems are soft, sticky with glandular hairs and 1 to 2 m long.

Leaves are stipulate at the base of the petioles and often dark purple.

Male flowers are about 5 mm in diameter, dark red to purple with 5 petals. Female flowers are 5 to 7 mm in size and hairy. Fruits are 1.5 cm long, cylindrical with 3 ridges.

Reproduction: seeds

Use: Seeds are poisonous but used as medicine, lamps and bio-diesel. The plant is grown for use as a hedge or in pots as an ornamental.

Control: digging and cultivation



41. *Lactuca taraxacifolia* (Wild.) Schum. Asteraceae

ENG: Wild lettuce

Habitat: upland, wasteland, levee

Type: annual herb

Characteristic:

A herb with basal rosette of leaves and erect stems 0.5 to 1.3 m high from a woody rhizome.

Reproduction: seeds

Control & Use: Eating is best control of the species.



42. *Lantana camara* L. Verbenaceae

LUG:

ENG: Red sage, Common lantana JPN: Shichihenge

Habitat: upland, wasteland, along roadside

Type: perennial shrub

Characteristic:

Spiny, square stems; leaves simple, opposite or whorled, toothed, fragrant when crushed.

Flowers in flat-topped clusters on a long stalk, white, pink, or yellow, changing to orange or red.

Fruit fleshy, green becoming bluish black.

Reproduction: seeds

Control: hand weeding and 2,4-D or Glyphosate



43. *Leonotis nepetaefolia* (L.) R.Br. Labiatae

ENG: Lion's-ear

JPN: Igaguri-reonotisu

Habitat: rain-fed, irrigated

wasteland, along wet roadside

Type: annual herb (Origin in Africa).

Reproduction: seeds

Use: medicine

Control: hand weeding and cultivation



44. *Limnophila sessiliflora* (Vahl) Blume. Plantaginaceae

ENG: dwarf ambulia

JPN: Kikumo

Habitat: rain-fed, irrigated, in the paddy fields

Type: annual aquatic plant

Characteristic:

Submerged leaves are 6 to 10 or more in number, verticillate, ovate, elliptic to broadly lanceolate, 5 to 40 mm long.

The fruit is a capsule, ellipsoid, 3 to 5 mm long, green-brown when submersed, dark brown when emerged.

Reproduction: seeds

Ecology: The plant grows lowland ill-drained, shallow paddy field.

Control: rotary cultivate, 2,4-D



45. *Ludwigia adscendens* (L.)Hara Onagraceae

JPN: Tagobou-modoki

Habitat: rain-fed, irrigated, canal

Type: annual aquatic plant

Characteristic:

Stem is erect, branched, up to 50 cm to 1.5 m long. Flower has 4 petals, bright yellow and 3 to 4 cm long as the calyx.

Reproduction: seeds **Ecology:** small flowers than *L. octovalvis*

Control: hand weeding and 2,4-D



46. *Ludwigia hissipifolia* (C. Don)Exell Onagraceae

ENG: Creeping water primrose

JPN: Mizukinbai

Habitat: rain-fed, irrigated, pond, canal

Type: perennial aquatic plant

Characteristic:

Stem is creeping on the ground or floating on the water surface with root arising at the nodes. Flower is white and yellow at the base with 5 petals.

Reproduction: seeds and stem.

Reproduction: seeds and stems

Ecology: The plant grows into stagnant water 0 to 1 m deep.

Control: hand weeding in early stage



47. *Ludwigia octovalvis* (Jacq.) Raven

Onagraceae

LUG: Kayayana

ENG: Primrose willow

JPN: Kidachi kinbai

Habitat: rain-fed, irrigated, wet area such as edge of pond

Type: perennial aquatic plant

Characteristic:

Stems are irregularly ridged, branched and up to 75 to 150 cm long.

Leaves are narrow lanceolate, with a short petiole and alternate.

Flowers are solitary on the axil, 3 to 4 cm in diameter with 4 petals and yellow.

Reproduction: seeds

Ecology: large and beautiful bright yellow flower

Control: hand weeding in early stage and 2,4-D



48. *Marsilea crenata* Presl

Marsileaceae

ENG: Water clover, Clover fern

JPN: Nangoku-denjisou

Habitat: rain-fed, irrigated, pond, canal, marsh

Type: perennial aquatic fern

Characteristic:

Rhizomes are slender, bristled, prostrate near the soil surface and branched.

Leaves arise from rhizomes up to the water surface.

Reproduction: rhizomes and spores

Ecology: It grows fast in rice fields, rice plants are planted in sparsely because of the favourable light condition.

Control: hand weeding in early stage or 2,4-D



49. *Melochia corchorifolia* L.

Sterculiaceae

ENG: Wire bush

JPN: Nojiaoi

Habitat: upland, wasteland, along roadside

Type: perennial herb

Characteristic:

Stems are sparsely covered with stellate soft hairs, erect, well-branched and 0.5 to 1.2 m tall. Leaves are 2 to 8 cm long, 1 to 3 cm wide, ovate to deltoid.

Flower has 5 petals white to pale purple and 1 cm in diameter.

Reproduction: seeds

Ecology: Contamination of rice grains with seeds.

Control: cutting and cultivation



50. *Merremia vitifolia* (Burm. f.) Hallier f.

Convolvulaceae

LUG: Kayangwe

ENG: Grape-leaf wood rose

JPN: Budou-hirugao

Habitat: **upland**, grassland, along roadside, border of forest

Type: perennial vine

Characteristic:

Stems are covered with yellowish white bristles, and are lignified at the base, prostrate over the soil or creeping.

Leaves have a long petiole and are opposite.

Corolla is yellow, funnel-shaped and 4 to 6 cm long.

Reproduction: seeds

Ecology: Sometimes it damages slope of road and hedges by forming a cover.

Control: hand weeding



51. Mimosa pigra L.

Leguminosae

ENG: Giant sensitive plant

JPN: Oo-ojigisou

Habitat: **upland**, wasteland, along roadside, wet and sunny area

Type: Perennial shrub

Characteristic:

Stems are branched, erect or prostrate, about 3 m long, retrorse spiny and reddish hispids in whole plant.

Leaves have a long petiole and are alternate.

Leaves display a dormant reaction.

Reproduction: seeds.

Control: The plant is spiny, hand weeding is difficult. Cutting and digging



52. *Mimosa pudica* L.

LUG: Muko wewombeko

ENG: Sensitive plant

Leguminosae

JPN: Ojigisou

Habitat: upland, rain-fed, wasteland, along roadside

Type: Annual herb, occasionally perennial

Characteristic:

Stems are branched, erect or prostrate, about 1 m long, retrorse spiny and reddish hispid in whole plant.

Leaves display a dormant reaction.

Florets bear 4 long stamens and are reddish purple.

Reproduction: seeds and rhizomes

Ecology: The plant normally grows in sunny areas along roadside, garden.

Control: The plant is spiny, hand weeding is difficult.



53. *Mitracarpus villosus* (Sw.) DC. Bubiaceae

JPN: Hari-futabamodoki

Habitat: upland, wasteland, along roadside, around village

Type: Annual herb

Characteristic:

Reproduction: seeds

Control: hand weeding, Glyphosate or 2,4-D



54. *Nicandra physalodes* (L.) Gaertn.

Solanaceae

ENG: Apple of Peru, Shoo-fly

JPN: Oo-sennari

Habitat: upland, wasteland, along roadside

Type: Annual herb

Characteristic:

Stem 2 m long. Leaves ovate to elliptic. Corolla 2 to 4 cm long and across.

Reproduction: seeds

Control: hand weeding, Glyphosate or 2,4-D



55. *Nymphaea nouchali* Burm. f. (*Nymphaea lotus*)

LUG: Kifengeja
ENG: Water lily

Nymphaeaceae

JPN: Murasaki-suiren

Habitat: irrigated, canal, pond

Type: perennial aquatic plant

Characteristic:

Leaves with a long petiole arise from tuber in the ground and float on the water surface.

Flowers are 8 cm in diameter and fragrant.

Reproduction: seeds and tubers

Ecology : The plant grows into stagnant water 0.1 to 2.5 m deep. It is tolerant to a wide range of water pH condition.

Use: Beautiful flower

Control: hand weeding, not so problems in rice cultivation



Habitat: irrigated, canal, pond

Type: Annual aquatic plant

Characteristic:

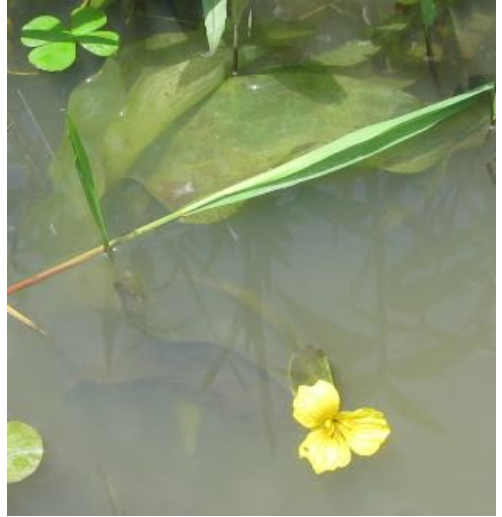
All parts smooth or with only minute, unicellular teeth. Leaves submerged, only floating in shallow water, numerous, tufted, ovate-lanceolate, 8-40 cm long, thin.

Inflorescence appearing just above the surface of the water. Fruit ovoid to oblong-cylindric, 2 to 4 cm long, opening by decay.

Reproduction: seeds

Ecology: The plant grows into stagnant water 10 to 50 cm deep.

Control: not so problems in rice cultivation



57. *Passiflora foetida* L.

LUG: Akasiti

ENG: Red fruit, Passion flower

Passifloraceae

JPN: Kusa-tokeisou

Habitat: **upland**, along roadside

Type: annual or perennial vine

Characteristic:

Stems are hairy and 1.5 to 5 m long.

Leaves are alternate.

Petioles are 1.2 to 5 cm long.

Flowers are axillary, white, and

purple at the base.

Whole plant emits an offensive odor.

Reproduction: seeds

Control: hand weeding



58. *Phaseolus atropurpureus* Moc. et Sesse ex DC.

LUG: Kabowabowa

ENG: Siratro

Leguminosae

JPN: Kurobana-tsuru-azuki

Habitat: **upland**, along roadside

Type: annual liana

Characteristic:

Leaves are alternate, ternately palmate with obovate leaflets and rotundate or obtuse at the tips.

Long peduncles, 5 to 25 cm long, arise from axils and bear a raceme with several dark purple and papilionaceous flowers.

Reproduction: seeds

Ecology: The plant grows in relatively dry areas.

Control: hand weeding



59. *Phaseolus lathyroides* L.

Leguminosae

ENG: Phasey bean

JPN: Nanban akabana-azuki

Habitat: upland, levee of lowland rice field, along roadside

Type: Annual or perennial herb

Characteristic:

Stems are 1 to 1.5 m long, erect, branched and woody at the base.

Leaves are alternate, ternately palmate compound.

Inflorescence is a 10 to 30 cm long raceme with dark red flowers.

Reproduction: seeds

Ecology: The plant grows well somewhat wet soil.

Control: hand weeding



60. *Phyllanthus niruri* auct.non L. Euphorbiaceae

LUG: Oluswiiti

ENG: Stone braker

JPN: Kidachi-mikan-sou

Habitat: upland, rain-fed, the other crop fields and along roadside

Type: Annual herb

Characteristic:

Stems are 30 to 60 cm long, erect, reddish and lignified.

Slender branches spread horizontally and bear small alternate leaves. They appear like compound leaves.

Monoecious flowers are fasciculate downward on the leaf axil.

Reproduction: seeds

Ecology: The plant grows in slightly wet and fertile soil.

Control: hand weeding, 2,4-D, Benthocarb or Butachlor



61. *Physalis angulata* L.

LUG: Ailatuntunu

ENG: Wild cape gooseberry

Solanaceae

JPN: Hiroha fuurin-hoozuki

Habitat: **upland**, along roadside

Type: annual herb

Characteristic:

Stems are erect, branched and 20 to 100 cm long.

Leaves are alternate.

Flowers are axillary, inclined downward and solitary.

Sepals are cylindrical, with 5 shallow lobes at the tip.

After flowering, sepals enclose the fruit like a sac.

Reproduction: seeds

Use: Fruits are edible and used as a medicine in some areas.

Control: Eating is best control of the species. hand weeding or Glyphosate, 2,4-D



62. *Pistia stratiotes* L. Araceae

LUG:

ENG: Water lettuce

JPN: Botan-ukikusa

Habitat: rain-fed, irrigated, pond, reservoir, creek,

Type: Free-floating perennial hydrophyte

Characteristic:

Leaves are yellowish green and form rosettes.

The plant has a large amount of feathery roots in water.

Flowers are bisexual, with a short peduncle in the center of the roset of the leaves and are not conspicuous.

Reproduction: vegetative offshoots connected by stolons and seeds

Ecology: The plant is tolerant to acidic environments (pH4)

Control: hand pulling



63. *Portulaca oleracea* L.

LUG: Enderema

ENG: Common purslane, Pig-weed

Portulacaceae

JPN: Suberihiyu

Habitat: **upland**, cultivated upland fields

Type: annual herb

Characteristic:

Stems are branched, often forming a mat, succulent, purplish red and 15 to 30 cm long.

Inflorescence is terminal with densely arranged leaves and composed of 3 to 5 florets.

Perianth consist of 5 petals, yellow and there are 7 to 12 stamens.

Reproduction: seeds and fragments of stems

Use: Occasionally the whole plant is consumed as food and used as feed for swine.

Control: hand weeding



64. *Pupalia lappacea* (L.) Juss.

Amaranthaceae

ENG: Sweethearts

Habitat: **upland**, disturbed place

Type: annual herb

Reproduction: seeds.

Ecology: Flowers in long spikes.
Flowers with tiny hooks stick to clothing.

Control: hand weeding



65. *Rhamphicarpa fistulosa* (Hochst.) Benth.

Orobanchaceae

LUG: Kayongo

ENG: Rice vampire weed

Habitat: rain-fed, levee of rein-fed rice field and lowland waste area

Type: annual and root parasitic weed for rice

Characteristic:

Stem 50 to 120cm tall.

White flowers are open in the twilight time.

Upland and irrigated fields cannot survive.

Reproduction: This weed reproduces from seeds.

Each plant may produce up to 10,000 seeds.

Ecology: Gregarious plants under rain-fed rice fields. Black plants lay after mature over rice plants.

Host plant is not only rice but also grassy weeds and sedges.

Control: Heavy damage to rein-fed rice. Sometime 60 % yield loss.

Change the water condition.

Fertilizers treatment and 2, 4-D spray and/or hand weeding.





White flowers are open in the twilight

66. *Rhamphicarpa longiflora* Benth.

Orobanchaceae

(Syn. *Marcosiphon elongatus* Hochst.)

Habitat: rain-fed, irrigated, wasteland, along roadside, levee of lowland rice field

Type: annual and root parasitic weed for grasses

Characteristic:

Stem 50 to 100cm tall.

White flowers are open in the day time.

Upland fields cannot survive.

Reproduction: seeds

Ecology: Gregarious plants under rain-fed rice fields in India.

Control: hand weeding, 2,4-D



67. *Sphenoclea zeylanica* Gaertn. Sphenocleaceae

ENG: Goose weed

JPN: Nagabo-nourushi

Habitat: rain-fed, irrigated, canal and pond

Type: annual herb

Characteristic:

Stems are erect, branched and exude a milky sap from the cut surface. Long flower stalks arise from the tip of stem or at the node, and bear green and conical inflorescence at the end.

Reproduction: seeds

Ecology: In lowland rice fields, it causes major damage and is one of the important weeds of rice.

Control: sometime difficult control of 2,4-D, because of resistant biotype was occurred in Asia. Hand weeding or Benthocarb, Butachlor



68. *Spigelia anthelmia* L.

Loganiaceae

ENG: Pink root

Habitat: upland, the other crop fields and along roadside

Type: annual herb

Reproduction: seeds

Control: hand weeding



69. *Striga asiatica* (L.) Kuntze

LUG: Red kayongo

ENG: Asiatic witchweed

Orobanchaceae

Habitat: **upland**, other cereal fields

Type: Annual and root parasitic plant

Characteristic:

Stems are erect, branched, 10-40 cm long. Leaves are opposite or alternate. Corolla displays red. *Striga* spp. mainly parasitizes cereal crops.

Reproduction: seeds

Ecology: It grows well under dry condition.

One plant produces more than 10,000 seeds. Seeds have dormancy and a substance, strigol, produced by the parasitic plant is related to dormancy breaking.

It is one of the most destructive parasitic plants in Africa. In fact, it affects 40% of Africa's arable savanna region, resulting in up to \$13 billion lost every year. *Striga* spp. affects 40 million hectares of crops in sub-Saharan Africa alone.

Control: mix cultivation with legume crops.



70. *Striga hermonthica* (Delile) Benth.

Orobanchaceae

LUG: Kayongo, Lutungotungo
ENG: Witch weed

Habitat: **upland**, and other cereal fields

Type: annual herb and root parasitic plant

Characteristic:

Stems are erect, branched, 20 to 70 cm long. Leaves are opposite or alternate. Corolla displays pink.

Reproduction: seeds

Ecology: It grows well under dry condition. One plant produces more than 10,000 seeds. Seeds have dormancy and a substance, strigol, produced by the parasitic plant is related to dormancy breaking. It is one of the most destructive parasitic plants in Africa.

Control: mix cultivation with legume crops



71. *Stylosanthes erecta* P.Beauv.

Leguminosae

Habitat: upland, and the other crop fields

Type: Woody perennial herb or subshrub

Characteristic:

Completely prostrate and forming mat, or more often erect 10 to 100 cm tall or long, stems much branched, glabrescent or with pubescence in a narrow longitudinal line alternating in position from internode to internode.

Reproduction: seeds and vegetative

Control: hand weeding



72. Synedrella nodiflora (L.) Gaertn.

Asteraceae

ENG: Node weed, Porter bush

JPN: Fushizakisou

Habitat: **upland**, and other cereal crop fields, waste land

Type: annual herb

Characteristic:

Stems are 30 to 120 cm tall, erect and the upper part of the stem dichotomously branched.

Head has 1 to 5 ligulate flowers and 8 to 10 tubular one.

Reproduction: seeds

Use: It is used as a vegetable and a medicine for stomach ache.

Control: hand weeding and tillage



73. *Talium triangulare* (L.) Juss.

Talinaceae

ENG: Waterleaf, Cariru

Habitat: upland, near villages

Type: herbaceous perennial herb
(native in Mexico)

Characteristic:

The plant grows erect, reaching a height of 30 to 100 cm. It bears small, pink flowers and broad, fleshy leaves.

Reproduction: seeds

Use: Leaves are used in the preparation of slightly slimy soups and stews to complement the starchy main dish.

Control: no so difficult control.



74. *Tephrosia purpurea* (L.) Pers. Leguminosae

ENG: Purple tephrosia, Common tephrosia JPN: Nanban-kusafuji

Habitat: upland, and other upland crop fields

Type: perennial erect or decumbent herbs or subshrubs climber herb

Characteristic:

Leaves imparipinnate, leaflets 7 to 15, 2 cm long 0.6 cm width, oblanceolate or obovate, base cuneate, apex obtuse to emarginate or truncate, mucronate; stipules 5 mm long, lanceolate.

Pods 3 cm long, 0.4 cm width.

Reproduction: seeds and vegetative

Control: hand weeding



75. *Trianthema portulacastrum* L.

LUG: Girikiti
ENG: Horse purslane

Aizoaceae

JPN: Suberihiyu-modoki

Habitat: **upland**, along roadside, the other upland crop fields

Type: perennial or annual herb

Characteristic:

Stems are branched at the base, 10 to 40 cm long and prostrate.

Leaves are orbicular obovate with a petiole, somewhat fleshy.

Flowers are sessile, solitary on the leaf axil and reddish white.

Reproduction: seeds

Ecology & Use: The leaves are rich in calcium, iron and phosphate, they are used as vegetable and medicine.

Control: hand weeding



76. Tribulus terrestris L.

Zygophyllaceae

LUG: Kayongo

ENG: Burnut, Caltrop, Puncture weed JPN: Hamabishi

Habitat: **upland**, near seashore, along roadside

Type: annual shrub

Characteristic:

Stems are branched at the base, prostrate and decumbent descendent. Leaves are opposite. Blades are even-pinnate, composed of 4 to 8 pairs of leaflets. Flowers are solitary at the axil. Fruits are about 1 cm in diameter with 10 sharp spines.

Reproduction: seeds

Ecology: The plant grows well in dry and sunny areas.

The sharp spines of fruits cause wounds and puncture of bicycle tires.

Control: hand weeding



77. *Tridax procumbens* L.

Asteraceae

JPN: Kotobuki-giku

Habitat: **upland**, wasteland, along roadside, forest border

Type: perennial herb

Characteristic:

Stems are prostrate on the ground, 20 to 70 cm long, oblique at the, with bristles and often reddish.

Leaves are opposite, ovate to ovate-lanceolate.

Flower heads are terminal on the erect stalk and 1 to 2 cm in diameter, flower stalks are 10 to 30 cm long.

Reproduction: seeds and rhizomes

Ecology: The plant has strong allelopathy properties.

Use: It is used as feed mixed with grasses.

Control: hand weeding, 2,4-D or Glyphosate



78. *Vernonia cinerea* (L.) Less.

Asterceae

LUG: Kamwanyimwanyi

ENG: Little ironweed

JPN: Murasaki-mukashiyomogi

Habitat: **upland**, wasteland, along roadside

Type: annual herb

Characteristic:

Stems are erect, branched in upper part, 40 to 160 cm long.

Leaves are alternate, spirally arranged and rhombate-ovate to ovate.

Flower head are 7 to 8 mm long and a corymbose panicle bears 20 to 30 flowers.

The heads consist of purple tubular flowers without ligulate ones.

Reproduction: seeds

Ecology: Occasionally it becomes a harmful weed in the upland fields.

Control: hand weeding



79. Cenchrus echinatus L.

Gramineae

ENG: Southern sandbur

JPN: Shin-kurinoiga

Habitat: **upland**, wasteland, along roadside

Type: annual grass

Characteristic:

Culms are erect and 25 to 90 cm long. Spikes are terminal and cylindrical, 5 to 10 cm long, composed of 5 to 30 sessile and urceolate involucre. Involucre are pale green, turning purple with age.

Reproduction: seeds

Ecology: Frequent hand weeding is necessary for the control.

Control: hand weeding or Glyphosate



80. Chloris barbata Sw.

Gramineae

ENG: Peacock-plume grass, Swollen finger grass

JPN: Murasaki-higeshiba

Habitat: **upland**, along roadside

Type: annual grass

Characteristic:

The plant is glabrous, erect and 30 to 60 cm long.

Panicles are terminal and finger like.

Rachis has 2 to 11 branches and purplish red.

Reproduction: seeds

Ecology: Flowering and fertile all the year round.

Control: hand weeding or Glyphosate



81. *Chloris pycnothrix* Trin.

(native in Africa)

ENG: Spider web chloris, False stargrass

Gramineae

JPN: Naga-higeshiba

Habitat: **upland**, along roadside, upland the other crop fields

Type: annual or perennial grass

Characteristic:

The plant is glabrous, erect and 40 to 80 cm long.

Panicles are terminal and open finger like. Rachis has 3 to 11 branches and purplish red.

Reproduction: seeds

Ecology: Flowering and fertile all the year round.

Control: hand weeding and Glyphosate



82. *Cynodon dactylon* (L.) Pers.

LUG: Kabanda katono, Kalanda lugo
ENG: Bermuda grass, Couch grass,

Gramineae

JPN: Gyougi-shiba

Habitat: **upland**, wasteland, along roadside, grassland

Type: perennial grass

Characteristic:

Stems are branched, prostrate and spreading on the ground.

Culms are 15 to 40 cm long.

Spikes are terminal and finger-like.

Rachises have 3 to 7 branches and 3 to 8 cm long.

Reproduction: seeds and rhizome

Use: It is used as a native medicine for cough and kidney diseases.

Control: hand weeding or Glyphosate



83. *Dactyloctenium aegyptium* (L.) P. Beauv.

Gramineae

ENG: Crowfoot grass, Egyptian finger grass

JPN: Tatsunotsume-gaya

Habitat: upland, in garden, along roadside

Type: annual grass

Characteristic:

Stems are branched, creeping, spread by rooting at the nodes and 15 to 60 cm long. Spikes are terminal and branched, finger like with 2 to 7 rachises.

Reproduction: seeds

Use: Seeds are used for native medicine.

Control: hand weeding, Glyphosate



84. Digittaria sanguinalis Scop.

Gramineae

LUG:

ENG: Crab grass

JPN: Mehishiba

Habitat: upland, rain-fed, cultivated upland fields

Type: annual grass

Reproduction: seeds

Ecology: the lower part of the culms is decumbent, rooted at the nodes and spread.

Control: hand weeding or Glyphosate



85. *Echinochloa colona* (L.) Link

Gramineae

ENG: Jungle rice

JPN: Kohime-bie

Habitat: upland, rain-fed, irrigated, other upland crop field, wasteland, along roadside

Type: annual grass

Characteristic: Culms are glabrous, branched and creeping at the base, and 30 to 100 cm long. Foliage is soft and purplish in the lower part. Spikelets are 5 to 15 cm long and do not hang down at ripening.

Reproduction: seeds

Ecology: The species are pleomorphic and display wide variations.

A prolific seed producer, has a short life cycles and can complete several life cycles in a year.

Young plants resemble rice, which makes hand weeding difficult.

Control: hand weeding or Benthocarb or Butachlor



(Right: *E. crus-galli*, Left: *E. colona*)



86. *Echinochloa crus-galli* (L.) P. Beauv.

Gramineae

ENG: Barnyard grass

JPN: Inubie

Habitat: rain-fed, irrigated, in shallow submerged paddy fields

Type: annual grass

Characteristic:

Culms are branched, erect or decumbent at the base and 50 to 250 cm long.

Spikes are 5 to 18 cm long, with many rachis-branches and conical.

Reproduction: seeds

Ecology: One plant may produce 40,000 seeds. Tillers profusely and germinates throughout the year. Ecologically similar to rice. During early vegetative phase, almost indistinguishable from rice plants.

Control: hand weeding, Benthocarb or Butachlor



All panicle are *E. crus-galli*



Right 3 panicles : *E. crus-galli* (Left 1 panicle is *E. stagnina*)

Habitat: rain-fed, irrigated, canal, levee

Type: perennial aquatic grass

Characteristic:

Culms are glabrous, branched and creeping at the base, and 1 to 3 m long.

Foliage is soft and purplish in the lower part.

Spikelets are 15 to 40 cm long and do not hang down at ripening.

Reproduction: seeds and vegetative

Ecology: The plant invaded to rice field from lowland bands

Control: hand weeding



88. *Elesine indica* (L.) Gaertn.

(origin in Africa)

ENG: Wire grass, Goose grass

Gramineae

JPN: Ohisiba

Habitat: upland, along roadside,
upland the other crop fields

Type: annual or perennial grass

Reproduction: seeds

Control: hand weeding and
Glyphosate



89. *Heteropogon contrortus* (L.) P. Beauv.

Gramineae

LUG: Olwanyo
ENG: Tangle-head

JPN: Taiwan-akahige-gaya

Habitat: **upland**, wasteland, along roadside

Type: perennial grass

Characteristic:

Stems are branched at the base and 20 to 90 cm long.

Spikes are terminal on top of the culm, racemose, 3 to 7 cm long excluding the awn and bristled.

Reproduction: seeds and rhizome

Ecology & Use: The species is pleomorphic. Culms are used as materials for mat.

Control: hand weeding or Glyphosate



90. Imperata cylindrica (L.) P. Beauv.

Gramineae

ENG: Cogon grass

JPN: Chigaya

Habitat: **upland**, waste land, levee, along roadside

Type: perennial grass

Characteristic:

Stems are branched at the base and 20 to 150 cm long.

Spikes are terminal on top of the culm.

Reproduction: vegetative of rhizome and seeds

Use: Culms are used as materials for mat or agricultural mulching.

Control: hand weeding, Glyphosate, culture



91. Ischaemum rugosum Salisb.

Gramineae

ENG: Winkle duck-beak, Saramatta grass

JPN: Taiwan-aiashi

Habitat: rain-fed, irrigated, cultivated lowland field, canal and pond

Type: annual and occasionally perennial

Characteristic:

Stems are branched at the base and 60 to 120 cm long.

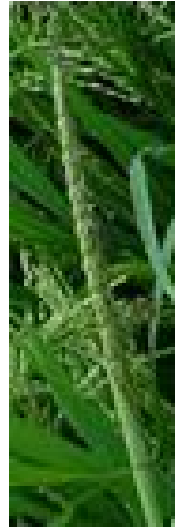
Spikes are dichotomously branched and 3 to 12 cm long. Two spikelets arise from each node and they are pale yellowish green.

Reproduction: seeds

Ecology: It is a troublesome weed in paddy fields, especially in the direct-seeded rice fields

Use: Young foliage is used as forage for livestock.

Control: hand weeding or glyphosate



92. *Leersia hexandra* Sw.

ENG: Bareet grass, Rice grass

JPN: Taiwan-ashikaki

Habitat: rain-fed, irrigated, levee, canal waste land

Type: perennial grass

Characteristic:

Culms are prostrate on the surface of the ground or water, branched and rooting at the nodes.

Reproduction: seeds and vegetative

Control: hand weeding



Right panicle is *L. hexandra*



93. *Leptchloa chinensis* (L.) Nees

Gramineae

ENG: Sprangletop

JPN: Azegaya

Habitat: irrigated, rain-fed, around ditch and canal, in shallow submerged paddy fields

Type: annual grass

Characteristic:

Stems are branched at the base, rooting at the nodes of ascending stems about 1 m long.

Reproduction: seeds

Ecology: The seeds do not germinate under flooding condition.

Control: Benchiocarb, Butachlor or hand weeding



94. *Melinis repens* (Willd.) Zizka

(Syn: *Rhynchelytum repens*)

ENG: Natal red-top

Gramineae

Habitat: **upland**, along roadside, and other upland crop fields, waste land

Type: annual or perennial grass

Characteristic: This species is a familiar and attractive sight along roadsides and forms an important stabilizing pioneer in eroding soil.

Reproduction: seeds and vegetative

Control: hand weeding and Golyphosate



95. *Panicum maximum* Jacq.

LUG: Mukonzi konzi

ENG: Guinea grass

Gramineae

JPN: Ginia-kibi

Habitat: **upland**, other upland crop fields, wasteland and along roadside

Type: perennial grass

Characteristic: Culms arise from shortened rhizomes. They are tussocky and 1 to 2 m long. Spikes are 15 to 45 cm long. Spikeletes are 3 to 3.5 mm long, composed of 2 florets, which transverse wrinkles on glumes and purplish.

Reproduction: seeds and rhizome

Ecology & Use: The plant is cultivated for forage and hay, and sometimes it escapes to become a weed.

Control: hand weeding or Glyphosate



96. *Paspalum distichum* L. Gramineae

ENG: Knotgrass

JPN: Kishuu-suzumehohie

Habitat: rain-fed, irrigated, waste land, levee, river bank, creek and pond

Type: perennial grass

Characteristic:

Stems are prostrate at the base and rooting at the nodes. Leaves enclose the stem at the base to become sheaths and the upper margin of the sheath is covered with white hairs. Short panicles are dichotomously terminal, spikeletes are borne in 2 rows externally.

Reproduction: fragments of stolon and seeds

Ecology: The plant invades rice field to become weed, especially in direct-seeded rice fields.

Control: hand weeding. Control is very difficult because the plant grows fast.



97. *Rottboellia cochinchinsis* W. Clayton

Gramineae

LUG: Kasalabakesi

ENG: Raoul grass, Itch grass

JPN: Tsuno-aiashi

Habitat: **upland**, along roadside waste land

Type: annual grass

Characteristic:

The plant is 1 to 3 m tall, and stems are large and branched. The plant bears cylindrical panicles and forms about 2,200 seeds per plant.

Reproduction: mainly seeds

Ecology: It is a troublesome weed strongly competitive with crops. Hand weeding should be done carefully due to the presence of acute hairs on the leaf sheath.

Control: hand weeding or Glyphosate



98. *Sacciolepis indica* (L.) Chase

JPN: Hai-numeri

Habitat: rain-fed, irrigated, levee, canal waste land

Type: annual grass

Reproduction: seeds

Use: Foliage is used as good food for cattle.

Control: hand weeding



99. *Typha angustifolia* L.

Typhaceae

ENG: Narrowleaf cattail

JPN: Himegama

Habitat: rain-fed, irrigated, shallow water of marshes and ponds. No introduce into cultivated rice field.

Type: perennial herb

Characteristic: The plant is 1 to 2.5 m tall. Leaf blades are linear, labrous, narrow and obtuse at the tip and enclosing the stem as a sheath at the base. Flower stalks arise and bear male flowers at the top and female flowers a little below.

Reproduction: fragments of subterranean stems and seeds

Ecology: In some areas, pollen and stems are edible and also used as material for mats.

Control: hand weeding or Glyphosate



100. *Cyperus aggregatus* (Willd.) Endl.

Cyperaceae

LUG: Enku

JPN: Tanensei-kayatsurigusa

Habitat: rain-fed, irrigated,

wet waste land

Type: perennial sedge

Reproduction: rhizomes and seeds

Ecology: The plant lives ill-drained area.

Control: tillage and hand weeding



101. *Cyperus aromaticus* (Ridl.) Mattf. & Kukenth Cyperaceae

LUG: Enku (origin in Africa)
ENG: Navua sedge

Habitat: rain-fed, irrigated,

wet waste land

Type: perennial sedge

Reproduction: rhizomes and seeds

Ecology: The plant lives ill-drained area.

Control: tillage and hand weeding



102. *Cyperus corymbosus* Rottb.

LUG: Enku
ENG: Peri peri

Cyperaceae

Habitat: rain-fed, irrigated, deep water rice fields and canal

Type: perennial sedge

Characteristic:

The plant spreads a long rhizome and forms communities. Stems arise from rhizomes and are 1 to 2 m long, dull triangular and 3 to 4 red brown sheaths at the base. Inflorescence are terminal. Spikelets are linear, 5 to 18 mm long and 10 to 15 spikelets arranged in clusters form a spike, 2 cm long. Stigma of floret has 3 lobes and scales are reddish brown.

Reproduction: vegetative rhizomes

Control: rotary cultivation, paddling and irrigation



103. *Cyperus difformis* L.

Cyperaceae

LUG: Enku

ENG: Small flower umbrella sedge JPN: Tamagayatsuri

Habitat: rain-fed, irrigated, shallow waste land

Type: annual sedge

Characteristic:

Flowers yellowish, very numerous, and crowded in ovoid masses. Stems are slender and 40 to 100 cm long.

Reproduction: seeds. Each plant may produce up to 50,000 seeds.

Ecology: The plant may rapidly cover the ground because of its short life cycle and abundant seed production. The weeds do not shade rice plants, but may compete for water and nutrients. This weed cannot tolerate deep flooding, and may be controlled by water management.

Control: 2,4-D, Benthocarb, Butachlor, hand weeding



104. *Cyperus iria* L.

LUG: Enku

ENG: Rice flat sedge

Cyperaceae

JPN: Kogome-gayatsuri

Habitat: rain-fed, irrigated,

wet waste land

Type: annual sedge

Characteristic:

Yellowish, not submerged.

Stems are slender and 20 to 60 cm long.

Reproduction: seeds

Ecology: The plant may rapidly spread because of its abundant seed production.

Can be very competitive for nutrients.

Control: 2,4-D and hand weeding



105. Cyperus kyllingia Endl.

LUG: Enku

Cyperaceae

JPN: Oohimekugu

Habitat: **upland**, along roadside, waste land

Type: perennial sedge

Characteristic:

It spreads rhizomes and grows in colonies.

Reproduction: rhizomes and seeds

Control: hand weeding and cutting



106. *Cyperus papyrus* L.

Cyperaceae

LUG: Kitoogo (Origin: upstream of Nile River)

ENG: Papyrus

JPN: Kami-gayatsuri

Habitat: rain-fed, irrigated, dominant species of natural swampy area

Type: perennial sedge

Characteristic:

Stems are strong and 2 to 6 m long, triangle and 6 cm diameter.

Reproduction: This plant reproduces most of from vegetative.

Control: need for conservation on natural ecosystem, if need hand weeding or Glyphosate.



107. *Cyperus rotundus* L.

LUG: Mayilugundu
ENG: Purple nutsedge

Cyperaceae

JPN: Hamasuge

Habitat: **upland**, along roadside, waste land, levee

Type: perennial sedge

Characteristic:

Red or purplish-brown seed head.

Stems are 15 to 60 cm long.

The plant has a black and hard tuber in soil.

Reproduction: underground stems and tubers, occasionally seeds

Ecology: This weed is most serious in dryland fields and highly competitive with crops both moisture and soil nutrients. Tubers have a deep root system and can survive long periods of drought or flooding.

Control: cutting or Glyphosate



108. *Eleocharis dulcis* Henschel

Cyperaceae

LUG: Ekitogo

ENG: Chinese water chestnut

JPN: Shiroguwai

Habitat: rain-fed, irrigated, wet waste land, marsh, pond

Type: perennial sedge

Characteristic:

Culms are cylindrical, about 1 m long, 3 to 5 mm in diameter.

Reproduction: vegetative, seeds are rare.

Use: Chinese water chestnut (*E. dulcis* var. *tuberosa*) is a cultivated variety.

Control: hand weeding but difficult



109. *Fimbristylis ferruginea* Vahl.

LUG: Ekitogo

ENG: Globe fingerush

JPN: Hideriko

Cyperaceae

Habitat: rain-fed, irrigated, and levee

Type: annual herb (occasionally perennial)

Characteristic:

The plant is glabrous and about 60 cm tall.

Spikelets are 2.5 to 3.5 mm long, globose to ovoid and reddish brown.

Reproduction: seeds

Ecology: Produces many seeds, which germinate throughout the year.

Become a dominant weed within a short time.

Control: hand weeding or Benthocarb or Butachlor



110. *Fuirena ciliaris* (L.) Roxb.

Cyperaceae

JPN: Hiroha-kuro-tamagayatsuri

Habitat: upland, rain-fed, river bank, pond, grassland and levee

Type: annual sedge

Characteristic:

Stems are about 50 cm long.

The tip and upper nodes of the stem bear 3 to 10 spikelets densely.

Spikelets are spindle-shaped and hairy.

Reproduction: seeds

Control: hand weeding



111. *Kyllinga pumila* Michx.

LUG: Enku

ENG: Low spike sedge

Cyperaceae

Habitat: **upland**, along roadside, waste land

Type: perennial sedge

Characteristic:

It spreads rhizomes and grows in colonies.

Reproduction: rhizomes and seeds

Control: hand weeding and cutting



Habitat: rain-fed, irrigated, wet waste land, marsh and irrigation canal

Type: annual sedge (occasionally perennial)

Characteristic:

Stems are 30 to 100 cm long and upright, tussocky, open, cylindrical. Leaf blades are degenerated and transformed into yellowish brown leaf-sheaths.

Oblong spikelets are arranged in clusters.

Reproduction: seeds

Control: hand weeding, Benthocarb or Butaclor



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