Major Rice Weeds in Uganda

Promotion of Rice Development Project
National Crops Resources Research Institute

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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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Director, NaCRRI

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Chief Advisor, PRiDe

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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

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*, Malvacae

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. Legunominosae

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. Legunominosae

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, Benthiocarb 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 tuberous 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 sessillis DC. Amaranthaceae

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

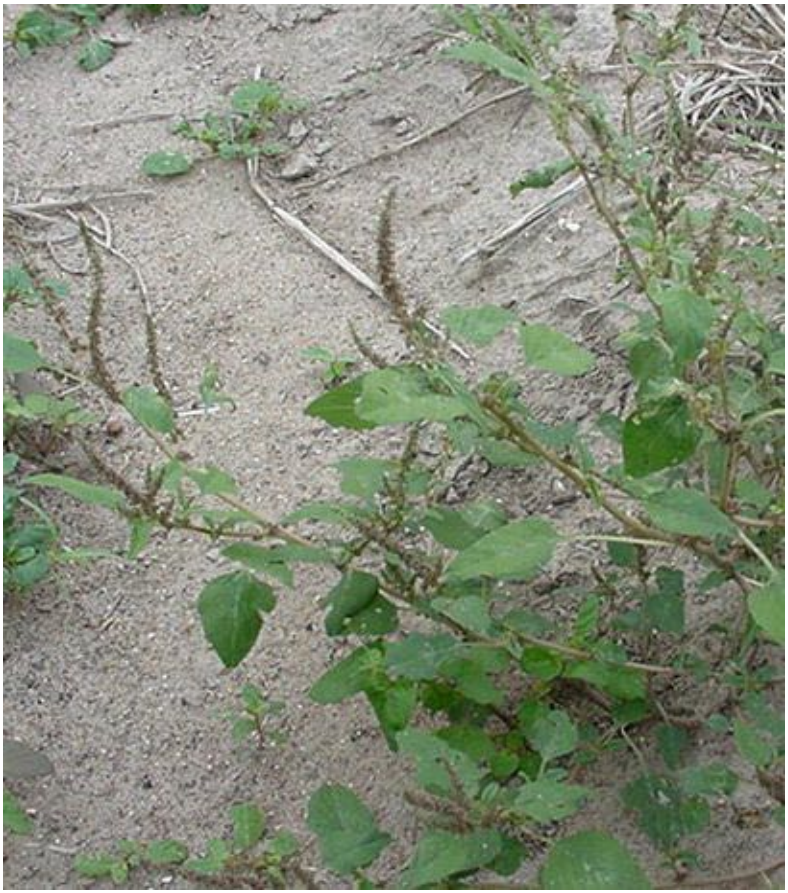
Habitat: **irrigated**, wasteland, along levee
Type: annual herb
Characteristic:
The plant has many branched stolon from the node creep on the ground. Almost every node bears a flower cluster.
Reproduction: seeds
Ecology: They live around paddy field.
Control: hand weeding and 2, 4-D or Glyphosate

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: Benthiocarb, no need control.

11. Bidens pilosa L. Asteraceae

ENG: Hairy begger-ticks JPN: Ko-sendangusa

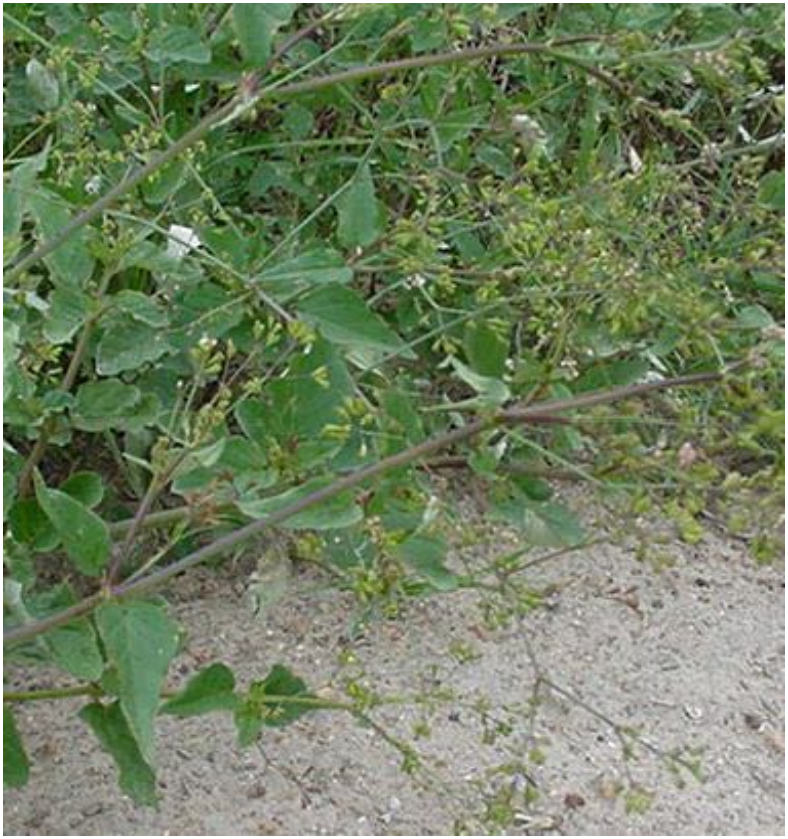
Habitat: **upland**, wasteland, along roadside
Type: annual herb
Characteristic:
The plant is 30 to 120 cm tall. Leaves are opposite with a petiole and pinnate. Leaflets are ovate.

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. Fivers 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: Lunyeteketo
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, Benthiocarb 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 isascendent.
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, Benthiocarb or Butachlor

19. Cleome rutidosperma DC. Capparidaceae

LUG: Akayobyo
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 splay

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 modes.
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 modes.
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 Benthiocarb, Butachlor

28. Eichhirnia crassipes (Mart.) Solms Pontenderiaceae

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 offshots 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 rigedes.
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 habitat.

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. Legunominosae

LUG: Logobango
ENG: Hairy indigo 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.

Convolvulaceae

LUG: Mutasukakabo

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 Onagrceae

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 weeing and 2,4-D

46. Ludwigia hissopifolia (C. Don)Exell Onagrceae

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 weeing in early stage

47. Ludwigia octovalvis (Jacq.) Raven Onagrceae

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 weeing 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 weeing 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, elect, 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. Leguninosae

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.

Leguninosae

LUG: Muko wewombeko
ENG: Sensitive plant
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 hispids 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)*

Nymphaeaceae

LUG: Kitengeja
ENG: Water lily
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

56. Ottelia ulvifolia (Planch.) Walp. Hydrocharitaceae

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.

Passifloraceae

LUG: Akasiti
ENG: Red fruit, Passion flower
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.

Leguninosae

LUG: Kabowabowa
ENG: Siratro
JPN: Kurobana-tsuru-azuki

Habitat: **upland**, along roadside
Type: annual liana
Characteristic:
Leaves are alternate, ternately palmate with obovate leaflets and rotundate or obtue 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. Leguninosae

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, Benthiocarb or Butachlor

61. Physalis angulata L. Solanaceae

LUG: Ailatuntunu
ENG: Wild cape gooseberry 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 rosset of the leaves and are not conspicuous.
Reproduction: vegetative offshots connected by stolons and seeds
Ecology: The plant is tolerant to acidic environments (pH4)
Control: hand pulling

63. Portulaca oleracea L. Portulacaceae

LUG: Enderema
ENG: Common purslane, Pig-weed JPN: Suberihiyu

Habitat: **upland**, cultivated upland fields
Type: annual herb
Characteristic:
Stems are branched, often forming a mat, succulent, purplish red and15 to 30 cm long.
Inflorescence is terminal with densely arranged leaves and composed of 3 to 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 Benthiocarb, 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

Orobanchaceae

LUG: Red kayongo
ENG: Asiatic witchweed

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 imparipinate, leaflets 7 to 15, 2 cm long 0.6 cm width, oblanceolate or obovate, base cuneate, apex obtuse to emerginate 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. Aizoaceae

LUG: Girikiti
ENG: Horse purslane 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 Glyphsate

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 involucres. Involucres 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.

Gramineae

(native in Africa)

ENG: Spider web chloris, False stargrass

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 weeing and Golyphosate

82. Cynodon dactylon (L.) Pers.

Gramineae

LUG: Kabanda katono, Kalanda lugo
ENG: Bermuda grass, Couch grass,
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 weeing 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 Benthiocarb 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, Benthiocarb or Butachlor

All panicle are *E. crus-galli*

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

87. Echinochloa stagnina (L.) Link Gramineae

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 weeing

88. Elesine indica (L.) Gaertn. Gramineae

(origin in Africa)
ENG: Wire grass, Goose grass JPN: Ohisiba

Habitat: **upland**, along roadside, upland the other crop fields
Type: annual or perennial grass

Reproduction: seeds
Control: hand weeing 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 weeing 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 dich 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

Gramineae

(Syn: *Rhynchelytum repens*)
ENG: Natal red-top

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 weeing and Golyphosate

95. Panicum maximum Jacq. Gramineae

LUG: Mukonzi konzi
ENG: Guinea grass 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-suzumenohie

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 weeing 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. Cyperaceae

LUG: Enku
ENG: Peri peri

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, Benthiocarb, Butachlor, hand weeding

104. Cyperus iria L. Cyperaceae

LUG: Enku
ENG: Rice flat sedge 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.

Cyperaceae

LUG: Enku

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.

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107. Cyperus rotundus L.

Cyperaceae

LUG: Mayilugundu
ENG: Purple nutsedge
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 dulsis 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. Cyperaceae

LUG: Ekitogo
ENG: Globe fingerush JPN: Hideriko

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 Benthiocarb 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.

Cyperaceae

LUG: Enku
ENG: Low spike sedge

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

112. Scirpus articulatus L. Cyperaceae

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, Benthiocarb or Butaclor

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Selected references

Bromilow, C. 2001 Problem plants of South Africa. AVCASA, Briza Publications, South Africa.

Harada, J. , H. Shibayama and H. Morita. Weeds in the tropics, AICAF, 1997.

Muniappan, R., G.V.P. Reddy and A. Raman 2009 Biological control of tropical weeds using arthropods. Cambridge University Press

West African Plants: http://www.jircas.affrc.go.jp/project/Ghana/home.html

International Rice Research Institute: http://www.knowledgebank.irri.org/ericeproduction/PDF_&_Docs/Weed_control.pdf

Ministry of Agriculture,
Animal Industry and Fisheries