RICE

Weed, Insect and Disease Field Guide



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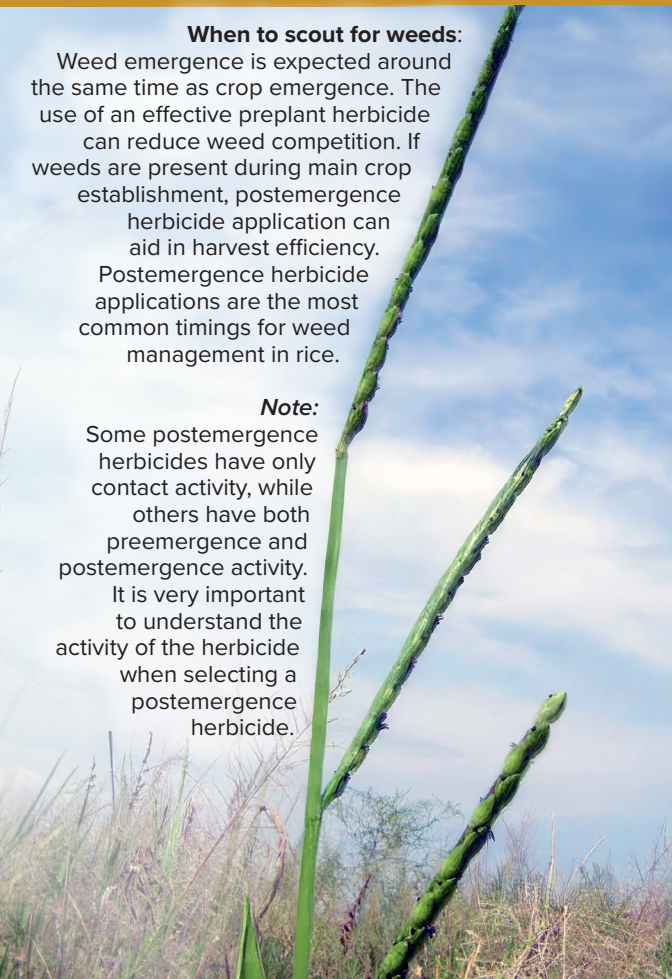
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Weeds



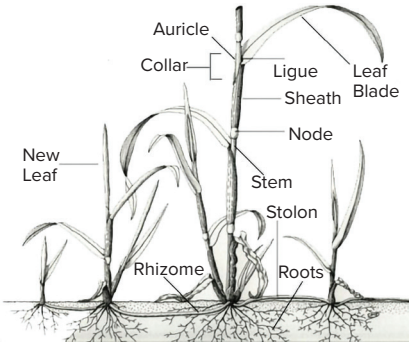


When to scout for weeds: Weed emergence is expected around the same time as crop emergence. The use of an effective preplant herbicide can reduce weed competition. If weeds are present during main crop establishment, postemergence herbicide application can aid in harvest efficiency. Postemergence herbicide applications are the most common timings for weed management in rice.

Note:
Some postemergence herbicides have only contact activity, while others have both preemergence and postemergence activity. It is very important to understand the activity of the herbicide when selecting a postemergence herbicide.

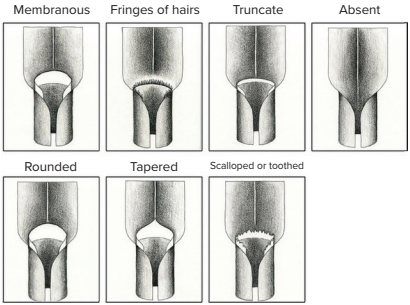
Grasses

Grasses have narrow leaves with parallel veins and small, inconspicuous flowers. Stems are usually round and have visible bulges or joints where the leaves attach (nodes). They are usually hollow except at the nodes.



Parts of grasses.

A ligule is an outgrowth from the sheath. Because they vary in size, shape and texture, they are used in the identification process. At right are several examples of ligule types.





Seed head.

Amazon sprangletop

Latin name: *Leptochloa panicoides*

General information: Amazon sprangletop is an annual grass that reproduces only by seeds. It is an upright, tufted plant that can reach a height of 2 to 3.5 feet. This species occurs in rice fields, irrigation ditches, cultivated ground and other moist or disturbed areas. It is especially competitive in flooded crop systems where it can cause significant yield losses in rice.



Immature plant.



Mature plant.

Identifying characteristics: Leaves are 1.5 to 8 inches long and 0.15 to 0.3 inches wide. Leaf sheaths are smooth and mostly hairless, though margins at the base may have sparse hairs. Leaf blades are hairless and slightly rough on both surfaces. A short membranous ligule, about 0.08 to 0.15 inches long, is present where the leaf sheath and blade meet. Stems are slender, smooth and often bent at the base but ascending or erect above. The seed head is an open panicle 8 to 14 inches long with 20 to 30 slender branches that spread outward. Spikelets are small, overlapping and typically contain four to six florets. Seeds are tiny, elliptic and about 0.04 to 0.06 inches long.



Long ligule.

Barnyard grass

Latin name:
Echinochloa crus-galli



No ligule.



Seed heads with awns.

General information: Barnyard grass, also referred to as billion-dollar grass and watergrass, is an upright-growing weed that reproduces only by seeds. The weed can reach a height of 7 feet and is prevalent in cultivated areas, fields, pastures, wet ditches, roadsides, railroad beds and waste sites.

Identifying characteristics: Leaves are 4 to 20 inches long and 0.2 to 1.2 inches wide. The leaf sheaths (the part of the leaf that surrounds the stem) and the leaf blades have no hairs, but leaf blades are rough on both the upper and lower surfaces. There is no ligule present where the leaf sheath and the blade meet. Stems are smooth and without hairs and often bent and branched at the lower nodes. The seed head is a drooping panicle 4 to 16 inches long with numerous spreading branches. Seeds may or may not have awns (stiff, bristlelike beards).



Immature plant.



Seedlings.



Ligule and collar.



Seed head.

Broadleaf signalgrass

Latin name: *Urochloa platyphylla*

General information: Broadleaf signalgrass, also referred to as *Brachiaria platyphylla* (Griseb.) Nash, is a decumbent (grows along the ground with growing points turned upward), spreading and branching weed that reproduces only by seeds. The weed can reach a height of 3 feet and is prevalent in cultivated areas, fields, pastures, lawns, turf, roadsides, railroad beds, moist ditches and waste sites.

Identifying characteristics: The leaf sheaths (the part of the leaf that surrounds the stem) have hairs. Leaf blades have no hairs, but leaf margins are hairy. The ligule present where the leaf sheath and blade meet is a fringe of hairs. Leaves are 1.5 to 6 inches long and 0.25 to 0.6 inches wide and often have a crease near the tip. Stems are decumbent, bent at the nodes and often branched. Rooting can occur at lower nodes. The seed head is flattened and distinctive.



Mature plant.



Red collar and hairy stem.

Fall panicum

Latin name:
Panicum dichotomiflorum


Hairy ligule.

General information: Fall panicum, also referred to as smooth witchgrass, is an upright- to decumbent-growing (grows along the ground with growing points turned upward) weed that reproduces only by seeds. The weed can reach a height of 7 feet and is prevalent in cultivated areas, fields, pastures, lawns, turf, roadsides, railroad beds and waste sites.


Leaves have a prominent, white midvein.

Identifying characteristics: The leaf sheaths (the part of the leaf that surrounds the stem) and leaf blades are smooth and have no hairs. The ligule present where the leaf sheath and the blade meet is a fringe of hairs. Leaves are 4 to 20 inches long and 3 to 7 inches wide, and the upper leaf surface may be hairy. Stems are bent at the nodes and branched. The seed head is a 4- to 30-inch-long open and branching panicle.


Seed head.


Mature plants.



Seedling.

Large crabgrass

Latin name: *Digitaria sanguinalis*

General information: Large crabgrass, also referred to as hairy fingergrass, is a prostrate (stem and branches lying flat on the ground) to spreading weed that reproduces only by seeds. The weed can reach more than 2 feet tall and is prevalent in cultivated areas, fields, pastures, lawns, turf, roadsides, railroad beds and waste sites.

Identifying characteristics: The leaf sheath (the part of the leaf that surrounds the stem) and the leaf blade in young seedlings usually are densely hairy. The ligule present where the leaf sheath and the blade meet is a translucent and flexible membrane with uneven teeth on the margin. Leaves are 1 to 8 inches long and 0.1 to 0.4 inches wide. The leaves usually are hairy on the upper and lower surfaces, and the leaf sheath also is hairy. Stems are prostrate, spreading and branched; rooting at older nodes can occur. The seed head has four to six branches.



Mature plant.



Mature plant with hairy leaf sheaths.

Junglerice

Latin name: *Echinochloa colona*

General information: Junglerice, also referred to as awnless barnyard grass and watergrass, is an upright- or decumbent-growing (grows along the ground with growing points turned upward) weed that reproduces only by seeds. The weed can reach a height of 3 feet and is prevalent in cultivated areas, fields, pastures, wet ditches, roadsides, railroad beds and waste sites.

Identifying characteristics: The leaf sheaths (the part of the leaf that surrounds the stem) and the leaf blades have no hairs. As also noted for barnyardgrass, there is no ligule present where the leaf sheath and the blade meet. Leaf blades on older plants may be sparsely hairy and will sometimes have a purple band running perpendicular to leaf veins. Stems are smooth with no hairs and often are bent at the nodes. Rooting can occur at the lower nodes. The seed head is a branching panicle 2 to 8 inches long, and seeds will not have awns (stiff, bristle-like beards).



Mature plant.



Mature plant sprayed with Command.



Inflorescence.

Nealley's sprangletop

Latin name: *Leptochloa nealleyi*

General information: Nealley's sprangletop is an annual grass that reproduces by seed. It is usually erect and compressed, sometimes branching from the lower nodes, and can reach a height of 2 to 8 feet. This species is found in wet or disturbed habitats such as rice fields, marsh margins, irrigation ditches and cultivated areas, especially in coastal regions of Texas, Louisiana and surrounding areas.

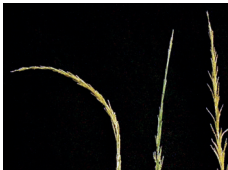
Identifying characteristics: Leaves are 4 to 30 inches long and 0.15 to 0.28 inches wide. The leaf sheaths are smooth and hairless, while the leaf blades are rough on both the upper and lower surfaces. A membranous ligule, 0.06 to 0.12 inches long, is present at the junction of the leaf sheath and blade. Stems are 2 to 8 feet tall, smooth, and sometimes branched near the base. The seed head is a large panicle 12 to 30 inches long, with 25 to 75 stiff, ascending branches. Spikelets are overlapping, 0.11 to 0.13 inches long, and typically contain three to four florets. Seeds are elliptic to obovate and about 0.02 to 0.04 inches long.



Ligule.



Hairs on stem.



Seed head.

Red rice

Latin name: *Oryza sativa*

General information: Red rice is an upright-growing weed that reproduces only by seeds. The weed can reach a height of about 3 feet and is prevalent in cultivated areas, fields, roadsides, wet ditches and waste sites. Often is distinguishable in a rice field by being taller and greener than desired cultivated variety of rice. Can contaminate harvested rice grains and reduce quality of cultivated rice. There are many forms of red rice.

Identifying characteristics: The leaf sheath that surrounds the stem is smooth. Well-developed, earlobe-shaped projections at the base of the sheath (auricles) are present. The ligule present where the sheath and the blade meet is a triangular shaped, thin, translucent and flexible membrane. Leaves are 12 to 24 inches long and 0.25 to 0.75 inches wide. Older leaves have dense, stiff hairs. Stems do not have hairs at nodes. The seed head is erect and multi-branching (panicle), and the covering over the seeds is straw colored or black.



Regular rice, left, and two red rice panicles (dark hull, lots of awns).



Light streaks in field are red rice.



Large triangular ligule.



Membranous ligule.



Solid stem.



Mature plant.



Seedpod.

Brook crowngrass, Brook paspalum

Latin name: *Paspalum acuminatum*

General information: Brook crowngrass is a perennial grass that reproduces by both rhizomes and seeds. It occurs in wet habitats such as pond margins, ditches, lake edges, rice fields and other saturated soils. The plant is strongly decumbent, often lying along the ground with only a short upright portion, and typically grows 1 to 3 feet in length.

Identifying characteristics: Leaves are up to 3 inches long and 0.1 to 0.25 inches wide, flat in cross section. Leaf sheaths are hairless and smooth. A membranous ligule, about 0.04 to 0.09 inches long, is present at the junction of the leaf blade and sheath. Stems are 1 to 3 feet long, creeping along the ground with nodes that may root. The seed head is a panicle with two to five slender branches, each 1 to 2 inches long, spreading outward from the top of the stem. Spikelets are solitary, elliptic, and about 0.12 to 0.16 inches long, attached directly to the panicle branches. Seeds are white, about 0.08 to 0.12 inches long, and enclosed within smooth glumes.

Creeping rivergrass, waterbermuda

Latin name: *Echinochloa polystachya*

General information:
Creeping rivergrass is a perennial grass that reproduces by seed. It is an aquatic or semiaquatic plant that can grow in water as deep as 2 meters and does not float. The plant develops coarse stems from a creeping root base anchored in the soil and can reach a height of 3 to 8 feet. It is found in wet or moist habitats such as pond margins, lake edges, wet ditches, rice fields and other saturated soils.



Seed head.



Crown node.



Hairy stem node.

Identifying characteristics: Leaves are 8 to 24 inches long and 0.4 to 1 inch wide, flat in cross section. Leaf sheaths are hairless and smooth. A rim of stiff, yellowish hairs, about 0.08 to 0.16 inches long, is present where the leaf sheath and blade meet. Stems are 3 to 8 feet tall, smooth, and often bent at the base but ascending or erect above. The seed head is a panicle 6 to 12 inches long with numerous spreading branches. Spikelets are lanceolate, about 0.2 to 0.3 inches long, and typically contain three to four florets. Seeds are elliptic to obovate and about 0.04 to 0.06 inches long.



Mature plant.

Knotgrass

Latin name: *Paspalum distichum*

General information: Knotgrass is a perennial grass that is reproduced by seed, rhizomes and stolons. It is a low-growing, spreading plant that can reach a height of 2 to 2.5 feet. This species is found in wet or moist habitats such as pond margins, lake edges, wet ditches, rice fields and other saturated soils.



Hairy nodes.



Solid stem.



Immature plant.

Identifying characteristics: Leaves are 2 to 6 inches long and about 1 inch wide, flat in cross section. Leaf sheaths are hairless except for long hairs at the margin near the apex. A white, membranous ligule, up to 0.06 inches long, is present where the leaf sheath and blade meet.



Membranous ligule with hair at collar region.

Stems are 7 to 20 inches tall, solid, and sometimes pubescent. The seed head is a panicle with two to six slender branches, each 0.8 to 2.4 inches long, spreading outward from the top of the stem. Spikelets are solitary, obovate-oblong, about 0.12 inches long and typically contain two to three florets. Seeds are yellowish to light brown, compressed and ellipsoid, about 0.10 inches long.



Inflorescence.

Rice cutgrass

Latin name: *Leersia oryzoides*

General information: Rice cutgrass is a perennial, rhizomatous grass that reproduces by seed. It typically grows 2.5 to 5 feet tall and is found in wet habitats such as marshes, swamps, pond margins and wet ditches.



Immature plants.

Identifying characteristics: Leaves are 3 to 12 inches long and 0.2 to 0.6 inches wide, flat in cross section. Leaf sheaths are rough and may be scabrous (covered with small, stiff projections). A membranous ligule, about 0.04 to 0.08 inches long, is present where the leaf sheath and blade meet. Stems are 3 to 5 feet tall, solitary to bunched and often rooting at the nodes. The seed head is an open panicle 4 to 8 inches long with numerous spreading branches. Spikelets are lanceolate, about 0.16 to 0.2 inches long and typically contain one to two florets. Seeds are elliptic to obovate and about 0.04 to 0.06 inches long.



Mature plant.

Southern watergrass

Latin name: *Luziola fluitans*



Mature plant.



Membranous ligule.

General information:
Southern watergrass is a perennial, aquatic grass that reproduces by seed. It is rooted in the substrate with stems that extend to the surface and float or trail across shallow, slow-moving waters such as ponds, swamps and streams. The plant can reach a height of 3 to 4 feet.

Identifying characteristics:
Leaves are 3 to 5 inches long and 0.08 to 0.2 inches wide, lying flat on the water surface or raised a few inches above it. The leaf blades feel rough on the upper surface. Leaf sheaths are smooth and may have cilia (minute hairs) at the summit. A papery ligule is present where the leaf sheath and blade meet. Stems are slender, hollow and can reach lengths of 1 to 3.25 feet, with some branching. The seed head is a loose, branching inflorescence, typically 0.2 to 0.78 inches long, with few-flowered spikelets. Seeds are small, about 0.04 to 0.08 inches long, and are enclosed within the spikelets.



Hairless node.

Water paspalum

Latin name: *Paspalum hydrophilum*

General information: Water paspalum is a perennial, aquatic grass that reproduces by seed. It is rooted in the substrate with stems that extend to the surface and float or trail across shallow, slow-moving waters such as ponds, swamps and streams. The plant can reach a height of 3 to 4 feet.



Distinct white vein.



Hollow stem.



Membranous ligule.

Identifying characteristics: Leaves are 3 to 5 inches long and 0.08 to 0.2 inches wide, lying flat on the water surface or slightly elevated above it. Leaf blades are rough on the upper surface. Leaf sheaths are smooth and may have minute hairs at the summit. A papery ligule is present where the leaf sheath and blade meet. Stems are slender, hollow, and can reach 3 to 4 feet in length, with occasional branching. The seed head is a loose, branching inflorescence, typically 0.2 to 0.78 inches long, with few-flowered spikelets. Seeds are small, about 0.04 to 0.08 inches long, and enclosed within the spikelets.

Waxy mannagrass

Latin name: *Glyceria declinate*

General information: Waxy mannagrass is a perennial grass that reproduces only by seeds. The plant can reach a height of 1 to 3 feet and is prevalent in wet habitats such as deep pools, ditches, swales and stock ponds.



Mature plant.

Identifying characteristics: Leaves are 1 to 5 inches long and 0.06 to 0.3 inches wide, flat in cross section. Leaf sheaths are smooth and hairless. A membranous ligule, 0.16 to 0.35 inches long, is present where the leaf sheath and blade meet. Stems are 1 to 3 feet tall, ascending to erect from a decumbent, branching base. The seed head is an open panicle 2.4 to 12 inches long with numerous spreading branches. Spikelets are lanceolate, about 0.2 to 0.3 inches long, and typically contain three to four florets. Seeds are elliptic to obovate and about 0.04 to 0.06 inches long.

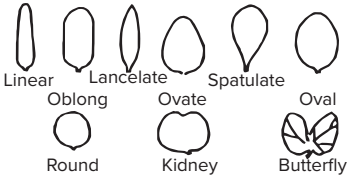


Large membranous ligule.

Steps to Identifying BROADLEAF WEEDS

STEP 1
OVERALL CHARACTERISTICS
Size, shape, color of plant

STEP 2
COTYLEDONS
1. Shape
2. Venation type and prominence
3. Hairy of glabrous
4. Coloration



STEP 3
LEAVES
1. Arrangement on stem (opposite or alternate)
2. Shape
3. Margin characteristics
4. Venation type
5. Hairy or glabrous
6. If lobed; leaves pinnately or palmately lobed?

OPPOSITE LEAVES
Attached at same node on opposite sides of the stem. Leaves at the same node of similar size.



ALTERNATE LEAVES
One leaf per node. New leaf is smaller.




Pinnately lobed


Palmately lobed


Palmate venation


Pinnate venation



Papery calyx.

Cutleaf groundcherry

Latin name: *Physalis angulate*

General information: Cutleaf groundcherry, also referred to as lantern plant and *Physalis lanceifolia* Nees, is an upright-growing and branching weed that reproduces only by seeds. The weed can reach a height of 3 feet and is prevalent in cultivated areas, fields, pastures, open woodlands, roadsides and waste sites.



Fruit.

Identifying characteristics: Cotyledons (seed leaves) are lance shaped and can be without hairs or hairy, especially along margins and veins. The stem below the cotyledons is purple tinged and hairy. Older leaves are alternate (only one leaf attached to each stem node), 1.5 to 6 inches long, 1.2 to 4 inches wide and lance shaped to widely egg shaped. Leaf margins are coarsely irregular, indented or smooth and continuous. Stems are upright, freely branching and without hairs. Flowers are produced in leaf or branch axils. The fruit produced is a berry surrounded by an inflated, 10-ribbed papery calyx, usually with purple veins.



Mature plant.



Inflorescence.

Eclipta

Latin name: *Eclipta prostrata*



Mature plant.

General information: Eclipta is an upright growing, spreading or prostrate weed that reproduces only by seeds. The weed can reach a height of 5 feet and is prevalent in damp, sandy or muddy soil, cultivated areas, fields and roadsides.



Mature plant with flower.

Identifying characteristics: Cotyledons (seed leaves) are small, green, spatulate (wide at leaf tip apex and abruptly tapering to a narrow base) and without hairs. They are slightly thickened, with midvein evident on lower surface. The stem below the cotyledons is light green to light purple. As plants mature, stems become reddish brown to purplish and coarse to the touch. Stems are capable of rooting at nodes. Leaves are 1 to 5 inches long and 0.2 to 1 inch wide, have no petioles and are opposite (two leaves attached to each stem node). Leaves can be long and narrow or lance shaped, slightly toothed and thickened, with midvein evident. The lower leaf surface is hairy. When broken from the plant, leaves and stems turn black. Flowers are round and are green early but then turn white.



Seedling with cotyledons and first true leaves.

False pimpernel

Latin name: *Lindernia* spp.



Mature plant with flower.

General information: False pimpernel is a low-growing, mat-forming annual herb that reproduces only by seeds. The plant can reach a height of 2 to 8 inches and is prevalent in wet habitats such as moist meadows, sandy or muddy shores and moist open woods. It is especially competitive in disturbed areas where it can form dense mats.

Identifying characteristics: Cotyledons (seed leaves) are lance shaped and may be hairless or sparsely hairy, especially along margins and veins. The stem below the cotyledons is green to reddish-green and hairless. Older leaves are opposite, 0.4 to 1.2 inches long, 0.2 to 0.4 inches wide, and lance shaped to oval. Leaf margins are untoothed or very finely toothed. Stems are upright or angled outwards, branching occasionally, and hairless. Flowers are produced singly in the leaf axils. The fruit produced is a capsule containing numerous yellow seeds.

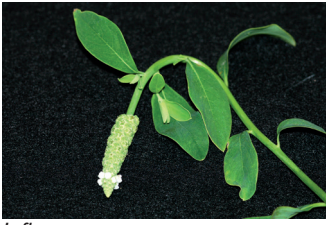


Opposite leaves.

Gooseweed



Mature flowering plant.



Inflorescence.

Latin name: *Sphenoclea zeylanica*

General information: Gooseweed is an upright-growing and branching annual herb that reproduces only by seeds. The plant can reach a height of 2 to 5 feet and is prevalent in wet habitats such as river banks, dry river beds, damp marshy depressions, seasonal swamps, sides of ponds, ditches and stagnant water, especially rice fields at low elevations.

Identifying characteristics: Cotyledons (seed leaves) are small, ovate and hairless. Leaves are 1 to 5 inches long and 0.2 to 2 inches wide, lance shaped to narrowly ovate, and hairless. Leaf margins are entire. Stems are erect, smooth, fleshy, hollow and much branched, with white, spongy tissues at the base. The seed head is a dense, cylindrical terminal spike 3 to 12 inches long. Flowers are small, white to greenish, and densely crowded. Seeds are yellowish-brown, about 0.02 inches long.

Hedge hyssop

Latin name: *Gratiola* spp.



Mature flowering plant.

General information: Hedge hyssop is an upright-growing and branching annual herb that reproduces only by seeds. The plant can reach a height of up to 2 feet and is prevalent in marshes, swamps and along the edges of rivers and lakes.

Identifying characteristics: Cotyledons (seed leaves) are ovate and hairless. Leaves are 0.8 to 2.4 inches long and 0.2 to 0.8 inches wide, lance shaped to ovate, opposite and hairless. Leaf margins are entire or slightly serrate. Stems are erect to decumbent, smooth and often glandular. The seed head is a terminal spike or raceme, 1.2 to 3.6 inches long, with tubular flowers. Flowers are small, white to purple, and arranged in axillary clusters. Seeds are small, smooth and brown.



Mature flowering plant.



Invasion of rice field.

Hemp sesbania

Latin name: *Sesbania exaltata*



Inflorescence.

General information: Hemp sesbania, also referred to as coffeeweed, is an upright-growing and branching weed that reproduces only by seed. The weed can reach a height of 13 feet and is prevalent in cultivated areas, fields, pastures, roadsides, ditches and waste sites.



Seedling with cotyledons.

Identifying characteristics: Cotyledons (seed leaves) are lance shaped to spoon shaped and two times longer than they are wide. The first true leaf (one above the cotyledons) is simple and looks much like a cotyledon leaf, only longer. The next leaf produced is comprised of six to 14 leaflets and is similar in appearance to what is seen on larger plants. Leaflets are 0.4 to 1.2 inches long and no more than 0.25 inches wide. Leaves are alternate (only one leaf attached to each stem node), and at the junction of leaf petioles and stems are lance-shaped appendages (stipules) that fall off with time. Because the weed is a legume, nodules will be present on roots of large plants. Flower petals are large, showy and yellow. About 30 to 40 seeds are produced in curved and beaked pods 4 to 8 inches long.



Immature plant.



Mature plant.

Indian/rough jointvetch

Latin name: *Aeschynomene indica*

General information: Indian jointvetch is an upright-growing, often bushy and branched weed that reproduces only by seeds. The weed can reach a height of 8 feet and is prevalent in moist soil, shallow water and cultivated areas, especially rice fields.

Identifying characteristics: Cotyledons (seed leaves) are egg shaped and slightly furrowed at the midrib. The first true leaf (one above the cotyledons), unlike hemp sesbania, is comprised of eight to 10 leaflets, which are each 0.2 to 0.3 inches long. On large plants, individual leaves may contain 50 to 70 leaflets that are sensitive and fold when touched. Leaves are alternate (only one leaf attached to each stem node), and at the junction of leaf petioles and stems are lance-shaped appendages (stipules). Stems have fine longitudinal lines or ridges. Because the weed is a legume, nodules will be present on roots of large plants. Flower petals are yellowish to reddish-purple. Seeds are produced in segmented pods 0.75 to 2 inches long.



Pinnate compound leaf.



Seedpod.



Seedlings.



Inflorescence.

Indian toothcup

Latin name: *Rotala indica*



Immature plant.

General information: Indian Toothcup is an upright-growing and branching annual herb that reproduces only by seeds. The plant can reach a height of 0.3 to 1.3 feet and is prevalent in wet habitats such as rice fields, irrigation ditches and marshy areas.

Identifying characteristics: Cotyledons (seed leaves) are small, ovate and hairless. Leaves are 0.4 to 0.8 inches long and 0.2 to 0.4 inches wide, obovate to elliptical, opposite and hairless. Leaf margins are entire. Stems are erect, smooth and often reddish. Flowers are small, pink and occur singly in the leaf axils. Seeds are small, smooth and brown.



Mature flowering plant.



Seedling.

Ladysthumb

Latin name: *Persicaria maculosa*

General information: Ladysthumb is an upright-growing, often branching annual herb that reproduces only by seeds. The plant can reach a height of 30 inches and is prevalent in moist soils, along riverbanks, wet fields and other disturbed wetland areas.

Identifying characteristics: Cotyledons (seed leaves) are oblong and taper slightly at the base. The first true leaves are lanceolate to ovate, 1.2 to 4.7 inches long and 0.4 to 2 inches wide and arranged alternately along the stem. Leaf margins are entire, and stems are erect, smooth and sometimes reddish-tinged. Flowers are small, pink to purplish, and occur in dense, cylindrical spikes in the leaf axils. Seeds are small, smooth and brown.



Hairy ocrea.



Lance-shaped leaves.



Hairless ocrea.



Mature flowering plant.



Immature plant.

Pennsylvania smartweed

Latin name: *Persicaria pensylvanica*

General information: Pennsylvania smartweed, also known as pinkweed, is an upright-growing, branching annual herb that reproduces only by seeds. The plant can reach a height of 3.5 feet and is prevalent in moist soils, along riverbanks, wet fields and other disturbed wetland areas.

Identifying characteristics: Cotyledons (seed leaves) are narrow oval to lance shaped with rounded tips. The first true leaves are alternate, lance shaped with pointed tips and smooth margins, usually hairless and occasionally with a purple watermark. Stems are branched, erect up to 4 feet tall, jointed with swollen nodes and often reddish in color. A smooth, membranous sheath (ocrea) surrounds the stem at the base of each petiole. Flowers are small, pink to white, and form in dense, spikelike clusters at the tips of stems. Seeds are black, shiny and oval to round in shape.



Immature plant.

Purple ammannia

Latin name: *Ammannia coccinea*



Immature plant.



Mature plant.

General information: Purple ammannia, also known as scarlet toothcup or valley redstem, is an upright-growing, branching annual herb that reproduces only by seeds. The plant can reach a height of up to 3 feet and is prevalent in moist soils, along riverbanks, pond margins and other disturbed wetland areas.

Identifying characteristics: Cotyledons (seed leaves) are narrow and linear, typical of the Lythraceae family. The first true leaves are opposite, linear to lanceolate, 2 to 8 cm long and clasp the stem at the base with auriculate (earlike) lobes. The leaves are entire and sessile. Stems are erect, unbranched at the base and may become branched above. Flowers are small, pink to purple and occur in clusters of three to five in the leaf axils. Seeds are numerous, small and contained in a rounded capsule.



Inflorescence.



Seedpod.

Redweed

Latin name: *Melochia corchorifolia*

General information: Redweed, also referred to as chocolate weed, English teaweed and teaweed, is an upright-growing and branching weed that reproduces only by seeds. The weed can reach a height of 5 feet and is prevalent in cultivated areas, fields, pastures, open woodlands, roadsides and waste sites.

Identifying characteristics: Cotyledons (seed leaves) are round. The first true leaf (one above the cotyledons) is four to five times larger than the cotyledon, and the leaf margin is serrated (has sharp teeth that point toward the leaf tip). Leaves are alternate (only one leaf attached to each stem node), smooth and without hairs. Leaves are 1 to 3 inches long and 0.4 to 1.6 inches wide. Stems are reddish colored and have hairs. Flower petals are pink to lavender. Fruit is a capsule containing five seeds.



Seed head with flowers and seed capsules.



Mature plant.



Seedling with cotyledons and first true leaf.

Spreading dayflower

Latin name: *Commelina diffusa*

General information: Spreading dayflower, also referred to as dayflower, grows along the ground with growing points turned upward (decumbent). It is a branched weed that reproduces by seeds and from nodes along stems and stem fragments. Stems can be 2 feet long, and the weed is prevalent in wet or seasonally wet soils near streams, marshes, floodplain woodlands and fallow fields.

Identifying characteristics: Seedlings are erect and unbranched initially, grasslike in appearance and without hairs. With time, plants become prostrate and profusely branched (stems and branches lying flat on ground). Stems are smooth, and leaf sheaths have a few soft hairs. Leaves are 1 to 3 inches long and 0.2 to 0.8 inches wide; lance shaped and smooth. Flowers have blue petals and last for one day, giving the plant its common name.



Inflorescence.



Seed.



Mature flowering plants.

Texasweed

Latin name: *Caperonia palustris*

General information: Texasweed, also referred to as Mexican weed, is an upright-growing weed that reproduces only by seeds. The weed can reach a height of 3 feet and is prevalent in open wet soils, roadsides, rice fields, cultivated soils, open woodlands and waste sites.



Leaf venation.

Identifying characteristics: Cotyledons (seed leaves) are smooth. Leaves above the cotyledons are alternate (only one leaf attached to each stem node) and lance shaped with serrated leaf margins (has sharp teeth that point toward the leaf tip) and prominent veins. Leaves are 1 to 6 inches long. Leaves, leaf petioles and stems have coarse hairs. Separate male and female flowers are evident on the same plant, and seeds are produced in capsules covered with hairs.



Inflorescence.



Mature plant.



Seed capsule.

Alligatorweed

Latin name: *Alternanthera phyloxeroides*



Inflorescence.

General information: Alligatorweed, also referred to as alligator grass, is an upright- or decumbent-growing (grows along the ground with growing points turned upward) aquatic or terrestrial weed that reproduces only by vegetative means (no seed production). The weed can form dense, tangled, floating mats with stems 3 feet long.

Identifying characteristics: Leaves are opposite (two leaves attached to each stem node), long and narrow to elliptic (curved sides and widest in middle). Leaves have a distinct midvein and pointed leaf tips. Leaves are 2 to 5 inches long and 0.2 to 0.8 inches wide. Soft whitish hairs are found in leaf axis. Leaves are wider at the base and wrap around the stem. A purple watermark usually is present in the center of the leaf. Stems are round and smooth with swollen nodes; they are hollow and slightly flattened at maturity. Stems are capable of rooting at nodes. Flowers are solitary, white and fragrant, resembling those of white clover. Fruit and seed are not produced.



Mature flowering plant.

Bulltongue arrowhead

Latin name: *Sagittaria lancifolia*

General information: Bulltongue arrowhead, also known as lanceleaf arrowhead or duck potato, is an upright-growing, rhizomatous perennial herb that reproduces both by seeds and vegetatively through underground tubers. The plant can reach a height of 3 to 6 feet and is prevalent in marshes, swamps, wet prairies and along the margins of streams and ponds, particularly in the southeastern United States.

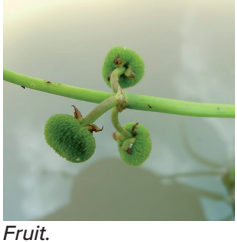
Identifying characteristics: Cotyledons (seed leaves) are linear and narrow. The first true leaves are lance shaped with pointed tips, 4 to 16 inches long, and arranged in a basal rosette. Leaf margins are entire, and the leaves are attached to the stem by long petioles. Stems are erect and unbranched, emerging from rhizomes. Flowers are white, with three petals, and are borne in whorls of three along the flowering stalks. The fruit is a cluster of brown, beaked achenes.



Mature plant.



Inflorescence.



Fruit.



Mature flowering plant.



Inflorescence.



Arrow-shaped leaf.

Common arrowhead/ duck potato

Latin name:
Sagittaria latifolia

General information: Common arrowhead, also known as duck potato or wapato, is an upright-growing, rhizomatous perennial herb that reproduces both by seeds and vegetatively through underground tubers. The plant can reach a height of 1 to 4 feet and is prevalent in marshes, swamps, wet prairies and along the margins of streams and ponds.

Identifying characteristics: Cotyledons (seed leaves) are linear and narrow. The first true leaves are basal, sagittate (arrowhead shaped) and 4 to 14 inches long, with long petioles. The leaf blades are entire and smooth-edged. Stems are erect, unbranched and emerge from rhizomes. Flowers are white, with three petals, and are borne in whorls of three along the flowering stalks. The fruit is a cluster of brown, beaked achenes.



Mature plant.

Creeping burhead

Latin name: *Echinodorus cordifolius*

General information: Creeping burhead, also known as lance-leaf burhead, radican sword, burhead, creeping water-plantain and Texas mud baby, is an emergent aquatic or wetland perennial that reproduces both by seeds and vegetatively through rhizomes. The plant can reach a height of up to 4 feet and is prevalent in marshes, swamps, wet prairies and along the margins of streams and ponds.



Plant on dry ground.

Identifying characteristics: Cotyledons (seed leaves) are linear and narrow. The first true leaves are lance shaped with pointed tips, 4 to 16 inches long, and arranged in a basal rosette. Leaf margins are entire, and the leaves are attached to the stem by long petioles. Stems are erect, unbranched and emerge from rhizomes. Flowers are small, white and three-petaled, produced in terminal spikelike clusters with each flower subtended by small green bracts. The fruit is a cluster of brown, beaked achenes.



Mature flowering plant.

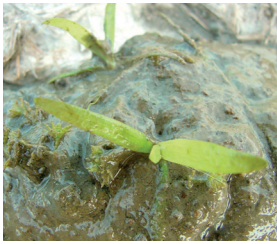
Ducksalad

Latin name: *Heteranthera limosa*

General information: Ducksalad, also known as blue mud-plantain, is an annual aquatic herb that reproduces by seeds. The plant typically grows to a height of 2 to 6 inches and is prevalent in shallow waters, pond edges and roadside ditches.



Mature flowering plant.



Immature plant.

Identifying characteristics: Cotyledons (seed leaves) are linear. The first true leaves are simple, mostly basal, narrowly oblong or narrowly to broadly egg shaped with a blunt point at the tip, wedge shaped to rounded to straight across at the base, measuring 3/8 to 2 1/2 inches long and 1/4 to 1 1/4 inches wide. Submersed leaves are mostly stalkless, while emersed leaves have sheathed stalks up to 5 inches long and may rise above the water or float on the surface. Stems are short, not creeping. Flowers are blue violet to white, tubular with six narrow elliptic lobes, the upper three lobes yellow at the base. The flowers are borne singly from sheathed stalks. The fruit is a cylindrical capsule containing oblong, narrowly winged, brown seeds.

Pickerelweed

Latin name: *Pontederia cordata*

General information: Pickerelweed, also known as heart-leaved pickerelweed, wampee and pickerel rush, is an emergent aquatic perennial that is reproduced by seeds. The plant typically grows to a height of 2 to 4 feet and is prevalent in marshes, sloughs, swamps, and along the edges of ponds and slow-moving streams. It thrives in wet, poorly drained organic soils and requires rich organic soils for optimal growth.



Adult leaf.

Identifying characteristics: Cotyledons (seed leaves) are linear. The first true leaves are simple, broadly heart shaped, with smooth margins, and are borne on long petioles. The leaves are arranged alternately along the stem. Stems are erect, unbranched and emerge from rhizomes. Flowers are small, tubular and blue violet, borne in dense spikes that rise above the water surface. The fruit is a capsule containing numerous small seeds.



Flowering plant.

Red ludwigia/marsh seedbox

Latin name: *Ludwigia palustris*



Mature plant.

General information: Red ludwigia, also known as marsh seedbox, is an upright-growing, often bushy and branched aquatic perennial that reproduces only by seeds. The plant can reach a height of 3 to 12 inches and is prevalent in moist to wet, flooded areas such as streambanks, pond margins, fields and ditches. It thrives in full sun or light shade and is native to North America.

Identifying characteristics: Cotyledons (seed leaves) are linear. The first true leaves are simple, opposite, and entire, measuring 1 to 3 inches long and 0.5 to 1.5 inches wide. Stems are erect, unbranched and may be submerged or emergent. Flowers are small, yellow and borne singly in leaf axils. The fruit is a capsule containing numerous small seeds.



Immature plant.

Roundleaf mudplantain

Latin name: *Heteranthera reniformis*



Mature plant leaf.

General information: Roundleaf mudplantain, also known as kidney-leaf mudplantain, is an aquatic perennial that reproduces by seeds. The plant typically grows to a height of 8 to 20 inches and is prevalent in mudflats, tidal river shores and freshwater wetlands. It thrives in shallow, slow-moving waters and is native to North, Central and South America.



Mature plant.

Identifying characteristics: Cotyledons (seed leaves) are linear. The first true leaves are simple, alternate and kidney shaped, measuring 1 to 2 inches long and 1 to 2 inches wide. Stems are submerged or floating and root at any node when in soil. Flowers are very small, white to pale blue, 3 to 6.5 mm, and open only for a few hours after sunrise. The fruit is a capsule containing 8 to 14 seeds.



Inflorescence.

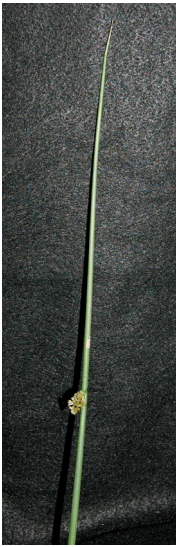


Fruit.

Bog bulrush

Latin name:
Schoenoplectiella mucronate

General information: Bog bulrush, also referred to as rough-seed bulrush or rice field bulrush, is an upright-growing, perennial herb that reproduces by seed. Plants can reach a height of 3 to 5 feet and are prevalent in moist to wet habitats such as marshes, swamps, shallow water and ditches. It is native to Eurasia, Africa and Australia.



Mature plant.

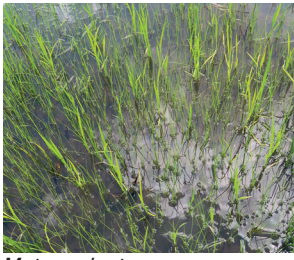
Identifying characteristics: The root system consists of a short, hard rhizome. Stems are erect, three-angled and grow in dense clumps. Leaves are reduced to sheaths wrapped around the base of the stem, lacking blades. The inflorescence is a headlike cluster of cone-shaped spikelets accompanied by an angled, stiff bract, which may appear as a continuation of the stem. Flowers are small and inconspicuous. The fruit is a nutlike achene.

Fimbristylis

Latin name:
Fimbristylis littoralis

General information:
Fimbristylis, also referred to as lesser fimbry, is a tufted, grasslike annual sedge that reproduces by seed. Plants can reach a height of 10 to 60 cm and are prevalent in moist to wet habitats such as rice fields, swamps and disturbed areas.

Identifying characteristics:
The root system consists of a shallow, fibrous network. Stems are erect, tufted and four-angled. Leaves are long, thin and arranged in a clump. The inflorescence is a diffuse compound umbel with spherical to ovate-shaped, reddish-brown spikelets. Flowers are small and brownish. The fruit is a dry, one-seeded achene with a bumpy surface.



Mature plant.



Immature plant.



Seed head.



Immature plant.



Stem cross section.

Rice flatsedge

Latin name:
Cyperus iria

General information: Rice flatsedge, also referred to as annual sedge or umbrella sedge, is an upright-growing to inclined weed that reproduces only by seed. The weed can reach a height of 2 feet and is prevalent in wet to seasonally wet soils in open fields

Identifying characteristics: Leaves are three-ranked and blades, 0.1 to 0.3 inches wide, are long and narrow to lace shaped and without hairs. Leaf margins are rough, especially toward the apex, and a membranous sheath envelops a triangular-shaped stem at the base. When crushed, plants have a distinct Christmas tree smell. The plant produces multiple fruiting stems from its base. The seed head has golden brown sides and green midveins. Rice flatsedge produces seeds but does not produce rhizomes or tubers, as do yellow and purple nutsedge.



Mature plant.



Inflorescence.

Spikerush

Latin name: *Eleocharis* spp.

General information: Spikerush, also referred to as spike rush or needle spikerush, is an upright-growing, grasslike perennial that reproduces by seeds and rhizomes. Plants can reach a height of 6 to 36 inches and are prevalent in shallow water, marshes, pond edges and moist ditches. Some species are considered weeds in rice fields where they can compete with young rice plants.

Identifying characteristics: The root system consists of fibrous roots arising from the base of the plant. Stems are slender, cylindrical, unbranched and arise individually from rhizomes or basal shoots. Leaves are reduced to sheaths at the base, lacking blades. The inflorescence is a single terminal spikelet or cluster of spikelets that are cylindrical or ovoid. Flowers are small, green to brown and inconspicuous. Fruits are one-seeded achenes.



Mature plant.

White-margin sedge

Latin name: *Cyperus flavicomus*



Inflorescence.

General information: White-margin sedge, also referred to as white-edged flatsedge, is an upright-growing, annual herb that reproduces by seed. Plants can reach a height of 1 to 2.5 feet and are prevalent in moist to wet habitats such as ditches, marshes, natural or artificial ponds, especially where seasonally flooded.



Mature plant.

Identifying characteristics: The root system consists of fibrous roots. Stems are triangular, glabrous, and easily compressed. Leaves are one to three, usually withered at anthesis, V-shaped, 5 to 35 cm by 2 to 8 mm. The inflorescence is a spike loosely ovoid, with five to 25 by 8 to 22 mm; rays three to 11, 0.4 to 20 cm; bracts three to seven, horizontal to ascending at 30 degrees, 8 to 35 cm by 4 to 10 mm. Flowers are small, brown and borne in spikelets. The fruit is an achene.



White underside with green midvein.

Yellow nutsedge

Latin name: *Cyperus esculentus*

General information: Yellow nutsedge, also referred to as chufa, tiger nut or edible galingale, is an upright-growing weed that reproduces by seed, rhizomes and tubers. Plants can reach a height of 2 to 3 feet and are prevalent in cultivated areas, fields, pastures, lawns, turf and disturbed areas.

Identifying characteristics: The root system, which extends from tubers, basal bulbs, and slender white and fleshy rhizomes, is fibrous and extensively branched. Stems are triangular and borne individually from tubers or basal bulbs. Leaves are three-ranked, and blades, 0.1 to 0.2 inches wide, are long and narrow with a prominent midvein. The leaves are flat or slightly corrugated, abruptly tapering at the tip. The seed head is yellowish-brown, and seed production and seed viability vary. Tubers produced are oblong, irregularly shaped with a rough surface and connected by rhizomes in chains (multiple tubers are produced from a single rhizome). Tubers are bitter to taste and have buds scattered over surface. Each tuber or basal bud can produce one to three rhizomes.



Immature plant.



Inflorescence.



Mature plant with seed head.

Insects





Please consult LSU AgCenter publications 1838 (Louisiana Insect Pest Management Guide) and 2270 (Rice Varieties and Management Tips) for the most current list of insecticides labeled to control insects in rice.

Scan to view Louisiana Insect Pest Management Guide.

Scan to view Rice Varieties and Management Tips.

Rice water weevil

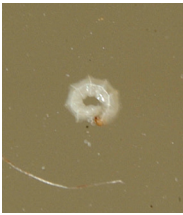
Latin name:
Lissorhoptrus oryzophilus



Adult rice water weevil.

Characteristics: Rice water weevil adults are grayish-brown weevils (snout beetles) about 1/8 inch long with a dark brown V-shaped area on their backs. Application of the permanent flood is a trigger for females to lay numerous eggs in leaf sheaths of rice plants. The larva is white, legless and C-shaped with small brown head capsules.

Damage: Adult rice water weevils feed on the upper surface of rice leaves, leaving narrow longitudinal scars that parallel the midrib. The main damage comes from the larvae which feed on the roots of flooded rice. Infested plants will have poor root systems. Root pruning stunts rice growth, causes nutrient deficiencies and reduces rice yield.



Rice water weevil larva.

Scouting: Adults of this insect emerge from overwintering sites beginning in early April in southern Louisiana (later in northern Louisiana). Heavy adult feeding prior to establishment of the permanent flood indicates potential for a damaging infestation to occur. Scout for larvae three to five weeks after application of permanent flood. To scout for larvae, remove a single soil core of plants, roots and soil and wash the soil from the plant roots in a bucket of salt water and gently dip it up and down. After a few seconds, larvae will float to the surface where they can be counted and removed. If larvae are not found in any sample, sample the field again in five to seven days.



Rice water weevil adult feeding scars.



Heavily pruned roots, left, versus healthy roots.

Mexican rice borer

Latin name: *Eoreuma loftini*

Characteristics: Moths are light tan with delta-shaped wings. The larvae are honey-colored with four parallel purple-brown stripes running the length of the body. Larvae are most easily distinguished from other species by the light-colored head capsule. Pupae are golden-brown and slightly smaller than other stem borer species.



Adult Mexican rice borer.

Damage: Larvae feed on plant tissue as they tunnel inside the stem. Injury is often first noticed when the youngest partially unfurled leaf of the plant begins to wither and die, resulting in a condition called dead heart. Later in the growing season, these rice stems are weakened and may lodge before harvest. Stem feeding that occurs during panicle development causes partial or complete sterility and results in the white-head condition. The white, empty panicles are light in weight and stand upright.



Dead heart caused by a borer.



Whitehead.

Scouting: Scouting for stem borers should start at green ring and must be intensified as plants get closer or reach early boot stages. Scouts should look for feeding lesions located on the inside surface of the leaf sheath. Peel off the leaf sheath to expose the feeding larvae or to detect the presence of frass to ensure it is the stem borer and not sheath blight damage.



Mexican rice borer larva.



Adult sugarcane borer.



Dead heart caused by a borer.



Whitehead.



Sugarcane borer larva.

Sugarcane borer

Latin name: *Diatraea saccharalis*

Characteristics: Adults are straw-colored moths about 3/4 inch long with a series of black dots, arranged in an inverted V-shape pattern, on the front wings. The larvae are pale yellow-white, with a series of brown spots visible on the back and a dark red-brown head capsule. The lack of stripes distinguishes sugarcane borer larvae from other rice stem borer species. Mature larvae are about 1 inch long. The pupae are brown, about 1 inch long and roughly cylindrical in shape.

Damage: Larvae feed on plant tissue as they tunnel inside the stem. Injury is often first noticed when the youngest partially unfurled leaf of the plant begins to wither and die, resulting in a condition called deadheart. Later in the growing season, these rice stems are weakened and may lodge before harvest. Stem feeding that occurs during panicle development causes partial or complete sterility and results in the whitehead condition. The white, empty panicles are light in weight and stand upright.

Scouting: Scouting for stem borers should start at green ring and must be intensified as plants get closer or reach early boot stages. Scouts should look for feeding lesions located on the inside surface of the leaf sheath. Peel off the leaf sheath to expose the feeding larvae or to detect the presence of frass to ensure it is the stem borer and not sheath blight damage.

Rice stalk borer

Latin name: *Chilo plejadallus*

Characteristics: Adults are about 1-inch-long moths with pale white fore and hind wings tinged with gold. Front wings are peppered with small black dots. The larvae are pale yellow-white with four stripes running the entire length of the body and have a black head capsule. The dark head capsule can distinguish rice stalk borer larvae from Mexican rice borer. Pupae are about 1 inch long, brown and smoothly tapered.



Adult rice stalk borer.



Dead heart caused by a borer.

Damage: Larvae feed on plant tissue as they tunnel inside the stem. Injury is often first noticed when the youngest partially unfurled leaf of the plant begins to wither and die, resulting in a condition called dead heart. Later in the growing season, these rice stems are weakened and may lodge before harvest. Stem feeding that occurs during panicle development causes partial or complete sterility and results in the whitehead condition. The white, empty panicles are light in weight and stand upright.



Whitehead.

Scouting: Scouting for stem borers should start at green ring and must be intensified as plants get closer or reach early boot stages. Scouts should look for feeding lesions located on the inside surface of the leaf sheath. Peel off the leaf sheath to expose the feeding larvae or to detect the presence of frass to ensure it is the stem borer and not sheath blight damage. In addition, scouts must look for adults, egg masses or fresh feeding scars on the leaves.



Rice stalk borer larva.



European corn borer adult.



Dead heart caused by a borer.



Whitehead.



European corn borer larva.

European corn borer

Latin name: *Ostrinia nubilalis*

Characteristics: Moths have delta-shaped wings with wavy dark lines. Larvae are flesh-colored and may have a grayish, greenish or pinkish tinge. Spots run the length of the body and may be the same color as the body. It has two distinct light brown spots on the top of each abdominal segment and a distinctive mid-dorsal dark band. The head capsule is reddish to black.

Damage: Larvae feed on plant tissue as they tunnel inside the stem. Injury is often first noticed when the youngest partially unfurled leaf of the plant begins to wither and die, resulting in a condition called dead heart. Later in the growing season, these rice stems are weakened and may lodge before harvest. Stem feeding that occurs during panicle development causes partial or complete sterility and results in the whitehead condition. The white, empty panicles are light in weight and stand upright.

Scouting: Scouting for stem borers should start at green ring and must be intensified as plants get closer or reach early boot stages. Scouts should look for feeding lesions located on the inside surface of the leaf sheath. Peel off the leaf sheath to expose the feeding larvae or to detect the presence of frass to ensure it is the stem borer and not sheath blight damage.

Rice stink bug

Latin name: *Oebalus pugnax*

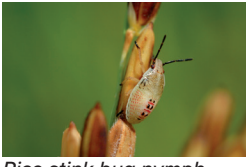
Characteristics: Adult rice stink bugs are shield shaped, metallic-brown insects about 1/2 inch long. Newly emerged nymphs are about 1/16 inch long, with a black head and antennae and a red abdomen with two black bars. Nymphs increase in size with successive molts, and the color of later instars becomes tan, green.

Damage: Nymphs and adults feed on the rice florets and suck the sap from developing rice grains in the early milk stage. Pathogens enter the grain at the feeding spot and cause discolored and pecky rice kernels.

Scouting: Begin scouting for rice stink bugs when the crop reaches about 50%-75% heading and continue until it reaches around 60% hard dough. Scout once a week, preferably in the morning or evening, and avoid sampling during the heat of the day or along field borders. To take a sample, make 10 sweeps with a 15-inch net through the panicle area of the plants, then count both nymphs and adults. Take 10 samples, or 100 sweeps total, across the field. During the first two weeks after heading, fields should be treated if the average is five or more stink bugs per 10 sweeps. In weeks three and four after heading, treat when the average is 10 or more per 10 sweeps. Stop making insecticide applications once the rice reaches about 60% hard dough.



Rice stink bug hatchling (first instar nymphs).



Rice stink bug nymph.



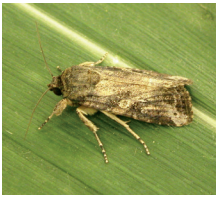
Rice stink bug adults mating.



Pecky rice, stink bug damage.

Fall armyworm

Latin name: *Spodoptera frugiperda*



Fall armyworm adult.

Characteristics: Moths are about 1 inch long with gray-brown front wings and whitish hind wings. The larvae vary from light green to brown to black but have distinctive white stripes along the side and back of the body. Mature larvae have a distinctive inverted "Y" on the head capsule.

Damage: Fall armyworm larvae feed on the leaves of young rice plants, destroying large amounts of tissue. When large numbers of armyworms are present, seedlings can be pruned to the ground, resulting in severe stand loss. Fall armyworm infestations generally occur along field borders, levees and in high areas of fields where larva escape drowning.



Fall armyworm larvae.

Scouting: After germination of seedlings, scout fields weekly for larvae on plants. Sample plants every 10 feet along a line across the field and repeat this process in a second and third area of the field. Treat when there is an average of one armyworm per two plants. Detecting infestations when larvae are small will reduce the risk of severe defoliation and improve control.



Fall armyworm damage.

Rice leaf miner

Latin name: *Hydrellia griseola*



Adult leaf miner.

Characteristics: Adult flies have clear wings on a metallic blue-green-to-gray thorax. Less than 1/4 inch long, they can be seen flying close to the water and landing on rice leaves. The larvae are transparent or cream-colored and legless. The larvae become yellow to light green as they feed. Mature larvae are about 1/4 inch long.

Damage: Larvae tunnel between the layers of the leaf, attacking and killing leaves closest to the water. Larvae move up the plant, killing additional leaves, and under heavy infestations the entire plant may die, reducing stands.



Leaf miner larva.

Scouting: Scout fields for rice leaf miners by walking through flooded rice fields and gently drawing the leaves of rice plants between the thumb and forefinger. Bumps in the leaves indicate the presence of leaf miner larvae or pupae. The larvae or pupae can be found by separating the layers of the leaf.



Bumps in leaves indicate leaf miners.

South American rice miner (SARM)

Latin name: *Hydrellia wirthi*

Characteristics: SARM adults are small, gray to dark gray flies of about 1/10 inch in length. The larvae are small, white or yellowish legless maggots of approximately 1/4 inch in length. The pupae are brown, elongated and tapered at both ends.



SARM or whorl maggot damage.

Damage: Injury to rice plants tends to occur in young rice from emergence until the tillering stages, particularly in late-planted fields. The maggot mines the leaf or rasps the leaf's surface before the leaf unfurls. As the leaf expands, yellow damaged areas with a characteristic withered appearance are visible. The maggot continues to feed on the whorl tissue and enters the stem of developing plants.



SARM field damage.



SARM maggot.



South American rice miner egg.

Scouting: Scout young rice for large, elongated lesions along the margins of emerging leaves. Early planting prevents the risk of severe infestations. No chemical controls are currently recommended.



SARM pupa.



Adult chinch bugs on rice.

Chinch bug

Latin name: *Blissus leucopterus*

Characteristics: Adults are small, black insects about 1/6 inch long, with white front wings. Each wing has a triangular black spot near the outer wing margin. Early instar nymphs are red with a yellow band on the front part of the abdomen and last instar nymphs are black and gray with a white spot on the back.

Damage: Chinch bug injury results when adults and nymphs feed on the leaves and stems of rice plants. Feeding on young seedlings causes leaves and stems to turn light brown. Infestations tend to be clumped and are most severe on field edges.



Early instar nymph of chinch bug on rice.

Characteristics: Scout unflooded rice near small grain fields or recently cut grassy areas every three to five days from seedling emergence until application of permanent flood. Check foliage in rice fields for chinch bugs. During warm weather, chinch bugs will hide in cracks at the soil line. Young nymphs can be found feeding on roots.



Firing of lower leaves from chinch bugs.



Adult billbug.



Billbug larva.



Whitehead.



Billbug tunneling damage and frass.

Billbug

Latin name: *Sphenophorus* spp.

Characteristics: Adults are small, black insects about 1/6 inch long, with white front wings. Each wing has a triangular black spot near the outer wing margin. Early instar nymphs are red with a yellow band on the front part of the abdomen and last instar nymphs are black and gray with a white spot on the back.

Damage: Chinch bug injury results when adults and nymphs feed on the leaves and stems of rice plants. Feeding on young seedlings causes leaves and stems to turn light brown. Infestations tend to be clumped and are most severe on field edges.

Scouting: Scout unflooded rice near small grain fields or recently cut grassy areas every three to five days from seedling emergence until application of permanent flood. Check foliage in rice fields for chinch bugs. During warm weather, chinch bugs will hide in cracks at the soil line. Young nymphs can be found feeding on roots.

Colaspis

Latin name: *Colaspis brunnea* and *Colaspis louisianae*

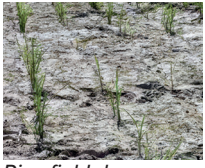
Characteristics: Adults are small (1/4 inch) tan beetles with striped backs. The larvae are white grubs resembling billbug larvae, but smaller with lighter-colored head capsules.

Damage: Infestations occur in rice fields that were planted with soybean the previous year. Damage appears as thin or weak stand prior to the establishment of the permanent flood. It is common to find a clumped distribution of larvae in the soil and patches of stand loss.

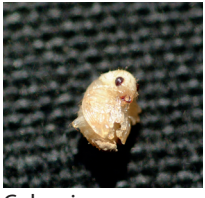
Scouting: To scout for this pest, locate plants that are stunted, dying and surrounded by declining plants. Dig around the base of the plants, carefully peeling back the soil and looking for larvae. If colaspis injury and larvae are observed, apply the permanent flood as soon as possible.



Colaspis larva.



Rice field damage caused by colaspis larvae feeding on roots.



Colaspis pupa.



Adult colaspis.

Rice seed midge

Latin name: *Chironomus* spp.



Seed midge swarms.



Midge tubes on soil under water.

Characteristics: Adult midges can be seen in swarms over rice fields, levees, roadside ditches, and other bodies of water. Adult midges resemble small mosquitoes but lack needlelike mouthparts and hold their forelegs up when resting. Elongate eggs are laid in strings, usually on the surface of open water. The strings are held together by a sticky material that forms a gelatinous coat around the eggs. After emerging, the larvae move to the soil surface, where they live in spaghettilike tubes constructed from secreted silk, plant debris and algae.

Damage: Larvae injure rice by feeding on the embryo of germinating seeds or on the developing roots and seeds of very young seedlings. Midge injury occurs in water-seeded rice and is usually not important once seedlings are several inches tall.



Seed midge damage.

Scouting: Water-seeded fields should be scouted for midge injury, checking for hollowed out seed within five to seven days after seeding. Repeat scouting at five- to seven-day intervals until rice seedlings are about 3 inches tall.

Apple snails

Latin name: *Pomacea maculata*



Apple snail shell.



Apple snail flesh.



Apple snail egg mass.

Characteristics: Adults are large (the size of an apple), spherical-shaped snails with colors that vary from bright gold to dark brown or black. Snail flesh is grey. The opening of the shells is sealed with a leathery cover called an operculum. Hatchling snails are approximately the size of a bb and have semi-translucent shells. The presence of apple snails is most easily detected by their bright pink egg masses laid on plant material or structures above the water surface. Apple snail eggs contain a toxin that can irritate skin and eyes and should not be touched with bare hands.

Damage: Apple snails are voracious eaters consuming large volumes of vegetative plant material in addition to decaying plant matter, amphibian eggs, and many other potential food sources. Apple snails will forage and feed if the water depth is sufficient to cover the base of their shells. Apple snails consume seedling rice up to the early tillering stage, but do not appear to consume more mature rice plants. Apple snails have minimal impact on drill-seeded, delayed-flood rice. Water-seeding into fields infested with apple snails can result in complete stand loss and the need to reseed.

Scouting: No scouting protocols for apple snails in rice have been developed. Detection of apple snails or their egg masses in rice fields previously uninfested should be reported to LSU AgCenter Extension personnel.

Black rice bug

Latin name: *Amaurochrous dubius*

Characteristics: Adults have a textured, shield-like body that is brownish grey in color. Its body is slightly rounded and tapers towards the back. It looks like a darker stink bug.

Damage: Both nymphs and adults cause damage by feeding with their piercing mouthparts. Feeding on the leaf sheath can cause dead or dying leaves, usually lower leaves, in otherwise healthy rice. The damaged leaves will often have yellow, orange or red coloration.

Scouting: No scouting protocols have been developed. Detection in rice fields previously uninfested should be reported to LSU AgCenter Extension personnel.



Amaurochrous dubius nymph.



Amaurochrous dubius adult.

Rice delphacid

Latin name: *Tagosodes orizicolus*



Rice delphacid.

Characteristics: Adults are about 1/4 inch long, with brown bodies and a yellow stripe down their back. Males have a distinct black spot on the tip of their wings. Nymphs are smaller, lighter in color and wingless but resemble adults. Eggs are laid in clusters in the leaf sheath or near the leaf midrib, and hatch after four to eight days.



Hopperburn caused by rice delphacid

Damage: Both nymphs and adults damage rice plants by feeding with their piercing-sucking mouthparts and laying eggs. Their feeding on the plant's sap leads to leaf senescence, necrosis, and discoloration, often causing the leaves to turn yellow, orange or red — a condition known as hopperburn. As they feed, they excrete a sticky substance called honeydew, which can coat the leaves and promote the growth of black sooty mold, reducing photosynthesis. Additionally, the rice delphacid indirectly harms plants by transmitting rice hoja blanca virus (RHBV). The virus causes white bands on the leaves, panicle deformation, reduced tillering and stunted growth. Infection in the early vegetative stage often results in plant death. In severe outbreaks, fields can suffer complete crop loss. Though the virus hasn't been reported in the U.S., monitoring and management strategies are essential should it become established.

Scouting: The most important action Louisiana growers can take against the threat of this insect is to monitor their fields for signs of its presence. When scouting fields keep an eye out for yellowing of plants or hopper burn, sooty mold, and for the insect itself. This insect can be best scouted for by utilizing sweep nets. Monitoring should begin at early tillering and continue until 50% heading. The insect is most dangerous in the vegetative stages so by the time you reach 50% heading the concern should have passed.

Less common insect



Skipper adult.

Less common insect



Skipper larva.

DISEASES

In Louisiana and the U.S., although more than 20 diseases have been reported on rice, only a few consistently cause significant yield and grain quality loss.

For the most up-to-date information on variety classifications, fungicide timing and application rates, consult the LSU AgCenter publication 2270 (Rice Varieties and Management Tips) or reach out to your local extension agent.

Scan to view Rice Varieties and Management Tips.

Bacterial panicle blight

Pathogen: *Burkholderia glumae* and *Burkholderia gladioli* (bacteria)

Symptoms and occurrence: Symptoms primarily affect rice panicles during the reproductive stage, from heading to grain filling, showing discolored (light grey to dark or straw-colored) spikelets with a reddish-brown margin, aborted or poorly filled grains, and upright panicles due to unfilled grains. A linear lesion with a reddish-brown border and necrotic gray center forms on the flag-leaf sheath. In severe cases, seedling blight or sheath rot occurs. Symptoms are often more pronounced in upper panicle portions.

Conditions for development: Both *Burkholderia glumae* and *Burkholderia gladioli* thrive in warm, humid conditions, with optimal temperatures around 86 F to 95 F (30 C to 35 C). High nighttime temperatures and high humidity or prolonged wet periods, especially during flowering, favor disease development. Excessive nitrogen fertilization and dense planting can exacerbate the disease. Infected seeds are likely the primary infection source, with potential contributions from soil and water.



Early symptoms of bacterial panicle blight symptoms showing a darker line.



Rachis remains green in a panicle with symptoms of bacterial panicle blight.



Panicles with bacterial panicle blight symptoms showing a circle pattern in the field.

Blast

Pathogen: *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) (fungus)

Symptoms and occurrence: Blast affects leaves, collars, nodes and panicles. Leaf lesions begin as small white, gray or blue-tinged spots that enlarge into diamond-shaped or linear lesions with gray or white centers and narrow brown borders. Collar blast causes brown to chocolate-brown or gray lesions at the flag leaf collar, leading to leaf detachment. Node blast turns stem nodes black or purple-gray, with straw-colored tissue above. Rotten-neck blast affects the panicle base, turning it brown to chocolate-brown and shriveled, causing lodging or grayish-white, unfilled panicles.



Rotten neck blast.



Rice node blast.

Conditions for development: The pathogen overwinters on infected straw and seed. Spores are dispersed by wind and rain, especially at night during dew or rainfall. Warm daily temperatures (about 80 F), cool nights (about 68 F), high humidity and prolonged leaf wetness favor infection. Excessive nitrogen fertilization, late planting, and water stress increase disease severity. Blast occurs in two phases: foliar (from germination to panicle differentiation) and panicle (from heading to maturity).

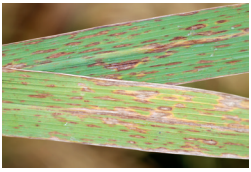




Leaf blast. Left: Mature lesions showing brown to dark borders and whitish to gray colors with diamond or elongate shape. Right: Early symptoms of leaf blast showing white and gray-green lesions;

Cercospora

Pathogen:
Cercospora janseana (fungus)


Narrow brown leaf spot.

Symptoms and occurrence:
Cercospora affects leaves, sheaths, panicles and grains. Leaf symptoms (narrow brown leaf spot) appear as short, linear brown lesions along veins, sometimes with gray centers. Sheath symptoms (Cercospora net blotch) show a netlike pattern with dark brown cell walls and tan to yellow intracellular areas. Panicle symptoms (Cercospora panicle blight) include dark brown lesions at the base and branches. This leads to premature ripening, chalky grains, reduced milling yield and lower kernel weight.


Net-blotch.


Panicle blight.

Conditions for development:
Symptoms typically appear after heading, starting on lower leaves. The incubation period can be up to 30 days. Warm, wet conditions, late planting, imbalanced nitrogen fertilization, and crop residue presence favor disease development. The pathogen may overwinter in residue or volunteer plants.


Panicle blight.



A mass of spores (teliospores) replacing the kernel.



Rice panicles with severe infection.



Comparison between healthy, left, and smutted grains.

Kernel smut

Pathogen:
Tilletia barclayana (fungus)

Symptoms and occurrence:
Symptoms appear at or shortly before maturity. A black mass of smut spores replaces all or part of the grain's endosperm. Spores ooze from the hull and dry into a powdery mass. Rain can wash spores over adjacent panicle parts. Affected grains are lighter and grayish, with black streaks or dark areas. Milled rice may appear dull or gray.

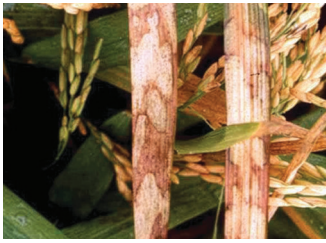
Conditions for development:
Spores from the previous season act as the initial source of infection. They remain dormant for four to five months and germinate under favorable conditions to infect rice flowers. Frequent light rain around flowering and excessive nitrogen fertilization increases disease severity.

Sheath blight

Pathogen: *Rhizoctonia solani AG1* (fungus)

Symptoms and occurrence: Early symptoms appear on leaf sheaths near the waterline as oval, water-soaked green-gray lesions. These expand with purple-brown borders and pale centers. Leaf lesions are irregular with a snakeskin appearance. After heading, the disease spreads to the upper canopy and panicles, forming "bird's nest" symptoms. Severe infections cause lodging and collapse. Sclerotia form on mature or dead tissue as black, ball-shaped structures.

Conditions for development: Optimal temperatures range from 86 F to 90 F, with high humidity (more than 95%) and cloudy conditions favoring disease spread. Dense plant populations, excessive nitrogen, and short-statured varieties increase susceptibility. The pathogen survives as sclerotia or infected residue and spreads vertically and horizontally through plant contact.



Lesion on the base of the plant characterize the vertical phase of the disease.



Lodged plants due severe sheath blight.



R. solani sclerotia, the survival structure of the fungus.

Brown spot

Pathogen: *Bipolaris oryzae* (fungus)

Symptoms and occurrence: Brown spot affects rice from the seedling stage to maturity, commonly appearing on leaves and glumes, but also on sheaths, panicle branches, coleoptiles and occasionally stems and roots. Lesions on susceptible varieties are oval or circular with light brown to gray-white centers and reddish-brown borders. Moderately resistant varieties or young lesions show smaller, dark brown spots. Symptoms are more prevalent on senescing leaves.



Disease symptom from mature lesions in a susceptible variety.



Small dark brown spots characteristic of young lesions or moderate resistant varieties.

Conditions for development: The disease is favored by soil nutrient deficiencies (especially potassium, manganese, magnesium, silica, iron and calcium), nitrogen imbalance and physiological stress. The pathogen survives in infected seed and crop residue and can infect plants throughout the growing season.

Crown sheath rot

Pathogen: *Gaeumannomyces graminis* (fungus)



Lesions on a lower sheath.



Mycelia of G. graminis infecting rice.

Symptoms and occurrence: Symptoms appear late in the season, usually after heading. Lower sheaths become discolored brown to black. Reddish-brown mycelial mats form inside infected sheaths, and dark fruiting body develop embedded in sheath tissue. The disease may be confused with stem rot.

Conditions for development: The fungus survives as perithecia and mycelia in plant residues and produces windborne spores under moist conditions. Several weeds can serve as alternate hosts. Heavy nitrogen fertilization increases susceptibility.

False smut



False smut.



False smut on multiple grains.

Pathogen:
Ustilaginoidea virens (fungus)

Symptoms and occurrence:
False smut is characterized by large, orange to brown-green fruiting structures (sclerotia) replacing one or more grains. When the silvery covering of these structures ruptures, a mass of greenish black spores is exposed. The affected grain is replaced by these sclerotia.

Conditions for development:
Rain and high humidity around flowering with warm temperatures favor infection. Late planting and excessive nitrogen fertilization increase severity. The disease is more severe on susceptible varieties under conducive conditions.

Grain discoloration

Pathogen: Complex of microorganisms including *Bipolaris oryzae, Cercospora janseana, Fusarium* spp., *Curvularia* spp., *Burkholderia glumae* and others

Symptoms and occurrence: Grain discoloration, also known as pecky rice, results in spots and discoloration on hulls or kernels. Damage from the rice stink bug (*Oebalus pugnax*) can also cause kernel discoloration. Additionally, grains can become infected during storage, particularly by fungi such as *Aspergillus* and *Penicillium* species.

Conditions for development: Rainfall and high humidity during grain development, lodging and high winds during heading increase severity. In storage, moisture content above 14.5% promotes infection.



Grain discoloration (pecky rice).

Leaf scald

Pathogen: *Microdochium albescens oryzae* (fungus)

Symptoms and occurrence: Leaf scald typically appears on maturing leaves, starting at the tips or edges. Lesions show a zonate pattern with alternating tan and reddish-brown areas, and a yellow to gold leading edge. Affected leaves dry out and turn straw-colored. Panicle infection causes uniform reddish-brown discoloration of florets or hulls, leading to sterility or kernel abortion.

Conditions for development: The pathogen is seed-borne and survives between crops on infected seeds. Disease development is favored by warm, humid conditions during later growth stages.



Leaf scald symptoms on leaf, starting from the tip.



Leaf scald symptoms on leaf, starting from the side.

Root rots

Pathogen: *Globisporangium spinosum* and *Pythium dissotocum* (oomycetes)

Symptoms and occurrence: Symptoms may be noticeable as early as seedling emergence. Roots exhibit brown to black discoloration and necrosis. As the roots decay, nutrient absorption is impaired, leading to yellowing leaves and stunted plant growth. Severe root infections can cause plants to lodge (fall over) due to lack of support, creating challenges during harvest. Often, plants with root rot also show severe brown leaf spot infections. In seedlings, fine roots and root hairs are destroyed, sometimes without visible above-ground symptoms.

Conditions for development: Root rots are caused by a combination of factors including physiological stress, insect feeding (especially rice water weevil larvae), extreme environmental conditions and other pathogens. The pathogens survive in the soil between seasons.



Root rot.

Scab

Pathogen:
Fusarium graminearum (fungus)

Symptoms and occurrence: Scab causes bleached or reddish-brown discoloration on glumes and panicle branches. Infected areas may produce salmon-colored fungal masses. Spikelets can become sterile or produce light, shrunken, brittle grains.

Conditions for development: Plants are most susceptible at flowering. Wet and warm conditions during flowering favor disease development. The pathogen is widespread but typically causes low severity in rice.



Rice spikelet infected by Fusarium graminearum.

Seedling blight

Pathogen: *Bipolaris, Curvularia, Sarocladium, Fusarium, Rhizoctonia* and *Athelia* spp. (fungi)

Symptoms and occurrence: Seedling blight causes spotty, irregular and thin stands. Infected seedlings may die soon after emergence or remain weak and pale. Discolored hulls may indicate seed infection. *Bipolaris oryzae* causes dark areas on the basal parts of the first leaf. *Athelia rolfsii* produces cottony white mold on lower stems.

Conditions for development: Cold, wet soil conditions favor disease development, especially in early planting. Severity depends on seed infestation, soil temperature, and moisture. Soil-borne fungi like *Pythium* attack seedlings from germination to the three-leaf stage.



Seedling blight caused by Bipolares oryzae.

Sheath rot

Pathogen: *Sarocladium oryzae* (fungus)

Symptoms and occurrence:
Symptoms are most severe on the uppermost leaf sheaths during the boot stage. Lesions are oblong or irregular with gray or light brown centers and dark reddish-brown margins, sometimes forming a target-like pattern. Severe infections may prevent panicle emergence, causing trapped panicles to rot and florets to turn dark brown. Grains may be discolored and poorly filled. A powdery white growth may be visible inside affected sheaths.



Detail of rot panicle retained in the sheath.

Conditions for development:
The pathogen survives in infected plant debris and spreads under warm, humid conditions. Insect or mite damage to the boot or leaf sheath can increase disease severity.



Panicle only partially emerge with dark reddish-brown lesion on the leaf, and dark brown kernels.

Sheath spot

Pathogen: *Rhizoctonia oryzae* (fungus)

Symptoms and occurrence: Lesions appear on sheaths midway up the tiller or on leaf blades. They are oval, pale green to cream or white in the center, with broad dark reddish-brown margins. Lesions remain separate and do not coalesce. In highly susceptible varieties, the pathogen may weaken the culm beneath the lesion, causing lodging or breakage.

Conditions for development: The disease cycle is very similar to that of sheath blight, with the exception that the perfect stage of the fungus (*Waitea circinate*) is commonly observed in the field. It develops under warm, humid conditions and is more likely in dense canopies.



Sheath spot lesions.

Stem rot

Pathogen:
Nakataea oryzae (fungus)

Symptoms and occurrence: Initial symptoms are irregular black angular lesions on leaf sheaths near the water line. As the disease progresses, outer sheaths die, and inner sheaths and culms become discolored with black streaks and fungal mycelium. At maturity, softened culms break, and infected plants lodge. Numerous small, round, black sclerotia develop in dead tissues.

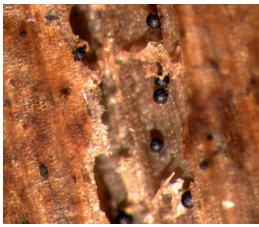
Conditions for development: The pathogen overwinters as sclerotia in soil and plant debris. Flooding brings sclerotia into contact with plants, initiating infection. High nitrogen levels and continuous rice cultivation increase disease severity.



Lesions on the culm.



Comparison between plants with stem rot symptoms and health ones.



Sclerotia (survival structure).

Water mold

Pathogen: *Oomycetes* including *Achlya* spp. and *Pythium* spp.

Symptoms and occurrence: Water mold affects germinating seeds in water-seeded rice. It can be observed through clear water as a ball of fungal strands surrounding seeds on the soil surface. Fungal strands surround seeds, forming copper-brown or dark green spots with rotted centers. *Achlya* attacks the endosperm, while *Pythium* targets the embryo. Infected seedlings may be stunted, yellow or die.

Conditions for development: Disease is most severe when water temperatures are below 55 F or above 80 F. Pathogens survive in soil and infect under cool, wet conditions. Poor seed vigor and deep flooding increase susceptibility.



Water mold.



Water mold caused by Achlya spp.



Water mold caused by Pythium spp.

Bacterial leaf blight



Bacterial leaf blight.

Pathogen:
Xanthomonas oryzae pv. *oryzae* (bacteria)

Symptoms and occurrence: Symptoms begin as water-soaked areas on leaf margins near the tips, which enlarge and turn white to yellow. Mature lesions expand, turn white and may turn gray due to colonization by saprophytic organisms.

Conditions for development: High humidity and temperatures between 77 F and 86 F favor disease development. Rain, strong winds and plant wounds increase pathogen spread. The bacterium survives briefly on seed and soil and is spread by wind-blown rain, irrigation water and plant contact. Heat stress, higher N fertilization, deep water and high plant population are also associated with more severe epidemics.



Bacterial leaf blight.

Black kernel

Pathogen: *Curvularia lunata* (fungus)

Symptoms and occurrence: Black kernel symptoms appear as fungal spores developing on the surface of the hulls, which distinguishes it from kernel smut where spores emerge between the hulls. Infected grains may show black discoloration, and milled kernels can appear black. Severe infections may also cause seedling blight or weaken seedlings.

Conditions for development: Infection is believed to occur at flowering. The disease cycle is not fully understood, but it is considered minor and rarely severe enough to warrant specific control measures.



Spikelet with symptoms characteristic of black kernel.

Downy mildew

Pathogen: *Sclerophthora macrospora* (fungus)

Symptoms and occurrence: Downy mildew affects rice in early growth stages. Infected seedlings are dwarfed and twisted, with chlorotic (yellow to whitish) spots. Panicles may fail to emerge properly, becoming distorted, twisted and spiral shaped and retain green color longer than normal.

Conditions for development: The disease is extremely rare. It develops under conditions unfavorable to seedling growth and is not associated with significant yield loss.



Downey mildew in rice.

Leaf smut

Pathogen: *Eballistra oryzae* (fungus)

Symptoms and occurrence: Leaf smut produces slightly raised black spots (sori) on both sides of leaves, sheaths and stalks. Spots range from 0.5 to 5.0 mm long and 0.5 to 1.5 mm wide, often appearing in large numbers but remaining distinct. Heavily infected leaves may turn yellow, with tips dying and turning gray.

Conditions for development: The fungus spreads via airborne spores and overwinters on leaf debris in the soil. It tends to occur late in the growing season and generally causes little to no yield loss.



Leaf smut symptom on the rice leaves.

Root-knot nematodes

Pathogen:
Meloidogyne spp. (nematodes)

Symptoms and occurrence: Symptoms include root enlargement and gall formation. Affected plants are dwarfed, yellow and lack vigor.

Conditions for development: The disease is rare in rice and causes low yield losses. Nematodes become inactive after prolonged flooding.



Root-knot nematodes.

Sheath blotch

Pathogen: *Pyrenochaeta oryzae* (fungus)

Symptoms and occurrence: Sheath blotch affects the leaf sheaths, particularly the flag-leaf sheath near the collar. Lesions begin at the sheath edge and expand into oblong blotches with a zonate pattern. Numerous black fruiting structures (pycnidia) are visible within the lesion.

Conditions for development: The disease is generally restricted and not widespread. It is not typically severe enough to justify control measures.



Sheath blotch symptom.

Stackburn

Pathogen: *Trichoconiella padwickii* (fungus)

Symptoms and occurrence: Stackburn causes large oval or circular spots (0.3 to 1 cm) with dark brown margins and tan to white centers. Mature spots may contain small black dots (sclerotia). Infected grains show tan to white spots with wide dark borders and may be shriveled or discolored.

Conditions for development: The fungus is seed-borne and more frequently found on panicles and grain than leaves. It is common in Louisiana rice fields but typically not severe enough to require specific control measures.



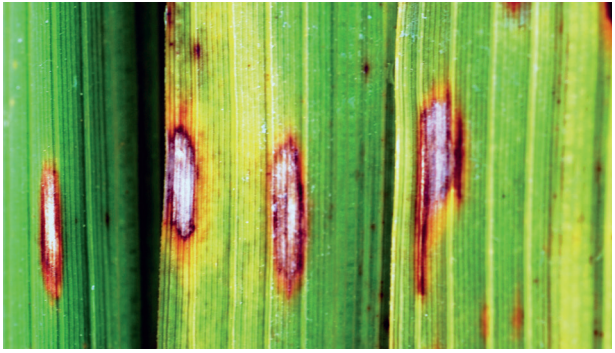
Stackburn symptoms on the rice leaves.

White leaf streak

Pathogen: *Romularia oryzae* (fungus)

Symptoms and occurrence: White leaf streak, exhibits symptoms very similar to narrow brown leaf spot caused by *Cercospora janseana.* The key difference is that white leaf streak lesions are slightly wider and have distinctive white centers. The fungus survives on infected crop debris, volunteer rice plants, and grassy weeds, which serve as inoculum sources.

Conditions for development: Warm temperatures between 77 F and 86 F and high relative humidity favor disease development. Spores are dispersed by wind and rain splash. Dense canopy, poor air circulation and continuous rice cultivation increase disease incidence. Nutrient stress, particularly nitrogen deficiency, may predispose plants to infection.



White leaf streak symptom.

White tip

Pathogen:
Aphelenchoides besseyi (nematode)

Symptoms and occurrence: Symptoms typically appear after tillering and include yellowing of leaf tips, white areas on leaf blades, stunting, twisting or distortion of the flag leaf, and discoloration or deformation of panicles and florets. Leaf tips progress from green to yellow to white, then wither and become tattered or twisted.

Conditions for development: The nematode infects developing grain and is seed-borne.



Nematode Aphelenchoides besseyi.

To find more details about rice production and management, visit these websites from the LSU AgCenter and others:

Rice Web Portal
www.lsuagcenter.com/topics/crops/rice

Rice Weeds
https://www.lsuagcenter.com/portals/communications/publications/management_guides/louisiana%20suggested%20chemical%20weed%20control%20guide

Rice Insects
www.lsuagcenter.com/topics/crops/rice/insects

Rice Diseases
www.lsuagcenter.com/topics/crops/rice/diseases

Rice Disease Publications
https://www.lsuagcenter.com/topics/crops/rice/diseases/disease_id

Rice Production Handbook
https://www.lsuagcenter.com/profiles/lblack/articles/page1759339516637

Rice Varieties and Management Tips
https://www.lsuagcenter.com/articles/page1765812912873

For the Louisiana rice industry to remain viable, it is essential that producers and consultants be able to identify and manage existing as well as emerging weed, insect and disease issues. To meet this need, USDA-NIFA (Grant #2023-68012-39002) contributed funds to develop this pocket field guide.

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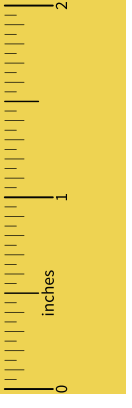
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Most images in this field guide were provided by LSU AgCenter personnel.

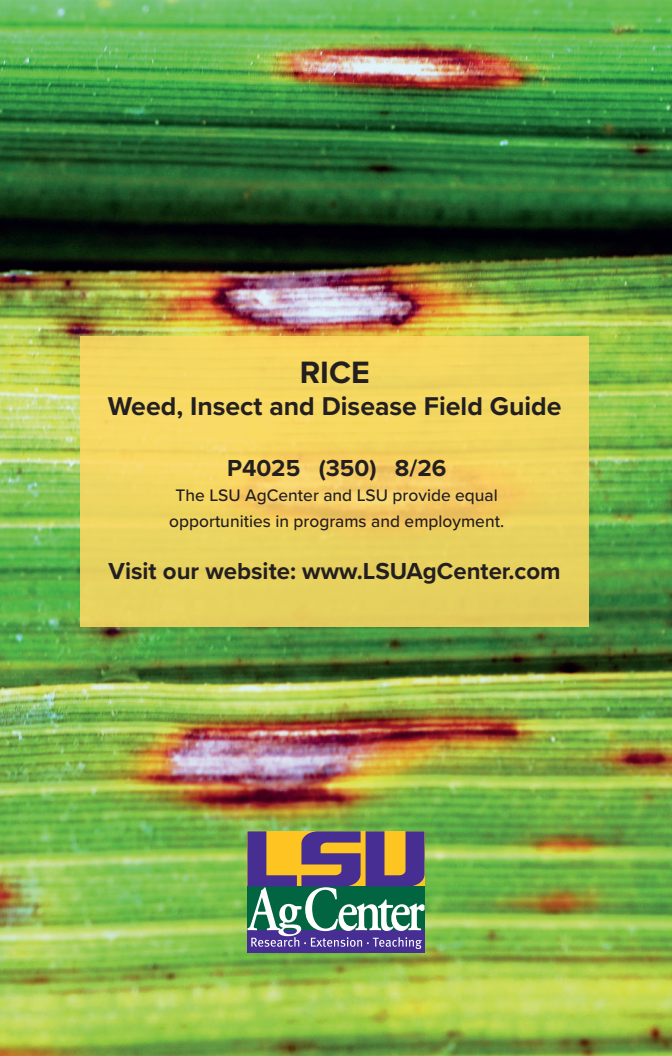
Other photos courtesy of:
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Notes







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Weed, Insect and Disease Field Guide

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