Chapter 5

Weed Management

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Weeds are some of the most troublesome pests in rice production in the United States and throughout the world. Weeds compete with rice for water, nutrients, space and light. Direct losses from weed competition are measurable and can be great. Indirect losses such as increased costs of harvesting and drying, reduced quality and dockage at the mill and reduced harvest efficiency are not readily measured but can reduce profits. Therefore, weed control measures should encompass broad spectrum activity under different production practices and systems.

Numerous grasses, broadleaf weeds and sedges can be economically damaging in rice. It is estimated that more than 80 species belonging to more than 40 genera can be problem weeds in the U. S. rice production. Rice weeds can grow and thrive in aquatic, semiaquatic and terrestrial environments. Some of the major weed problems, such as barnyardgrass, broadleaf signalgrass, red rice, hemp sesbania, alligatorweed, dayflower, jointvetch species and annual and perennial sedges, can thrive in both aquatic and dryland situations.

In south Louisiana, a rice-crawfish rotation is a common practice, causing several weeds to become major problems as a result of the year-round aquatic environment associated with this production system. Ducksalad, bulltongue arrowhead, common arrowhead, creeping burhead, pickerelweed and roundleaf mudplantain require high moisture to germinate and are much more aggressive in aquatic situations. Perennial grasses such as creeping rivergrass, knotgrass, brook paspalum and water paspalum are becoming more of a problem in Louisiana rice production due to a rice-crawfish rotation.

Although weeds vary in their ability to compete with rice, most fields contain a complex of weeds that will reduce yield and quality if an appropriate weed management strategy is not implemented. Rice weed control is best accomplished by using a combination of cultural, mechanical and chemical management practices. Relying on a single control practice seldom provides adequate weed management. A thorough knowledge of weeds present in each field is critical in developing appropriate management strategies.

Red Rice Management

The number 1 weed problem in Louisiana rice production is red rice. Red rice has been spread largely by planting commercial seed that is contaminated with red rice and movement of equipment from infested fields to clean fields. Red rice is similar to commercial rice and is considered by many to be in the same genus and species. Commercial rice and red rice can readily cross producing a wide phenotypic set of offspring. Besides reducing commercial rice yields, the red pericarp of this noxious plant can contaminate milled commercial rice. Additional milling can help remove the red discoloration but often will lead to reduced head rice yields through breakage of kernels. Cooking attributes of rice can be altered if significant amounts of red rice are present in milled rice.

Presence of red rice dictates production systems and weed control options and decreases flexibility. Rotating rice with other crops can reduce future weed problems. Successful rotations with soybean, corn, sorghum or cotton have reduced levels of red rice. With the development of Clearfield rice, producers have an option to plant rice that is resistant to the imidazolinone family of herbicides. Imazethapyr (Newpath) was the first herbicide labeled for use in the Clearfield production system. This herbicide provides residual and postemergence activity on red rice and other grass and broadleaf weeds. Three years later the herbicide Beyond (imazamox) received a 24C label for use as a late-season herbicide choice to control late emerging red rice and red rice plants that may have escaped an earlier Newpath application. This technology continues to be accepted, and pro-

ducers are moving to a Clearfield production system to take advantage of the overall weed control program available with this system.

Herbicide Selection and Application

The most important factor in herbicide use is the selection of the proper herbicide. Producers should have a basic understanding and knowledge of the weeds present in production fields. Keeping visual and written records of each field from year to year is very important.

Five basic herbicide application timings should be considered when choosing a herbicide: (1) burndown prior to planting, (2) preplant incorporated, (3) preemergence prior to planting, (4) preemergence after planting, (5) delayed preemergence (drill-seeded only) and (6) postemergence.

When selecting a herbicide, it is very important to understand the basic activity of the herbicide. If a herbicide has contact activity, it must be applied to weeds that have emerged above the soil surface and, in most cases, above the flood level. Most herbicides that require foliage contact should have at least 75 percent of the plant above the water line. A herbicide with soil activity should be applied when the soil surface is exposed. Herbicides like pendimethalin provide no benefit if applied to a flooded field. Many herbicides labeled for use in rice have both residual and postemergence activity. It is very important to take advantage of the entire package the herbicide can deliver.

Burndown Herbicide Application

Based on Louisiana State University AgCenter recommendations, burndown herbicides should be applied no earlier than 6 to 8 weeks prior to planting and no later than 3 to 4 weeks prior to planting. If burndown herbicides are applied too early, weeds may be present at planting. Waiting too long before applying burndown herbicides may not allow enough time for herbicides to work properly prior to planting. This is a timing that is often missed in Louisiana because it is often made within a week of planting. Several herbicides are available for use as a burndown choice, and most options are applied based around glyphosate. Price is often factored in when selecting a burndown herbicide program, but in many cases, the cheapest option may not be the best for a given situation.

Preplant Incorporated Herbicide Application

The use of preplant incorporated (PPI) herbicides requires the application of a herbicide to the soil surface prior to planting followed by herbicide incorporation with a disk or a field cultivator. It is important for the field to be relatively free of vegetation and or large soil clods to allow for uniform herbicide application. Vegetation or soil clods can intercept the herbicide spray and prevent uniform application. It is important to apply the herbicide with adequate spray volume to insure a uniform application. When incorporating herbicides, the implement should be passed over the area twice, with the second pass running perpendicular or at an angle to the previous pass. When a highly water-soluble herbicide is used, incorporation can be achieved with water; however, incorporating with water can be inconsistent.

The number of acres receiving a PPI herbicide application in Louisiana has dropped drastically in recent years. This was an accepted practice for the management of red rice in south Louisiana. With the introduction of Clearfield rice, the use of PPI treatments has been reduced. The Clearfield rice system does have the option of a PPI application of imazethapyr (Newpath). When fuel costs are high and flushing is required to activate a PPI herbicide, the benefit of the PPI herbicide may be offset. In many cases, a PPI treatment provides better overall weed control, but with the additional costs, the added benefit is often unprofitable.

Preemergence Herbicide Application Prior to Planting

This practice is used on a regular basis throughout Louisiana, especially in water-seeded rice production in south Louisiana. The herbicide is applied prior to planting as a surface application frequently in conjunction with a burndown herbicide program. When applied in a burndown program, the preemergence herbicide works best if existing vegetation is small or the field area is sparsely vegetated.

In south Louisiana, producers often impregnate starter fertilizer with a herbicide with preemergence activity. This practice became very common with the

labeling of Command (clomazone) for use in water-seeded rice. The field is flooded for seeding, starter fertilizer is impregnated with the herbicide and then is applied to the flooded field. Herbicides like clomazone with high water solubility wash off the fertilizer granule and make soil contact, thereby providing preemergence herbicidal activity.

Preemergence Herbicide Application Following Planting

This practice is used most often in drill-seeded rice. Immediately after rice is planted, a herbicide is applied to the soil surface. Within a 24- to 48-hour period after herbicide application, adequate rainfall (1 inch or more) must occur or the field must be flushed for herbicide activation. Many producers attempt to avoid flushing by waiting on rainfall to save money; however, to receive optimum benefit from the herbicide, it must be activated by moisture. Efficacy is reduced the longer a herbicide remains on the soil surface without activation. Poor weed control is a common side effect of waiting for rainfall because weeds continue to grow during the waiting period.

A preemergence application can allow a rice crop to emerge and gain a competitive advantage on many weeds present in a given field. Producers should consider using a preemergence application on a portion of the operation to allow postemergence applications over a longer period of time during the growing season. If the producer has a basic knowledge of the history of weed pressure in a rice field, the grower can select fields most likely to benefit from a preemergence program.

Delayed Preemergence Herbicide Application

This herbicide application timing is primarily, if not exclusively, used in a drill-seeded rice production system. The rice crop is planted, and 4 to 7 days after planting, the herbicide is applied. This delay after planting allows the rice seed to begin the germination process, allowing the young seedling to get an initial growth advantage prior to herbicide application. This application usually follows a surface irrigation or rainfall within the 4- to 7-day interval after planting. This timing is most often associated with use of the herbicide pendimethalin (Prowl). Prowl may injure rice when applied immediately after planting; therefore, it is not labeled for use as a true preemergence application. This herbicide has preemergence activity on grasses and small seeded broadleaf weeds, but it has little to no postemergence activity on these weeds.

Postemergence Herbicide Application

Postemergence herbicide applications are those made any time after crop emergence. These applications include timings from very early postemergence on one- to two-leaf rice to salvage treatments applied late in the season to aid in harvest efficiency.

Postemergence herbicide applications are the most common timings for weed management in rice. 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. Postemergence herbicides almost always are most effective when applied to small actively growing weeds. The larger a weed the more difficult it is to manage with herbicides. A one- to two-leaf Texasweed is easier to control than a Texasweed with five to six leaves. When applying herbicides postemergence, it is important to avoid applications to weeds under any form of stress, especially moisture stress. Weeds that are not under moisture stress and are actively growing are controlled more easily than stressed weeds. This can also be true when temperatures are low enough to reduce plant activity or high enough to cause heat stress.

Weed Management Through Cultural Practices

Producers have several options available for managing weeds with cultural practices. These practices include conventional or reduced tillage, fallow versus crop rotation, rice cultivar selection, purchasing weed-free seed, water management, water- or drill-seeded rice planting systems, proper herbicide selection, timing of herbicide applications, herbicide application carrier volume and aerial versus ground herbicide application. While the use of herbicides to control weeds is not normally considered a cultural practice, the interaction of cultural practices with herbicide use must be considered.

Tillage and Rotation

In Louisiana, a strict no-tillage production system is very rare; however, producers throughout the state practice both conventional tillage and reduced tillage or stale seedbed systems on their farms. Often, a producer will use a combination of these practices. Good records can determine which tillage practice should be used to manage each weed situation. Red rice can be managed through the use of stale seedbed or reduced tillage systems. Following harvest of a rice crop infested with red rice, not tilling the field will allow some red rice seed to decompose while laying on the soil surface. It also exposes the seed to depredation by wildlife. If the field is tilled, red rice seed will be buried and become dormant. The following spring a burndown herbicide may be employed once red rice has emerged.

In south Louisiana, the rice crawfish rotation has caused changes in weed management strategies. Tillage is often used on a very limited basis in this type of rotation. In severe cases, this lack of tillage has caused the weed spectrum in these fields to shift from annual grasses and broadleaf weeds to perennial aquatic weeds. To manage some of these difficult-to-control aquatic weeds, the area must be tilled and be fallowed or rotated to another crop, such as soybean, to take advantage of conventional tillage and herbicide rotation.

Cultivar Selection, Planting Rates and Row Spacing

The most important aspect of cultivar selection from a weed management stand point is selection of weed-free seed. Cultivar selection can also impact competition between rice and weeds.

Research has indicated some rice cultivars are more competitive with weeds than others. This is especially true of the once popular taller cultivars. Semidwarf varieties are less competitive than conventional tall varieties. Cultivars that produce large numbers of tillers also tend to be more competitive.

All rice cultivars have an optimum seeding rate that varies, depending on growth characteristics. Research conducted in Louisiana indicates that cultivars planted at the optimum seeding rate tend to be more competitive with weeds than when planted at low seeding rates. High seeding rates can be competitive with weeds, but intra-specific competition occurs at excessive seeding rates and yields are reduced. Establishing a good stand of rice and providing an environment that promotes rapid growth help to minimize weed interference. Optimum plant populations and adequate fertility, insect, disease and water management contribute to the ability of rice plants to compete with weeds.

Water Management

Proper water management is a key component in controlling weeds. Several different water management schemes have evolved in Louisiana, and two major planting systems dictate the basic water-management strategies used by producers. Historically, 75 percent of Louisiana's rice has been grown in south Louisiana. The majority of this acreage has been planted using a water-seeded system. The remaining 25 percent of Louisiana's acreage has been grown in northeast Louisiana where a dry broadcast or drill-seeded system has been more common.

Water-seeded Rice. In general, weed spectrum changes from a predominantly annual grass problem in drill-seeded rice to more aquatic weed problems in a water-seeded system. If a water-seeded system is used for several years, it may cause a shift in the weed spectrum from terrestrial to aquatic weeds. The predominant weeds found in this production system are ducksalad, bulltongue arrowhead, common arrowhead, creeping burhead, pickerelweed and roundleaf mudplantain.

Three types of water management systems are used by producers: (1) continuous flood, (2) pinpoint flood and (3) delayed flood. (See General Agronomic Guidelines section for more information on water management systems.)

Water seeding is strongly tied to weed management. Weed seeds have the same requirements for germination as rice – proper temperature, water and oxygen. By flooding a rice field before temperatures have risen to levels sufficient for germination, two of the requirements are at least minimized because over time the flooded soil will become saturated. Saturated soils have little dissolved oxygen in them.

In a continuous flood system, aquatic weeds become a problem earlier in the season. For example, it is not

unusual for ducksalad to emerge along with planted rice in a continuous flood system. When a pinpoint flood system is employed, the area is drained for a short period of time after planting, and aquatic weeds can be a problem. Red rice and annual grasses can begin to emerge if the drain period is long enough to allow oxygen to reach weed seeds. The object of a pinpoint flood is to allow for rice seedling establishment before the soil dries, allowing annual grasses and other terrestrial weeds to emerge. Annual grass weeds are less of a problem in continuous and pinpoint flood systems, but producers must manage a pinpoint system closely to prevent soils from drying and allowing annual weed emergence.

The third water management system is a delayed flood in a water-seeded system. From a weed control standpoint, this is not as practical if producers intend to manage weeds by flooding. In most instances, aquatic weeds create fewer problems in this type of flood management. With the development of Clearfield rice, this flooding practice has become more common because producers now have the ability to use herbicides to control red rice and other annual grasses.

When a water-seeded system is used, herbicide applications are generally applied postemergence. Prior to the development of Clearfield rice, the herbicides thiobencarb and molinate were the only available herbicides that could be incorporated prior to planting. The development of herbicide-resistant rice, introduction of new herbicides and the loss of molinate have nearly eliminated the preplant incorporated applications. It is very important to apply postemergence applications in a timely manner, choose the correct herbicide and apply it at proper rates.

Dry-seeded Rice. In this system, 4 to 6 weeks may elapse between planting and permanent flood establishment. Controlling weeds during this period is critical for maximizing yields. Annual grasses, such as barnyardgrass, broadleaf signalgrass and sprangletop species, and broadleaf weeds, such as Texasweed, eclipta, Indian and northern jointvetch and hemp sesbania, can become established. Timely herbicide applications made to small weeds, surface irrigations, often referred to as flushes, to activate herbicides, and establishment and maintenance of a permanent flood as soon as possible will improve weed control. In south Louisiana, permanent floods are generally established on two- to three-leaf rice; in northeast Louisiana, the permanent flood may not be established until rice is in the five-leaf to one-tiller stage.

In dry-seeded systems, constructing levees as soon as possible after planting can improve weed control by allowing fields to be surface irrigated and flooded in a timely manner. Without levees, using water as a management tool is impossible. On coarse textured, silt loam soils, establishing levees is much easier than on finer-textured, clay soils. Although rainfall shortly after planting is beneficial for establishing a stand of rice and reducing the need for surface irrigation, excessive rainfall can prevent levee construction on clay soils. Establishing levees as soon as the rice is planted when the soil is still relatively dry can prevent or reduce problems encountered in preparing levees on wet soils.

Management of weeds is critical for optimum rice production in both water- and dry-seeded systems. Although herbicide options and management strategies differ under these systems, managing herbicides and water in a timely manner is critical.

Adjuvants and Spray Additives

Technology advances have brought about many changes in adjuvants. The standard adjuvants like nonionic surfactants (NIS) and crop oil concentrates (COC) have been around for years with little change in formulations. New surfactants, such as organosilicone and methylated seed oils and the addition of fertilizers, like urea, to NIS to improve herbicide uptake have made a major impact on herbicide application. Many herbicides depend on certain adjuvants to maximize activity, and producers and applicators should be familiar with the importance of proper adjuvant selection.

Postemergence herbicide performance can be greatly influenced by adjuvants. Adjuvant cost is much lower than the cost of a herbicide application, especially when several herbicides are applied as a mixture. Not using an adjuvant or selecting a poor quality adjuvant can reduce weed control. Consult the herbicide label for recommendations of the proper type and rate of the adjuvant to use.

Weed Resistance to Herbicides

Some weeds have developed resistance to herbicides in Louisiana. In situations where weeds are not controlled with labeled rates of herbicides applied under environmental conditions that are favorable for herbicide activity, these weeds may be resistant. Repeated use of propanil has resulted in the development of biotypes throughout the mid-South that are resistant to the herbicide. Aquatic weeds, such as ducksalad, have developed resistance to herbicides in all rice-growing states.

Changing herbicides and crops and applying herbicide mixtures with different modes of action may prevent or delay development of resistance in Louisiana. Rice producers in Louisiana have been fairly successful at keeping resistance problems to a minimum because of the lack of a standard program across the state. Production systems vary widely in Louisiana compared with other states, and this helps keep herbicide resistance manageable in Louisiana rice.

Rotating rice with soybean or other crops will allow use of soil-applied herbicides or postemergence grass herbicides that can control troublesome weeds. These herbicides have mechanisms of action that often differ from most rice herbicides. If weed resistance is suspected, contact your LSU AgCenter extension agent so an alternative herbicide program can be developed and resistance can be monitored. In addition to developing potential weed resistance, repeated use of a single herbicide will exploit the weakness of the herbicide and may shift the weed spectrum to weeds that may be more difficult to control. An example of this is the continued use of Facet (quinclorac)-only weed management program, resulting in a shift from barnyardgrass to sprangletop species as the primary annual grass weed.

Weed species found in Louisiana Rice

Grasses

Annual
- Amazon sprangletop *Leptochloa panicoides*
- Barnyardgrass *Echinochloa crus-galli*
- Broadleaf signalgrass *Urochloa platyphlla*
- Fall panicum *Panicum dichotomiflorum*
- Large crabgrass *Digitaria sanguinalis*
- Junglerice *Echinochloa colona*
- Red rice *Oryza punctata*

Perennials
- Brook crowngrass/Brook paspalum *Paspalum acuminatum*
- Creeping rivergrass *Echinochloa polystachya*
- Knotgrass *Paspalum distichum*
- Rice cutgrass *Leersia oryzoides*
- Southern watergrass *Luziola fluitans*
- Water paspalum *Paspalum hydrophilum*
- Waxy mannagrass *Glyceria declinata*

Broadleaf

Annual
- Cutleaf groundcherry *Physalis angulata*
- Eclipta *Eclipa prostrata*
- False pimpernel *Lindernia* spp.
- Gooseweed *Sphenolcea zeylanica*
- Hedge hyssop *Gratiola* spp.
- Hemp sesbania *Sesbania herbacea*
- Indian toothcup *Rotala indica*
- Ladysthumb *Polygonum persicaria*
- Pennsylvania smartweed *Polygonum pensylvanicum*
- Purple ammannia *Ammannia coccinea*
- Redweed *Melochia corchorifloia*
- Spreading dayflower *Commelina diffusa*
- Texasweed *Caperonia palustris*

Aquatics
- Alligatorweed *Alternathera philoxeroides*
- Bulltongue arrowhead *Sagittaria lancifolia*
- Common arrowhead *Sagittaria latifolia*
- Creeping burhead *Echinodrous cordifolius*
- Ducksalad *Heteranthera limosa*
- Pickerelweed *Pontederia cordata*
- Red ludwigia/March seedbox *Ludwigia palustris*
- Roundleaf mudplantain *Heteranthera reniformis*

Sedges and Rushes
- Rice flatsedge *Cyperus iria*
- Yellow nutsedge *Cyperus esculentus*
- Bog bulrush *Schoenoplectus mucronatus*
- Spikerush *Eleocharis* spp.

Grasses

Amazon Sprangletop

Leptochloa panicoides

Keys to Identification:
Tufted summer annual; no hairs on leaf blade, keeled leaf sheath, long membranous ligule; seedhead is a long, narrow panicle

Distribution: All Louisiana parishes. Native of Brazil

Barnyardgrass

Echinochloa crus-galli

Keys to Identification:
Smooth leaf and leaf sheath with no ligule; tuffed erect summer annual grass with fibrous root; seed often awned.

Distribution: All parishes. Introduced from the Old World.

Grasses

Broadleaf Signalgrass

Urochloa platyphylla

Summer annual

Keys to Identification:
spreading growth habit; stem bent at nodes; heairy leaf blades on lower leaves; leaf sheath hairy along margin; membranous ligule fringed with hairs; seedhead 2-6 long racemes, distinctive

Distribution: All parishes. Native to Southeast U.S.

Fall Panicum

Panicum dichotomiflorum

Erect summer annual

Keys to Identification:
Bent and branched nodes; leaf blade may be hairy on upper surface; membranous ligule; large panicle seedlhead.

Distribution: All parishes.

Grasses

Large Crabgrass

Digitaria sanguinalis

Tufted summer annual

Keys to Identification:
Dense hairs on leaf blades and sheaths; membranous ligule; prostrate stems with spreading habit and rooting at nodes.

Distribution: All parishes.

Junglerice

Echinochloa colona

Keys to Identification:
Smooth leaf and leaf sheath with no ligule; purple bands on leaf tufted erect summer annual grass with fibrous root; seed awnless.

Distribution: All parishes.

Grasses

Red Rice

Oryza punctata

Keys to Identification:

Tufted summer annual; leaves long and rough; large triangular ligule; seedhead a loose erect paricle.

Distribution: All parishes.

Brook crowngrass, Brook paspalum

Paspalum acuminatum

Perennial grass

Keys to Identification:

Solid stem; lacks hair, leaf blades wide in proportion to stem; membranous ligule; seedhead winged rachis.

Distribution: South Louisiana parishes

Grasses

Creeping rivergrass

Echinochloa polystachya

Aquatic perennial grass

Keys to Identification:

Solid stem; leaf blades narrow in proportion to stem; ligule fringe of hairs; hairy nodes; seedhead loose panicle.

Distribution: Southern Louisiana parishes

Knotgrass

Paspalum distichum

Perennial grass

Keys to Identification:

Solid stem; leaf midvein not prominent; hairy nodes; leaf blade narrow in proportion to stem; membranous ligule with hair at collar region.

Distribution: all Louisiana parishes

Grasses

Rice cutgrass

Leersia oryzoides

Perennial

Keys to Identification:

Long membranus ligule; upright growth pattern; pubescent (hairy) nodes; long course leaves; short stiff hairs growing downward on stem.

Distribution: All Louisiana parishes

Southern watergrass

Luziola fluitans

Aquatic perennial grass

Keys to Identification:

floating slender stems; roots at nodes; short light green leaves less than 3 inches; membranus ligule.

Distribution: All Louisiana parishes

Grasses

Water Paspalum

Paspalum hydrophilum

Perennial grass

Keys to Identification:

Hollow stem; prominent white leaf midvein; lacks hair at nodes; leaf blade wide in proportion to stem; membranous ligule.

Distribution: Southern Louisiana parishes

Waxy mannagrass

Glyceria declinata

Perennial grass

Keys to Identification:

Found in wet areas; tufted plant with upright growth; long membranus ligule.

Distribution: South Louisiana parishes

Broadleaf Weeds

Cutleaf groundcherry

Physalis angulata

Annual

Keys to Identification:

Leaves alternate, lanceolate to ovate, edges coarsely irregular; berry fruit enclosed in an enlarged rounded calyx.

Distribution: All Louisiana parishes

Eclipta

Eclipa prostrata

Annual

Keys to Identification:

Erect to spreading; spatulate cotyledons; opposite, elliptic leaves, hairy on lower leaf surface, leaf margins slightly toothed; flowers are two solitary heads.

Distribution: All Louisiana parishes

Broadleaf Weeds

False pimpernel

Lindernia spp.

Annual

Keys to Identification:

Mat-forming; leaves opposite, elliptic to ovate, sometimes pubescent; stems creeping, sometimes rooting at nodes.

Distribution: All Louisiana parishes, wetlands and flooded rice fields

Gooseweed

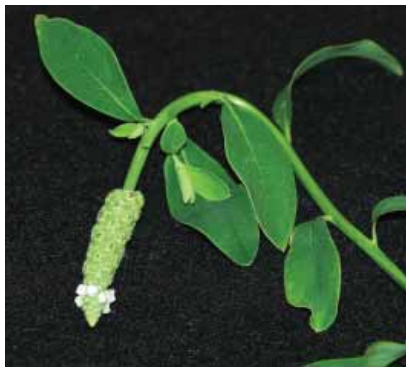
Sphenoclea zeylanica

Annual

Keys to Identification:

Erect, branching annual; leaves elliptic with smooth margins and varying in size; stems often contain a milky, watery sap and terminate in a dense spike with many small white flowers.

Distribution: All Louisiana parishes



Broadleaf Weeds

Hedge Hyssop

Gratiola spp.

Annual

Keys to Identification:

Erect, branching, herbaceous; leaves elliptic to ovate, sometimes finely serrated; stems often rooting at nodes.

Usually occurring in spring in rice field left flooded during the winter.

Distribution: All Louisiana parishes

Hemp Sesbania

Sesbania herbacea

Annual

Keys to Identification:

lance shaped cotyledons; first true leaf is simple; alternate, pinnately compound leaves with stipules; yellow petals on flower; distinctive curved seedpod.

Distribution: All Louisiana parishes

Broadleaf Weeds

Indian/Rough Jointvetch

Aeschynomene indica

Annual

Keys to Identification:

Ovate cotyledons; first true leaf pinnately compund; alternate pinnately compound leaves with lance shaped stipules; yellowish to reddish-purple flower petals; seedpod compressed, oblong and breaks into segments easily.

Distribution: All Louisiana parishes

Indian Toothcup

Rotala indica

Annual

Keys to Identification:

Erect and branching; leaves opposite, lanceolate to spatulate; stems round to square.

Distribution: All Louisiana parishes in wetlands, ditches and flooded rice fields.

Broadleaf Weeds

Ladysthumb

Polygonum persicaria

Annual

Keys to Identification:

Erect or prostrate; lance-shaped cotyledons; leaves are lance shaped with pointed tips; stems are round and smooth with swollen nodes, ocrea surrounding nodes is fringed with hair-like bristles.

Distribution: All Louisiana parishes

Pennsylvania Smartweed

Polygonum pensylvanicum

Annual

Keys to Identification:

Erect or prostrate; lance-shaped cotyledons; leaves are lance-shaped with pointed tips, usually with a purple watermark in the center of the leaf; stems are round and smooth with swollen nodes; ocrea lacks hair-like bristles.

Distribution: All Louisiana parishes

Broadleaf Weeds

Purple Ammannia

Ammannia coccinea

Annual

Keys to Identification:

Erect, herbaceous annual; reddish glabrous linear to linear-lanceolate cotyledons; leaves opposite, similar shaped, sometimes clasping; stems are square, slightly winged.

Distribution: All Louisiana parishes

Redweed

Melochia corchorifolia

Annual

Keys to Identification:

Herbaceous; round cotyledons; ovate to lanceolate leaves with serrated margins; hairy stem; flower in compact head-like cymes

Distribution: All Louisiana parishes

Broadleaf Weeds

Spreading dayflower

Commelina diffusa

Annual

Keys to Identification:

Diffusely branching herbaecous annual; seedling unbranched, glabrous, grass-like; leaves glabrous, lanceolate, acuminate or acute; stems glabrous.

Distribution: All Louisiana parishes

Texasweed

Caperonia palustris

Annual

Keys to Identification:

Herbaceous annual, with smooth cotyledons and coarse hairy stems and petioles; alternate lanceolate leaves with serrated margins; monoecious plants (separate male and female flowers) .

Distribution: All Louisiana parishes

Broadleaf Weeds

Alligatorweed

Alternanthera philoxeroides

Aquatic Annual

Keys to Identification:

Erect or prostrate; lance-shaped cotyledons; leaves are lance-shaped with pointed tips, usually with a purple watermark in the center of the leaf; stems are round and smooth with swollen nodes.

Distribution: All Louisiana parishes

Bulltongue Arrowhead

Sagittaria lancifolia

Aquatic Annual

Keys to Identification:

Erect aquatic perennial; leaves on long, spongy petioles, broadly elliptic to oblong-elliptic; flowers unisexual, with three white petals

Distribution: All Louisiana parishes in wetlands, ditches, flooded rice fields and pnd edges

Broadleaf Weeds

Common Arrowhead

Sagittaria latifolia

Aquatic Perennial

Keys to Identification:
Erect aquatic perennial; leaves variable on long, spongy petioles sagittate, 3-lobed with basal lobes apicies varying from broadly obtuse to narrowly acute; flowers unisexual, with three white petals.

Distribution: All Louisiana parishes in wetland, ditches, flooded rice fields and pond edges.

Creeping Burhead

Echinodorus cordifolius

Aquatic Annual/perennial

Keys to Identification:

Leaf blades broadly ovate; petioles submerged with spongy cells at base; white flowers on arching scape.

Distribution: All Louisiana parishes

Broadleaf Weeds

Ducksalad

Heteranthera limosa

Aquatic Annual/Perennial

Keys to Identification:

Tufted but spreading from rhizomes; leaves linear to oblanceolate; stems fleshy, rooting at the nodes; plants having a white or blue solitary flower .

Distribution: All Louisiana parishes

Pickerelweed

Pontederia cordata

Aquatic perennial

Keys to Identification:

Erect; leaves ovate to elliptical early, becoming cordate-sagitate; stems short, stout, somewhat succulent; flowers blue or lavender on a spike.

Distribution: All Louisiana parishes - wetlands, ditches, flooded rice fields and pond edges

Broadleaf Weeds

Red Ludwigia/Marsh Seedbox

Ludwigia palustris

Perennial

Keys to Identification:

Mat-forming, prostrate and creeping; leaves opposite, elliptic to ovate.

Distribution: All Louisiana parishes

Roundleaf Mudplantain

Heteranthera reniformis

Aquatic Annual/Perennial

Keys to Identification:

Tufted but spreading from rhizomes; leaves linear early, becoming cordate or reniform; stems fleshy, rooting at the nodes; flowers multiple white or pale blue on a raceme.

Distribution: All Louisiana parishes

Sedges and Rushes

Rice Flatsedge

Cyperus iria

Annual

Keys to Identification:

Erect tufted annual; leaves three-ranked, linear-lanceolate; stems triangular, glabrous, mutiple fruiting stems from plant base.

Distribution: All Louisiana parishes

Yellow Nutsedge

Cyperus esculentus

Perennial

Keys to Identification:

Erect, colonial, perennial; leaves three-ranked, prominent midvein, radually tapering to a sharp point; stems triangular, rarely branching, borne from a tuber or basal bulb.

Distribution: All Louisiana parishes

Sedges and Rushes

Bog Bulrush

Schoenoplectus mucronatus

Perennial

Keys to Identification:

Herbaceous plant; erect, rhizomatous.

Distribution: All Louisiana parishes-wetlands, ditches and flooded rice fields

Spikerush

Eleocharis spp.

Annual/Perennial

Keys to Identification:

Rhizomatous, sometimes mat-forming plant; stems often round, sometimes square and smooth terminating in a single erect spike.

Distribution: All Louisiana parishes-wetlands, ditches and flooded rice fields