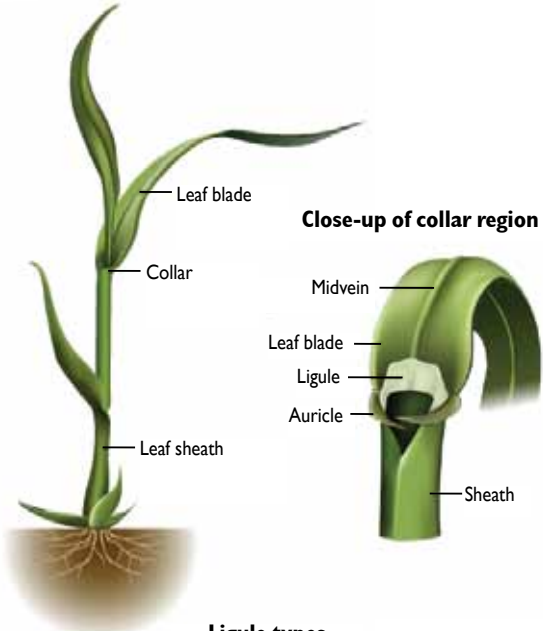


GRASS & GRASS-LIKE WEEDS

Many key identification characteristics of grasses are evident in the collar region, which can be seen by carefully pulling the

GRASS MORPHOLOGY

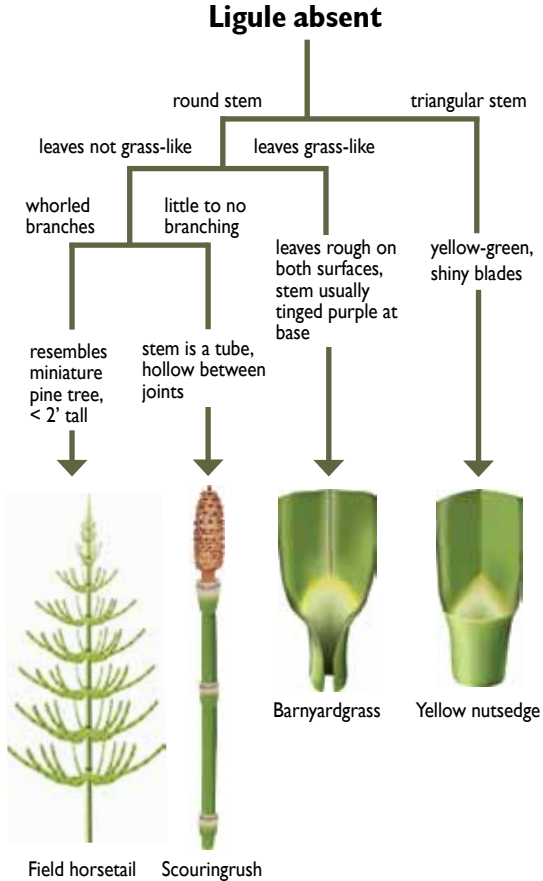
Basic structure of grass shoot



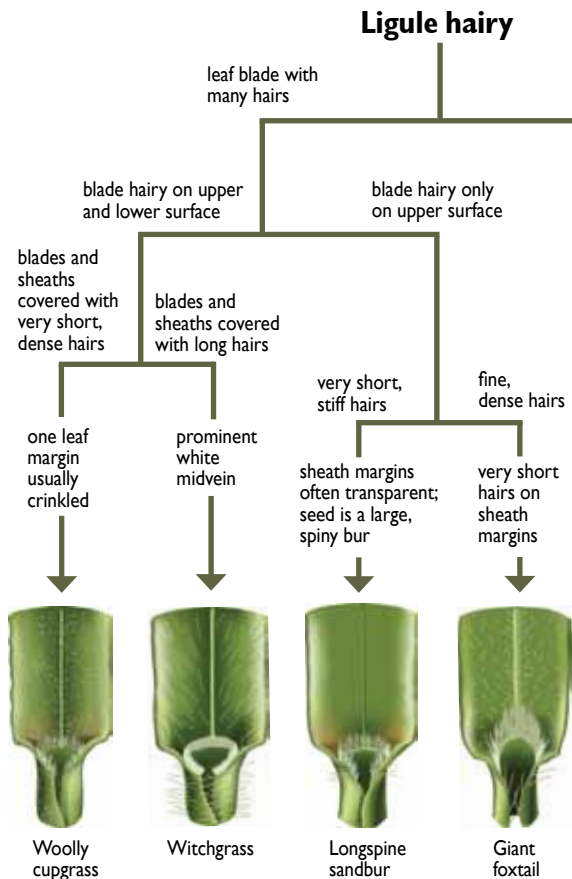
Ligule types



IDENTIFICATION KEY



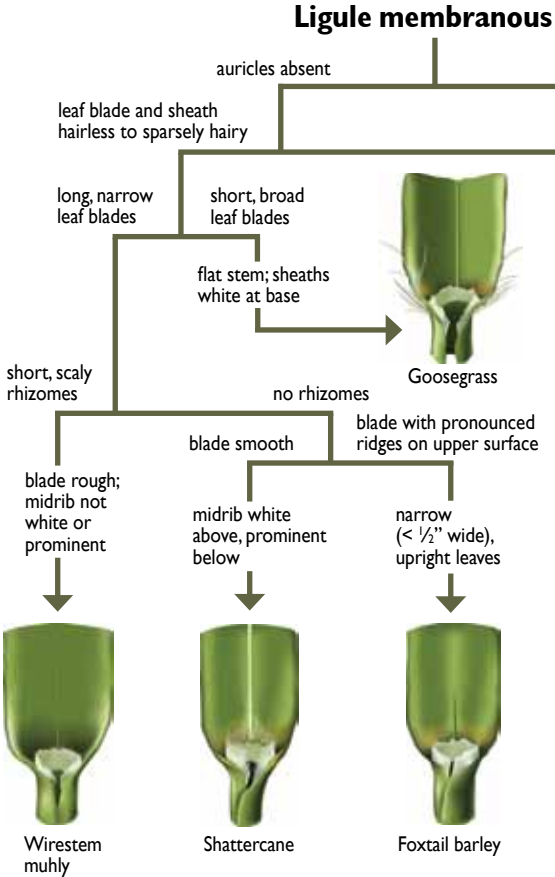
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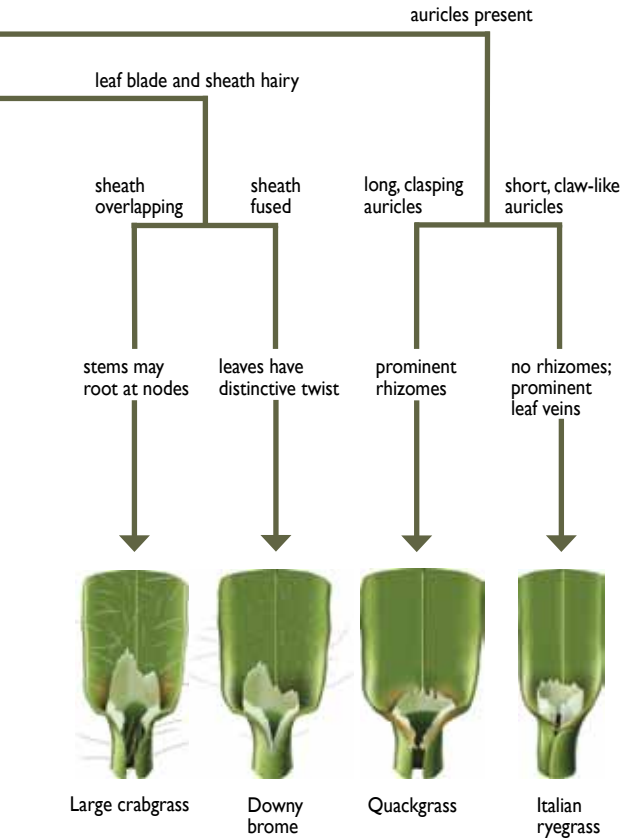
IDENTIFICATION KEY



IDENTIFICATION KEY



IDENTIFICATION KEY



SEDGE FAMILY (*CYPERACEAE*)

Yellow nutsedge

Other names: Yellow nutgrass, chufa

Scientific name: *Cyperus esculentus*

Life cycle/height: Perennial, up to 2 feet

Leaves: Shiny, yellow-green and hairless with a distinct ridge along the midvein. Leaves are produced in groups of 3 at the base of the plant. No nodes are present.

Ligules: None

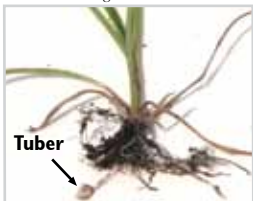
Stems: Erect, unbranched and 3-sided; triangular cross section. Rhizomes are wiry and scaly with nutlike tubers produced at the tips.

Seedhead: Inflorescence is a cluster of yellow-brown spikes at the end of a solitary stem.

Comments: Reproduces by seed, rhizomes and tubers. Prefers poorly drained soils.



Yellow nutsedge seedhead



Yellow nutsedge root system



Yellow nutsedge plants

HORSETAIL FAMILY (*EQUISETACEAE*)



*Field horsetail
spore-producing*



*Field horsetail
whorled branches*



*Field horsetail
vegetative stem*

Field horsetail

Other names: Common horsetail, monkey puzzle, bottle brush

Scientific name: *Equisetum arvense*

Life cycle/height: Perennial, up to 2 feet

Leaves: Small, scale-like and fused into sheaths around stems. Sheaths of spore-producing stems are light brown with 8 to 12 large, pointed, dark brown teeth; sheaths of vegetative stems are green with 10 to 12 black teeth.

Ligules: None

Stems: Spore-producing stems appear in early to mid-spring and are short lived. They are unbranched, whitish to light brown, usually thick and succulent and 6 to 12 inches tall. Vegetative stems are green with whorls of 10 to 12 ridged branches at each joint. Vegetative plants resemble miniature pine trees.

Seedhead: Spore-bearing cones on the ends of fertile stems are up to 1 inch long, oblong and rounded at the top. Cones are mostly brown and covered with spore-bearing tubercles that have black and white markings.

Comments: Reproduces by spores, rhizomes and tubers. Tolerant to most herbicides, including glyphosate. Found in poorly drained areas and is an increasing problem in no-till fields.



Field horsetail plants in no-till field

HORSETAIL FAMILY (*EQUISETACEAE*)

Scouringrush

Other names: Snakegrass, popgrass

Scientific name: *Equisetum hyemale*

Life cycle/height: Perennial, up to 4 feet

Leaves: Ring-like sheaths up to 1 inch long at the top of each joint. Sheaths have a whitish-gray, brown or tan middle section and a black rim with up to 40 small, black teeth that may break off.

Ligules: None

Stems: Erect, evergreen, rigid, jointed and segmented with 10 to 40 fine ridges running lengthwise. Lower joints are spaced several inches apart; joints become closer together higher on the stem. Stems are hollow between joints. Spore-producing stems look like vegetative stems, except they end in a spore-bearing cone. Rhizomes with fibrous secondary roots are black, round and may have tubers.

Seedhead: Spore-bearing cones are tan to brown, up to 1 inch long, oblong and pointed at the top.

Comments: Reproduces by spores, rhizomes and tubers. Tolerant to most herbicides, including glyphosate. Increasing problem in no-till fields.



Scouringrush stem joint



Scouringrush spore-bearing cone



Scouringrush spore-producing



Scouringrush vegetative stems

GRASS FAMILY (*POACEAE*)



Downy brome collar region



Downy brome seed-head



Downy brome young plant

Downy brome

Other names: Drooping brome

Scientific name: *Bromus tectorum*

Life cycle/height: Early summer or winter annual, up to 2 feet

Leaves: Blades and sheaths are densely covered with soft hairs. Leaves have a distinctive twist. Sheaths are fused, not overlapping.

Ligules: Membranous, toothed or fringed with hair up to $\frac{1}{8}$ inch long

Stems: Clump-forming, erect or spreading and hairless to slightly hairy

Seedhead: Inflorescence is a 2 to 8 inch long drooping panicle, often turning purple near maturity. Individual spikelets are $\frac{3}{4}$ to $1\frac{1}{2}$ inches long, tipped with about $\frac{1}{2}$ inch long awns.

Comments: Reproduces by seed. Resembles cheat (*Bromus secalinus*), but cheat is considerably less hairy throughout. Downy brome and cheat are found in overgrazed pastures and are an increasing problem in no-till fields.

GRASS FAMILY (*POACEAE*)

Longspine sandbur

Other names: Burgrass, field sandbur

Scientific name: *Cenchrus longispinus*

Life cycle/height: Annual, up to 2 feet

Leaves: Blades are flat, narrow, up to 8 inches long with very short, stiff hairs on upper surfaces that give them a rough texture. Hairs may only be visible with a hand lens. Lower leaf surface is hairless. Leaf margins are rough. Sheaths are mostly hairless but a few hairs may occur on the margins. Sheath margins are split part way up the stem.

Ligules: Hairy, less than $\frac{1}{10}$ inch long

Stems: Hairless and mostly covered by the leaf sheaths

Seedhead: Inflorescence consists of 4 to 20 round, spiny burs attached by short stems to 4 inch long zigzag stalks. Inflorescences are sometimes partly enclosed by upper leaves. Burs are hairy and have spines up to $\frac{1}{4}$ inch long. Burs contain 2 to 4 seeds that are each about $\frac{1}{5}$ inch long.

Comments: Reproduces by seed. Germinates late, commonly found on field edges or in fields with sandy soils.



Longspine sandbur seedhead



Longspine sandbur burs



Longspine sandbur plants

GRASS FAMILY (*POACEAE*)



Large crabgrass



Large crabgrass collar region



Large crabgrass seedhead



Large crabgrass plant

Large crabgrass

Other names: Hairy crabgrass, purple crabgrass

Scientific name: *Digitaria sanguinalis*

Life cycle/height: Annual, up to 3 feet

Leaves: Both leaf surfaces and sheath are hairy. Leaves are up to 8 inches long and often wider than most grasses. Sheaths are overlapping.

Ligules: Membranous, jagged, $\frac{1}{10}$ inch long

Stems: Erect or spreading, hairless and may root at nodes that contact ground

Seedhead: Inflorescence is a terminal panicle consisting of 3 to 10 slender, finger-like branches. Branches appear whorled. Seeds are yellow-brown, $\frac{1}{10}$ inch long and arranged alternately on branches of the inflorescence.

Comments: Reproduces by seed. Emerges later than most annual grass weeds and grows well under hot, dry conditions. Smooth crabgrass (*Digitaria ischaemum*) is similar to large crabgrass but does not have hairs on the leaf blades or sheaths, and is not as robust or tall.

GRASS FAMILY (*POACEAE*)

Barnyardgrass

Other names: Japanese millet, watergrass

Scientific name: *Echinochloa crus-galli*

Life cycle/height: Annual, up to 4 feet

Leaves: Up to 20 inches long and 1 inch wide and predominantly hairless, except for occasional hairs at leaf bases. Leaves are rough on both surfaces with a distinct white midvein.

Ligules: Absent

Stems: Erect, thick, flattened, hairless and tinged red to maroon at the base

Seedhead: Inflorescence is an upright to nodding terminal panicle up to 10 inches long. Panicles have compact, thick, green to purple side branches that have individual spikelets each with a short, stiff, terminal awn. Seeds are brown or maroon.

Comments: Reproduces by seed. Prefers wet areas.



Barnyardgrass collar region



Barnyardgrass seedhead



Barnyardgrass plant base tinged red to maroon

GRASS FAMILY (*POACEAE*)



Goosegrass collar region



Goosegrass leaves



Goosegrass seedhead



Goosegrass plant base with white center

Goosegrass

Other names: Crowsfoot grass, silver crabgrass, wiregrass

Scientific name: *Eleusine indica*

Life cycle/height: Annual, up to 1½ feet

Leaves: Blades are up to 12 inches long and folded along the midvein. Blades and sheaths are hairless or sparsely hairy except for long hairs near the collar region. Sheaths are flattened and white at the base.

Ligules: Membranous, uneven and less than 1/10 inch long

Stems: Prostrate to occasionally erect with a distinctive white center at the base

Seedhead: Inflorescence is composed of 2 to 13 spikes in finger-like clusters at tops of stems. Each spike is 1 to 6 inches long. There may be 1 or 2 individual spikes lower on the stem. Two rows of flattened spikelets occur along each spike.

Comments: Reproduces by seed.

GRASS FAMILY (*POACEAE*)

Quackgrass

Other names: Couchgrass

Scientific name: *Elymus repens*

Life cycle/height: Perennial, up to 4 feet

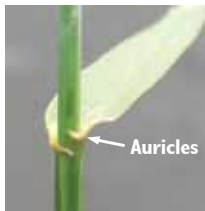
Leaves: Up to 10 inches long. May have a few hairs on the upper surface; lower surface is hairless. Leaves have narrow auricles that clasp the stem. Auricles may not be present on mature leaves.

Ligules: Membranous, about $\frac{1}{32}$ inch long

Stems: Erect and often bending out and up from the base of the plant. Plants spread by thin, yellowish to white, sharp-tipped rhizomes that may reach up to $3\frac{1}{2}$ feet long.

Seedhead: Inflorescence is a 2 to 8 inch long, narrow spike consisting of many individual spikelets arranged in 2 rows along the stem. Individual spikelets have prominent awns. Seedheads look like slender wheat seedheads.

Comments: Reproduces by seed and rhizomes. Typically the first grass to emerge in crop fields, normally occurring in distinct patches. Often found in wet areas and is an increasing problem in no-till fields. It is a noxious weed in Iowa.



Quackgrass leaf and stem



Quackgrass seedhead and leaves

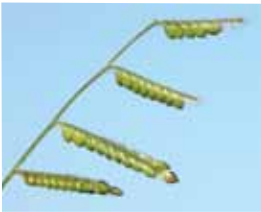


Quackgrass plants

GRASS FAMILY (*POACEAE*)



Woolly cupgrass seedling



Woolly cupgrass seedhead

Woolly cupgrass

Other names: Hairy cupgrass

Scientific name: *Eriochloa villosa*

Life cycle/height: Annual, up to 3 feet

Leaves: The first leaf is wide and typically lies flat just above the soil surface. Upper and lower surfaces of leaf blades and sheath are covered with fine, dense, very short hairs (use a hand lens to help see hairs). One leaf margin is usually crinkled.

Ligules: Hairy, about $\frac{1}{16}$ inch long

Stems: Erect or occasionally decumbent and rooting at lower nodes. Stem is covered with short, soft hairs.

Seedhead: Inflorescence is covered with soft hairs and has 1 or 2 rows of large, $\frac{1}{5}$ inch long seeds on finger-like branches. Each seed is nestled in a hairy "cup."

Comments: Reproduces by seed. It typically emerges 7 to 10 days prior to the foxtails. Seedlings resemble large crabgrass (page 23), but hairs on large crabgrass are considerably longer. Woolly cupgrass seeds are relatively large and may remain attached to the roots when plants are dug from the soil. Woolly cupgrass is difficult to control with soil-applied herbicides.



Woolly cupgrass leaves

GRASS FAMILY (*POACEAE*)

Foxtail barley

Other names: Squirreltail

Scientific name: *Hordeum jubatum*

Life cycle/height: Perennial, up to 2 feet

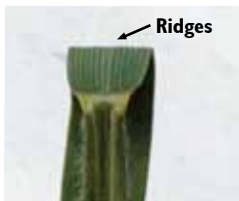
Leaves: Flat, stiff, upright with pronounced ridges on upper surfaces and 2 to 6 inches long. Blades and sheaths are hairless or sparsely hairy.

Ligules: Membranous, about $\frac{1}{32}$ inch long

Stems: Erect, stiff, hollow, hairless and clump forming

Seedhead: Inflorescence is a nodding, 2 to 4 inch long (excluding awns) bristly spike, sometimes partially enclosed in upper sheaths. Awns are 1 to 3 inches long.

Comments: Reproduces by seed. Plants may appear bluish-green. May be more problematic in no-till fields.



Foxtail barley collar region

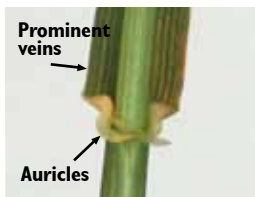


Foxtail barley seedhead

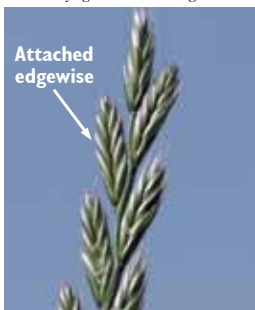


Foxtail barley plants

GRASS FAMILY (*POACEAE*)



Italian ryegrass collar region



Italian ryegrass spikelets



Italian ryegrass plants

Italian ryegrass

Other names: Annual ryegrass

Scientific name: *Lolium multiflorum*

Life cycle/height: Annual, up to 3 feet

Leaves: Up to 8 inches long with narrow, claw-like auricles. The upper surface is dull with prominent veins; the lower surface is glossy. Sheaths are hairless.

Ligules: Membranous, less than $\frac{1}{10}$ inch long

Stems: Erect and often tinged red or purple at the base

Seedhead: Inflorescence is a 4 to 16 inch long spike with spikelets arranged alternately along the stem. Each spikelet is attached edgewise to the central stem. The lower bract enclosing each seed in the spikelet usually has an awn up to $\frac{1}{3}$ inch long.

Comments: Reproduces by seed. More prevalent in no-till fields.

GRASS FAMILY (*POACEAE*)

Wirestem muhly

Other names: Common satin grass

Scientific name: *Muhlenbergia frondosa*

Life cycle/height: Perennial, up to 3 feet

Leaves: Blades are 2 to 4 inches long, broadest near the middle, rough and hairless. Sheaths are hairless.

Ligules: Membranous, about $\frac{1}{32}$ inch long

Stems: Plants have a dense, bushy appearance. Stems are hairless, stiff and erect early, becoming decumbent later. Stems often form roots at the nodes when they contact soil. Rhizomes are short, thick and scaly.

Seedhead: The central stem terminates in a narrow panicle 3 to 4 inches long. The panicle consists of about 6 to 12 branches, each up to $\frac{3}{4}$ inch long with $\frac{1}{8}$ inch long spikelets. Smaller, 1 to 2 inch long side panicles may develop from the middle to upper stem nodes.

Comments: Reproduces by seed and rhizomes. It is an increasing problem in no-till fields.



Wirestem muhly collar region



Wirestem muhly young



Wirestem muhly plant with decumbent stems rooting at nodes

GRASS FAMILY (*POACEAE*)



Witchgrass collar region



Witchgrass leaf sheath

Witchgrass

Other names: Panicgrass, ticklegrass

Scientific name: *Panicum capillare*

Life cycle/height: Annual, up to 4 feet

Leaves: Both leaf surfaces are covered with hairs. Leaves are 4 to 10 inches long with a prominent white midvein. Sheaths are finely ribbed, covered with dense, soft hairs and have overlapping margins.

Ligules: Hairy, $\frac{1}{16}$ inch long

Stems: Erect or curving up from the base

Seedhead: Dense, funnel-shaped panicles emerge from the uppermost leaves and spread as the plant matures. Mature panicles are many-branched, 4 to 12 inches long and 3 to 12 inches wide and are often half the length of the entire plant. Each panicle branch terminates in a single spikelet.

Comments: Reproduces by seed. The panicle can detach from the plant and roll across the ground, distributing the seeds.



Witchgrass plant with seedhead

GRASS FAMILY (*POACEAE*)

Fall panicum

Other names: Fall panic, fall panicgrass

Scientific name: *Panicum dichotomiflorum*

Life cycle/height: Annual, up to 4 feet

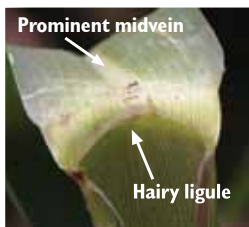
Leaves: Blades are hairless or sparsely hairy with a prominent midvein. Sheaths are hairless. Seedlings have hairs on the lower leaf surface and sheath, but hairs disappear as plants mature.

Ligules: Hairy, up to $\frac{1}{8}$ inch long

Stems: Hairless, round and glossy. Nodes are usually swollen. Roots may form at lower nodes. Stems have an unusual zigzag growth habit.

Seedhead: Inflorescence is a large, spreading panicle. Individual spikelets are yellow, oval and about $\frac{1}{8}$ inch long.

Comments: Reproduces by seed. Emerges later than other annual weedy grasses, thus is more common in fields that do not develop a complete canopy (e.g., seed corn).



Fall panicum collar region

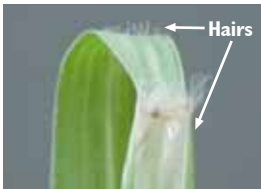


Fall panicum seedhead



Fall panicum stem rooting at

GRASS FAMILY (*POACEAE*)



Giant foxtail collar region



Giant foxtail seedhead



Giant foxtail plants

Giant foxtail

Scientific name: *Setaria faberi*

Life cycle/height: Annual, up to 5 feet

Leaves: Blades are up to 16 inches long. Upper surfaces are covered with short, fine hairs. Sheaths have very short hairs along margins.

Ligules: Hairy, up to $\frac{1}{8}$ inch long

Stems: Erect, round, hollow and usually without hairs

Seedhead: Inflorescence is a cylindrical, bristly panicle that is 3 to 8 inches long. The inflorescence has a nodding appearance.

Comments: Reproduces by seed. One of the most problematic grass weeds in corn and soybean.

GRASS FAMILY (*POACEAE*)

Yellow foxtail

Other names: Pigeon grass

Scientific name: *Setaria pumila*

Life cycle/height: Annual, up to 3 feet

Leaves: Blades are up to 12 inches long and hairless, except for prominent, scattered long hairs on upper blade surface near the collar. Sheaths are flattened, hairless and often turn reddish-purple near the base.

Ligules: Hairy, up to 1/8 inch long

Stems: Erect or prostrate, flattened and hairless

Seedhead: Inflorescence is a cylindrical, bristly panicle up to 6 inches long. Individual spikelets are about 1/10 inch long. Each spikelet has 1 to 3 bristles that turn yellowish brown at maturity. Seeds are largest among the foxtails.

Comments: Reproduces by seed. Plants tiller more frequently, have a more prostrate growth habit and are more tolerant of mowing than the other foxtails.



Yellow foxtail collar region



Yellow foxtail seedhead



Reddish-purple base

Yellow foxtail young plant

GRASS FAMILY (*POACEAE*)

Green foxtail

Other names: Green bristlegrass

Scientific name: *Setaria viridis*

Life cycle/height: Annual, up to 3 feet

Leaves: Hairless, rough and up to 12 inches long. Sheaths are usually hairless except for short hairs along the margins.

Ligules: Hairy, up to 1/8 inch long

Stems: Erect, hairless and slightly bent at nodes. May be branched at the base.

Seedhead: Inflorescence is a cylindrical, 1 to 3 inch long, bristly panicle. Individual spikelets are rounded and nearly flat on one side with 1 to 3 bristles coming from the base. Bristles are 1/4 to 1/2 inch long and green to purple.

Comments: Reproduces by seed. A variant of green foxtail, purple robust foxtail, is larger than most green foxtail plants and has distinct purple bristles.



Green foxtail collar region



Green foxtail seedheads



Green foxtail plant

GRASS FAMILY (*POACEAE*)

Shattercane

Other names: Wild cane, broomcorn

Scientific name: *Sorghum bicolor*

Life cycle/height: Annual, up to 12 feet

Leaves: Blades are hairless, 12 to 24 inches long and 1 to 2 inches wide with a prominent midvein. Blades may have reddish-purple splotches. Sheaths are hairless or occasionally with hairs near the collar region.

Ligules: Membranous, with a fringe of hairs on top, $\frac{1}{8}$ inch long

Stems: Erect and hairless with prominent nodes (like corn). Tillers are produced at the base.

Seedhead: Inflorescence is a terminal panicle held above the leaves. Seeds are shiny black kernels similar to forage sorghum.

Comments: Reproduces by seed.

Shattercane is a wild type of grain and forage sorghum. Seeds remain viable in the soil for 2 to 3 years. In southern Iowa, plants that resemble shattercane but have rhizomes are the perennial weed johnsongrass (*Sorghum halepense*). Shattercane is a noxious weed in Iowa.



Shattercane collar region



Shattercane seedhead



Shattercane plants