IOWA STATE UNIVERSITY
University Extension

WEED IDENTIFICATION

FIELD GUIDE

A reference for identifying weeds in field crops

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This publication is a cooperative effort between the Iowa Soybean Association and the College of Agriculture and Life Sciences and Extension at Iowa State University.

Note: Information in this guide may be specific to Iowa. Those from outside Iowa should check with their state land grant university weed scientists or agronomic service provider for local information.

Weed Management

Weed management is a vital aspect of profitable corn and soybean produc-

Introduction

Corn and soybean producers face multiple pest and plant health challenges that can often be effectively managed with an Integrated Pest Management (IPM) program. Weed management is vital for maximizing crop production and is an important component of IPM.

Accurate weed identification is the first step to successfully managing weeds. Because weed species vary in their response to different management strategies, proper identification is essential to develop effective management plans. These plans include cultural, mechanical or chemical control methods that are specific to the particular cropping system and weeds present. Control methods must be employed at the appropriate time for optimum results.

This field guide helps identify weeds by describing and illustrating diagnostic characteristics of weeds found in crop production fields in Iowa and neighboring states.

Weeds are arranged in two main categories: **Grass and Grass-like Weeds** and **Broadleaf Weeds**. Within the two main categories, weeds are arranged alphabetically by plant family and within each family by scientific name. This guide predominantly uses the most recently accepted common names specified by the Weed Science Society of America and scientific names by Flora of North America.

After identifying a weed problem, consult with state or local extension personnel and agronomic service providers to develop an effective management plan.

Weeds typically fall into one of three life cycle classifications: annuals, biennials or perennials. Some weeds may be classified into more than one life cycle. Weeds are usually best adapted to survive in a crop with a similar life cycle, germination time or growth habit. The most effective control methods often are based on the life cycle of a weed.

Annuals

Annual weeds complete their life cycle in one year and reproduce by seeds. There are summer and winter annual weeds. Summer annual weeds germinate in the spring, then grow, flower and produce seeds during one growing season. They are the most common type of weed in annually tilled fields. Winter annual weeds germinate in late summer or fall, establish a root system and vegetative growth, overwinter and then resume growing the next spring. They usually flower and set seed in spring or early summer and then die. Winter annual weeds can pose problems in fall-seeded crops, early spring grains, pastures and no-till fields. Annual weeds are most easily controlled in the seedling stage and become more difficult to control as they grow and mature.

Winter annual weeds can pose a problem in no-till fields.

Biennials

Biennial weeds require two years to complete their life cycle and, like annual weeds, only reproduce by seeds. Seeds germinate in the spring or summer and produce root systems and rosettes of leaves the first year. The following spring stems bolt (elongate) and plants flower, produce seeds and die. Biennial weeds are typically a problem in no-till fields, pastures and other undisturbed areas. Some biennial weeds can also behave as annuals, completing their life cycle in a single growing season. Chemical control of biennial weeds is most effective when applied to seedlings or during the rosette stage, before stems bolt.

Musk thistle rosette

Musk thistle bolting stem

Perennials

Perennial weeds live multiple years. They reproduce vegetatively and/or by seeds. Perennials typically inhabit no-till fields, pastures, roadsides and, occasionally, tilled fields. Most perennial weeds found in row crops regrow annually from underground overwintering structures.

Perennials can be grouped into two classes, simple and creeping. Simple perennials usually have taproots and reproduce by seed. Creeping perennials can reproduce by seed and vegetatively by rhizomes, tubers, stolons, budding roots and bulbs. Tillage breaks vegetative structures into pieces that can regenerate into new plants, potentially spreading the infestation within or between fields. Perennials may require either repeated efforts or a combination of management tactics to achieve adequate control. A well-timed systemic herbicide application may provide the most effective chemical control. Perennials are easiest to control as seedlings.

Canada thistle is an example of a weed that reproduces

Herbicide Decisions

Herbicide programs typically include soil-applied (e.g., preemergence) and postemergence products. Soil-applied herbicides control weeds as seeds germinate, reducing early-season weed competition and protecting yield potential. They also provide residual activity and greater flexibility in timing of postemergence herbicides. Postemergence applications target weed species not controlled by soil applications. Some postemergence herbicides only control weeds emerged at the time of application. Others control emerged weeds and provide residual activity against later emerging weeds.

A well designed weed management plan involves field scouting and protects crops from weed competition, prevents weed populations from increasing over time, minimizes herbicide injury and delays or prevents herbicide resistant weed development.

Factors to consider when selecting herbicides

- Weed escapes or problems the previous year
- Environmental conditions the previous year, including conditions favorable for herbicide carryover
- Herbicide tolerant crops used the previous year and planned for the current year
- Tillage plans for the current season
- Using herbicides with different sites of action to delay or prevent herbicide resistant weed development
- Using timely herbicide applications that prevent early-season weed competition and provide residual control for late-emerging weed species
- Crop rotation plans for the next year (carryover)
- Postemergence herbicide label restrictions based on crop and weed growth stage and/or height

Soil-applied herbicide application factors

Factors particularly important to consider for soil-applied products include soil type, environmental impacts such as leaching or runoff potential and possible interactions with insecticides or other herbicides. Rates should be based on soil type, target weeds and objectives of the application (full-season weed control versus set up for planned postemergence herbicide).

Postemergence herbicide application timing factors

Field scouting is particularly important when selecting postemergence herbicides. Fields should be scouted frequently following crop emergence to determine the need and appropriate timing of postemergence weed control. Weed species, density and growth rates are critical factors influencing how long weeds can compete with the crop before yields are reduced. Treat fields with heavy infestations as soon as possible after weeds emerge.

The initial growth of weeds is relatively slow, but their growth rate increases rapidly as time progresses. Weeds as small as two inches tall can reduce crop yields if present at high densities. Crop yield loss per day increases due to increasing competition of larger weeds.

Monitor weed emergence prior to postemergence applications.

Herbicide Resistance

Herbicide resistant weeds were first documented in the 1950s. Current weed control programs rely on only a few herbicide products, thus resistant weeds are expected to become more problematic in the future.

Resistance to herbicides results from repeatedly applying a herbicide with the same site (or mode) of action. This selects for individual plants genetically able to survive the herbicide. Resistance is the inherited ability of a weed to survive a herbicide dose that would normally control individual plants of that species. Surviving weeds reproduce, resulting in a population shift where most, if not all, of the plants are resistant. For example, nearly all common waterhemp populations in Iowa are resistant to ALS inhibitor herbicides following widespread use of these herbicides in the 1980s.

Weeds **tolerant** to a herbicide have always had the ability to survive exposure to the chemical. For example, giant foxtail is naturally tolerant to atrazine.

Rotating or tank mixing herbicides with different sites (or modes) of action within the season and across years will reduce the selection pressure on a weed population and decrease the likelihood of developing herbicide resistance. Where possible, include non-chemical weed control strategies.

Mode of action: Mechanism by which a herbicide kills a plant
Site of action: Specific protein to which a herbicide binds, disrupting a physiological process in plants. Herbicides with the same mode of action may or may not have the same site of action (see page 10).

Examples of herbicide resistant weeds found in Iowa (June 2010)

Common name	Site of action*				
	ALS inhibitors	EPSPS inhibitors	Photosystem II inhibitors	PPO inhibitors	ACCase inhibitors
Common cocklebur	X				
Common lambsquarters			X		
Common sunflower	X				
Common waterhemp	X	X	X	X	
Giant foxtail			X		X
Giant ragweed	X	X			
Marestail (horseweed)		X			
Shattercane	X				

* Common products are listed on page 10.

Herbicide mode and site of action

Mode of action	Site of action group*	Site of action	Product examples
Lipid synthesis inhibitors	1	ACCase inhibitors	Assure® II, Fusilade® DX, Poast Plus®, Select®
Amino acid synthesis inhibitors	2	ALS inhibitors	Accent® Q, Autumn™, FirstRate®, Harmony® GT, Option®, Python®, Resolve® Q, Steadfast® Q
	9	EPSPS inhibitors	Roundup®, Touchdown®
Growth regulators	4	Unknown	2, 4-D, Clarity®, Stinger®
	19	Auxin transport inhibitors	component of Distinct®, Status®
Photosynthesis inhibitors	5**	Photosystem II inhibitors	Aatrex®, Atrazine, Sencor®
	6**	Photosystem II inhibitors	Basagran®, Buctril®
	7**	Photosystem II inhibitors	Linex®, Lorox®
Nitrogen metabolism	10	Glutamine synthesis inhibitors	Ignite®
Pigment inhibitors	13	Diterpene synthesis inhibitors	Command®
	28	HPPD inhibitors	Balance® Flexx, Callisto®, Corvus™, Impact®, Laudis®
Cell membrane disrupters	14	PPO inhibitors	Aim®, Cobra®, Flexstar®, Phoenix™, Resource®, Sharpen™, Ultra Blazer®, Valor®
	22	Photosystem I electron diverters	Paraquat
Seedling root growth inhibitors	3	Microtubule inhibitors	Prowl®, Treflan®
Seedling shoot growth inhibitors	15	Long-chain fatty acid inhibitors	Degree®, Dual II Magnum®, Harness®, INTRRO®, Outlook®, TopNotch®

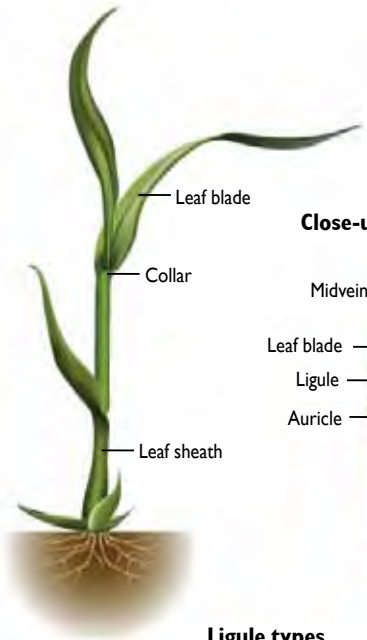
** Site of action group is a classification system developed by the Weed Science Society of America.*

Most premix products containing more than one herbicide are not included in this field guide.
Neither endorsement nor criticism is implied by Iowa State University of products mentioned or not mentioned in this publication.

Grass & Grass-like Weeds

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

Basic structure of grass shoot



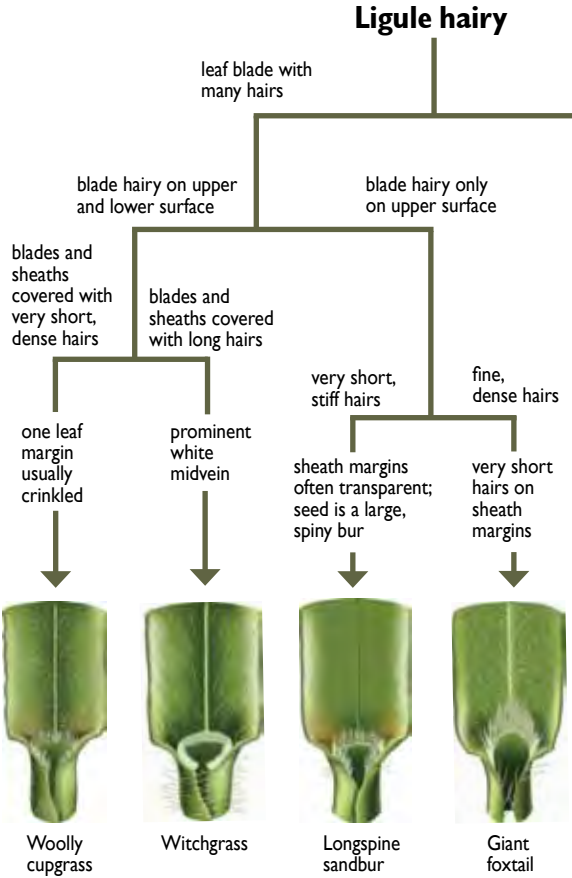
Close-up of collar region

Ligule types

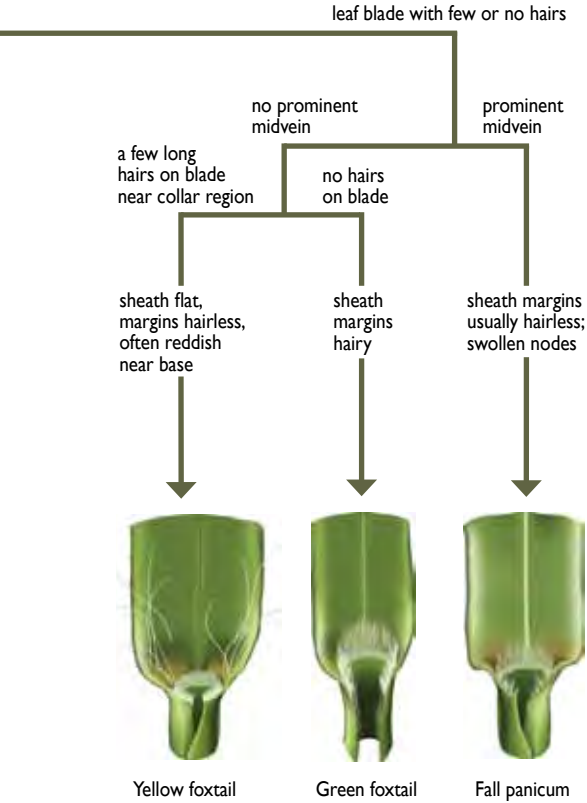
Ligule absent | Ligule hairy | Ligule membranous

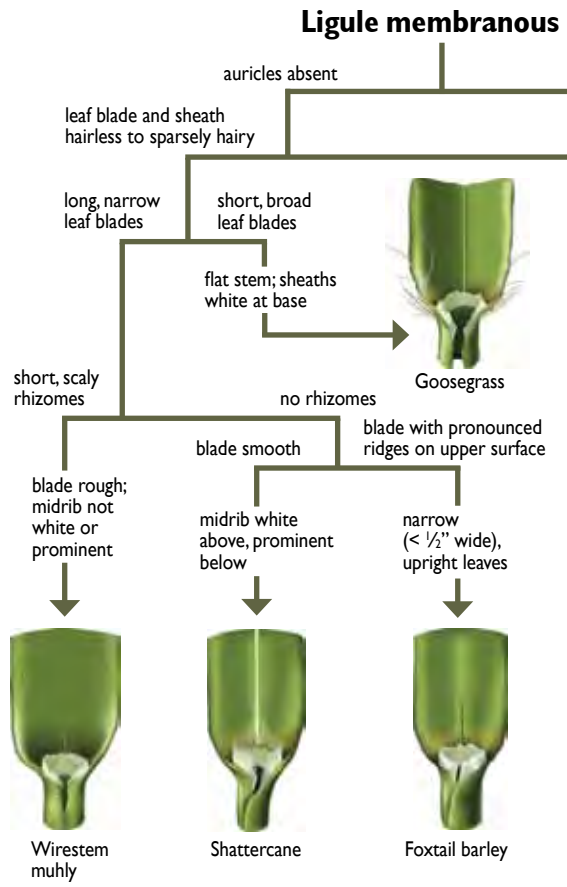
Ligule absent

- round stem
  - leaves not grass-like
    - whorled branches
      - resembles miniature pine tree, < 2' tall
      - 
      - Field horsetail
    - little to no branching
      - stem is a tube, hollow between joints
      - 
      - Scouringrush
  - leaves grass-like
    - leaves rough on both surfaces, stem usually tinged purple at base
    - 
    - Barnyardgrass
- triangular stem
  - yellow-green, shiny blades
  - 
  - Yellow nutsedge

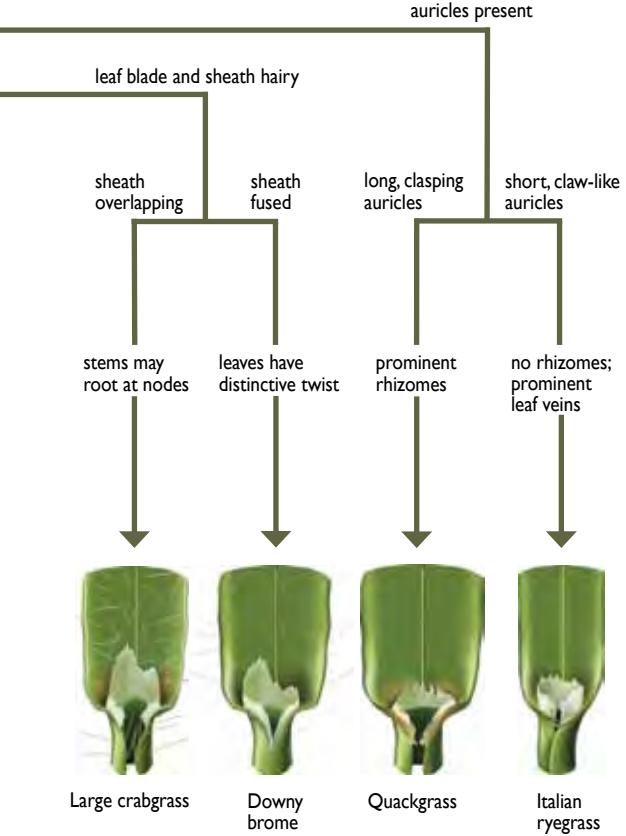

Ligule hairy
leaf blade with many hairs
blade hairy on upper and lower surface
blade hairy only on upper surface
blades and sheaths covered with very short, dense hairs
blades and sheaths covered with long hairs
very short, stiff hairs
fine, dense hairs
one leaf margin usually crinkled
prominent white midvein
sheath margins often transparent; seed is a large, spiny bur
very short hairs on sheath margins
Woolly cupgrass
Witchgrass
Longspine sandbur
Giant foxtail

Identification Key




Ligule membranous
auricles absent
leaf blade and sheath hairless to sparsely hairy
long, narrow leaf blades
short, broad leaf blades
flat stem; sheaths white at base
Goosegrass
short, scaly rhizomes
no rhizomes
blade with pronounced ridges on upper surface
blade smooth
blade rough; midrib not white or prominent
midrib white above, prominent below
narrow (< ½" wide), upright leaves
Wirestem muhly
Shattercane
Foxtail barley

Identification Key



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.

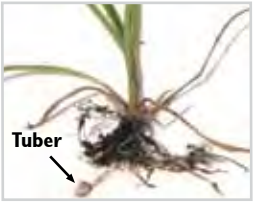
Ligules: None

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

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

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

Downy brome collar region

Downy brome seed-head

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 ⅛ 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 ¾ to 1½ inches long, tipped with about ½ 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.

Downy brome young plant

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 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 ¼ inch long. Burs contain 2 to 4 seeds that are each about ⅕ 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

Large crabgrass

Large crabgrass collar region

Large crabgrass seedhead

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, 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, 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.

Large crabgrass plant

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.

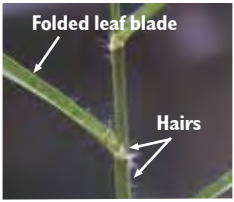
Comments: Reproduces by seed. Prefers wet areas.

Barnyardgrass collar region

Barnyardgrass seedhead

Barnyardgrass plant base tinged red to maroon

Goosegrass collar region



Goosegrass leaves

Goosegrass seedhead

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.

Goosegrass plant base with white center

Quackgrass

Other names: Couchgrass

Scientific name: *Elymus repens*

Life cycle/height: Perennial, up to 4 feet

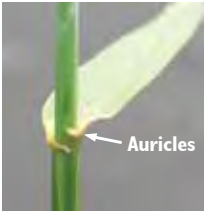
Leaves: Up to 10 inches long. May have a few hairs on the upper surface; lower surface is hairless. Leaves have narrow auricles that clasp the stem. Auricles may not be present on mature leaves.

Ligules: Membranous, about $^{1}/_{32}$ 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 $3^{1}/_{2}$ 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.

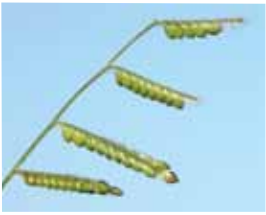


Quackgrass leaf and stem

Quackgrass seedhead and leaves

Quackgrass plants

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 $^{1}/_{16}$ 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, ⅓ 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

Foxtail barley

Other names: Squirreltail

Scientific name: *Hordeum jubatum*

Life cycle/height: Perennial, up to 2 feet

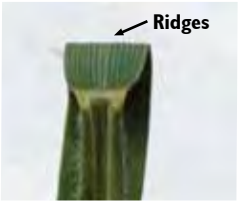
Leaves: Flat, stiff, upright with pronounced ridges on upper surfaces and 2 to 6 inches long. Blades and sheaths are hairless or sparsely hairy.

Ligules: Membranous, about 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.

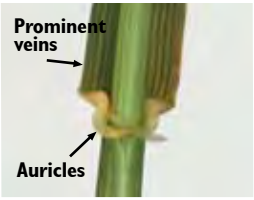
Comments: Reproduces by seed. Plants may appear bluish-green. May be more problematic in no-till fields.



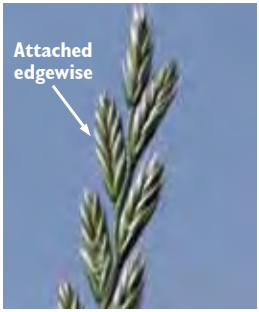
Foxtail barley collar region


Foxtail barley seedhead


Foxtail barley plants



Italian ryegrass collar region



Italian ryegrass spikelets

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 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 1/3 inch long.

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

Italian ryegrass plants

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 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.

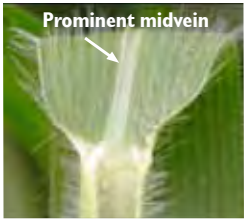
Seedhead: The central stem terminates in a narrow panicle 3 to 4 inches long. The panicle consists of about 6 to 12 branches, each up to 3/4 inch long with 1/8 inch long spikelets. Smaller, 1 to 2 inch long side panicles may develop from the middle to upper stem nodes.

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



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, 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

Fall panicum

Other names: Fall panic, fall panicgrass

Scientific name: *Panicum dichotomiflorum*

Life cycle/height: Annual, up to 4 feet

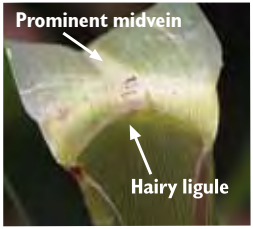
Leaves: Blades are hairless or sparsely hairy with a prominent midvein. Sheaths are hairless. Seedlings have hairs on the lower leaf surface and sheath, but hairs disappear as plants mature.

Ligules: Hairy, up to ⅛ 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 ⅛ inch long.

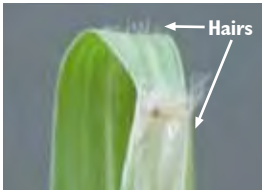
Comments: Reproduces by seed. Emerges later than other annual weedy grasses, thus is more common in fields that do not develop a complete canopy (e.g., seed corn).



Fall panicum collar region

Fall panicum seedhead

Fall panicum stem rooting at



Giant foxtail collar region

Giant foxtail seedhead

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 ⅛ 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.

Giant foxtail plants

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 ⅛ 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

Yellow foxtail young plant

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 ⅛ 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 ¼ to ½ 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

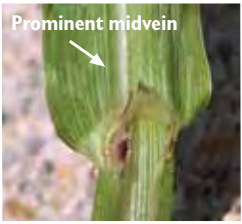
Shattercane

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.



Shattercane collar region

Ligules: Membranous, with a fringe of hairs on top, ⅛ 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.

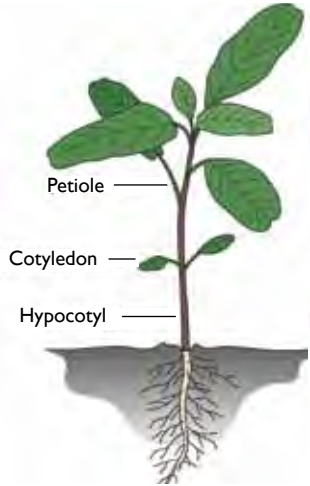

Shattercane seedhead

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 plants

Broadleaf Weeds

Key identification characteristics of broadleaf weeds are cotyledon and leaf shape as well as flower color and structure.



Leaf margins


Entire


Lobed


Toothed (serrated)


Wavy

Leaf shapes


Round


Ovate


Oval


Elliptic


Lanceolate


Linear


Oblong


Spade-shaped


Heart-shaped

Redroot pigweed

Other names: Rough pigweed, carelessweed

Scientific name: *Amaranthus retroflexus*

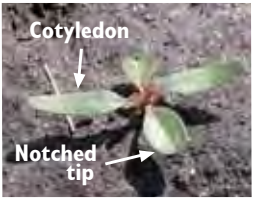
Life cycle/height: Annual, up to 6½ feet

Leaves: Cotyledons are linear with a prominent midvein and reddish undersides. Leaves are alternate, ovate and usually have a small notch at the tip. Leaf surfaces are rough with hairs on the underside, most notably on the veins. Leaf margins are entire to wavy. Petioles are up to ½ inch long.

Stems: Erect, often with red markings, especially near the base. Stems are usually thick, multi-branched and have short hairs, mostly on the upper parts of the plant.

Flowers/fruit: Small, greenish flowers grow in dense terminal and axillary clusters. Clusters are thick, prickly spikes up to 8 inches long. Flowers have bracts about twice as long as sepals. Seeds are small, round and shiny black.

Comments: Reproduces by seed.



Redroot pigweed seedling

Redroot pigweed flowers

Redroot pigweed young plant

Common waterhemp

Common waterhemp

Common waterhemp

Other names: Tall amaranth, waterweed

Scientific name: *Amaranthus rudis*

Life cycle/height: Annual, up to 8 feet
Leaves: Alternate, lanceolate to ovate-lanceolate, frequently notched at the tip and up to 6 inches long and 1½ inches wide. Leaves have shiny upper surfaces and entire leaf margins. Petioles are long, occasionally as long as the blades.

Stems: Erect, branched, hairless, round to irregularly ridged, often with red streaks and reddish nodes

Flowers/fruit: Flowers are arranged in narrow, compressed panicles up to 1 foot long. The inflorescence may develop directly from upper branches or upper leaf axils. Individual plants produce either male or female flowers that are less than ⅛ inch long. Seeds are small, round and shiny black.

Comments: Reproduces by seed. A single plant can produce thousands of seeds. Populations of common waterhemp are resistant to different herbicides including glyphosate (page 9).

Common waterhemp young

Poison-hemlock

Other names: Deadly hemlock, poison parsley

Scientific name: *Conium maculatum*

Life cycle/height: Biennial, up to 10 feet

Leaves: A rosette of fern-like leaves 1 to 1½ feet across forms the first year. The second year the plant bolts. Leaves on stems are dark glossy green, alternate and 8 to 16 inches long. Leaves are fern-like and hairless with finely divided leaflets.

Stems: Erect, branched, hairless, hollow between nodes and covered with distinct purple spots

Flowers/fruit: Upper stems terminate in compound umbels 2 to 5 inches across. Individual flowers are about 1/10 inch wide with 5 white, notched petals. Fruit are oval, flattened and grayish-brown, with 2 wavy ribbed segments that split into 2 parts when mature. Each fruit has 2 flattened, smooth seeds.

Poison-hemlock stem


Poison-hemlock flowers

Comments: Reproduces by seed. All plant parts are poisonous to humans and livestock. Foliage has a strong parsnip odor. It is a noxious weed in Iowa.


Poison-hemlock rosette leaves

Wild carrot flowers

Wild carrot "bird's nest"

Wild carrot

Other names: Queen Anne's lace, bird's nest

Scientific name: *Daucus carota*

Life cycle/height: Biennial, up to 5 feet

Leaves: A rosette of fern-like leaves forms the first year. The second year the plant bolts. Leaves on stems are alternate and oblong, with deeply dissected, lobed segments. Scattered white hairs often occur along petioles, margins and lower midveins of leaflets.

Stems: Erect, branched, hollow and hairless or rough-hairy

Flowers/fruit: Numerous small, white flowers occur in an umbel, typically with a single purple flower in the center. Each flower produces 1 ribbed seed with bristly hairs along the ribs. As seeds mature, umbels cup inward into a "bird's nest" that can detach from the flowering stalk and roll in the wind.

Comments: Reproduces by seed. Plant resembles a typical garden carrot during the first year of growth. Crushed leaves smell like carrots. It is a noxious weed in Iowa.

Wild carrot rosette leaves

Wild parsnip

Wild parsnip rosette leaves

Scientific name: *Pastinaca sativa*

Life cycle/height: Biennial, up to 5 feet

Leaves: First year plants produce a rosette of large, upright leaves that resemble celery leaves. The second year the plant bolts. Leaves on stems are alternate, hairless and pinnately compound. Lower leaves are up to 18 inches long and 6 inches wide with long petioles. Upper leaves are progressively smaller with short or no petioles. Individual leaflets are up to 3 inches long and 2 inches wide with coarsely toothed margins.

Stems: Erect, grooved and hollow

Flowers/fruit: Upper stems terminate in double umbels of small, yellow flowers, each with 5 petals. Each umbel is up to 6 inches across and sits on the end of a long, hairless stalk. Seeds are flat, round and straw-colored with 5 ribs.

Comments: Reproduces by seed. If plant sap gets on skin that is exposed to sunlight, skin may redden and develop a rash. In severe cases, blisters and burning pain may occur.

Wild parsnip flowers, leaves and stem

Hemp dogbane young plant

Hemp dogbane leaves and

Hemp dogbane flowers

Hemp dogbane

Other names: Indian hemp

Scientific name: *Apocynum cannabinum*

Life cycle/height: Perennial, up to 4 feet

Leaves: Opposite, ovate to elliptic, 2 to 5 inches long and ½ to 1½ inches wide with short petioles

Stems: Erect, hairless and branched near the upper part of the plant. Stems turn red as they mature.

Flowers/fruit: Numerous clusters of small, greenish-white flowers occur at the ends of short stems. Each flower is less than ¼ inch long and consists of 5 fused petals. Fruit are 4 to 8 inch long bean-like pods produced in pairs that turn red-brown when mature. Pods split open at maturity to release small, spindle-shaped seeds. Each seed has a tuft of long, silky hair that aids wind dispersion.

Comments: Reproduces by seed, creeping roots and rhizomes. Leaves and stems exude a milky sap when broken. Plants produce toxins that can cause digestive problems in livestock.

Hemp dogbane plant

Common milkweed

Other names: Broadleaf milkweed

Scientific name: *Asclepias syriaca*

Life cycle/height: Perennial, up to 6 feet

Leaves: Opposite, ovate, 4 to 10 inches long and 2 to 4 inches wide with entire margins. Lower leaf surfaces are covered with fine hairs; upper surfaces are usually hairless. A distinct white midvein runs along the length of each leaf, with smaller side veins extending toward the leaf margins.

Stems: Erect, hollow, sparingly branched and covered with fine hairs. Stems are green initially but may turn reddish with maturity.

Flowers/fruit: Pink to purple or occasionally greenish-white flowers develop in ball-shaped clusters at the ends of stems and in the upper leaf axils. Single flowers are on long, slender stalks. Seedpods are 3 to 5 inches long, teardrop-shaped, grayish-green and hairy with warty bumps. Seeds are flat, brown and each seed has a tuft of silky hairs that aids wind dispersion.

Comments: Reproduces by seed, creeping roots and rhizomes. All parts of the plant emit milky sap when broken.

Common milkweed small

Common milkweed seedpods

Common milkweed flowering

Honeyvine milkweed leaf

Honeyvine milkweed

Honeyvine milkweed

Honeyvine milkweed (Honeyvine swallowort)

Other names: Climbing milkweed

Scientific name: *Cynanchum laeve*

Life cycle/length: Perennial, vine up to 10 feet

Leaves: Opposite, entire, heart- to triangular-shaped with pointed tips, 3 to 7 inches long and 2 to 5 inches wide. Leaves occur on 1 to 4 inch long petioles and are hairless with white veins that arise from a common point.

Stems: Slender, hairless and twining, often climbing on other plants

Flowers/fruit: Small, white, tube-shaped flowers with 5 lobes are in clusters on stalks in leaf axils. Fruit are smooth, angled, teardrop-shaped pods that are up to 5½ inches long and 2½ inches wide. Seeds are ovate, flattened and brown with silky white hairs.

Comments: Reproduces by seed and rhizomes. Flowers are honey-scented.

Honeyvine milkweed young plant

Common ragweed

Other names: Annual ragweed, short ragweed

Scientific name: *Ambrosia artemisiifolia*

Life cycle/height: Annual, up to 3 feet

Leaves: Cotyledons are thick and oval to oblong. Leaves are lacy, finely divided and usually slightly hairy. Lower leaves are opposite; upper leaves are alternate. Leaves are up to 4 inches long and wide.

Stems: Erect, branched and usually hairy

Flowers/fruit: Male flowers are produced in racemes at the end of stems; female flowers are produced in the upper leaf axils. Flowers are greenish-yellow and about ⅛ inch long. Fruit are achenes topped with several spikes and resemble a crown.

Comments: Reproduces by seed. Produces abundant pollen (a "hay fever" plant).

Common ragweed

Common ragweed male flow-

Common ragweed plants

Giant ragweed seedling

Giant ragweed male

Giant ragweed

Other names: Horseweed

Scientific name: *Ambrosia trifida*

Life cycle/height: Annual, up to 13 feet

Leaves: Cotyledons are round to oblong. Leaves have 3 to 5 lobes, toothed margins and petioles up to 2½ inches long. Leaves are rough, hairy and opposite on the lower stem; upper leaves are sometimes alternate.

Stems: Erect, branched, rough and hairy

Flowers/fruit: Greenish-yellow male flowers occur in racemes at the ends of branches. Female flowers occur in upper leaf axils. Individual flowers are about ⅛ to ⅓ inch long. Fruit are achenes that resemble a crown.

Comments: Reproduces by seed. Germinates earlier than most other common summer annual weeds. Produces abundant pollen (a "hay fever" plant).

Giant ragweed young plant

Common burdock

Common burdock seedling

Common burdock burs

Other names: Wild rhubarb, beggar's buttons

Scientific name: *Arctium minus*

Life cycle/height: Biennial, up to 5 feet

Leaves: Plants produce a rosette of very large leaves the first year and bolt the second year. Rosette leaves are 10 to 18 inches long and 5 to 12 inches wide, spade-shaped with heart-shaped bases and slightly wavy margins. Lower leaf surface is white and woolly.

Stems: Erect, many branched, hollow, grooved, hairy and sometimes with a reddish tint

Flowers/fruit: Flower heads are comprised of purple disk flowers. The seedhead is covered with hooked bracts that form a detachable bur that attaches to passing animals and humans.

Comments: Reproduces by seed.

Common burdock rosette leaves

Musk thistle young plant

Musk thistle flowers

Musk thistle

Other names: Nodding thistle

Scientific name: *Carduus nutans*

Life cycle/height: Biennial, sometimes annual, up to 6 feet

Leaves: Plants produce a rosette the first year. The second year plants bolt. Leaves are dark green with light green midribs and white margins; about 10 inches long and 4 inches wide. Leaves are lanceolate and deeply lobed with 3 to 5 white or yellow spines along the margins of each lobe. Leaves on the flowering stems are alternate, clasp stems and become progressively smaller towards the top of the plant.

Stems: Erect and branched with spiny wings extending down the stem from the leaf bases

Flowers/fruit: Nodding, solitary flower heads are produced at the ends of branches. Flowers are pink to purple and 1 to 2 inches wide. Spiny bracts, often tinged purple, occur below the flower heads. Fruit are tan to brown achenes about 1/8 inch long with tufts of hair.

Comments: Reproduces by seed. Seeds may mature in seedheads even after control measures kill the plant. It is a noxious weed in Iowa.

Musk thistle rosette leaves

Musk thistle stem

Canada thistle

Other names: Canadian thistle, creeping thistle

Scientific name: *Cirsium arvense*

Life cycle/height: Perennial, up to 4 feet

Leaves: Alternate, oblong to lanceolate with irregular lobes and spiny margins. Upper surfaces are dark green and hairless; lower surfaces are light green. Leaves are 3 to 8 inches long and 1 inch wide and attach directly to or clasp the stem.

Stems: Grooved, hollow, branched above, hairless early, becoming hairy with age

Flowers/fruit: Male and female flowers occur on separate plants. Flower heads are ¾ to 1¼ inches wide and consist of pink, purple or occasionally white disk flowers surrounded by spineless bracts. Fruit are flat, brown, ⅛ inch long achenes with tufts of hair.

Comments: Reproduces by seed, rhizomes, creeping roots and root fragments. Rhizomes can extend up to 3½ feet. Plants often form thick patches. It is a noxious weed in Iowa.

Canada thistle young plant

Canada thistle

Canada thistle plants spreading vegetatively

Marestail (Horseweed)

Other names: Muletail fleabane

Scientific name: *Conyza canadensis*

Life cycle/height: Winter or early summer annual, up to 7 feet

Leaves: Seedlings develop as a basal rosette; stems elongate later. Leaves are alternate but may appear whorled as they are crowded along the stem. Leaves are linear, usually toothed, hairy, up to 4 inches long and attached directly to the stem. Leaves become progressively smaller up the stem.

Stems: Erect, branched towards the top and covered with stiff hairs

Flowers/fruit: Very small flowers in large panicles are positioned at the tops of stems. Each flower head has a narrow, pointed green bract at the base and is composed of yellow disk flowers and white ray flowers. Fruit are small, yellow achenes, each with a white pappus that aids wind dispersion.

Comments: Reproduces by seed. Populations of marestail are resistant to glyphosate.

Marestail basal rosette

Marestail flowers

Marestail panicles

Marestail plants with elongated

Common sunflower

Other names: Annual sunflower

Scientific name: *Helianthus annuus*

Life cycle/height: Annual, up to 12 feet

Leaves: Lower leaves are opposite and heart-shaped. Upper leaves are alternate, ovate to lanceolate, 4 to 16 inches long and 2 to 8 inches wide with toothed margins and long petioles.

Stems: Erect, upwardly branched, very rough and hairy

Flowers/fruit: Showy flower heads are 1 to 5 inches across and are composed of 17 or more yellow ray flowers that are up to 2 inches long and surround dark red to purple disk flowers. Bracts around flower heads are coarse-hairy and gradually taper to a slender tip. Fruit are flattened achenes that are gray or brown with black mottling.

Common sunflower

Common sunflower flowers

Comments: Reproduces by seed. It is a noxious weed in Iowa.

Common sunflower young plant

Jerusalem artichoke young

Jerusalem artichoke

Jerusalem artichoke

Other names: Girasole, Jerusalem sunflower

Scientific name: *Helianthus tuberosus*

Life cycle/height: Perennial, up to 10 feet

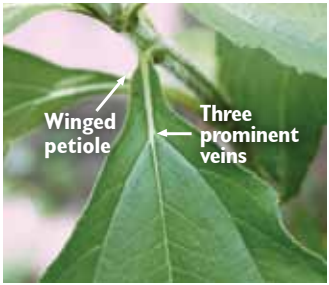
Leaves: Lower leaves are opposite, broadly ovate, covered with short, stiff, white hairs, 4 to 10 inches long and 1½ to 5 inches wide. Upper leaves are alternate, lanceolate and taper to a point. Leaves have finely toothed margins, 3 prominent veins and 1 to 3 inch long, winged petioles.

Stems: Erect, branched towards the top and usually covered with stiff, white hairs or occasionally hairless

Flowers/fruit: Showy flower heads are produced at the ends of stems. Each flower head is about 2 inches wide and consists of 8 to 20 outer bright yellow ray flowers that surround dark yellow to brown disk flowers. Fruit are tan to brown achenes up to ⅓ inch long.

Comments: Reproduces by seed, tubers and rhizomes.

Jerusalem artichoke stem



Jerusalem artichoke leaf

Prickly Lettuce

Other names: Wild lettuce

Scientific name: *Lactuca serriola*

Life cycle/height: Annual or sometimes biennial, up to 5 feet

Leaves: Seedlings develop as a rosette; stems elongate later. Leaves are alternate, lobed, clasp the stem and are up to 14 inches long. Basal and lower leaves are oblong to ovate and have spines on margins and along the midveins of lower leaf surfaces. Leaves become smaller and more lanceolate toward the top of plant and may lack spines.

Stems: Erect and branched toward the top. The lower portion of the stem has spines.

Flowers/fruit: Inflorescence is a panicle with 50 to 100 small flowers with yellow, toothed petals. As flowers mature, they may have a blue tint. Fruit are brown, flattened achenes, each with a long beak and a white pappus.

Comments: Reproduces by seed. Plant parts contain a milky sap.

Prickly lettuce young plant

Prickly lettuce leaves

Prickly lettuce mature plants

Dandelion flower

Dandelion seedhead

Dandelion

Scientific name: *Taraxacum officinale*

Life cycle/width: Simple perennial, up to 2½ feet in diameter

Leaves: All leaves are in a basal rosette and are usually 4 to 10 inches long. Leaves are oblong, narrow and deeply toothed with lobes that point toward the center of the rosette. A prominent, hollow central vein runs along the length of each leaf. Leaves are sparsely hairy or hairless and contain a milky sap.

Stems: Forms a rosette of leaves

Flowers/fruit: Flower heads consisting of yellow ray flowers are 1 to 2 inches wide and sit singly on the end of erect, unbranched, hollow stalks that are up to 10 inches tall. Fruit are brown achenes each with a feathery, white pappus. Seedheads look like puff balls.

Comments: Reproduces by seed. Taproots are thick and long.

Dandelion plant

Common cocklebur

Other names: Cocklebur, rough cocklebur

Scientific name: *Xanthium strumarium*

Life cycle/height: Annual, up to 7 feet

Leaves: Cotyledons are large, linear to oblong and waxy. The first leaf pair is opposite; later leaves are alternate. Leaves are triangular to ovate, irregularly lobed with slightly toothed margins and covered with stiff hairs. Leaves are 2 to 6 inches long with long petioles and have 3 prominent veins arising from the same point.

Stems: Erect and branched with short, stiff, ascending hairs. Stems have small maroon to black spots.

Flowers/fruit: Flowers are inconspicuous, green and occur in clusters in leaf axils and at the ends of stems. Fruit are barrel-shaped, 2-chambered burs, ½ to 1 inch long and covered with hooked prickles. Each bur contains 2 seeds.

Comments: Reproduces by seed. Seedlings and seeds can be toxic if ingested. It is a noxious weed in Iowa.

Common cocklebur burs

Common cocklebur stem

Common cocklebur young plant

Yellow rocket

Other names: Winter cress

Scientific name: *Barbarea vulgaris*

Life cycle/height: Winter annual or biennial, up to 3 feet

Leaves: Alternate, dark green and shiny. Basal leaves have a large lobe at the end and 1 to 4 lateral lobes arranged oppositely along the leaf midvein. Leaves get progressively smaller and less lobed up the stem. Leaf margins are toothed and wavy.

Yellow rocket basal

Yellow rocket leaf

Yellow rocket flowers and capsules

Stems: Erect, angular, hairless or with a few hairs and branched at the top

Flowers/fruit: Flowers are produced in elongated, rounded clusters at the ends of branches. Flowers have 4 bright yellow petals that are ¼ to ⅓ inch long. Fruit are elongated, narrow and about 1 inch long capsules with a slender beak.

Comments: Reproduces by seed. Can be confused with other mustards (e.g., wild mustard, page 62; tall hedge mustard, page 96).

Yellow rocket plant

Shepherd's-purse

Other names: Shepherd's pouch

Scientific name: *Capsella bursa-pastoris*

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

Leaves: Basal leaves are lanceolate with pointed lobes and up to 4 inches long. Stem leaves are alternate, lanceolate to linear with entire to toothed margins and are much smaller than basal leaves. The bottom lobes of upper leaves clasp the stem.

Stems: Erect, sparsely branched, thin and arising from the basal rosette

Flowers/fruit: Flowers are clustered in elongated racemes. Flowers are very small with white petals up to ⅛ inch long. Fruit are distinctively triangular, heart-shaped capsules that split in 2 sections at maturity. Seeds are small, yellow-orange and shiny.

Comments: Reproduces by seed. One plant produces thousands of seeds that survive for long periods in soil.

Shepherd's-purse flowers

Shepherd's-purse capsules

Shepherd's-purse basal leaves

Pinnate tansymustard rosette

Pinnate tansymustard flowers

Pinnate tansymustard capsules

Pinnate tansymustard

Other names: Tansymustard

Scientific name: *Descurainia pinnata*

Life cycle/height: Summer or winter annual, up to 2½ feet

Leaves: Alternate, light green, 2 or 3 times pinnately divided giving a distinctively lacy appearance. Lower leaves are up to 4 inches long; upper leaves are much smaller and not as finely divided.

Stems: Erect, single to many branched and densely hairy

Flowers/fruit: Flowers are in a raceme with individual flowers set on ¼ to ½ inch long stalks. Flowers have 4 pale yellow petals. Fruit are pencil-like capsules up to 1 inch long. Mature capsules split to shed small, orange-brown seeds.

Comments: Reproduces by seed.

Pinnate tansymustard

Wild mustard

Other names: Charlock, wild rape

Scientific name: *Sinapis arvensis*

Life cycle/height: Summer or winter annual, up to 3 feet

Leaves: Basal leaves are unevenly lobed with coarsely toothed margins. Upper leaves are alternate, oblong to ovate, entire with coarsely toothed and wavy margins. Leaves become progressively smaller up the stem. Lower leaves have short petioles; upper leaves lack petioles.

Stems: Erect, slightly branched towards the top of the plant with white hairs that point downward and purple rings at the base of young stems

Flowers/fruit: Flowers are in a raceme. Each flower is about ⅔ inch across with 4 bright yellow petals. Fruit are hairless or sometimes bristly capsules about 1 inch long with a beak. Seeds are round and purple to black.

Comments: Reproduces by seed. It is a noxious weed in Iowa. Can be confused with other mustards (e.g., yellow rocket, page 59; tall hedge mustard, page 96).

Wild mustard stem


Wild mustard flowers


Wild mustard plant


Wild mustard leaves

Field pennycress rosette leaves

Field pennycress

Other names: Stinkweed, fanweed

Scientific name: *Thlaspi arvense*

Life cycle/height: Winter annual, sometimes early summer annual, up to 2 feet

Leaves: Basal leaves develop in a rosette up to 5 inches wide. Leaves are oval and hairless with wavy margins. The flowering stem emerges the next spring. Stem leaves are lanceolate with toothed margins and pointed lobes; bottom lobes clasp the stem.

Stems: Erect, hairless and branched at the top

Flowers/fruit: Flowers occur in elongated clusters at the ends of stems. Flowers are about ⅛ inch across with 4 white petals. Lowest flowers set fruit first. Fruit are flat, round, ½ inch wide capsules with wings that have a notch at the end. Capsules split in half, each containing several dark red-brown seeds.

Comments: Reproduces by seed. The entire plant turns bright yellow to tan at maturity. All plant parts have a sharp odor and can give a bitter taste to milk if eaten by cows.

Field pennycress flowers and capsules

Field pennycress mature capsules

Field pennycress plant

Marijuana

Other names: Ditch weed, hemp

Scientific name: *Cannabis sativa*

Life cycle/height: Annual, up to 9 feet

Leaves: Lower leaves opposite; upper leaves alternate. Leaves are palmately divided into 5 to 9 leaflets. Individual leaflets are hairy with distinctly toothed margins and are up to 5 inches long.

Stems: Hairy, rough, grooved and fibrous

Flowers/fruit: Greenish-yellow male and female flowers are produced in the leaf axils on separate plants. Male flowers are in elongated inflorescences with each stalked flower coming off a central stem. After the male flowers have shed pollen, the plant soon dies. Female flowers are in sessile, spike-like clusters about 1 inch long. Fruit are globe-shaped, 1-seeded achenes.

Comments: Reproduces by seed. Plant parts exude a characteristic odor when broken or rubbed.

Marijuana seedling

Marijuana flowers

Marijuana young plant

White campion

Other names: White cockle, catchfly

Scientific name: *Silene latifolia*

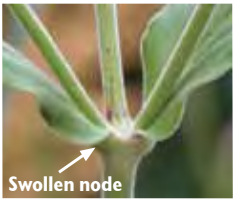
Life cycle/height: Biennial or sometimes a short-lived perennial, up to 3 feet

Leaves: Basal leaves develop as a rosette. Basal leaves have short petioles, while most stem leaves lack petioles. Stem leaves are opposite, variable, ranging from lanceolate to oval and become smaller higher on the stem. Leaves are up to 4½ inches long and softly hairy on both surfaces.

Stems: Erect or occasionally decumbent. Multiple stems often grow from a crown at the ground. Stems are covered with many short, soft hairs and have swollen nodes.

Flowers/fruit: Flowers are formed in loose, flat-topped clusters. Each flower has 5 white petals that are ½ inch long and deeply divided, giving the appearance of 10 petals. Sepals are fused into a bladder-like tube below the petals. Plants have either 10 or 20 prominent veins on the sepal tube. Fruit are tough, tan capsules with 10 curled-back teeth.

Comments: Reproduces by seed.



White campion stem


White campion capsule

White campion flowers


White campion young plant

Common chickweed

Other names: Winterweed, chickenwort

Scientific name: *Stellaria media*

Life cycle/height: Annual, up to 2 feet

Leaves: Opposite, ovate or elliptic with a pointed tip, up to 1¼ inches long, light green and hairless or with a few hairs near the base. Lower leaves have long petioles; upper leaves lack petioles.

Common chickweed leaves

Stems: Lower stems are decumbent, often rooting at the nodes; upper stems are erect or ascending. Lower stems are hairless; upper stems have a distinctive row or two of fine hairs.

Flowers/fruit: Flowers occur singly in the leaf axils and in small clusters at the ends of stems. Flowers have 5 petals that are deeply lobed, giving the appearance of 10 petals. Seeds form in oval capsules that split into 6 sections.

Common chickweed flowers and capsule

Comments: Reproduces by seed. Forms a mat and sometimes survives winters in protected areas. Can be confused with mouseear chickweed (page 96).

Common chickweed plants

Common lambsquarters

Common lambsquarters

Common lambsquarters

Other names: White goosefoot

Scientific name: *Chenopodium album*

Life cycle/height: Annual, up to 6 feet

Leaves: The first pair of leaves is opposite, all other leaves are alternate. Leaves are triangular-shaped (roughly like a goose's footprint) and up to 2½ inches long with long petioles. Leaves may develop red or purple shading along the edges. Leaf margins are toothed; individual teeth are large, widely spaced and blunt. Young leaves are covered with a white mealy material that wears off with time.

Stems: Erect, moderately branched, hairless and vertically grooved with red, purple or light green stripes

Flowers/fruit: Green, inconspicuous flowers occur in dense panicle clusters at tips of branches and in upper leaf axils. Seeds are round to oval, somewhat flattened, black to brown and partially enclosed by star-shaped, papery coverings.

Comments: Reproduces by seed.

Common lambsquarters flowers

Common lambsquarters

Kochia

Other names: Burning bush

Scientific name: *Kochia scoparia*

Life cycle/height: Annual, up to 6 feet

Leaves: Alternate, linear to narrowly lanceolate, 1 to 2 inches long and tapering to a point. Leaf margins are entire and fringed with hairs.

Stems: Erect, highly branched and often with a reddish tint

Flowers/fruit: Flowers are inconspicuous, green and in clusters up to 2 inches long. Clusters occur at the ends of stems and in leaf axils. Hairy bracts below flowers give the plant a prickly appearance. Seeds are flattened, grooved on each side, dull brown and enclosed in a membranous seed coat.

Kochia young plant

Kochia stem and leaves

Comments: Reproduces by seed. Mature plants are round, bushy and can break off at the soil surface and tumble in the wind.

Kochia plant

Russian-thistle

Other names: Tumbleweed, tumbling thistle

Scientific name: *Salsola tragus*

Life cycle/height: Annual, up to 3 feet

Leaves: Alternate, simple, sessile or clasping the stem, linear, up to 3 inches long and very narrow. Margins may be entire to very finely toothed. Initial leaves are long and soft with a pointed tip; mature leaves are small and scale-like, tipped with a stiff spine.

Stems: Erect, branched from the base, ridged and often with reddish-purple stripes

Flowers/fruit: Many inconspicuous flowers without petals arise from the leaf and stem axils. Mature fruit are reddish-green and have prominent, papery wings. Seeds are small, round, smooth and shiny black.

Comments: Reproduces by seed. Mature plants are round and can break off from the roots, then blow across fields, scattering seeds. Mature plants may be toxic to livestock.

Russian-thistle flowers

Russian-thistle stem and leaves

Russian-thistle small plant

Asiatic dayflower

Other names: Common dayflower

Scientific name: *Commelina communis*

Life cycle/height: Annual, up to 2½ feet

Leaves: Alternate, lanceolate tapering to a point and 2 to 4 inches long with parallel veins. Leaves clasp the stem forming prominent basal sheaths.

Stems: Decumbent or sometimes erect, hairless, round, thick, fleshy with swollen nodes and often rooting where nodes contact soil

Flowers/fruit: Small, showy flowers with 2 large, bright blue petals above a single, small white petal. Flowers arise from green bracts at ends of long flower stalks. Each flower is open for only 1 day. Fruit are capsules that hold reddish-brown, wrinkled seeds.

Comments: Reproduces by seed. Dislodged stems often re-root, allowing plants to survive tillage. It is a monocot, not a true broadleaf. It is tolerant to glyphosate.

Asiatic dayflower seedling

Asiatic dayflower flower

Asiatic dayflower plants

Field bindweed

Field bindweed

Field bindweed

Other names: Creeping Jenny, field morning-glory

Scientific name: *Convolvulus arvensis*

Life cycle/length: Perennial, vine up to 6 feet

Leaves: Alternate, arrowhead or spade shaped, mostly hairless but occasionally with hairs, 1 to 2 inches long and ½ to 1 inch wide. Leaf bases have lobes that point outward.

Stems: Climbing or trailing vine that forms dense mats

Flowers/fruit: Flowers are funnel-shaped, white to pink and ½ to 1 inch long. Two small bracts are about 1 inch below the flower base. Fruit are oval to round capsules, usually with 2 compartments, each containing 1 to 4 seeds.

Comments: Reproduces by seed, creeping roots and rhizomes. Plants may be toxic to livestock. It is a noxious weed in Iowa.

Field bindweed plant

Ivyleaf morningglory

Other names: Entireleaf morningglory

Scientific name: *Ipomoea hederacea*

Life cycle/length: Annual, vine up to 10 feet

Leaves: Cotyledons are butterfly-shaped and usually narrower at the base. Leaves are alternate, ivy-shaped and 2 to 4 inches long with 3 distinct, pointed lobes. Petioles range from 2 to 5 inches. Leaves and petioles are covered with hairs that stick straight out.

Stems: Twining or climbing vines, with hairs that stick straight out

Flowers/fruit: Flowers are showy, purple or blue to white and 1 to 2 inches long with petals fused into a funnel. Sepals at the base of the flower are covered with hairs. Fruit are capsules shaped like a slightly flattened ball and contain 4 to 6 dark brown to black, wedge-shaped seeds.

Comments: Reproduces by seed. Seeds contain hallucinatory compounds.

Ivyleaf morningglory

Ivyleaf morningglory flower and leaves

Ivyleaf morningglory climbing

Tall morninglory

Tall morninglory young

Tall morninglory

Other names: Common morninglory

Scientific name: *Ipomoea purpurea*

Life cycle/length: Annual, vine up to 6 feet

Leaves: Cotyledons are butterfly-shaped. Leaves are alternate, heart-shaped and up to 4½ inches long and wide with hairs that lie flat against the leaf surface. Petioles are up to 5 inches long.

Stems: Trailing or climbing hairy vines

Flowers/fruit: Flowers are purple, blue, white or variegated, funnel-shaped, 1¾ to 3 inches long and form in clusters of 3 or more. Sepals at the base of the flower are ⅓ to ⅔ inch long and hairy. Fruit are globe-shaped capsules, each with 4 to 6 dark brown to black seeds.

Comments: Reproduces by seed. Seeds contain hallucinatory compounds.

Tall morninglory flowers and leaves

Burcucumber

Other names: Wall burcucumber

Scientific name: *Sicyos angulatus*

Life cycle/length: Annual, vine up to 20 feet

Leaves: Alternate, hairy, broadly heart-shaped with 3 to 5 lobes and finely toothed margins. Leaves are up to 8 inches long and wide.

Stems: Hairy, especially at leaf nodes, ridged and climbing with branched tendrils

Flowers/fruit: Flowers have fused petals, 5 lobes and are white to pale yellow. Fruit are oval, about ½ inch long and covered with sharp spines and long hairs. Each fruit contains 1 seed. Fruit resembles very small cucumbers.

Comments: Reproduces by seed. Resembles garden cucumber, especially when young.

Burcucumber seedling

Burcucumber tendrils

Burcucumber vine

Toothed spurge cut

Toothed spurge

Toothed spurge

Other names: Toothed-leaf poinsettia

Scientific name: *Euphorbia dentata*

Life cycle/height: Annual, up to 2 feet

Leaves: Opposite, variable, lanceolate to linear with toothed margins and up to 3 inches long. Leaves are hairy on both sides with at least 1 dark red spot on the upper surface, especially on older leaves. Lower leaves are occasionally alternate while leaves at the ends of stems near the flowers often appear whorled.

Stems: Erect with opposite, hairy branches

Flowers/fruit: Flowers are inconspicuous, have no petals and occur in clusters at the ends of branches. Fruit are smooth, yellowish-green capsules that are divided into 3 parts. Each capsule normally contains 3 seeds.

Comments: Reproduces by seed. All parts of the plant emit a milky sap when broken.

Toothed spurge leaves

Henbit

Scientific name: *Lamium amplexicaule*

Life cycle/height: Summer or winter annual or biennial, up to 14 inches

Leaves: Opposite, round and margins with rounded teeth. Leaves have hairs on the upper surfaces and along the veins of the lower surfaces. Lower leaves have petioles; upper leaves are attached directly to stem. Upper leaves are smaller than lower leaves.

Stems: Decumbent and square with downward pointing hairs, may root at lower nodes

Flowers/fruit: Small, tubular, purple to red flowers with lip-like projections are arranged in whorls in upper leaf axils.

Comments: Reproduces by seed. More prevalent in no-till fields. Thick patches can make areas appear purplish as plants flower. Can be confused with ground ivy (page 96) and purple deadnettle (*Lamium purpureum*).

Henbit young plant

Henbit flowers

Henbit plant

Star of Bethlehem bulbs

Star of Bethlehem flowers

Star of Bethlehem

Other names: Sleepy dick, summer snowflake

Scientific name: *Ornithogalum umbellatum*

Life cycle/height: Perennial, up to 1 foot

Leaves: Shiny, dark green with a distinct white midrib, narrow and grass-like. Leaves are up to 12 inches long and ¼ inch wide.

Stems: Leafless, hairless and flowering

Flowers/fruit: Flowers have 6 white petals with a prominent green stripe on the back. Flowers resemble stars and occur at ends of stems. Fruit are 3-lobed, yellow-green capsules that contain several oval, black seeds.

Comments: Reproduces by seed and vegetative bulbs that separate from the parent bulb. It is a monocot, not a true broadleaf.

Star of Bethlehem plant

Velvetleaf

Other names: Buttonweed, butterprint

Scientific name: *Abutilon theophrasti*

Life cycle/height: Annual, up to 7 feet

Leaves: Cotyledons are round to heart-shaped with short hairs on both surfaces. Leaves are alternate, broadly heart-shaped gradually tapering to a point, 3 to 8 inches long and nearly as wide with long, slender petioles. Leaves have round-toothed margins and soft, hairy surfaces that feel velvety.

Stems: Erect, branched near the top and covered with short, soft hairs

Flowers/fruit: Flowers are yellow to yellow-orange and ½ to 1 inch wide with 5 petals. Flowers form singly on short stalks in the upper leaf axils. Fruit are about 1 inch wide, bowl-shaped green capsules that turn dark brown. Each capsule has 9 to 15 compartments containing grayish-brown, notched seeds.

Velvetleaf seedling


Velvetleaf plant


Velvetleaf flower


Velvetleaf capsule

Venice mallow young plant

Venice mallow membranous sacks

Venice mallow

Other names: Flower-of-an-hour, shoo-fly

Scientific name: *Hibiscus trionum*

Life cycle/height: Annual, up to 2 feet

Leaves: Alternate, divided into at least 3 distinct segments with up to 7 lobes. Segments are oblong; middle segment is largest. Leaves have coarsely toothed margins, long petioles and are up to 3 inches long.

Stems: Erect, spreading or branching from the base and covered with stiff hairs

Flowers/fruit: Flowers form individually on stalks in leaf axils. Flowers are 1 to 2½ inches across with 5 creamy white petals. Petals have a purple blotch at the base and often have purple margins. The sepals form a membranous sack with distinctive dark green veins at the flower base. Fruit are round, hairy capsules enclosed in the sacks.

Comments: Reproduces by seed.

Venice mallow flower and

Common mallow

Common mallow flower

Common mallow flower and capsule

Other names: Cheeseweed, dwarf mallow

Scientific name: *Malva neglecta*

Life cycle/height: Annual or occasionally biennial, less than 1 foot

Leaves: Cotyledons are heart-shaped with 3 main veins. Leaves are alternate, round to heart-shaped, entire or shallowly lobed with round-toothed margins. Leaves have short hairs on upper and lower surfaces. Petioles are 2 to 7 inches long and hairy.

Stems: Partly erect or decumbent and branched from the base. Stems are covered with hairs, especially when young.

Flowers/fruit: Flowers form in leaf axils and have 5 white, purple-tinged petals with notched tips. Fruit are flat, round capsules. Each capsule consists of 12 to 15 compartments, each containing a reddish-brown, notched, disc-like seed.

Comments: Reproduces by seed.

Common mallow plant

Prickly sida seedling

Prickly sida stem and

Prickly sida

Other names: Teaweed, spiny sida

Scientific name: *Sida spinosa*

Life cycle/height: Annual, up to 2 feet

Leaves: Cotyledons are heart-shaped and covered with short hairs. Leaves are alternate and oval to lanceolate with toothed margins. Leaves are up to 2 inches long and sparsely covered with hairs. Petioles are up to 1¼ inches long with small spines (stipules) at each petiole base.

Stems: Erect, many branched and covered with fine, soft hairs

Flowers/fruit: Light-yellow, ⅓ inch wide flowers develop alone or in small clusters in upper leaf axils on ½ inch long stalks. Fruit are capsules that split into 5 segments when mature.

Comments: Reproduces by seed.

Prickly sida plant

Wild four-o'clock

Other names: Heartleaf four-o'clock

Scientific name: *Mirabilis nyctaginea*

Life cycle/height: Perennial, up to 4 feet

Leaves: Opposite, broadly ovate to ovate-lanceolate, often with pointed tips. Leaves are hairless, 1½ to 3 inches long and 1 to 2 inches wide. Middle and lower stem leaves have ½ to 3 inch long petioles; upper leaves attach directly to the stem.

Stems: Erect and freely branching, hairless or sparsely hairy with swollen nodes

Flowers/fruit: Flowers occur in terminal clusters on forked branches. Groups of 3 to 5 pink to purple flowers develop within a 5-lobed green bract. Flowers are bell-shaped tubes with 5 lobes. Fruit are grayish-brown, narrowly oblong, strongly ribbed and wrinkled.

Comments: Reproduces by seed.

Wild four-o'clock flowers

Wild four-o'clock flowers and leaves

Wild four-o'clock young plant

Common pokeweed

Other names: Inkberry, pokeberry

Scientific name: *Phytolacca americana*

Life cycle/height: Perennial, up to 10 feet

Leaves: Alternate, hairless, oblong to lanceolate with pointed tips, entire to slightly wavy margins and petioles up to 2 inches long

Common pokeweed

Common pokeweed flower

Common pokeweed

Stems: Hairless, succulent, varying from light green to bright purplish-red

Flowers/fruit: Small, white flowers are arranged in an elongated cluster about 3 to 6 inches long and 1 inch wide. Individual flowers are arranged around the flowering stalk on short pedicels which may be white, green, pink or purplish-red. Fruit are berries, green when immature and dark purple to black when mature.

Comments: Reproduces by seed. All parts of the mature plant are poisonous, especially the roots. The dark red berry juice easily stains.

Common pokeweed young plant

Wild buckwheat

Wild buckwheat seedlings

Scientific name: *Fallopia convolvulus*

Life cycle/length: Annual, vine up to 5 feet

Leaves: Cotyledons are oblong-oval to linear. Leaves are alternate, hairless and heart to triangle-shaped with pointed tips and entire margins. Basal lobes point inward toward the petiole. There is a short ocrea at the base of each petiole.

Stems: Twining vines have long internodes and branch at the base.

Flowers/fruit: Flowers are inconspicuous, greenish-white or pink and clustered in leaf axils. Single seeds are enclosed in dry, black, 3-sided fruit.

Comments: Reproduces by seed.

Wild buckwheat flowers

Wild buckwheat stem

Wild buckwheat plant

Swamp smartweed stem

Swamp smartweed flower

Swamp smartweed

Other names: Devil's shoestring

Scientific name: *Persicaria amphibia*

Life cycle/height: Perennial, up to 3½ feet

Leaves: Alternate, lanceolate to oval with pointed tips and up to 10 inches long and 2½ inches wide. Leaves have prominent veins and wavy margins and are hairless or with stiff hairs. Leaves have petioles with a membranous ocrea surrounding the stem at nodes.

Stems: Erect or decumbent, swollen at nodes and able to root at lower nodes

Flowers/fruit: Flowers are arranged in 1 to 6 inch long compact spikes at the ends of stems. Individual flowers are pink and about ⅕ inch long with 5 united petals. Fruit are oval to round achenes that are 1/10 inch long.

Comments: Reproduces by seed, rhizomes and rooting stems.

Swamp smartweed young

Pennsylvania smartweed

Other names: Pennsylvania knotweed, pinkweed

Scientific name: *Persicaria pensylvanica*

Life cycle/height: Annual, up to 3 feet

Leaves: Cotyledons are narrow and lanceolate with rounded tips. Leaves are alternate and lanceolate with pointed tips and entire margins. Older leaves are hairless or slightly hairy. Leaves have short petioles with an ocrea surrounding the stem at nodes. Leaves may have a purple watermark.

Stems: Erect or ascending, branched and hairless with swollen nodes

Flowers/fruit: Small, pink to white flowers are in terminal spike-like clusters at the ends of stems. Fruits are shiny black, flat and round achenes with pointed tips.

Comments: Reproduces by seed. Can be confused with ladysthumb (page 96) and swamp smartweed (page 85).

Pennsylvania smartweed seedling

Pennsylvania smartweed

Pennsylvania smartweed flowers

Pennsylvania smartweed young

Curly dock seedling

Curly dock panicle

Curly dock

Other names: Sour dock, yellow dock

Scientific name: *Rumex crispus*

Life cycle/height: Perennial, up to 4 feet

Leaves: Rosette leaves are long and narrow with round to pointed tips, wavy margins (resembling bacon strips) and long petioles. Leaves on flowering stems are alternate and become progressively smaller higher on the stem. Leaves have prominent midveins and an ocrea that surrounds the stem.

Stems: Flowering stems bolt during late spring. Stems are unbranched, thick, ridged, hairless and often turn red.

Flowers/fruit: Flowers are in narrow, 6 to 18 inch long panicles. Flowers have no petals, but consist of greenish sepals that turn reddish-brown with age. Fruit are triangular brown achenes surrounded by 3 paper-like wings.

Comments: Reproduces by seed and root segments. It is a noxious weed in Iowa.

Curly dock rosette leaves

Catchweed bedstraw

Other names: Cleavers

Scientific name: *Galium aparine*

Life cycle/height: Annual, up to 4 feet

Leaves: Whorled with 6 to 8 leaves per node. Blades are simple, linear, ¾ to 3¼ inches long and less than ⅓ inch wide. Leaf margins and lower midrib have backward pointing bristles. Leaf tips have sharp, firm points.

Stems: Square, edges lined with stiff hairs pointing backward allowing plants to cling to adjacent plants, or when broken off, to clothing or animals

Flowers/fruit: Flowers are small and have 4 white petals with pointed tips. Fruit are globe-shaped and covered with stiff, hooked hairs giving them a bur-like appearance.

Comments: Reproduces by seed. Often forms a thick mat.

Catchweed bedstraw flower and leaves

Catchweed bedstraw mature

Catchweed bedstraw plant

Corn speedwell leaves and

Corn speedwell flowers and

Corn speedwell

Other names: Common speedwell

Scientific name: *Veronica arvensis*

Life cycle/height: Summer or winter annual, up to 1 foot

Leaves: Lower leaves are opposite, broadly oval and hairy with rounded teeth along the margins and short petioles. Small, narrow, bract-like upper leaves are alternate and attach directly to stem. As plant matures, lower leaves often die and fall off.

Stems: Erect or ascending, branched from the base and covered with long, soft hairs

Flowers/fruit: Inconspicuous light blue to violet flowers form in the upper leaf axils. Fruit are hairy, heart-shaped capsules that contain many tiny, yellow seeds.

Comments: Reproduces by seed.

Corn speedwell plant

Jimsonweed

Other names: Moonflower, thornapple

Scientific name: *Datura stramonium*

Life cycle/height: Annual, up to 5 feet

Leaves: Cotyledons are long and narrow with a prominent midvein. Leaves are alternate, ovate, hairless and 3 to 8 inches long with petioles up to 4 inches long. First leaves have entire margins; later leaves have large, uneven and coarsely toothed margins.

Stems: Erect, branched above, hollow and hairless with purple tinting

Flowers/fruit: Flowers are white to purple-white, 2 to 5 inch long funnel-shaped tubes with 5 points along the borders. Fruit are large, oval capsules covered with stiff spines. Capsules split into 4 parts when mature. Each part contains numerous flat, dark brown to black seeds.

Jimsonweed leaves and flower

Jimsonweed capsules

Comments: Reproduces by seed. Crushed leaves and stems produce a distinctive, unpleasant odor. All plant parts are poisonous.

Jimsonweed plant

Smooth groundcherry

Smooth groundcherry

Smooth groundcherry

Other names: Longleaf groundcherry

Scientific name: *Physalis longifolia*

Life cycle/height: Perennial, up to 3 feet

Leaves: Alternate, ovate to lanceolate, hairless to slightly hairy with entire to toothed margins and long petioles

Stems: Erect, branched and prominently grooved, becoming semi-woody with age. Lower stems are usually tinged purple.

Flowers/fruit: Flowers have 5 yellow to greenish-yellow petals with purple centers fused into a bell shape. Individual flowers droop from the branch and leaf axils. Fruit are orange, red or purple berries surrounded by a green, lantern-shaped, papery bladder. Each fruit contains many flat, round to kidney-shaped seeds.

Comments: Reproduces by seed. Leaves and unripe fruit are poisonous.

Smooth groundcherry plant

Horsenettle

Other names: Bull nettle

Scientific name: *Solanum carolinense*

Life cycle/height: Perennial, up to 3 feet

Leaves: Alternate, elliptic to oval, 2 to 5 inches long with 1 to 3 pairs of pointed lobes. Both leaf surfaces are covered with star-shaped hairs. Prominent spines up to ½ inch long are on midveins and petioles.

Stems: Erect to spreading with prominent spines and star-shaped hairs

Flowers/fruit: Flowers occur in clusters on prickly flower stalks. Flowers have 5 purple to white petals with yellow, cone-shaped anthers. Fruit are berries, about ½ inch wide, green when immature, turning yellow and wrinkled with maturity. Each berry contains 40 to 160 seeds.

Comments: Reproduces by seed and creeping rhizomes. Leaves smell like a potato when crushed. Leaves, stems and berries are poisonous, even when the plant is dead. It is a noxious weed in Iowa.

Horsenettle young plant

Horsenettle stem

Horsenettle plant with berries

Horsenettle flowers

Eastern black nightshade seedling

Eastern black nightshade flowers

Eastern black nightshade

Other names: Black nightshade

Scientific name: *Solanum ptycanthum*

Life cycle/height: Annual, up to 3 feet

Leaves: Cotyledons are small, oval with pointed tips and a purplish tinge underneath. Leaves are alternate, simple, ovate to lanceolate with entire to irregularly toothed wavy margins. Leaves are hairless to slightly hairy and purple on lower surfaces. Leaves are up to 3 inches long and 2 inches wide and have petioles. Leaves commonly have small round holes caused by flea beetle feeding.

Stems: Erect and branched, hairless or slightly hairy

Flowers/fruit: Flowers are mostly white or slightly purple and star-shaped. Flowers have 5 petals fused at the base surrounding 5 yellow anthers and are about ⅜ inch across. Flowers occur in clusters of 4 to 5. Fruit are berries; green when immature, shiny black at maturity and are about the size of soybeans.

Comments: Reproduces by seed. All plant parts are poisonous; plant parts become more toxic with age, except for berries. Berries mixed with harvested soybeans can stain beans and reduce the value of the crop.

Eastern black nightshade

Eastern black nightshade young plant

Buffalobur

Other names: Kansas thistle, prickly nightshade

Scientific name: *Solanum rostratum*

Life cycle/height: Annual, up to 2 feet

Leaves: Alternate, deeply lobed, 2 to 5 inches long with prominent leaf veins, stiff, straight hairs on upper surfaces and dense, star-shaped hairs on lower surfaces

Stems: Erect, branched and covered with tiny hairs and yellow, straight spines

Flowers/fruit: Flowers are bright yellow, 5 lobed and about 1 inch wide. Fruit are globe-shaped berries enclosed by a spiny calyx containing many kidney-shaped, pitted seeds.

Comments: Reproduces by seed. Leaves, berries and roots are poisonous. Spines can cause injury.

Buffalobur seedling

Buffalobur young plant

Buffalobur plant

Buffalobur flower and burs

Field pansy flower

Field pansy

Other names: Wild pansy, Johnny jump up

Scientific name: *Viola bicolor*

Life cycle/height: Summer or winter annual, up to ½ foot

Leaves: Alternate, hairless and slightly lobed with petioles. Upper leaves have leafy stipules up to 1 inch long at the leaf base. Stipules have deep, narrow lobes with hairless to slightly hairy edges and are the same color as leaves.

Stems: Erect, branched near base, light green to purplish and hairless

Flowers/fruit: Flowers are about ½ inch across, with 5 petals and 5 sepals. Petals are pale to medium blue-violet with dark purple lines and white at the flower throat. The side petals are bearded with white hairs. The lowermost petal has a yellow patch near the base. Seed capsules contain small, light brown, oval seeds that are ejected from the capsule when mature.

Comments: Reproduces by seed. Tolerant to glyphosate. It is a problem in no-till fields.

Field pansy plant

Some weeds are very similar in appearance to weeds described in this guide but can be differentiated by the following characteristics.

Ground ivy

Scientific name: *Glechoma hederacea*
Comments: May be confused with henbit (page 76). Ground ivy differs by having upper leaves with petioles and a more prostate growth habit.

Ladysthumb

Scientific name: *Persicaria maculosa*
Comments: May be confused with Pennsylvania smartweed (page 86). Ladysthumb differs by having an ocrea with hairs on the top. Swamp smartweed (page 85) also has an ocrea with hairs on the top.

Mouseear chickweed

Scientific name: *Cerastium fontanum*
Comments: May be confused with common chickweed (page 66). Mouseear chickweed differs by having prominent hairs on leaves and stems.

Tall hedge mustard

Scientific name: *Sisymbrium loeselii*
Comments: May be confused with other mustards (e.g., yellow rocket, page 59; and wild mustard, page 62). Tall hedge mustard differs by having leaves with triangle-

Glossary

Many technical terms are used to describe weed morphology. It is important to know the definition of these terms for accurate weed identification.

Glossary

Achene- A dry, one-seeded fruit that does not open or split.

Alternate- Leaves spaced singly along a stem, with one leaf at each node.

Annual- A plant that completes its life cycle during a single growing season.

Auricle- A claw-like or clasping appendage at the base of a grass leaf blade where it meets the sheath (near the collar).

Awn- A narrow, stiff bristle occurring at the end or edge of a plant organ.

Axil- The area where the stem and leaf meet.

Axillary- Positioned in or rising from an axil (for example, axillary buds).

Basal- Positioned at or near the base of a structure.

Biennial- A plant that requires two years to complete its life cycle.

Blade- The elongated, extended and flattened part of a leaf.

Bolt- To produce a stem from a basal rosette by rapid elongation.

Bract- A reduced leaf or leaf-like structure at the base of a flower or flower cluster.

Bristle- A short, stiff hair or hair-like structure.

Bulb- An underground stem with fleshy, thick storage leaves or scales.

Calyx- The outermost whorl of flower parts, usually green sepals that cover other flower parts in the bud.

Collar- The area of a grass leaf at the junction of the blade and sheath.

Compound- Consisting of two or more parts united in a single structure. For example, a compound leaf is divided into two or more distinct leaflets.

Cotyledon- The first leaf or leaves of a newly emerging plant, also called seed leaves.

Creeping perennial- A perennial that can reproduce and spread vegetatively.

Glossary

Decumbent- Horizontal or laying flat for most of the length with only the tip ascending.

Disk (flower)- Tubular flowers in the center of a flower head, characteristic of the sunflower family.

Elliptic- Oval-shaped, but tapering at both ends.

Entire- A continuous, untoothed margin.

Hypocotyl- The stem of a young seedling below the cotyledon(s).

Inflorescence- A cluster of flowers.

Integrated weed management- Combines different management strategies such as cultural, mechanical and chemical methods to adjust to changing weed problems and weed population shifts.

Internode- The area of a stem between successive nodes.

Lanceolate- A long, narrow shape that is widest at the base and tapers to a tip.

Leaflet- One part of a compound leaf.

Ligule- In grasses, a thin membrane or ring of hairs at the junction of the leaf sheath and blade on the inside of the leaf collar.

Linear- Long and narrow with parallel sides.

Lobe- A rounded segment of a plant part.

Margin- The edge or border of a plant part.

Mealy- Covered with material that resembles meal in texture.

Midrib or midvein- The central vein of a leaf.

Nodding- Drooping or bending over and downward.

Node- Joint in a stem where leaves and branches emerge.

Noxious weed- Weeds classified under the Iowa Weed Law. The law gives each county the authority to order the destruction of weeds classified as noxious by the state.

Oblong- Having an elongated, rounded shape, like a rectangle with rounded corners.

Ocrea- A papery sheath that encloses the stem at the nodes, characteristic of the smartweed family.

Glossary

Opposite- Leaves growing in pairs, two at each node on the stem.

Ovate- Having an oval outline; egg-shaped.

Palmate- Lobed, divided or veined from a common point like the fingers of a hand.

Panicle- Seedhead with a main axis and subdivided branches; may be compact or open.

Pappus- A cluster of hairs, bristles or scales that crown the top of achenes and aid wind dispersion of seeds of some species in the sunflower family.

Pedicel- The stalk of a spikelet or individual flower in an inflorescence.

Perennial- A plant that lives for more than two years.

Petiole- The stalk between the leaf blade and the stem.

Pinnate- A compound leaf arrangement with leaflets occurring on opposite sides of an elongated axis.

Prostrate- Lying on the ground.

Raceme- An inflorescence where the spikelets or flowers are on stalks coming off a central axis or stem.

Ray (flower)- Strap-shaped flowers of some members of the sunflower family.

Rhizome- A creeping, underground stem that can vegetatively generate new growth.

Rosette- A circular cluster of leaves radiating from a stem where the internodes have not elongated. A rosette appears as a circular fan of leaves on the ground.

Sepal- A portion of the calyx; usually green but may look like petals.

Sessile- A leaf or flower attached directly to another structure; without a petiole or pedicel.

Sheath- Lowest part of the leaf that encloses the stem of grass plants; a structure that surrounds another plant structure.

Shoot- New plant growth that can include stems, flower buds and leaves.

Simple- A single plant structure that is unbranched or undivided.

Simple perennial- A perennial that reproduces only by seed.

Spike- An elongated, unbranched seedhead.

Spikelet- A small or secondary spike composed of one to several flowers, characteristic of grasses and sedges.

Stipules- Small, often leaf-like appendages arising from the petiole near the leaf base in some plants; may be modified to spines.

Stolon- An aboveground, modified stem that roots at the nodes giving rise to new plants.

Succulent- Soft or fleshy.

Summer annual- A plant that germinates in the spring or summer and completes its life cycle before winter.

Taproot- The main root, growing almost vertically downward, from which small, lateral roots spread out.

Tendril- A slender, cylindrical modified leaf or stem that twists or coils around a supporting structure.

Terminal- The tip or end of a stem or leaf.

Tiller- A shoot arising from a bud at the base of the plant.

Toothed- A projecting or divided part of a plant; jagged row on the edge of a leaf or flower.

Tuber- A short, thickened portion of an underground stem; provides food storage for the plant.

Tubercle- A small projection or bump on the surface of a plant structure.

Umbel- A flat-topped or rounded inflorescence with branches that come out from a common point.

Wavy- Having undulating and wavelike curves.

Whorl- A ring of three or more structures at a single node.

Winter annual- A plant that germinates in the early fall to early spring, flowers, produces seed in mid-to late spring, then dies.

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Acknowledgements

Written and edited by Kristine Schaefer, Daren Mueller, Adam Sisson, Rich Pope, Clarke McGrath and Bob Hartzler.
Additional editing by David Wright, Tamsyn Jones, Greg Tylka, Karen Simon, LeAnn Strother and Dawn Refsell.
Illustrations by Kaitlin Lindsay, Azusa Okawa, Jamie Rippke, Jessica Thompson and Stephen Robinson with oversight by Lynn Clarke (pages 12-17).
Graphic design by Gary Usovsky.
Photo credits:
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University of Illinois – star of Bethlehem images (page 77).
University of Missouri Weed ID Guide – field pansy images (page 95).

Weed Identification
Field Guide

A reference for identifying weeds in field crops

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Funded in part by the soybean checkoff.