

## Lesson 3: Plant and Seed Identification

Weeds rob crops of sunlight, nutrients, and water, which are needed for proper growth and development of crops. In order to effectively control crop pests such as weeds, proper and early detection is necessary. Unfortunately, weeds are not easy to identify. The ability to identify weed and crop plants and seeds is necessary to effectively manage crop production.

### Seed Identification

Seed identification is important for seed selection and weed control. Some seeds vary greatly, while others are very much alike. The five characteristics used in seed identification are size, shape, color, surface markings, and other botanical characteristics. Table 3.1, "Descriptions of Selected Crop Seeds" and Table 3.2, "Descriptions of Selected Weed Seeds," identify the characteristics of common crop and weed seeds.

### Weed Classes

Loss of and damage to crops caused by weeds cost American farmers millions of dollars each year. These losses increase production costs and reduce profit. Weeds also serve as hosts to insects and diseases. The presence of weeds in a field can weaken crop plants, making them more susceptible to diseases.

Weeds can also be harmful to animals and people. Certain weeds can cause severe illness and even death when eaten. Steps have been taken to properly identify and classify weeds that pose health problems. The three classifications of weeds are prohibited, noxious, and common.

Prohibited weeds such as Canadian thistle, field bindweed, and Johnson grass are difficult to control because of their growth, length of life, or abundant seed production. Missouri law prohibits the sale of agricultural crop seed that contains prohibited weed seeds.

Giant foxtail, dodder, and quackgrass are examples of noxious weeds that can be controlled, but with difficulty. The presence of noxious weed seeds in agricultural crop seed is restricted in Missouri.

Common weeds like crabgrass, cocklebur, and chickweed are those weeds that are not classified as prohibited or noxious. These weeds are relatively easy to control but interfere with agricultural production by reducing crop yields and increasing production costs.

### Plant Identification

Botanical and agronomic characteristics are used to identify crop and weed plants. There are five main characteristics that can be used to identify crop and weed plants. These characteristics include: 1) leaf shape, 2) stem, 3) flower, 4) root, and 5) other characteristics. Table 3.3, "Descriptions of Selected Crop Plants," and Table 3.4, "Descriptions of Selected Weed Plants," present characteristics of crop and weed plants. Additional information on plant life cycle, plant height, and where the plant is most commonly found may also be helpful in plant identification.

### Summary

Identification of crop and weed seeds and plants is important for crop production. Proper identification and control of weeds increase profitability. Some weeds are harmful to animal and human health. Weeds are classified as prohibited, noxious, and common.

### Credits

*Broadleaf and Grass and Grasslike Weed Vegetative Identification Keys.* Cooperative Extension Service, University of Illinois, n.d.

*Crop Plants: Color Photos and Descriptions.* University of Illinois: Vocational Agriculture Service, 1981.

Delorit, R.J.; L.J. Greub; H.L. Alhgren. *Crop Production*. 5th ed. NJ: Prentice-Hall, Inc., 1984.

Dierker, W.W. *Grasses and Grasslike Plants of Cultivated Fields and Pastures in Missouri.* University of Missouri-Columbia: University Extension, n.d.

*Identification of Grasses and Legumes.* University of Missouri-Columbia: Instructional Materials Laboratory, 1980.

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University of Missouri-Columbia: University Extension agricultural publications:

1. RP0089: *Annual Broadleaf Weed Seedling Identification*
2. G04850: *Common Names of Weeds in Missouri Field Crops*
3. G04863: *Pasture Weeds (Perennials)*
4. RP0281: *Weeds of the North Central States*

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## Glossary of Terms Used in Identification

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**Auricle:** Claw-like appendages at the junction of the leaf blade and leaf sheath of grasses.

**Awn:** A hair-like projection occurring on the lemma of a seed.

**Callus:** Enlarged base at end of the lemma.

**Culm:** Stem.

**Hilum:** The scar at the point of attachment of a seed to the pod.

**Lemma:** The husk on the back, dorsal side of the grass seed.

**Ligule:** Membranous, upright structure located on the collar between leaf blade and leaf sheath of grasses.

**Palea:** The husk on the front, ventricle side of the grass seed.

**Palmately trifoliate:** No distinct petiolule bearing central-terminal leaflet.

**Pinnately trifoliate:** Central-terminal leaflet borne on a conspicuous petiolule.

**Pubescence:** Hairiness of leaves.

**Rachilla:** A small stem to which a grass seed is attached to the branch or stem.

**Rhizome:** Underground creeping stem.

**Stipule:** Leaf-like structure from either side of the leaf base.

**Stolon:** Above ground, horizontal stem.

Table 3.1 – Descriptions of Selected Crop Seeds (Grain, Forage, Legume, Fiber, and Other)

Seed	Botanical Classification	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Corn	monocotyledon	cereal grain, feed, food, oil crop	summer annual	varied	semi-round to elongated flat sided	yellow	pronounced wrinkle or dent on top	
Wheat	monocotyledon	cereal grain, food, feed	winter annual or summer annual	3-10 mm long, 3-5 mm wide	oblong to rounded, or fish-backed	brownish to amber	deep crease with rounded cheeks	brush at pistillate extremity
Oats	monocotyledon	cereal grain	annual, winter annual	8-10 mm long, 1.6-3.2 mm wide	spindle shaped	varies from white to yellow gray and red to black	furrowed on one side	covered with moderately long, fine, silky hairs
Rye	monocotyledon	cereal grain, hay, cover crop	annual, winter annual	6-9 mm long	slightly higher than thick	glaze brown, brownish olive, greenish brown, bluish green or yellow	longitudinally channeled	lemma is broad, keeled, terminally awned
Barley	monocotyledon	cereal grain, food, feed	summer or winter annual	10-12 mm long	narrowly ovoid	creamy white, black, red, purple, or blue	irregularly wrinkled	rachilla is a small, long- or short-haired structure lying within the crease
Rice	monocotyledon	cereal grain	summer annual	3.5-8 mm long, 1.3-2.3 mm thick	shaped like a pelican beak	white	enclosed in light to dark yellow lemma and palea	
Soybean	dicotyledon	cereal grain and oil	summer annual	varied	round to ovoid	straw to buff tan colored	hilum colors from buff to black	hulls are brown to tan with hairy surface
Sudangrass	monocotyledon	forage, hay	annual	6 mm long		light gray		
Pearl Millet	monocotyledon	forage, hay, silage	annual	3-4 mm long, 2.25 mm wide	obovoid	yellowish gray	smooth	embryo has a reddish tinge
Kentucky Bluegrass	monocotyledon	forage	perennial	2 mm long	long, narrow	light gray	lemma, showing numerous veins and nerves	lemma somewhat curved around palea
Rape	dicotyledon	forage	biennial	1 1/2-2 mm across	spheroid to irregularly globose	dark reddish brown to purplish black	small hilum evident	
Red Top	monocotyledon	hay, forage	perennial	1 mm long	ovoid	translucent reddish	rough coat	lemma and palea appear much longer than caryopsis

Table 3.1 – Descriptions of Selected Crop Seeds (Grain, Forage, Legume, Fiber, and Other) continued

Seed	Botanical Classification	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Orchard Grass	monocotyledon	forage	perennial	5 mm long	boat shaped	straw colored	finely hairy dorsal nerves	hulls dull with short, curved awn
Reed Canary Grass	monocotyledon	forage	perennial	3 mm long	carrot shaped	olive brown	very shiny	paleas sparsely covered with long hairs
Tall Fescue	monocotyledon	forage	perennial	5 mm long	rounded knobbed rachilla with blunt tip	light gray		light purple tinge on the glumes or chaff
Timothy	monocotyledon	forage	perennial	1 mm long	small plump ovoid	light straw	rough surface	caryopsis light brown
Bromegrass	monocotyledon	forage	perennial	11 mm long	long and thin	brownish	chaffy appearance, strongly veined	light papery appearance
Bermuda Grass	monocotyledon	forage	perennial		boat shaped	straw yellow		sharp pointed at apex
Perennial Ryegrass	monocotyledon	forage	perennial	6 mm long	round, knobbed rachilla with blunt tip	light gray	chaffy appearance	awnless rachilla lies flat against seed with broken appearance
Annual Ryegrass	monocotyledon	forage	perennial	6 mm long	round, knobbed rachilla with blunt tip	light gray	chaffy appearance	awn is present
Red Clover	dicotyledon	legume, forage	perennial	2 mm long	heart shaped and rounded	green-yellow, tan to purple	smooth surface and shiny with notched side	hilum located at the end of the seed
White Clover	dicotyledon	legume, forage	perennial	1.2 mm long	very small, heart shaped	light yellow to tan to brown	smooth surface with notched side	hilum located at the end of the seed
Crimson Clover	dicotyledon	legume, forage	winter annual	2.4 mm long	flat, oval	yellow to yellowish-orange	smooth surface	pinkish red on hilum side
Alsike Clover	dicotyledon	legume, forage	perennial	1.5 mm long	round, heart shaped	greenish black to mixed with yellow	smooth surface	hilum on side
Sweet Clover	dicotyledon	legume, forage	biennial or annual	2 mm long	catcher's mitt, flattened ellipsoidal	yellow sweet = speckled golden yellow, white sweet = golden yellow	slightly notched or lobed with longitudinal furrow	vanilla-like aroma

Table 3.1 – Descriptions of Selected Crop Seeds (Grain, Forage, Legume, Fiber, and Other) continued

Seed	Botanical Classification	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Korean Lespedeza	dicotyledon	legume, forage	summer annual	2 mm long	elm leaf shape	hulless or naked seed is black	prominent veins w/smooth surface	hilum is reddish-brown
Sericea Lespedeza	dicotyledon	legume, forage	perennial	2-2.5 mm long, 1.5 mm wide	ovate	light green to light tan, green flecked with purple or brownish-purple	smooth surface	hilum on side of barely, notched end
Common Lespedeza	dicotyledon	legume, forage	annual	2.2 mm long	ovate	naked seed is black to purple-mottled	smooth surface	long prominent sepals
Alfalfa	dicotyledon	legume, forage	perennial	2.4 mm long	kidney bean shaped	yellow to olive-green	longitudinal furrow not parallel to margin	seed coat not shiny, flat on one side
Birdsfoot Trefoil	dicotyledon	legume, forage	perennial	1 mm long	small, plump, fairly thick, irregularly heart-shaped	dark brown to gun metal	semi-smooth surface	shiny seed coat, hilum on edge or side
Hairy Vetch	dicotyledon	legume forage	annual, winter annual	size of buckshot	round	dark gray to black	rough seed coat	oval shaped hilum
Castorbean	dicotyledon	oil	perennial	10 mm long	large tick-shaped	mottled with gray and brown markings or black variations with white	semi-rough surface	hilum or caruncle prominent at end of seed
Cotton	dicotyledon	fiber, oil, feed, food	perennial (annual)		ovate	dark brown covered with grayish fuzz	tough, leathery hull	pointed at attachment end
Tobacco	dicotyledon	drug crop	summer annual	very tiny (sand grain size)	round	dull brown	rough seed coat	when magnified seed shows definite rippling
Flax	dicotyledon	fiber	summer annual, winter annual in warm climate	3.6-5 mm long	pear-shaped, flat	light brown to yellow-mottled greenish yellow to nearly black	smooth and shiny surface	hilum mainly on small end of seed
Sunflower	dicotyledon	feed, silage, oil	summer annual	6-10 mm long	elongated rhomboid achene	black to gray with white streaks	semi-smooth surface and veined	hairy at tip

Table 3.2 – Descriptions of Selected Weed Seeds (Prohibited, Noxious, Common)

Seed	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Canadian Thistle	prohibited	perennial	4.5 mm long	slightly tapered	brown	smooth coated	ridge around blossom end
Field Bindweed	prohibited	perennial	3 mm long	long with 1 rounded and 2 flattened sides	dark brownish-gray	rough coated	very irregular seed
Johnson Grass	prohibited	perennial	3 mm long	oval	reddish-brown	marked with fine lines on surface	awn that is easily broken off
Sorghum Alnum	prohibited	perennial	2.7 long	oval	reddish-brown		
Buckhorn Plantain	noxious	perennial	small	boat shaped	brown	shiny and smooth	indentation in the middle of one side, sticky when damp
Curled Dock	noxious	perennial	2-2.5 mm long	triangular, sharp-edged	brown	smooth seed coat	3 heart-shaped bracts with smooth edges
Dodders	noxious	annual	size of white clover	round to pear shaped	brown	roughened seed coat	triangular in cross-section
Giant Foxtail	noxious	annual	1.5 mm long	intermediate between green and yellow foxtail	mostly greenish, straw or dark brown	glossy margins of palea	
Hedge Bindweed	noxious	perennial		obovoid-wedge shape	slate colored to black	dull surface color	1 rounded and 2 flattened sides
Leafy Spurge	noxious	perennial		thick oval	light gray or with brownish spots	smooth surface	often yellowish out growth near point of attachment
Ox-eye Daisy	noxious	perennial	1.5 mm long	oval, usually curved with one side straight and other side convex	black with 8 to 10 white to gray ridges	rough surface (ribbed)	long prominent knob-like scar on top
Perennial Peppergrass	noxious	annual or winter annual	1.5-1.8 mm long	slightly oblong	reddish brown	semi-smooth surface	point of attachment at end
Quackgrass	noxious	perennial	8 mm long	oblong and narrow	yellow-brown		lateral bulge is present on back of lemma
Red or Sheep Sorrel	noxious	perennial	1 mm long	3-sided	reddish-brown	dull, rough surface	
Russian Thistle	noxious	annual		conical shaped	gray to yellowish-brown	spirally ridged	
Wild Carrot	noxious	biennial	2.5 mm long	oblong and flat on one side	grayish-brown	4-heavy, long-bristled ridges	
Wild Garlic and Onion	noxious	perennial	often the size of wheat kernels	garlic = flat on one side and obovoid	black to dark brown		
Yellow Star-Thistle	noxious		1/16-1/8 inch long	1 type has pappus bristles – the other doesn't	one type is pale yellow, the other is dark grayish		

Table 3.2 – Descriptions of Selected Weed Seeds (Prohibited, Noxious, Common) continued

Seed	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Hemp	noxious	annual	3 mm long	oval	mottled brown to green	semi-smooth surface	
Barnyard Grass	common	annual	3-4 mm long	oval	tan to brown	longitudinal ridges	awned and awnless
Cheat	common	winter annual, annual	10-15 mm long	oblong and flat with one end wider	tan to brown		large lemma with a long awn
Chickweed	common	winter annual, annual	very small seed	somewhat heart shaped but nearly rounded	dull reddish-brown	roughened by curved rows of minute tubercles	
Cocklebur	common	annual	1.3 mm long	slender with pointed tips	dark brown	ridged surface	
Corn Cockle	common	winter annual	3 mm long	triangular	black	covered with rows of sharp tubercles	
Crabgrass	common	annual	2.4 mm long	small canoe shaped	green to greenish purple	semi-smooth surface	pointed lemma
Dandelion	common	perennial	4.5 mm long	elongated with slender tip	tannish	rough coated and ridged	tip bears a tuft of hairs
Fall Panicum	common	annual	1.5 mm long	oblong but semi-flat	yellow	smooth surface	readily separated from hull when ripe
Foxtail (green)	common	annual	1.5-2 mm long	ovate to narrowly ovate	dark blotched upon a light straw background	longitudinally striate or weakly cross-wrinkled	
Foxtail (yellow)	common	annual	1.5-2 mm long	broadly oval	mostly yellowish but some dark brown	lemma, coarsely wrinkled	
Horse-nettle	common	perennial	1.5 mm long	obovate	glossy yellow to orange	faintly roughened by low curving ridges	
Jimson Weed	common	annual		kidney shaped flattened	dark brown to black	irregular and pitted	
Lamb's Quarters	common	annual	1.5 mm long	disk-shaped	black	small niche in the edge	may be enclosed by a grayish hull
Milkweed (climbing)	common	perennial		flattened, oval	brown	rough coat	tuft of silky, white hairs at tip
Milkweed (common)	common	perennial		flat, oval	brown	rough coat	tuft of silky, white hairs at tip

Table 3.2 – Descriptions of Selected Weed Seeds (Prohibited, Noxious, Common) continued

Seed	Agronomic Classification	Life Cycle	Size	Shape	Color	Surface Markings	Other Botanical Characteristics
Morning-glory	common	annuals and perennials	various sizes	round with 2 flattened sides or round, flattened and fringed with hairs	dark gray or black		
Musk Thistle	common	biennial	4.5 mm long	long, curved	glossy yellowish-brown	rough and ridged	
Mustard (wild)	common	annual, winter annual	1.5 mm long	round	black, bluish or brown	smooth and hard surface	
Nutgrass (Yellow Nutsedge)	common	perennial	1.6 mm long	3 angled-small with blunt ends	yellowish-brown		
Plantain (bracted)	common	annual, winter annual	3 mm long	boat shaped with groove across oval side of seed	dull light brown	2 white scars in indentation on inner surface	
Pigweed (smooth)	common	annual	1.0-1.2 mm long	ovate, lens shaped and notched at narrow end	shiny black		
Ragweed (giant)	common	annual	.6-1.3 cm long	shaped like long kings crown with 5 to 10 spikes at top	gray to brown	rough surface	
Shepard's Purse	common	annual, winter annual	1 mm long	small and oblong	yellowish	distinct longitudinal furrows on each side	
Smartweed, Pennsylvania	common	annual	3 mm long	circular flat at least one surface concave	reddish-brown to black		usually stays in husk
Spiny Sida (prickly sida)	common	annual	1.6 mm long	3 angled egg-shaped	dull dark reddish-brown	rough odd shaped	
Velvet Leaf	common	annual	3 mm long	flattened notched	grayish-brown	rough surface	
Wild Buckwheat	common	annual	3 mm long	3-sided	black to brown		often covered with a rough dull brown hull



Table 3.3 – Descriptions of Selected Crop Plants (Grain, Forage, Legume, Fiber)

Plant	Botanical Classification	Agronomic Classification	Life Cycle	Plant Height	Leaves	Stem (culm)	Flower (inflorescence)	Root
Corn	monocotyledon	feed, food, oil crop	summer annual	varies depending on variety grown	thin, flat, expanded blade with a midrib and smaller veins with pronounced ligules	alternating nodes and internodes average 100 inches in length and 1 1/4 inches in diameter	functional staminate flowers in the tassle, functional pistillate flower in the silks	seminal and adventitious
Wheat	monocotyledon	cereal grain, food, feed	winter annual or summer annual	range from 1-4 feet in height depending on cultivar	composed of sheath, blade, ligule and auricle	culm – hollow jointed cylinder constituting 3-6 nodes and internodes	spike type, typically a single spikelet per node, 3-4 florets per spikelet	seminal and coronal, tillers are common
Oats	monocotyledon	cereal grain	annual, winter annual	range slightly less than 2 feet to 5 feet depending on cultivar	solitary sessile leaves in two ranks	culm-series of nodes and internodes that alternate solitary sessile leaves	panicle consists of a main axis terminating in a single multiflorous spikelet	fibrous, seedling and permanent
Rye	monocotyledon	cereal grain, hay, cover crop	annual, winter annual	typically more than 5 feet tall, some up to 6 feet tall	coarser and more bluish in color than those of wheat	larger and longer than those of wheat	spike type inflorescence like wheat except with 3 florets per spikelet	seminal and coronal with some tillers
Barley	monocotyledon	cereal grain, food, feed	summer or winter annual	range from 1-4 feet depending on cultivar	presence of large auricles and absence of prominent ligule	culm is hollow jointed cylinder	spike type like wheat with 3 spikelets per rachis node with single florets	seminal and coronal, tillers are common
Rice	monocotyledon	cereal grain	summer annual	2-6 feet tall	long, thin, narrow, coarse, and ribbed	erect culms that are hollow and consist of nodes that vary in number	loose, freely branched, panicle-type inflorescence, each floret has six stamens and two, long styles	shallow root system, tillers under poor growing conditions
Soybean	dicotyledon	cereal grain, oil, forage	summer annual	2-4 feet tall	trifoliolate and pubescent	erect, very bushy and branched	small purple and white borne in axillary racemes	taproot with branches
Sudangrass	monocotyledon	forage, hay	annual	3-5 feet when broadcast, 6-8 feet when grown in rows	soft with numerous open penicles	slender		numerous tillers, rarely any branches and no rootstocks
Pearl Millet	monocotyledon	forage, hay, silage	annual	2-5 m	long, pointed, with finely serrated margins	pithy, erect	thick, cylindrical spikes, 20-50 cm long and 2-4 cm in diameter	free tillering from axillary meristems

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Table 3.3 – Descriptions of Selected Crop Plants (Grain, Forage, Legume, Fiber) continued

Plant	Botanical Classification	Agronomic Classification	Life Cycle	Plant Height	Leaves	Stem (culm)	Flower (inflorescence)	Root
Kentucky Bluegrass	monocotyledon	forage	perennial	varied height depending on use	green and V shaped in cross sections	fine and cylindrical	spreading panicles	creeping underground stems, rhizomes
Rape	dicotyledon	forage	biennial	2-2 1/2 feet tall	mostly glabrous; basal leaves 4-12 inches long	much branching from an erect pithy stem	elongated raceme; light yellow flower 1/4-3/4 inch across	branched taproot
Red Top	monocotyledon	hay, forage	perennial	attain 1 m	flat, sharp pointed with ligules that are .6 cm long and pointed	creeping but mostly upright	panicles are reddish and loosely pyramidal in shape	shallow root stocks, vigorous, 2-6 inches long
Orchard Grass	monocotyledon	forage	perennial	60 cm-2 m	flattened and strongly keeled; ligule membranous and 3-10 mm long; no auricles	flowering culms that bear few basal leaves	spikelets bear 2-5 florets	fibrous root system but deep tillers are produced
Reed Canary Grass	monocotyledon	forage	perennial	60-240 cm	flattened with sharp point	tall, stout and leafy	semi-dense spikelet panicles of 5-20 cm	has short, scaly rhizomes
Tall Fescue	monocotyledon	forage	perennial	2 feet	numerous shiny, dark green, ribbed, ciliated auricles and collars	erect, stout, smooth	branched panicle head 10-35 cm long	may or may not have short rhizomes, massive root system fibrous
Timothy	monocotyledon	forage	perennial	80-110 cm	flat, elongated	erect culms	dense, cylindrical spikelet inflorescence one flowered	many tillers, shallow but fibrous
Brome-grass	monocotyledon	forage	perennial	5 feet	long, flat with center rib	many erect, stout culms	numerous spikelets, florescence are made up of 5-10 florets	extensive fibrous system
Bermuda Grass	monocotyledon	forage	perennial	mainly a creeping pattern can grow up to 6-12 inches	smooth to slightly hairy, and fairly coarse, ligule is a circle of white hairs	very leafy, short internodes	erect panicles with 5 spikelets	adventitious roots with rhizomes and stolens
Perennial Ryegrass	monocotyledon	forage	perennial	90 cm	ligules up to 2.5 mm long; may or may not have auricles	erect or spreading	straight or slightly curved spikes up to 30 cm, contain 5-40 spikelets	fibrous

Table 3.3 – Descriptions of Selected Crop Plants (Grain, Forage, Legume, Fiber) continued

Plant	Botanical Classification	Agronomic Classification	Life Cycle	Plant Height	Leaves	Stem (culm)	Flower (inflorescence)	Root
Annual Ryegrass	monocotyledon	forage	perennial	120 cm	leaf sheaths are glabrous, ligules up to 4 mm long auricles usually present	erect or spreading	straight or curved up to 30 cm in length, each spike up to 40 spikelets	fibrous
Red Clover	dicotyledon	legume, forage	perennial	30-90 cm	usually 3 oblong leaflets, generally hairy	numerous leafy, rising from crown	flowers on heads (compact clusters), heads usually consist of 125 rose-colored flowers	taproot system with many secondary branches
White Clover	dicotyledon	legume, forage	perennial	30-90 cm	long-petioled, trifoliate usually marked with white V	fleshy stem with short internodes	usually white, occasionally pinkish on an almost globose head	has stolons with a primary root with adventitious roots
Crimson Clover	dicotyledon	legume, forage	winter annual	30-90 cm	3 leaflets broadly obovate at tip, narrow at base and hairy	fleshy, stout stems with short internodes	bright crimson red color, conical flower head	central taproot with many fibrous roots
Alsike Clover	dicotyledon	legume, forage	perennial	under favorable conditions 2.5-5 feet	3 leaflets on a main axis	smooth, leaf, erect	vary from white to almost rose	tap root and secondary roots
Sweet Clover	dicotyledon	legume, forage	biennial or annual	may reach 2.8 m	trifoliate leaves that are toothed around margins	erect stems that vary from 3-6 feet tall	yellow or white flowers	deep tap root
Korean Lespedeza	dicotyledon	legume, forage	summer annual	30 inches	larger, coarser with prominent stipules	hairy	born in clusters at tips of branches (petalous)	extensive but relatively shallow
Sericea Lespedeza	dicotyledon	legume, forage	perennial	.5-1 m	long and narrow, indented at end	coarse, hard stems, hairy	purple or yellow petalous and apetalous	deep taproot
Common Lespedeza	dicotyledon	legume, forage	annual	4-30 inches	narrow leaflets, small stipules	upright with numerous nodes, hairy	small purple	taproot
Alfalfa	dicotyledon	legume, forage	perennial	60-90 cm	pinnately trifoliate, alternately on stem	short, that produce other leafy branches	purple or yellow depending on cultivar	creeping rooted and taproot with branches

Table 3.3 – Descriptions of Selected Crop Plants (Grain, Forage, Legume, Fiber) continued

Plant	Botanical Classification	Agronomic Classification	Life Cycle	Plant Height	Leaves	Stem (culm)	Flower (inflorescence)	Root
Birdsfoot Trefoil	dicotyledon	legume, forage	perennial	60-90 cm	compound leaves, alternately attached five leaflets	numerous, fine stems 12-30 inches in height	typical umbrel with 4-8 florets dark yellow to orange	deep taproot that is branched
Hairy Vetch	dicotyledon	legume, forage	annual, winter annual	60-180 cm	pinnate leaflets which have tendrils	stout	white or purple in clusters or raceme	taproot
Castor-bean	dicotyledon	oil	annual or perennial depending on climate grown	3-12 feet for commercial type		coarse	racemes bearing female on upper and male on lower	taproot system with lateral roots
Cotton	dicotyledon	fiber, oil, feed, food	annual in tropics, or short lived perennial	2-5 feet	large, hairy, simple with 3-5 lobes borne on petioles with stipules, palmately veined	woody, stout stems with alternate branching	alternate sides of fruiting branch complete and perfect, 5 large sepals, 5 petals	deep taproot and widely branching secondary system
Tobacco	dicotyledon	drug crop	summer annual	vary from 4-6 feet	simple, alternate leaves up to 2 feet long and 1 foot wide covered with sticky hairs	erect, stout yet fleshy that terminates in a raceme type inflorescence	complete and perfect, calyx of 5 sepals, corolla of 5 petals fused into a floral tube usually pink	generally shallow branched system 2-3 feet depth
Flax	dicotyledon	fiber	summer annual, in warm climates winter annual	ranges 1-4 feet	short, narrow alternate on stem and are sessile	narrow and branch trim the base	white or blue complete and perfect, 5 sepals, 5 petals, 5 stamens	poorly branched taproot, 2 feet depth
Sunflower	dicotyledon	feed, silage, oil	summer annual	5-20 feet in height	alternate, ovate	stout, erect, simple, 1-3 inch diameter	6-12 inch diameter, 40-80 golden petals surrounding a brown to nearly black disk	fibrous and branching system

Table 3.4 – Descriptions of Selected Weed Plants (Prohibited, Noxious, Common)

Weed Plant	Classification	Life Cycle	Plant Height	Leaves	Stem	Flower	Root	Found
Canadian Thistle	prohibited	perennial	2-5 feet	crinkled edges and spiny margins	grooved, slightly hairy	male and female on different plants, usually numerous and compact, 1.9 cm or less diameter	extend several feet down and horizontally	in all crops
Field Bindweed	prohibited	perennial	2-7 feet	ovate with spreading basal lobes	smooth, slender; twining or spreading over ground	white or pink, funnel-shaped 2.5 cm across, single in the axis of the leaves	extensive down 20-30 feet	in and able to spread in all noncultivated areas and under most cropping systems
Johnson Grass	prohibited	perennial	1.5-6 feet	alternate, simple, smooth, 6-20 inches long, 1/2-1 1/2 inches wide	erect, stout	panicles – large, purplish, hairy	freely branching, fibrous, rhizomes, stout, creeping	especially on rich soil, corn, soybeans
Sorghum Alum	prohibited	perennial						
Buckhorn Plantain	noxious	perennial	4-12 inches	ground level in a basal rosette, hairy 2-10 inches long, 1/4-1 inch wide, 3-5 prominent lengthwise veins	erect, leafless, 4-12 inches long, terminating with flower spike	numerous, petals in short cylindrical spikes at ends of stem	mostly fibrous	lawns, meadows, pastures, waste places
Curled Dock	noxious	perennial	1-4 feet	alternate mostly basal, smooth, 6-12 inches long lanceolae with wavy curled edges, short petiole	smooth, erect, single or in groups from root crown	dense clusters on branches at tip of stem without petals, small, greenish to reddish brown	large yellow, somewhat taproot	pastures, roadsides, new hay fields
Dodders	noxious	annual	vine like, parasitic, twining around other plants	absent or reduced to small bracts	stringlike, smooth, yellow or orange, branching extensively	numerous, small white, 5 lobes in clusters	small fibrous system	in clovers, alfalfa, and lespedeza
Giant Foxtail	noxious	annual	3-7 feet	covered with short hairs on upper surface	tall, weak	panicle, dense, 3-8 inches, 3-6 bristles per spikelet	fibrous, branching	in cultivated crops
Hedge Bindweed	noxious	perennial	vine like plant that twines round other plants	large, alternate, usually sharp pointed at tip	smooth, 3-10 feet long twining or trailing on ground	large, 1 1/2-2 inches across, white or pinkish	extensive but relatively shallow	in cultivated fields, fence rows, and waste areas

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Table 3.4 – Descriptions of Selected Weed Plants (Prohibited, Noxious, Common) continued

Weed Plant	Classification	Life Cycle	Plant Height	Leaves	Stem	Flower	Root	Found
Leafy Spurge	noxious	perennial	1-2 feet	alternate on stems narrowly strap shaped, 1/4 inch wide, usually drooping	erect, smoothly branched at top with milky juice	small, greenish-yellow, petals fused into cup-like structure heart-like floral bracts	deep, woody, spreading	in pastures, waste areas, along roadsides in cultivated fields
Ox-eye Daisy	noxious	perennial	1-3 feet	alternate, simple, usually conspicuously lobed, near plant base	smooth, seldom branched	occurring singly at the ends of the stems 1-2 inches diameter; ray flowers – white; disk flowers – yellow	fibrous	in old pastures, especially those low in fertility
Perennial Peppergrass	noxious	annual or winter annual	6-24 inches	alternate, covered with soft hair; arrow shaped	hoary-pubescent or rarely, hairless	white or greenish, 4 petals in rather dense racemes at plant top	short, straight, taproot	in winter wheat, first year meadows, and waste land
Quackgrass	noxious	perennial	1 1/2-3 feet	have auricles, ligule 1/32 inch long, hairy lower sheaths, upper smooth	smooth culms and 3-6 joints	3-7 short-awned florets in a spikelet	extensive rhizomes	in pastures, and open waste lands, most cropped area
Red or Sheep Sorrell	noxious	perennial	6-18 inches	arrow-shaped 1-3 inches long, thick, smooth, acid to taste	slender, upright, branched at top	yellow to red on raceme near plant top, male and female on different plants	extensive but rather shallow	in pastures, meadows, sometimes lawns
Russian Thistle	noxious	annual	1-3 feet	cylindrical or awl-shaped, young are soft; later leaves are short, stiff, prickly pointed	young plant – soft and succulent, mature plant – stiff and woody	numerous, small, without petals, axillary on upper branches	taproot	in spring grain and legume seedings
Wild Carrot	noxious	biennial	1-3 feet	alternate, finely pinnately divided, hairy – smells like carrots	erect, hairy, stout and branched at top	small, with 5 white petals in umbrels at branch ends	fleshy taproot	in meadows, pastures, road-sides, not in cultivated fields
Wild Garlic	noxious	perennial	1-3 feet	slender, hollow, nearly round attached to lower stem	tall, smooth, waxy	greenish-white, small on short stems above aerial bulblets	fibrous from bulb	in grain fields, pastures
Wild Onion	noxious	perennial	1-2 feet	flat not hollow at base of plant stem	tall, smooth	clusters of small flowers	fibrous from bulb	in grain fields, pastures
Yellow Star-Thistle	noxious							

Table 3.4 – Descriptions of Selected Weed Plants (Prohibited, Noxious, Common) continued

Weed Plant	Classification	Life Cycle	Plant Height	Leaves	Stem	Flower	Root	Found
Hemp	noxious	annual	2-10 feet	palmately divided, 5-9 hairy leaflets with notched edges	coarse, somewhat grooved, rough, and hairy	male and female on separate plants	branched taproot	along ditches, fences, roadsides, waste land
Barnyard Grass	common	annual	1-4 feet	both sheath and blades, smooth, light green, 3/8-5/8 inch wide	thick, coarse, mostly erect, smooth branches	panicle bearing several compact side branches green or purplish color	fibrous but shallow	in most cropped areas
Cheat	common	winter annual, annual	12-24 inches	smooth and slightly hairy	erect with few internodes	panicle spikelets on shorter upright stalks	branching and fibrous	grain fields, meadows and waste land
Chickweed	common	winter annual, annual	4-12 inches	small, opposite, simple, broadly ovate, pointed tips, smooth; petioles have hair on one side	branched, creeping	small white 5 deeply notched petals	fibrous and shallow	lawns, gardens, alfalfa
Cocklebur	common	annual	2-4 feet	alternate, simple, triangular	erect, normally bushy	separate, small male and female together in clusters	taproot, woody, stout	cultivated land, poor pastures
Corn Cockle	common	winter annual	2-3 feet	opposite, slender, hairy joined at base	rough, hairy, erect, swollen at joints	large, purple with narrow, green sepals	taproot, shallow	cultivated land
Crabgrass	common	annual	up to 3 feet long	somewhat hairy 1/4-1/3 inch wide with leaf sheaths	stout, smooth, rooting at joints	3-10 segments in whorls at top of stem	spreading, fibrous	lawns, gardens, fields
Dandelion	common	perennial	6-8 inches	simple, variously lobed, 3-10 inches long, milky juice	never elongates but produces a rosette of leaves	1-2 inches in diameter of yellow ray flowers	thick, fleshy with branches	lawns, meadows, gardens
Fall Panicum	common	annual	20-50 inches	smooth, hairy, sheaths heavy short, loose, often purplish	smooth, spreading, often partly, flat on the ground lower nodes swollen	panicle compact spikelets	fibrous roots	in gardens, cultivated fields
Foxtail (green)	common	annual	1-3 feet	hairless	erect	dense 1-3 inches long erect near tip	fibrous roots	all places except woods
Foxtail (yellow)	common	annual	1-2 feet	flat, often with spiral twist, long hairs on upper	erect	dense, erect, spikelets, 5 or more bristles	fibrous roots	all places except woods
Horse-nettle	common	perennial	1-4 feet	alternate, oblong, wavy edged and prickly	simple branched, hairy and prickly	white or bluish, 5-lobed, 1 inch across in clusters	creeping rootstocks	fields, gardens, sandy soils



Table 3.4 – Descriptions of Selected Weed Plants (Prohibited, Noxious, Common) continued

Weed Plant	Classification	Life Cycle	Plant Height	Leaves	Stem	Flower	Root	Found
Jimson Weed	common	annual	2-4 feet	alternate, large, coarse, smooth, ovate, toothed edges, rank odor	smooth, thick, erect, branching	large funnel-shaped white to pinkish 2-5 inches long, egg shaped	thick, shallow, branched	in cultivated crops, old feedlots
Lamb's Quarters	common	annual	3-4 feet	alternate 1-3 inches long, smooth, white, mealy-coated	tall, smooth, grooved, often red, green striating	small, green, without petals at branch ends in axils of leaves	short, branched taproot	in cultivated crops
Milkweed (climbing)	common	perennial	climbing, length varies	smooth, heart shaped pointed, long petioles in pairs at nodes	smooth, slender, twining, without milky juice	small, whitish clusters on stalks from the axils of the leaves	spreading root system	fence rows cultivated fields
Milkweed (common)	common	perennial	2-5 feet	opposite, oblong, rounded, 4-8 inches long prominent veins	stout, erect, covered with short hairs, with milky juice	sweet-smelling pink to white, ball-like clusters at stem tips	thick root stock	pastures, cultivated fields
Morning-glory	common	annuals and perennials	twining plant 2-10 feet long	alternate, heart shaped, 2-6 inches long, smooth with long petioles	trailing, twining, woody	funnel shaped 2-3 inches diameter, white with dark purple center	yellowish white, enlarging greatly	cultivated fields, fences, roadsides
Musk Thistle	common	biennial	3-6 feet	alternate, coarsely toothed	erect spiny wings lower portion branched	heads as much as 2 inches across, drooping, purple to lavender	large thick root stock	pastures, meadows, roadsides
Mustard (wild)	common	annual, winter annual	2-3 feet	lower are irregular lobed, toothed with petioles and bristly hairs	erect, branched, near top bristly hairs	4 yellow petals in clusters at branch ends	branching fibrous	grain fields
Nutgrass (Yellow Nutsedge)	common	perennial	1-2 feet	3-ranked, narrow, grasslike, basal	erect, triangular, yellow-green	yellowish-brown, small narrow spikelets on umbrel-like florescence	fibrous	pastures, cultivated fields
Plantain (bracted)	common	annual, winter annual	6-18 inches	long, loose, hairy, basal	erect, simple, leafless, hairy, terminating in flower spike	numerous, petals in axils of long bracts in spikes	thick root with small branches	meadows, pastures
Pigweed (smooth)	common	annual	up to 8 feet	dull green, 6 inches, ovate to lanceolate	branching freely if not crowded	green, small, slender, panicle like spikes	taproot	cultivated fields, yards, fence rows
Ragweed (common)	common	annual	1-4 feet	nearly smooth, deeply cut into a number of lobes, alternate	rough, hairy, branched	two kinds: male 1-pollen producing, 2-seed producing	shallow rooted	old pastures, roadsides



Table 3.4 – Descriptions of Selected Weed Plants (Prohibited, Noxious, Common) continued

Weed Plant	Classification	Life Cycle	Plant Height	Leaves	Stem	Flower	Root	Found
Shepard's Purse	common	annual, winter annual	1-1 1/2 feet tall	in rosette at base; coarsely lobed	erect covered with gray hairs	small, white, 4 petaled	branched taproot	non-cultivated areas
Smartweed, Pennsylvania	common	annual	1-4 feet	smooth, pointed, alternate 2-6 inches long	smooth, swollen at nodes	bright pink or rose, 5 parted in a short spike	thick branched root	cultivated ground
Spiny Sida (prickly sida)	common	annual	1-2 feet	alternate, simple, oblong, toothed edges	erect, branching, hairy	5 pale-yellow petals, solitary or clustered in axils of leaves	taproot slender, branching	cultivated fields, gardens
Velvet Leaf	common	annual	6-8 feet	large, heart shaped, alternate, petioled, hairy, velvety	smooth, covered with short velvety hairs	3/4 inch diameter, 5 yellow petals	taproot well developed	in soybeans and corn fields
Wild Buckwheat	common	annual	vine-like varying length	alternate, heart shaped, pointed with smooth edges	smooth, slender, branched at base	small, greenish-white clusters in leaf axis	taproot and branched	non-cultivated areas and cropping areas

