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MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
AGRICULTURE

*Identification
of the Primary*

**NOXIOUS WEEDS
of MINNESOTA**



Beverly R. Durgan

MINNESOTA NOXIOUS WEED LAW

The Minnesota Noxious Weed Law was enacted to protect the residents of Minnesota from injurious effects of noxious weeds to public health, public roads, environment, crops, livestock, and other property. This law and related statutes are under the general administration of the Commissioner of the Minnesota Department of Agriculture. Day-to-day or routine administration of the state's noxious weed control program is carried out by the Director of the Agronomy Services Division through the Supervisor of the Section of Weed Control. Implementation of the noxious weed law is accomplished through several Regulatory Investigators located throughout the state. One of their primary duties is to see that local governments fulfill their responsibilities in the actual enforcement of the law. The actual enforcement is carried out by local governments through local weed inspectors in townships and cities and County Agricultural Inspectors in every Minnesota county.

A noxious weed, as defined by Minnesota Law, is an annual, biennial, or perennial plant which is deemed by the Commissioner of Agricultural to be injurious to public health, public roads, crops, livestock, and other property. In Minnesota, there are ten weeds on the primary noxious weed list. They are:

<u>Common Name</u>	<u>Genus and species</u>
Bindweed, field	<i>Convolvulus arvensis</i>
Hemp	<i>Cannabis sativa</i>
Ivy, poison	<i>Toxicodendron radicans</i>
Loosestrife, purple	<i>Lythrum salicaria, virgatum, or any combination</i>
Spurge, leafy	<i>Euphorbia esula</i>
Sowthistle, perennial	<i>Sonchus arvensis</i>
Thistle, bull	<i>Cirsium vulgare</i>
Thistle, Canada	<i>Cirsium arvense</i>
Thistle, musk	<i>Carduus nutans</i>
Thistle, plumeless	<i>Carduus acanthoides</i>

According to Minnesota law, these primary noxious weeds must be controlled on all private and public land in the state.

INTRODUCTION

This publication will be limited to the identification of the ten primary noxious weeds on the primary noxious weed list in Minnesota. This list includes six perennial, three biennial, and one annual weed.

Annual weeds germinate and emerge from seed and complete their life cycle in one growing season. Annual weeds that complete their life cycle during the period from spring to fall are called **summer annuals** or just **annuals**. Annual weeds that complete their life cycle during the period from fall to spring are called **winter annuals**. There is only one annual weed on the Minnesota Noxious Weed list--hemp.

Biennial weeds require two growing seasons to complete their life cycle. Biennials form a rosette (clusters of leaves close to the ground) the first year and during the second year they develop a flower stalk, flower, produce seed, and then the plant dies. The three biennial weeds on the Minnesota Noxious Weed list are: bull thistle, musk thistle, and plumeless thistle.

A perennial weed can live for 3 or more years. Perennial weeds may emerge from seed like annuals and biennials, but also emerge from rhizomes, stolons, or other underground storage organs. The six perennial weeds on the Minnesota Noxious Weed list are: field bindweed, purple loosestrife, poison ivy, leafy spurge, perennial sowthistle, Canada thistle.

TABLE OF CONTENTS

Minnesota Noxious Weed Law	2
Introduction	3
Glossary	14
Additional References	14
Secondary Noxious Weeds	15

PRIMARY NOXIOUS WEEDS

<u>Common Name</u>	<u>Genus and Species</u>	
<u>Annual Weeds</u>		
Hemp	<i>Cannabis sativa</i>	4
<u>Biennial Weeds</u>		
Bull Thistle	<i>Cirsium vulgare</i>	5
Musk Thistle	<i>Carduus nutans</i>	6
Plumeless Thistle	<i>Carduus acanthoides</i>	7
<u>Perennial Weeds</u>		
Canada Thistle	<i>Cirsium arvensis</i>	8
Field Bindweed	<i>Convolvulus arvensis</i>	9
Leafy Spurge	<i>Euphorbia esula</i>	10
Perennial Sowthistle	<i>Sonchus arvensis</i>	11
Poison Ivy	<i>Toxicodendron radicans</i>	12
Purple Loosestrife	<i>Lythrum salicaria, virgatum</i>	13



Seedling



Flower



Mature Plant



Seed

HEMP (MARIJUANA)

(*Cannabis sativa* L.)

HEMP FAMILY - Cannabaceae

Description: Hemp is an annual with a branched tap root and reproduces only by seed. The plant grows 2 to 10 feet tall, has coarse, somewhat grooved, rough, and hairy stems. Plants will become quite large and bushy unless crowded. Hairs on the upper parts of the plant exude a sticky resin with a characteristic odor. The leaves are alternate or opposite, petiolate, and divided into 5 to 11 hairy leaflets with notched edges. The male and female flowers are on separate plants. The male flower is green with no petals. The male plant, which produces the pollen, turns yellow and dies soon after pollen shed. The female plant produces flowers in the axil of the upper leaves and remains green and vigorous until frost. Flowering occurs from July to September, and seed production occurs from August until frost. The seeds are yellowish-tan to mottled brown, 1/8 inch long, and oval shaped.

Distribution: Hemp prefers rich, low, wet areas, but can also be found in waste areas, around farm buildings, road ditches, pastures, and in fields. Hemp is found throughout the southern half of Minnesota. Cultivated varieties were grown in parts of Minnesota for fiber in the 1940s and 1950s, and the heaviest infestations of hemp are found in these areas of the state.

BULL THISTLE

[*Cirsium vulgare* (Savi) Tenore]

COMPOSITE FAMILY - Compositae

Description: Bull thistle grows most often as a biennial, reproducing only by seed. During the first year of growth, a large rosette with a large tap root is formed. During the second year of growth, an erect flowering stem grows to a height of 2 to 4 feet. The stem is large, branched, and covered with dense hair. Leaf bases extend down the stem to give the stem a winged appearance. The leaves are alternate, dark green, coarsely lobed, with 3 to 4 points per lobe, each ending in a long sharp spine. The upper surface of the leaf is covered with short, stiff hairs and spines, and the underside of the leaf is covered with dense, woolly, gray hair. The flower heads are compact, 1 to 2 inches in diameter and each flower head is surrounded by spine-tipped bracts. The flowers are reddish-purple. Flowering occurs from late June through August and the seed matures in July through September. The seeds are 1/8 inch long, oblong, flattened, and curved and are light brown with dark brown stripes.

Distribution: Bull thistle is primarily found in pastures, waste areas, and along roadsides. Bull thistle is found throughout Minnesota and can be found on a variety of soil types.



Seedling



Leaf



Mature Plant



Seed

MUSK THISTLE

(*Carduus nutans* L.)

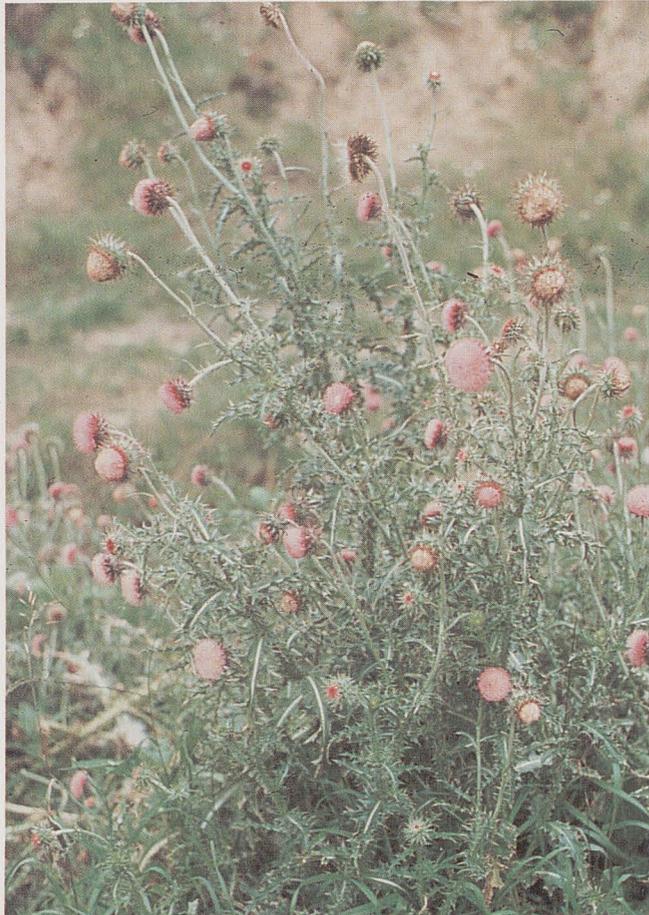
COMPOSITE FAMILY - Compositae



Seedling



Leaf



Mature Plant



Seed

Description: Musk thistle (also called nodding thistle) reproduces only by seed and grows most often as a biennial; however, it can occasionally grow as a winter annual or annual. During the first year of growth, a large basal rosette with a large tap root is formed. During the second year of growth, an erect flowering stem grows to a height of 3 to 6 feet. The stem is branched with spiny leaves extending down the stem to give it a winged appearance. The wings are lobed and wavy with each lobe ending in a spine. The leaves are dark bluish-green with light green midribs and have a white margin. The leaves are alternate, smooth, coarsely lobed, with 3 to 5 points per lobe, and are slightly wavy. Each lobe ends in a prominent white or yellow spine. The leaves have little or no hair on either surface. The flower heads are large, frequently as much as 2 inches across, on the ends of long spineless stems, and frequently droop. The flowers are deep rose to violet or purple and surrounded by large spiny bracts. Flowering occurs from late June through August and the seed matures in July through September. The seeds are a glossy yellowish-brown, oblong, 3/16 inch long, with a protrusion where they were attached to the pappus.

Distribution: Musk thistle is primarily found in pastures, waste areas, and along roadsides. It prefers moist, alluvial soils but can be found on many different soil types. Musk thistle is found throughout southern Minnesota, with the most severe infestations in southeastern Minnesota.

PLUMELESS THISTLE

(*Carduus acanthoides* L.)

COMPOSITE FAMILY-Compositae

Description: Plumeless thistle reproduces only by seed and grows most often as a biennial; however, it can occasionally grow as a winter annual or annual. During the first year of growth, a large basal rosette with a large tap root is formed. During the second year of growth, an erect flowering stem grows to a height of 3 to 6 feet. The stem is branched and has spiny wings. The leaves are alternate, narrow, deeply lobed, have scattered hair on the upper leaf surface, and dense white hair on the lower surface, especially along the midrib. Lobes on the leaves and stem, end in white to yellowish spines. The flower heads are globe-shaped, erect, single or loosely clustered, with spiny bracts at the base of each flower head. The flower heads are reddish-purple and 1/2 to 1 inch in diameter. Flowering occurs from June through August, with seeds maturing 5 to 12 days after full bloom. The seeds are straw-colored with brown striations to the collar where the pappus is attached. The seeds are 1/16 inch in length, usually linear but occasionally curved.

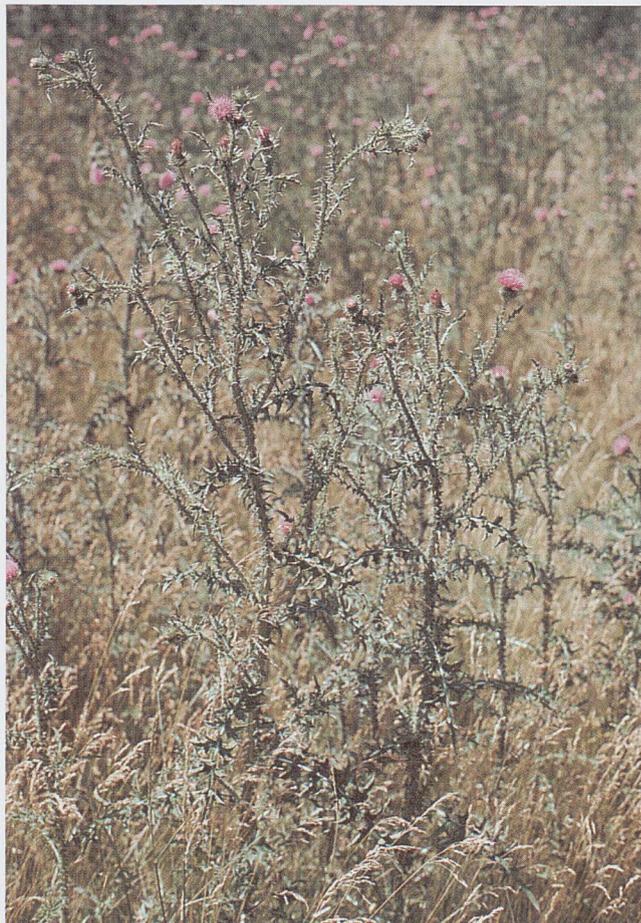
Distribution: Plumeless thistle is primarily found in pastures, waste areas, and along roadsides. It prefers sandy, well-drained soils. Plumeless thistle is found throughout Minnesota.



Seedling



Leaf



Mature Plant

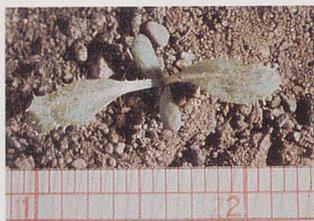


Seed

CANADA THISTLE

(*Cirsium arvense* L.)

COMPOSITE FAMILY - Compositae



Seedling



Leaf



Mature Plant



Seed

Description: Canada thistle is a perennial reproducing by seeds and underground roots. The roots extend several feet deep and some distance horizontally, often forming dense patches. The mature plant will reach a height of 2 to 5 feet. The upright stems are grooved, slightly hairy when young, increasingly hairy as they mature, and branched at the top. The leaves are alternate, have crinkled edges, spiny margins, and are somewhat lobed. The flower heads are numerous, compact, and 3/4 inch or less in diameter. The flowers are reddish-purple to purple and are surrounded by bracts without spiny tips. Male and female flowers are usually borne on separate plants. Flowering occurs from June throughout September with seed maturing 8 to 12 days after full bloom. The seeds are gray to brown, smooth, slightly tapered, 3/16 inch long, and have a ridge around the blossom end.

Distribution: Canada thistle can be found in all crops, pastures, waste areas, and along roadsides throughout Minnesota. Canada thistle is the most prevalent and persistent broadleaf weed in the state.

FIELD BINDWEED

(*Convolvulus arvensis* L.)

MORNING GLORY FAMILY -

Convolvulaceae

Description: Field bindweed (also called creeping jenny or morningglory) is a perennial reproducing by both seeds and underground roots. The root system is very extensive and may penetrate the soil to a depth of 20 to 30 feet. The plant grows prostrate or will climb on any nearby object. The spreading stems are smooth, slender, usually twining, and may reach lengths of 2 to 7 feet on a mature plant. The leaves are alternate with smooth margins, and are arrow-shaped with two basal lobes. The flowers are white to pink, approximately 1 inch in diameter, funnel shaped, and are borne singly on long stalks in the axil of the leaf. The flower stalk has 2 bracts located 1/2 to 2 inches below the flower, which helps to distinguish this weed from hedge bindweed. Flowering occurs from May to September. The seeds are borne in seed pods that are egg-shaped and contain four seeds. The seeds are dark brownish-gray, 1/8 inch long, have a roughened surface, and have one rounded and two flattened sides.

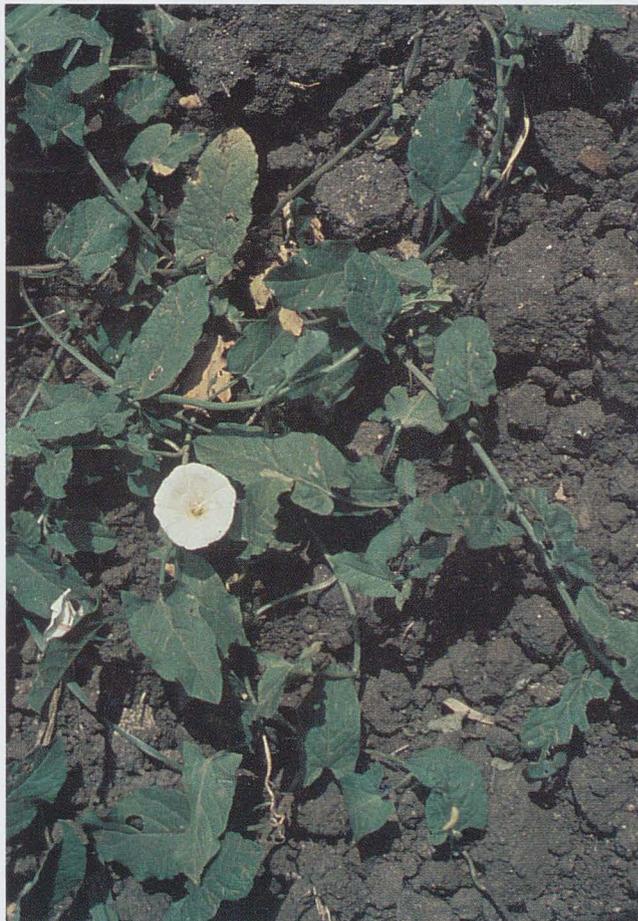
Distribution: Field bindweed will grow in most cultivated fields, gardens, lawns, waste areas, and along roadsides. Field bindweed is found throughout Minnesota, with the heaviest infestations in the western half of the state.



Seedling



Leaf



Mature Plant



Seed

LEAFY SPURGE

(*Euphorbia esula* L.)

SPURGE FAMILY - Euphorbiaceae



Seedling



Flower



Mature Plant



Seed

Description: Leafy spurge is a perennial that reproduces from both seeds and underground roots. The root system of leafy spurge is extensive and consists of numerous coarse and fine roots which occupy a large volume of soil. Roots are most abundant in the upper foot of soil; however, some roots can extend to a depth of 15 feet or more. The mature plant will reach a height of 2 to 3 feet. The stems are smooth, branched at the top, and contain a milky juice (latex). The leaves are bluish-green, linear shaped, narrow (1/4 inch wide) with smooth margins, and are alternate. Leafy spurge produces a flat-topped cluster of yellowish-green flower-like structures called bracts on which the true flowers are produced. Flowering occurs from June through August and seeds are produced from July to September. The seeds are borne in seed pods which are 3-lobed and contain 3 seeds. The seeds are gray-white to gray-brown, usually mottled or flecked with brown, 1/8 inch in length, smooth, and on one side there is a faint dark seam that runs the length of the seed.

Distribution: Leafy spurge grows primarily in pastures, waste areas, and along roadsides. Leafy spurge can be found throughout Minnesota. Heaviest infestations are found in the western half of the state and along most of the roadsides in Minnesota's metropolitan areas.

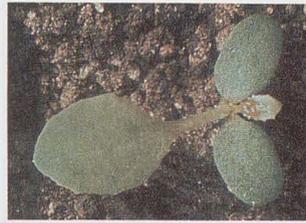
PERENNIAL SOWTHISTLE

(*Sonchus arvensis* L.)

COMPOSITE FAMILY - Compositae

Description: Perennial sowthistle is a perennial reproducing by seed and underground roots. Roots can penetrate the soil to a depth of several feet. The mature plant will reach a height of 3 to 7 feet. The upright stems are smooth, with or without hair, and contain a milky juice (latex). The leaves are variable in shape and size. The basal leaves are narrow and deeply lobed. The leaves along the stem are 4 to 8 inches long, alternate and attached directly to the stem, irregularly toothed, lobed, with spiny edges. Flower heads are approximately 1 1/2 inches in diameter, produced in clusters, bright yellow, and attached to terminal branches at the top of the plant. Flowering occurs in June through August and seeds mature in July through September. The seeds are reddish-brown, 1/8 inch in length, slightly flattened, longitudinally ribbed with 5 to 7 ribs and have smaller cross wrinkles.

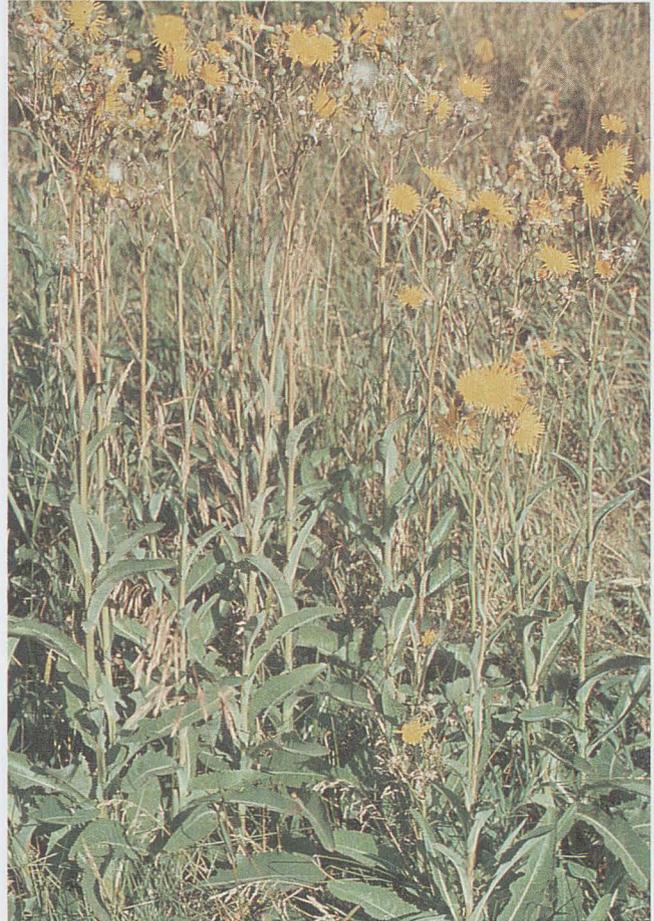
Distribution: Perennial sowthistle will grow in cultivated fields, pastures, waste areas, and along roadsides. Perennial sowthistle is found throughout Minnesota with the heaviest infestations found in the western and northern half of the state.



Seedling



Flower



Mature Plant



Seed

POISON IVY

[Toxicodendron radicans (L.) Kuntze]
CASHEW FAMILY-Anacardiaceae



Seed



Leaf



Fall Foliage

Description: Poison ivy is a native perennial woody species that reproduces by both seeds and underground roots. Poison ivy primarily grows as a woody vine; however, if it is growing in full sunlight it may grow as a shrub up to several feet tall. As a vine, poison ivy will climb fence posts, shrubs, and trees. Older vines may be more than 2 inches in diameter and may grow up to 75 feet in length. The leaves are alternate and consist of 3 leaflets which can vary greatly in shape. Most often the leaflets are 2 to 4 inches in length, pointed at the tip, shiny, and have notched or smooth edges. The leaves are petiolate and often the terminal leaflet has the longest stem. The flowers are yellowish-green, small, 5 petaled, and borne in a cluster 1 to 3 inches long. Flowering occurs from August through September. Not all plants will flower or bear fruit. The seeds are produced inside a fruit which grows in clusters on slender stems in the axil of the leaves. The fruit is grayish-white to yellow, 3/16 inch in diameter and has distinct lines marking the outer surface, somewhat like a peeled orange. The seeds are grayish striped and approximately 1/8 inch in diameter.

All parts of this plant contain a poisonous material which causes blistering of the skin.

Distribution: Poison ivy grows along stream banks, edges of paths and roadsides, fencerows, woodlands, and other noncultivated sites. Poison ivy prefers moist, shaded locations. Poison ivy is found throughout Minnesota, with the heaviest infestations found in wooded areas of the state.

PURPLE LOOSESTRIFE

(*Lythrum salicaria* L.)

and (*Lythrum virgatum* L.)

LOOSESTRIFE FAMILY-Lythraceae

Description: Purple loosestrife is an aquatic perennial that reproduces by seed, underground roots, and can spread by sprouting from pieces broken off the plant. It has a woody taproot with a fibrous root system that forms a dense mat. The erect stems of a mature plant can reach 7 feet. The stems are somewhat square, covered with fine hairs, and branched. The leaves are opposite or whorled, linear shaped with smooth edges, hairy, and attached directly to the stem. The flowers are in dense terminal spikes at the top of the plant. Flowers are purple-magenta with 5 to 7 petals. Flowering begins in June and continues through early September. The seeds are produced in seed pods that contain many seeds. The seeds are flat, light tan to golden brown, and very tiny (400 x 200 microns), about the size of a tip of a pin. Each plant can produce 120,000 to 2.7 million seeds in a single growing season.

Distribution: Purple loosestrife is an aquatic plant that grows in wet soils in wet meadows, pasture wetlands, cattail marshes, streams and river banks, lake shores and ditches. Purple loosestrife infestations are increasing in Minnesota. Currently, purple loosestrife has been identified in more than 75 percent of Minnesota's counties.



Seedling



Flower



Mature Plant



Seed

GLOSSARY

- alternate leaves:** leaves attached singly along a stem.
- annual:** a plant that completes its life cycle in one year or less, and reproduces only by seed.
- axil:** point where a leaf or branch is attached to the stem.
- biennial:** a plant that completes its life cycle in 2 years, and reproduces only by seed.
- bract:** a modified leaf structure that surrounds the flower on some plants.
- leaflet:** a division of the leaf.
- lobe:** a leaf margin that is shallowly or deeply divided into sections or divisions.
- opposite leaves:** leaves attached in pairs along the stem.
- pappus:** a cluster of fine hairs attached to the seed in some plants, e.g., dandelion.
- perennial:** a plant that lives for more than 2 years, and reproduces by seeds, rhizomes, or other underground plant parts.
- rhizome:** an underground creeping stem which provides the means of reproduction of some perennial plants.
- rosette:** a basal cluster of leaves. The first year's growth of biennial plants.
- stolon:** an above-ground prostrate stem which provides the means of reproduction of some perennial plants.
- whorled leaves:** three or more leaves attached at the same point along a stem.
- winter annual:** an annual plant that initiates growth in the fall and produces seed the following spring.
- winged:** any membranous extension or in some instance the extension of the leaf blade.

ADDITIONAL REFERENCES

The following references on weed identification are available from the Minnesota Extension Service.

Number	Title
AG-MI-1350	Annual Broadleaf Weed Identification
AG-MI-1349	Annual Broadleaf Weed Seedling Identification
AG-MI-1351	Annual Grass and Perennial Weed Seedling Identification
AG-MI-1352	Annual Grass and Perennial Weed Identification
AG-MI-2384	Weed Seed Identification: Annual Broadleaves
AG-MI-2228	Weed Seed Identification: Grasses
AG-FO-0776	Weed Seedling Identification

Check prices and order from:

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St. Paul, MN 55108
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In addition to the ten primary noxious weeds, the Minnesota Noxious Weed Law also defines and lists 49 secondary noxious weeds. A county may select a weed or weeds from this secondary list to be placed on its noxious weed list. If a secondary noxious weed is placed on a county noxious weed list, that weed must be controlled in that county. The secondary noxious weeds are:

<u>Common Name</u>	<u>Genus and species</u>
Alyssum, hoary	<i>Berteroa incana</i>
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>
Buckwheat, wild	<i>Polygonum convolvulus</i>
Buffalobur	<i>Solanum rostratum</i>
Burdock	<i>Arctium minus</i>
Buttercup, tall	<i>Ranunculus acris</i>
Brackenfern	<i>Pteridium aquilinum</i>
Carrot, wild	<i>Daucus carota</i>
Catchfly, nightflowering	<i>Silene noctiflora</i>
Cockle, white	<i>Lychnis alba</i>
Cocklebur, common	<i>Xanthium pensylvanicum</i>
Daisy, oxeye	<i>Chrysanthemum leucanthemum</i>
Dock, curly	<i>Rumex crispus</i>
Flixweed	<i>Descurainia sophia</i>
Foxtail, giant	<i>Setaria faberii</i>
Gumweed	<i>Grindelia squarrosa</i>
Hawksbeard, narrowleaf	<i>Crepis tectorum</i>
Hawksbeard, smooth	<i>Crepis capillaris</i>
Hawkweed, orange	<i>Hieracium aurantiacum</i>
Jimsonweed	<i>Datura stramonium</i>
Knapweed, spotted	<i>Centaurea maculosa</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters, common	<i>Chenopodium album</i>
Mallow, venice	<i>Hibiscus trionum</i>
Marshelder	<i>Iva xanthifolia</i>
Milkweed, common	<i>Asclepias syriaca</i>
Muhly, wirestem	<i>Muhlenbergia frondosa</i>
Mustard, wild	<i>Brassica kaber</i>
Nightshade, eastern black	<i>Solanum nigrum</i>
Nutsedge, yellow (nutgrass)	<i>Cyperus esculentus</i>
Oat, wild	<i>Avena fatua</i>
Panicum, fall	<i>Panicum dichotomiflorum</i>
Panicum, wild proso millet	<i>Panicum miliaceum</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Pigweed, prostrate	<i>Amaranthus blitoides</i>
Quackgrass	<i>Agropyron repens</i>
Radish, wild	<i>Raphanus raphanistrum</i>
Ragweed, common	<i>Ambrosia artemisiifolia</i>
Ragweed, giant	<i>Ambrosia trifida</i>
Sandbur, field	<i>Cenchrus pauciflorus</i>
Smartweed, Pennsylvania	<i>Polygonum pensylvanicum</i>
Smartweed, (ladysthumb)	<i>Polygonum persicaria</i>
Sorghum-almum	<i>Sorghum almum</i>
Sunflower, common (except cultivars)	<i>Helianthus annuus</i>
Tansy	<i>Tanacetum vulgare</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Yellow rocket	<i>Barbarea vulgaris</i>
Woolly cupgrass	<i>Eriochloa villosa</i>
Wormwood, absinth	<i>Artemisia absinthium</i>

Additional information on the laws governing, and on the enforcement of the noxious weed law can be obtained from:
 Minnesota Department of Agriculture, Agronomy Service Division Section of Weed Control,
 90 West Plato Boulevard, St. Paul, MN 55107 Phone: 612-296-6123

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