



IDENTIFICATION OF WINTER ANNUAL WEEDS

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Identifying characteristics of winter annual weeds commonly found in Nebraska is essential to effectively manage them.

Downy Brome

Winter annual weeds typically emerge in late summer and fall, survive through the winter by growing into small rosettes, then resume their growth and produce seeds in late spring or early summer of the following year. Low atmospheric temperature, along with undisturbed soils with sufficient moisture from fall through early summer is required to complete the life cycle of winter annual weeds.

In some situations, winter annual weeds may provide good soil coverage to reduce soil erosion and moisture loss but they can result in potential yield reduction associated with delaying their removal until corn or soybean planting. Additionally, winter annual weeds can host insects and pathogens and may delay soil warming in the spring.

Common winter annual weeds in Nebraska are: downy brome, field pennycress, henbit, marehail, prickly lettuce, shepherd's purse, and tansy mustard. Evening primrose, field pansy, and little barley also have been observed in many Nebraska fields. Dandelion, a perennial weed, is commonly found during the same time period when winter annual weeds are present in the field. Controlling winter weeds in fall and/or early spring can effectively reduce yield loss. The first step to effective weed management is to accurately identify the weeds. Here are some tips to properly identify the winter annual weeds.

Downy brome is a winter annual grass weed found in cultivated areas, fields, pastures, roadsides, and waste sites (*Figure 1*). In earlier stage downy brome could be a good cattle feed but long awns of downy brome may injure grazing animals and cause tetanus in later stage.

Flowering period: Late April to May

Distinguishing features:

Plants are 0.3 to 2 feet tall and leaf sheaths, leaf blades, and nodes are covered with soft hairs (*Figure 2*). The leaves usually twist clockwise. The plant has a membranous (1 to 3 mm long) structure (ligule) at the base of the leaf where the leaf blade and leaf sheath meet. Long, awned spikelets form panicles (inflorescence) that are dense, soft, and either drooping or nodding.

Seedling characteristics:

Seedlings are light green with soft hairs on the leaf sheath and blades. Generally, leaves show clockwise twisting.



Figure 1. Downy brome growing in field border



Figure 2. Downy brome plants



Figure 3. Field pennygrass at flowering stage in a soybean field



Figure 4. Field pennygrass seedlings

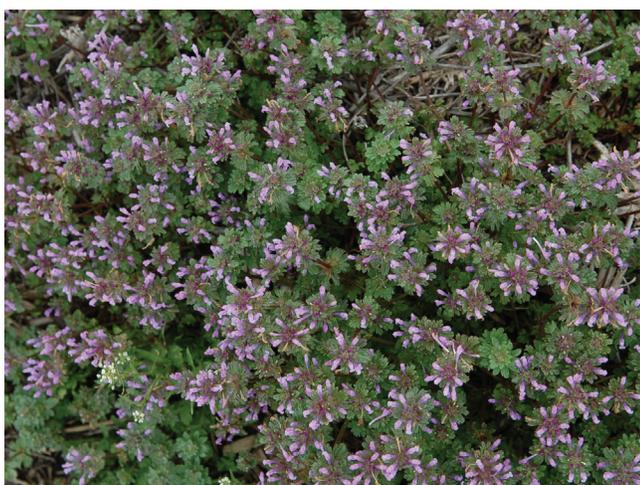


Figure 5. Flowering henbit plants on roadside

Field pennygrass is a winter annual found in fields, pastures, roadsides, and on disturbed land (Figure 3). Field pennygrass seeds contain a chemical (allyl isothiocyanate) that causes gastric distress in livestock. In addition, the cows that consume the seeds of field pennygrass may produce milk with a bitter garlic flavor and odor.

Flowering period: April to June

Distinguishing features: The plant stem can be erect, branched, or simple, and range from 1 to 2.6 feet tall. Leaves alternate and clasp the stem, forming a basal rosette. Lower leaves have entire or coarsely toothed margins with blunt tips, while upper leaves have coarsely toothed margins with projected leaf tips. Fruits are flat, circular, or rounded-oblong. They are notched at the tip, and separated into two valves.

Seedling characteristics:

Cotyledons are bluish-green and long-stalked. They are ovate-shaped with a prominent mid-vein and slightly toothed margin (Figure 4).

Henbit is a winter annual (sometimes biennial) herb found in cultivated areas, roadsides, or lawns (Figure 5).

Flowering period: March to May

Distinguishing features:

Plants are 4 to 12 inches tall, with squared green (often purplish in later stage) stems, and reddish purple to pink flowers. The leaves are opposite, clasping the stem's top portion, with leaf-margins crenate and lobed. The entire plant is sparsely covered with fine hairs, stem branches frequently rooting from the nodes. The foliage and stems are aromatic.

Henbit (continued)

Seedling characteristics:

Seedlings have 3 to 12 mm long, oval-shaped cotyledons with smooth surfaces. The petiole is green or purplish with spreading hair (*Figure 6*).



Figure 6. Henbit seedlings emerging in a harvested corn field

Marestail

Marestail (also known as horseweed) is an annual weed with a winter or summer annual life cycle. It usually germinates in the fall, but can also germinate in the spring or mid-summer when conditions are favorable. Marestail is often found in no-till fields as well as in cultivated areas, pastures, and on roadsides (*Figure 7*). Marestail contains volatile oils, tannic acid, and gallic acid that may cause skin and mucosal irritation in humans and livestock. Glyphosate-resistant marestail has been confirmed in Nebraska. This is a serious issue and growers should be on the look-out for possible occurrences in the fall.

Flowering period: June to September

Distinguishing features:

Marestail is an erect herb with coarsely hirsute stems and leaves. It can grow from 1.5 to 6 feet tall. Plants tend to be unbranched unless they have been damaged by herbicides or mowing, though they may branch at inflorescence (*Figure 8*). Leaves are alternate and crowded on the stem. Flowers are white to pink (ray florets) with yellow centers (disk florets). After fall germination, the plant forms a rosette-like structure. The larger the rosette becomes in the fall, the greater



Figure 7. Marestail plants in a harvested soybean field



Figure 8. Marestail flowers



Figure 9. Marestalk seedlings

chances of surviving through winter. Depending on the growing conditions, the survival rate of fall-emerged marestalk ranges from 14 to 84 percent of total germinated weeds.

Seedling characteristics:

Seedlings are also covered by coarse hairs. The margins of the first leaves of rosette are mostly entire or round, but subsequent leaves might be apically projected and toothed (*Figure 9*).



Figure 10. Prickly Lettuce plant on roadside

Prickly lettuce is a common winter annual found throughout the Great Plains in disturbed habitats, roadsides, gardens, pastures, and cultivated fields (*Figure 10*). It causes pulmonary emphysema in cattle when consumed in large quantities.

Flowering period: July to September

Distinguishing features:

Leaves are alternate and deeply dentate. The middle to lower leaves have stiff bristles along the bottom mid-rib (*Figure 11*). Stems contain a substance resembling white latex. Each flower head can contain up to 25 yellow flowers, with each flower resembling a small dandelion flower.



Figure 11. Stiff bristle along the lower surface of mid-vein of Prickly lettuce

Prickly Lettuce

Prickly Lettuce (continued)

Seedling characteristics:

Seedlings exist as basal rosettes until flowering stems develop (*Figure 12*).



Figure 12. Prickly Lettuce seedlings

Shepherd's purse

Shepherd's purse is a winter annual (rarely biennial) mostly found in cultivated areas, fields, lawns, gardens, and roadsides (*Figure 13*). The seeds of shepherd's purse need cold temperatures to break dormancy, and germinate when soil temperatures go below 60°F.

Flowering period: March to November

Distinguishing features: The leaves are alternate, forming a basal rosette. They are pinnately lobed and smaller apically (*Figure 14*). The flower stalks (raceme) are unbranched to slightly branched. The plant will grow from 6 to 18 inches tall and bear white flowers. The fruits of shepherd's purse are triangular- or heart-shaped.

Seedling characteristics:

Cotyledons are round or spatulate in shape and may be slightly indented at the tips.



Figure 13. Shepherd's purse plant on roadside



Figure 14. Shepherd's purse plant

Tansy mustard



Figure 15. Tansy mustard plant in a harvested soybean field



Figure 16. Tansy mustard flower



Figure 17. Dandelion infested grass lawn

Tansy mustard is a winter annual found in rangeland, roadsides, and fields (*Figure 15*). It contains toxic levels of nitrate and is harmful for cattle to consume.

Flowering period: March to August

Distinguishing features: The leaves are segmented in a narrow pattern. Plants are 0.3 to 2.9 feet tall with simple or branched stems. Flowers are bright yellow (*Figure 16*) and fruits (called silique) are club-shaped (similar to mustard fruits).

Seedling characteristics: Seedlings are reddish green to purple.

Dandelion is a perennial weed invasive in turf, flower gardens, forage, and no-till fields (*Figure 17*). It grows from seeds during the fall season.

Flowering period: April to October

Distinguishing features: Erect plants range from 2 to 20 inches tall and have a basal rosette crowded by deeply notched leaves. Stems and leaves contain milky

Dandelion

Dandelion (continued)

sap. The bright yellow dandelion flower is 1 to 2 inches wide (*Figure 18*). Each flower head contains hundreds of ray florets. Later, the flower heads turn into white globular seed heads (*Figure 19*). Each seed has a white parachute that facilitates travel in the wind.

Seedling characteristics:

Rosettes 2 to 6 inches long with basal leaves formed above the central root system (*Figure 20*).



Figure 18. Dandelion plant with flowers



Figure 19. Dandelion globular seedheads

For details about herbicide options for controlling winter annual weeds, see EC 130 *Guide for Weed Management in Nebraska* published by UNL Extension.

Resources

Weeds of the Great Plains, by J. Stubbendieck, M. J. Coffin, and L. M. Landholt published by the Nebraska Department of Agriculture. The cost is \$25. The NDA accepts credit card orders by calling at 402-471-2394.

Practical Weed Science for the Field Scout Corn and Soybean. University of Missouri Extension. Available free to download: <http://extension.missouri.edu/explorepdf/agguides/pests/ipm1007.pdf>.



Figure 20. Dandelion seedlings

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