



WINTER ANNUAL WEED IDENTIFICATION

What You'll Learn...

- Winter annual weeds compete with crops for water and nutrients and harbor crop pests.
- Distinguishing winter annuals from each other and perennials in the fall can be difficult, but important to weed management decision-making.
- Accurate winter annual weed identification will help determine the correct weed management options.

Winter annual weed species can become a major problem in crop production when not controlled in the fall or early spring, prior to planting, particularly in no-till systems. Winter annual weeds typically emerge in the late-summer through fall, will overwinter and then flower to set seed in the spring/early summer. Seedling winter annual weeds can be difficult to distinguish from other weeds, particularly if they are in the same family (Table 1). Many fall-emerging weeds have a rosette stage of growth such as dandelion, horseweed, prickly lettuce, Shepherd's purse, and other members of the Brassicaceae, making identification more difficult.

Accurately identifying weed species can help determine the right herbicide mixtures to manage the weed situation in each field. The University of Missouri publishes several good diagnostic resources that include color photos and a key for identification in "Early Spring Weeds in No-till Crop Production".^{1,2,3}

The impact of winter annual weeds in cropping systems is sometimes overlooked because these weeds typically complete most of their life cycle prior to or shortly after corn and soybean planting. Dense mats of winter annual weeds may delay soil warming in spring, compete for water and nutrients, and interfere with crop planting. Winter annual weed species are hosts for some pests (Table 2). Henbit and purple deadnettle are strong hosts for soybean cyst nematode.

Table 1. Winter annual and similar weed species

| Family name | Common names |
|------------------|--|
| Asteraceae | Marestail, Cornflower, Fleabanes, Prickly lettuce, Dandelion ^p , Butterweed ^a |
| Boraginaceae | Corn gromwell |
| Brassicaceae | Bushy wallflower, Field pennycress, Shepherd's purse, Smallflowered bittercress, Tansy mustard, Virginia pepperweed, Wild mustard, Yellow rocket |
| Caryophyllaceae | Common and Mouseear chickweed ^p |
| Geraniaceae | Carolina geranium |
| Lamiaceae | Henbit, Purple deadnettle |
| Ranunculaceae | Buttercups, Mousetail |
| Rubiaceae | Catchweed bedstraw |
| Scrophulariaceae | Corn speedwell, Purselane speedwell, Common mullein ^b |
| Violaceae | Field pansy |
| Liliaceae | Star-of-Bethlehem, Wild garlic ^p , Wild onion ^p |
| Poaceae | Annual bluegrass, Carolina foxtail, Downy brome, Foxtail barley ^p |

p = perennial, b = biennial, a = summer annual. Adapted from Early Spring Weeds in No-till Crop Production, University of Missouri.

Table 2. Winter annual weed hosts for soybean cyst nematode (SCN) and black cutworm (BCW).

| Soybean Cyst Nematode | Black Cutworm |
|----------------------------|------------------------|
| Purple deadnettle | Common chickweed |
| Henbit | Curly dock |
| Field Pennycress | Yellow rocket/Mustards |
| Shepherd's purse | Peppergrass |
| Small-flowered bittercress | Shepherd's purse |
| Common chickweed | Henbit |



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Winter Annual Weed Identification

Although agronomists often overlook the value of accurate identification of weeds in the fall, it can help focus weed management decision-making. Selecting the right herbicides and proper application timing can influence performance.

Common winter annual weeds in the Midwest include: henbit, marestalk, shepherd's purse, field pennycress, prickly lettuce, and purple deadnettle.⁴

Purple deadnettle and henbit are often misidentified due to their similar appearance. The best way to identify these plants is by looking at the leaves in the upper portions of the stem; henbit leaves attach directly to the stem while the upper leaves on purple deadnettle have short petioles that attach leaves to the stem (Figure 1).

Marestalk forms a basal rosette after germination and seedlings are covered with coarse hairs (Figure 2). Seedling leaf margins are toothed. Flowers are white to pink with yellow centers. Marestalk is more susceptible to herbicides in the fall and typically produces more seed.

To distinguish between **Shepherd's purse and dandelion**, examine the lobes in the rosette leaves, if the leaves come to points towards the center of the rosette, it is a dandelion (Figures 3 & 4). Dandelion leaves or stems will exude a milky sap when broken.

Field pennycress and prickly lettuce are in different families but can be misidentified in the seedling stage (Figures 5 & 6).

Common chickweed is an annual, whereas mouseear chickweed is a perennial with a similar growth habit. Common chickweed leaves are bright light-green, nearly rounded with pointed tips, and hairless (Figure 7). Mouse-ear chickweed leaves are dark green, elongated, and covered with soft hairs. Common chickweed has a single straight row of hairs along the stem.

A fall herbicide application can effectively reduce weed populations from overwintering and help reduce the number of seeds set in the spring. Visit with your Monsanto Crop Protection Representative, local retailer, or visit www.roundupreadyPLUS.com for solutions and recommendations.

For additional information, contact your local seed representative. Developed in partnership with Technology, Development & Agronomy by Monsanto.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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Figure 1. Purple deadnettle (left) Henbit (right).



Figure 2. Marestalk seedling.



Figure 3. Dandelion rosette.



Figure 4. Shepherd's purse seedling.



Figure 5. Field pennycress seedling.



Figure 6. Prickly lettuce. Steve Dewey, Utah State University, bugwood.org

Sources: ¹ Fish, F., B. Johnson, D. Peterson, M. Loux, and C. Sprague. 2003. Early Spring Weeds of No-till Crop Production. University of Missouri.

² Bradley, K.W., B. Johnson, R. Smeda and C. Boerboom. 2009. Practical weed science for the field scout of corn and soybean IPM1007. University of Missouri.

³ Weed ID Guide. University of Missouri.

⁴ Sarangi, D., A. Jhala, and L. Sandell. 2013. Tips for identifying fall emerging weeds. University of Nebraska CropWatch. Web sources checked 09/11/15.



Figure 7. Common chickweed. Ohio State Weed Lab Archive, The Ohio State University, bugwood.org