



## Identification and Control of Winter Annual Weeds

Winter annual weed species can become a major problem in crop production when not controlled in the fall or early spring, prior to planting. Winter annual weeds typically emerge in the late-summer through fall, will overwinter and then flower to set seed in the spring/early summer<sup>1</sup>.

Winter annuals can cause many different management problems when not controlled. Some of these include:

- Winter annuals can harbor overwintering insects.
- Weeds that are low growing can form a mat which can slow soil drying and delay spring fieldwork<sup>1</sup>.
- Certain winter annual weeds, such as purple deadnettle, have been identified as excellent hosts for Soybean Cyst Nematodes (SCN). High population densities of SCN in the soil can cause major damage to soybean roots, reducing yield potential<sup>2</sup>.

### Winter Annual Weed Identification

Certain winter annual weeds are difficult to distinguish from one another, especially in early growth stages. The following tips help identify weeds that are similar in appearance and flower color.

#### Purple Deadnettle vs. Henbit

Purple deadnettle and henbit are often misidentified due to their similar appearance. Both weeds have square stems and are low lying, rarely growing taller than 10 inches<sup>3</sup>. 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<sup>3</sup>. Proper identification may mean a change in management as purple deadnettle does not respond as well to control from applications of 2,4-D.



**Figure 1. Purple deadnettle with short petioles attaching leaves to the stem, left. Henbit leaves attached to stem, right.**

#### Yellow Rocket vs. Cressleaf Groundsel

Both yellow rocket and cressleaf groundsel can color a field yellow with their bright flowers when left uncontrolled. To identify between these two weeds look closely at the leaves. The cressleaf groundsel plant has composite leaves unlike weeds in the mustard family, such as yellow rocket, which has pinnately divided leaves. These two weeds can also be easily identified from one another by the flower. Cressleaf groundsel flowers have 6 to 12 petal-looking ray flowers, while plants in the mustard family (yellow rocket) have 4

petal-looking sepals. The application of 2,4-D does not provide adequate control of cressleaf groundsel, therefore glyphosate or herbicides with other modes of action should be tank-mixed for optimum control.



**Figures 2 and 3. Flowering cressleaf groundsel, left. Flowering yellow rocket, right.**

#### Shepherd's Purse vs. Dandelion (rosette stage)

Shepherd's purse and dandelion can easily be confused for one another, when in rosette stage. To identify shepherd's purse from dandelion look at the lobes in the rosette leaves, if the leaves come to points towards the center of the rosette, it is a dandelion<sup>3</sup>. Also when the leaves or stem of the dandelion are pierced the plant will exude a milk sap. Once these weeds begin to bloom, they are easily identified, as shepherd's purse has white flowers opposed to dandelion's yellow flowers. Dandelions can be difficult to control in no-till situations and herbicides are most effective on the weed when applied at rosette stage while it is actively growing.



**Figures 4 and 5. Dandelion in rosette stage, left. Shepherd's purse in rosette stage, right.**

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## Winter Annual Weed Management

Winter annual weeds can cause problems with crop establishment, may increase the potential for pest infestations, and may increase the weed seed bank for future weed management issues when left uncontrolled. Herbicides or tillage should be used to help manage winter annual weeds in the fall or early spring<sup>1</sup>. For fields plagued with winter annual weed problems, a fall herbicide application can effectively reduce weed populations from overwintering and help reduce the number of seeds set in the spring.

### Herbicide Recommendations for Winter Annual Weed Control

Weeds must be managed all year long. The following are recommendations for spring and in-season weed control practices to help manage weed populations.

#### Spring - Burndown/Tillage/PRE

Start the season with clean fields.

Start clean with tillage just prior to planting or in no-till/conservation till situations apply herbicides for burndown.

- **Glyphosate + 2,4-D.** —Very effective treatment control of dandelions and winter annuals. This treatment may be applied in the fall or preemergence prior to planting corn or soybeans. Do not plant soybean less than 14 days after applying 2,4-D.
- **Glyphosate + 2,4-D + residual herbicide.** Similar control as glyphosate + 2,4-D, but a residual herbicide will provide continued weed control activity in the spring. Do not plant soybeans less than 14 days after applying 2,4-D. Burndown timing is an ideal time to incorporate a residual application. Residual herbicides recommended for application at burndown or preemergence include:

| Recommended Residual Herbicides |                    |                       |
|---------------------------------|--------------------|-----------------------|
| <b>SOYBEANS</b>                 |                    |                       |
| Valor®                          | Valor® XLT         | Gangster®             |
| Authority First®                | Authority MITZ®    |                       |
| <b>CORN</b>                     |                    |                       |
| Degree Xtra®                    | Harness® Xtra 5.6L | TripleFlex™ Herbicide |

#### In-season—POST

POST over-the-top herbicide applications should include Roundup® brand agricultural herbicide in fields without glyphosate-resistant weeds.

- Warrant™ Herbicide should be tank-mixed with Roundup agricultural herbicides to provide an additional mode of action.
- In fields with glyphosate-resistant weeds, different herbicide tank-mix applications that include modes of actions are recommended.

Incorporation of residual herbicides into a weed management program helps to manage difficult weeds and can help lower the risk of weed resistance development. For more information on weed management programs and Roundup Ready PLUS™ recommendations, please visit <http://roundupreadyplus.com>.

#### Tips for Effective Herbicide Applications

- Winter annuals are best controlled by herbicide applications made in the late fall prior to very cold conditions.
- The later a residual herbicide is applied in the fall, the longer the herbicide will remain effective in the spring.
- Herbicides with different modes of action should be applied to reduce the risk of herbicide resistance.
- Include ammonium sulfate (AMS) with any treatment that includes glyphosate. Refer to all herbicide product labels for the inclusion of a surfactant or crop oil concentrate.
- Do not apply a late-fall herbicide application directly after crop harvest. Allow time for crop residue to settle to help maximize herbicide contact to weeds.

Sources: <sup>1</sup> Control of problem weeds. Weed Control Guide for Ohio Field Crops. The Ohio State University Extension. Bulletin 789. <http://ohioline.osu.edu>

<sup>2</sup> Creech, J. E. et. al. First report of soybean cyst nematode reproduction on purple deadnettle under field conditions. 2005 Plant Management Network.

<sup>3</sup> Nice, G. Purple, Yellow and White. Purdue University Extension. <http://www.purdue.edu>

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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