

### Fall Burndown Options Prior to Planting Soybeans

Post-harvest herbicide applications in the fall can help to provide a weed-free seedbed prior to planting in the spring, especially in no-till fields (Figure 1). Fall-applied herbicides should target fall-emerging winter annual species, biennials and perennials. Fields with heavy weed populations are the best candidates for a fall application.

#### Fall Burndown Targeted Weeds

Fields that are heavily infested with winter annual weeds such as henbit, purple deadnettle, chickweed, or mustards are good candidates for a fall burndown herbicide application (Figure 2). Winter annual weeds usually emerge in the fall after harvest, increase their vegetation during the winter, and complete their life cycle during the spring and early summer. Control of winter annual weeds is often more difficult in the spring than in fall because of weed size and weather conditions. If allowed to grow in the spring, winter annual weeds can form a thick mat on the soil surface blocking sunlight from warming the soil and interfering with tillage and crop establishment. Herbicide treatments in the fall are often more effective on these weeds because they may not be as actively growing in the spring, having almost completed their life cycle.

Marestail (horseweed) is a winter or summer annual weed that can germinate in the fall as well as in the spring (Figure 3). Late summer and fall germinating plants remain in the low-growing rosette stage through fall and winter before bolting (stem elongation) in the spring. Marestail is easiest to control with herbicides when it is small and in the rosette stage. Plants that emerge in the fall will bolt earlier in the spring which can make them more difficult to control with a spring burndown herbicide application. Common waterhemp is a summer annual that should also be managed after harvest to prevent seed production.

Other weeds that can be targeted in the fall include dandelion, common waterhemp, and Palmer amaranth. Dandelion is a perennial weed that spreads by seeds which can germinate on the soil surface at low temperatures. Seedlings of dandelion quickly develop a crown and taproot. Mature dandelion plants can live for many years and become a serious problem in minimum or no-till fields (Figure 4). Dandelions grow late into the fall and they are hardy plants that can tolerate fall frost. Palmer amaranth and common waterhemp are summer annual weeds but can still emerge after



**Figure 1. Fall-applied herbicide burndown application targeting dandelion and winter annual weeds showing treated area on the right the following spring.**



**Figure 2. Winter annual weeds, purple deadnettle on the left and henbit on the right.**

Photo courtesy of Steven Gower.



**Figure 3. Marestail (horseweed) plant is best to control when it is small in the seedling or rosette stage before bolting in the spring.**

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*Figure 4. Flowering dandelion plants.*



*Figure 5. Young Palmer amaranth plants can grow quickly and produce seed in the fall.*



*Figure 6. Common waterhemp can emerge after harvest and produce seed.*

harvest and produce seed in as little as 5 to 6 weeks (Figures 5 and 6). Both species should be managed after harvest up to frost to help prevent seed production.

## Benefits of Fall Burndown Applications

- Helps to spread out the workload in the spring,
- Provides more favorable conditions for control of winter annual weeds than early spring because of smaller weed size and more suitable days for herbicide applications,
- Helps provides better control of marestail than spring burndown,
- Helps to improve soil temperature and soil moisture at planting,
- Reduces the potential for soybean cyst nematodes (SCN) by removing weed hosts like henbit and purple deadnettle where SCN can overwinter.

## Herbicide Recommendations

Roundup® brand agricultural herbicides are effective on most grass and broadleaf weeds; however, the addition of dicamba or 2,4-D is recommended for broad spectrum burndown of weeds. Some marestail or Palmer amaranth populations may be resistant to glyphosate requiring the addition of dicamba for control. Including dicamba with glyphosate can help increase the consistency of marestail and Palmer

amaranth control, even in fields without glyphosate resistance.

Residual herbicide applications in the fall can help with control of later-germinating winter annual weeds that might not be present at the time of the initial application. An effective fall application should result in a field that is mostly free of weeds at least until temperatures begin to warm up in the spring. The earlier the fall application is made, the more benefit a soil-residual herbicide can provide since emergence of winter annual weeds is often not complete. Applications later in the fall often diminishes the necessity of a soil-residual herbicide since most of the winter annual weeds have emerged. However, in some years depending on weather conditions, there can be significant germination of winter annual weeds throughout the winter months.

Autumn™ Super Herbicide provides burndown of emerged weeds with residual activity to keep winter annuals from emerging. Other herbicides that provide residual activity on winter annuals include Canopy® herbicide, Canopy XL® herbicide, Authority® XL herbicide, Authority® First herbicide, and Valor® XLT herbicide. These herbicides can also be tank mixed with glyphosate, dicamba, and 2,4-D for improved control of emerged weeds.

The application of residual herbicides in the fall does not replace the need for residual herbicide applications in the spring. Residual herbicides applied in the fall generally provide little if any control of

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summer annual weeds the following year, especially in soybeans. Fall herbicide applications should be part of a comprehensive weed management program which could include spring burndown, at-planting, and in-crop herbicide applications. Programs should be designed to minimize the risk of weed resistance and weed species shifts.

## Sources

Anderson, M., Hartzler, B., and Jha, P. 2019. Fall burndown treatments for winter annual weeds. Iowa State University, Integrated Crop Management. <https://crops.extension.iastate.edu>.

Hager, A. 2018. Fall-applied herbicides: Which weed species should be the target? University of Illinois at Urbana-Champaign, Department of Agricultural and Consumer Economics. Farmdoc daily (8): 157. <https://farmdocdaily.illinois.edu>.

Bradley, K. 2013. Considering fall herbicide applications: It's not just about the weeds. University of Missouri, Integrated Pest Management. <https://ipm.missouri.edu>.

Web sources verified 10/05/2021.

## Legal Statements

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