

Effective termination of cover crops is vital before planting cash crops

AT A GLANCE

Terminating cover crops at the correct time, using the correct chemical application is vital to keep certain cover crop species from becoming weed problems in the subsequent cash crop.

The Situation

Cover crops have several documented benefits, including improving soil health and fertility, reducing fertilizer and pesticide use, weed suppression and erosion control, among others. Despite these documented benefits, Idaho ranks 31 in the nation in cover-crop acreage, though planting has increased over the past 10 years or so to nearly 129,000 acres (an increase of 24.6% from 2012), according to the 2017 United States Department of Agriculture Census of Agriculture. One of the top reasons some Idaho farmers remain reluctant to plant cover crops is the weed potential of cover crops.

This is a real concern. Some herbicide-resistant and noxious weeds have been introduced to several states through cover crops. Furthermore, some species of annual ryegrass, one of the commonly planted cover crops, have developed resistance to multiple herbicide groups, including glyphosate, the most-used herbicide for cover crop termination. Research by University of Idaho Extension educators in 2022 and 2023 verified buckwheat, cereal rye, chicory, common vetch, hairy vetch, red clover and yellow sweet clover as potential weedy species.



Volunteer buckwheat in newly planted wheat (left) and annual ryegrass in sugar beet after termination (right), by A. Adjesiwor.

Our Response

A team of UI Extension faculty led by Albert Adjesiwor, Extension weed specialist, set up a two-year study to evaluate the efficacy of different herbicide products in terminating common cover crop species (annual ryegrass, cereal rye, red clover, common vetch, hairy vetch, buckwheat, yellow sweet clover and chicory) found in crop mixes in Idaho.

Program Outcomes

Glyphosate was the most effective herbicide for terminating grassy cover crops like cereal rye and annual rye (BUL 1070 - Figures 2 and 3). If these grassy cover crops develop resistance to *glyphosate*, *glufosinate-ammonium*, *quizalofop p-ethyl* and *clethodim* may

provide some suppression. However, multiple applications of these herbicides may be needed to provide good control.

The herbicides *2,4-D* or *2,4-D + dicamba* appeared to be better options for terminating common and hairy vetch. Other herbicides evaluated as part of the trials provided less than optimal control of common and hairy vetch. Where *2,4-D* or *dicamba* cannot be applied due to carryover, drift or other concerns, herbicides like *glyphosate*, *saflufenacil* or *glufosinate-ammonium* may have to be applied multiple times or at higher rates to provide good suppression. Common and hairy vetch are both perennial cover crops and maybe even more difficult to control if they become established for a year or longer. None of the herbicides evaluated provided good control of chicory, red clover or yellow sweet clover. Multiple herbicide applications may be needed to provide good control of these cover crops. Since red clover and yellow sweet clover are both perennials, established stands (one or more years) may be even harder to control with herbicides. Unlike *glyphosate*, some of the herbicides evaluated may have plant-back restrictions to common rotational crops. It is important to consider plant-back restrictions when selecting an herbicide program to properly terminate a cover crop before planting the cash crop. For additional information on the

termination study, please refer to University of Idaho Extension [Bulletin 1070](#).

Understanding the weedy potential of cover crops and having research-based herbicide recommendations gives UI Extension faculty valuable information as they work with producers to incorporate cover crops on their farms and increase the number of acres in cover crops throughout Idaho. Good recommendations will garner trust with producers and prevent frustrating weed conditions in the following crop cycles.

Both years of the study were featured at the University of Idaho Kimberly Research and Extension Center field days. Attendees learned about the considerations when selecting cover crop species and about the appearance of the species in the field. The study was presented to pesticide applicators in the Magic Valley area during winter pesticide applicator education events. Producers have expressed value in the information produced from this study.

The Future

UI Extension educators will continue to work with producers and conduct demonstrations and research to help with cover crop adoption and answer the questions necessary to incorporate cover crops into Idaho's diverse cropping system.

FOR MORE INFORMATION

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