

# Studies explore the role of cover crops in suppressing glyphosate-resistant horseweed

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Horseweed is considered one of the most troublesome weeds in the

United States and Canada—able to produce devastating losses in both corn and soybean yields when left uncontrolled. Populations of herbicide-resistant horseweed are now found in 18 countries, and many are resistant to multiple herbicide sites of action.

Two recent studies—one published by the journal *Weed Science* and the other by the journal *Weed Technology*—provide insights on the role [cover crops](#) might play in controlling horseweed and reducing the need for herbicides.

## Cover Crops Alone Are Not Enough

Researchers from The Ohio State University conducted recent field studies to understand the role a rye cover crop might play in the suppression of glyphosate-resistant horseweed in no-till [soybean](#) crops. They explored the impact of cover crop planting date and seeding rate on the need for [herbicide](#) treatments that are typically applied in the fall and spring.

The team compared cover crops planted in late September to those planted in late October. Some were seeded at  $50 \text{ kg ha}^{-1}$ , while others were seeded at double that rate. The reduction in horseweed density produced by the cover crop was found to be similar, regardless of the planting time or the seeding density. The earlier planted rye at the higher seeding rate produced the most biomass, though, which researchers say may result in more effective, season-long control of summer annual weeds.

In all instances, horseweed was best controlled with the addition of a comprehensive herbicide treatment program.

"Our studies suggest that a cereal rye cover crop planted at a density of just  $50 \text{ kg ha}^{-1}$  may be sufficient to reduce glyphosate-resistant

horseweed [density](#), but it cannot be relied upon to reduce the need for fall herbicide treatments or spring residual programs," said Alyssa Essman of The Ohio State University.

## 'Planting Green' Reduces Horseweed Density

A team of scientists from Michigan State University conducted [field tests](#) in Midwest soybean fields where horseweed had escaped treatment during the previous season. Test plots were planted in cereal rye or in winter wheat cover crops using two seeding densities.

Some of the cover crops were terminated a week before planting with a treatment of glyphosate. Others were left in place until one week after soybean crops were planted, which is a technique called 'planting green.'

The team found planting green resulted in a cover crop biomass that was 212 to 272 percent greater than those on plots terminated before soybeans were planted. Soybean yields were 30 to 108 percent greater. Planting green reduced the biomass of glyphosate-resistant horseweed by 46 to 93 percent compared to plots with no cover crop. Early termination plots provided a less consistent horseweed suppression.

"We found that planting green increased the carbon to nitrogen ratio of the cover crop residue, which improved its ability to suppress glyphosate-resistant horseweed until the time of a postemergence herbicide application five weeks after planting," said John Schramski, a [graduate student](#) at Michigan State University and lead researcher for the study. "Cover [crops](#) alone, though, were unable to suppress glyphosate-resistant horseweed throughout the entire growing season to harvest time."

**More information:** John A. Schramski et al, Effects of fall-planted cereal cover crop termination time on glyphosate-resistant horseweed suppression, *Weed Technology* (2020). [DOI: 10.1017/wet.2020.103](https://doi.org/10.1017/wet.2020.103)

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