

Weeds, sweet corn, and economics after cover crops

What is this research about?

This research is about the impact of different cover crops on economics, weed dynamics, and sweet corn production. The study also looks at the effects of cover crops planted after processing peas on weed growth in the fall, and following spring and summer. It also looks at the impact on sweet corn production and profit margins.

How can you use this research?

This research would be beneficial for growers as it provides information important to make decisions about including cover crops in production systems. This research also provides possible alternatives to herbicides.

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What you need to know:

Cover crops are able to minimize weeds and provide as high, or higher, profit margins compared to the no cover crop control group.

About the Researchers:

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What did the researchers do?

The researchers planted different cover crops before a sweet corn crop in two locations, Ridgetown and Bothwell. The cover crop treatments included no cover crop (control treatment), cereals (oat and rye), oilseed radish, and a mixture (oilseed radish+rye). The plots were also analyzed based on presence (weedy) or absence (non-weedy) of weeds in the sweet corn crop. The study looked at weed species richness and species evenness. An economic analyses calculated profit from sweet corn production over the costs of planting (seed + custom planting) and controlling rye in the spring with herbicide.

What did the researchers find?

The researchers found that the oilseed radish+rye treatment had higher growth in the fall. At Bothwell in spring, oats had highest growth but rye had higher biomass than oilseed radish+rye. At Ridgetown in early spring, oilseed radish+rye and oilseed radish had higher biomass than cereal cover crops. At sweet corn harvest, non-weedy treatments had higher total sweet corn yield and profit margins than weedy plots. So it is important to reduce weeds in sweet corn production. Cover crop treatments did not greatly affect weed biomass or density compared with no cover treatment during sweet corn growing season. Therefore, growers do not have to change their herbicide program based on the previous cover crop.

But cover crops, overall and as a group, reduced the fall weed population. Oilseed radish and oilseed radish+rye, compared to cereals, were especially effective at reducing fall weeds due to their quick biomass production, which helped them quickly out-compete weeds for resources (i.e. sunlight).

Plant residue from the cover crops can suppress weeds in the following spring. But oilseed radish can become a weed in the following growing season, if it sets viable seeds in the fall.

Oat cover crop produced the highest profit margins at Bothwell. Oilseed radish and oilseed radish+rye produced the highest profit margins at Ridgetown. In sweet corn, profit margins for cover crop treatments overall were higher than those with no cover crops.

Keywords:

Catch crops, vegetable production, profit margins, cost-benefit analysis, species richness, Simpson's index

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