

Are cover crops negatively impacting row crops?

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One example of evolving cover crop management is growing corn in cereal rye that was terminated after corn planting ("planting green"). Picture taken June 17, 2020 at the Eastern Nebraska Research and Extension Center near Mead, Nebraska. Credit: Katja Koehler-Cole

Winter cover crops benefit soil health and can suppress weeds in subsequent row crops but may also lead to lower yields. Some farmers and agronomists speculate that allelopathic chemicals released by cover crops may be the cause for some of the observed yield reductions, but cause-and-effect relationships are rarely established. We know that allelopathic cover crops inhibit weed seed germination and early growth, but do they also impact row crops?

In an article recently published in *Agricultural & Environmental Letters*, a publication of the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, researchers reviewed literature documenting effects of allelopathic winter cover crops on four row crops. Studies that used known allelochemicals in the lab or measured allelochemicals in the field were included.

Only seven studies met the criteria for inclusion and six of them were lab studies. Corn and wheat germination and root length were sometimes impacted by allelopathic chemicals from cereal rye and other cover crops, but soybean was unaffected. One [field study](#) reported reduced cotton performance due to allelopathic [cover crops](#).

We could not establish clear cause-and-effect relationships for row crops grown in the field due to the limited number of studies. However, with the increase in cover crop acreage and constantly evolving [management practices](#), research to identify [risk factors](#) for allelopathic impacts and how to avoid them is needed.

More information: Katja Koehler-Cole et al, Is allelopathy from winter cover crops affecting row crops?, *Agricultural & Environmental Letters* (2020). [DOI: 10.1002/ael2.20015](https://doi.org/10.1002/ael2.20015)

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