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Winter annual weeds and SCN: What's the connection?

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Abstract
There are reports from Iowa State University Extension field crops specialists that there are lots of winter annual weeds in Iowa this spring. There is usually not much discussion about weeds serving as hosts for the soybean cyst nematode (SCN) because none of the common in-season weeds are hosts for the nematode in Iowa. In the late 1990s, Ohio State University researchers reported that the winter annual weeds field pennycress, henbit, and purple deadnettle supported SCN reproduction in greenhouse experiments.

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Winter annual weeds and SCN: What's the connection?

by Greg Tylka, Department of Plant Pathology

There are reports from Iowa State University Extension field crops specialists that there are lots of winter annual weeds in Iowa this spring. There is usually not much discussion about weeds serving as hosts for the soybean cyst nematode (SCN) because none of the common in-season weeds are hosts for the nematode in Iowa.

In the late 1990s, Ohio State University researchers reported that the winter annual weeds field penny-cress, henbit, and purple deadnettle supported SCN reproduction in greenhouse experiments. The practical implications of the discovery were uncertain because the experiments were conducted in a greenhouse where the temperature was kept at 75 °F. Since SCN is inactive at temperatures below 50 °F, it was not clear if SCN would be able to reproduce on the winter annual weeds in field conditions where temperature is not controlled.

Soybean cyst nematode female on root of purple deadnettle (E. Creech, Purdue University)

In 2005, scientists at Purdue University reported development of SCN females on roots of purple deadnettle in a field in Indiana. This discovery illustrated that SCN was capable of reproducing on winter annual weeds under field conditions. The Purdue University research did not determine if SCN population densities increased significantly as a result of reproduction of the nematode on the weed. And the potential for increases in SCN population densities on winter annual weeds under field conditions has not been determined to date.

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SCN is widespread in Iowa and can be effectively managed by growing resistant soybean varieties in rotation with corn, a nonhost for the nematode.

The two goals of the SCN management program are to maintain profitable soybean yields and to minimize SCN reproduction. Reproduction of SCN on winter annual weeds possibly could result in unintended increases in SCN population densities. Research is needed to determine the extent to which this phenomenon might occur in Iowa.

Additional information about SCN biology and management can be found on the Web at www.soybeancyst.info.

Greg Tylka is a professor of plant pathology with extension and research responsibilities in management of plant-parasitic nematodes.

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