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Races of Phytophthora

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Races of Phytophthora

Abstract

Phytophthora root rot is a well-known disease to Iowa soybean growers. Although the disease has been under control, with no large-scale severe outbreaks, it continues to be a production concern and causes damage in scattered areas because of the development of new races. In the last 2 years, reports have increased for Phytophthora root rot from varieties with the Rps1k gene (or k-gene). Despite the relatively dry spring thus far, we have received reports of Phytophthora root rot on varieties with the Rps1k gene.

Keywords

Plant Pathology

Disciplines

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INTEGRATED CROP MANAGEMENT

Races of *Phytophthora*

Phytophthora root rot is a well-known disease to Iowa soybean growers. Although the disease has been under control, with no large-scale severe outbreaks, it continues to be a production concern and causes damage in scattered areas because of the development of new races. In the last 2 years, reports have increased for *Phytophthora* root rot from varieties with the Rps1k gene (or k-gene). Despite the relatively dry spring thus far, we have received reports of *Phytophthora* root rot on varieties with the Rps1k gene.

At least 45 races of *Phytophthora* have been identified. However, there are only a few races of concern for Iowa soybean growers. Races commonly found in Iowa include 1, 3, 4, 13, 15, and 25. Races 13 and 15 may comprise a very small portion of the total.

The table lists genes that are resistant to infection by *Phytophthora*. Varieties carrying the Rps1k gene are resistant except for race 25 and this gene is effective in controlling *Phytophthora*. You should pay attention to *Phytophthora* problems found on varieties with the Rps1k gene. An increased number of such reports indicates the possibility of increasing populations of race 25 or other races that can defeat the Rps1k gene. In Iowa, race 40 was found 5 years ago and it would not be surprising to find other races that defeat the Rps1k gene.

If you see *Phytophthora* damping-off on varieties with the Rps1k gene, consider the use of a variety with the Rps6 gene. If varieties with the Rps6 gene are not available, consider varieties with the Rps1c gene together with seed treatment with Apron. The Rps1c gene has very good tolerance to *Phytophthora*.

Resistance gene reaction to races of *Phytophthora*.

	Resistance gene					
Race	Rps1a	Rps1b	Rps1c	Rps1d	Rps1k	Rps6
1	R	R	R	R	R	R
3	S	R	R	R	R	R
4	S	R	S	R	R	R
8	S	R	R	S	R	S
13	R	R	R	R	R	S

15	R	R	R	R	R	R
25	S	S	S	R	S	R

S, susceptible; R, resistant.

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