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Soybean top dieback shows up

Soum Sanogo

Iowa State University, ssanogo@iastate.edu

X. B. Yang

Iowa State University, xbyang@iastate.edu

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Soybean top dieback shows up

Abstract

In the 1997 and 1998 growing seasons, some soybean fields had plants with bright yellow leaves and plants that were dying from the top down, a condition called top dieback (growers may call this condition tip blight). Top dieback was pronounced in 1997 and 1998 from late July to mid-August when most soybean plants were in the reproductive phase. Top dieback showed up again this year.

Keywords

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Disciplines

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INTEGRATED CROP MANAGEMENT

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[1] **Top dieback.**

Symptoms similar to those of what we call tip blight in soybean were first observed in Ohio 18 years ago and the disease was named top dieback. In Iowa, the disease was first reported to the Iowa State University Plant Disease Clinic [2] in 1997 by Jim Facewtt, extension field specialist-crops, and Jerry Long, Ceder County Extension director. Initial symptoms of top dieback are yellowing and death of leaves in the upper portion of the plant canopy followed by discoloration of internodes. Plants die prematurely when the disease is severe. An Ohio study showed that fungal species belonging to the genera *Phomopsis* and *Diaporthe*, a group of plant pathogens that cause various diseases in soybean, are associated with top dieback.



[3] **Soybean field with top dieback.**

Top dieback can be misidentified as severe cases of sudden death syndrome. Although both diseases are different in the early stages of symptom development, their symptoms are similar in the later stages, especially in terms of premature dying when affected fields are observed from a distance. For sudden death syndrome, close examination reveals well-defined interveinal chlorosis or necrosis on leaves at any position in the plant canopy.

Although it is not known whether potassium deficiency is involved in top dieback, symptoms may invoke nutrient deficiency in soybean because the symptoms somewhat resemble those of potassium deficiency. But there is a major difference in symptoms between plants displaying top dieback and those with typical potassium deficiency. Top dieback affects leaves in the upper portion of plant canopy with leaves in the bottom portion remaining green, whereas typical potassium deficiency is noticeable in early vegetative growth and symptoms are observed on older leaves.

If top dieback is severe, consider changing soybean varieties for the next growing season. We observed that only a few cultivars are susceptible to top dieback. Do not save seeds from fields with severe top dieback because the pathogens causing top dieback are seedborne. Plant pathologists with ISU Extension are researching top dieback. If you find plants with symptoms of this disease, report it to the ISU Plant Disease Clinic at 515-294-0581. If necessary, soil and plant tissue analyses could be conducted to ascertain the involvement of potassium deficiency in symptomatic fields.

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[1] <http://www.ipm.iastate.edu/ipm/icm//itopdieback.html>

[2] <http://www.exnet.iastate.edu/Pages/plantpath/pdcintro.html>

[3] <http://www.ipm.iastate.edu/ipm/icm//ifldtopdieback.html>

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