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Soybean iron chlorosis

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Abstract

The Iowa State University Plant Disease Clinic usually receives soybean samples with iron chlorosis in mid- to late June, depending on planting date and weather. This year some iron chlorosis in soybean is anticipated because this problem is more pronounced with cool temperature and excessive moisture.

Keywords

Plant Pathology

Disciplines

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INTEGRATED CROP MANAGEMENT

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Iron chlorosis with root rot in soybean.

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In flooded fields with high pH (greater than 7), patches of soybean may turn yellow in low areas. Normally, iron chlorosis would be observed first in spots where the water table is high and drainage is poor. Symptoms of iron chlorosis are yellowing of interveinal areas of young leaves. Brown and necrotic spots may occur in leaf margins and plants can be severely stressed or killed if the disease is severe. The symptoms are more pronounced when soil temperature is low and moisture is high.

Often, root rot on iron chlorosis-damaged plants is apparent and noted first during diagnosis. The tap roots have a dark brown or reddish brown discoloration. Different fungi can be isolated from these plants, with *Fusarium* species the most common. In this type of root rot, fungal infection is not a primary damaging factor because soybean are more vulnerable to fungal infection when plants are weakened by iron deficiency. Later in a season, cysts of soybean cyst nematode often are found on these plants.

Although plant diseases are mostly caused by fungi, viruses, or bacteria, iron chlorosis is a disease, too, but it is caused by none of these agents. It is a physiological disease and a major disease in central and northern Iowa. In soybean fields, there is plenty of iron in soils. But iron becomes unavailable to soybean when soil pH is high, resulting in iron deficiency.

If this disease is a problem in your fields, consider variety selection and planting and cultivation options. Varieties are different in iron chlorosis responses. Some varieties are tolerant to the disease and yield much better in fields with higher pH. Also, consider planting in warm and less wet soil to reduce the disease potential for the next soybean crop. Application of iron is also an option but it may not be applicable to most situations.

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[1] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/ironchlorosis/irondef.html>

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