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Disease management for specialty soybeans

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Disease management for specialty soybeans

Abstract

Production of specialty soybeans, such as tofu soybeans, brings new opportunities for soybean growers. As more and more growers plant specialty soybeans, which are not commonly bred for disease resistance, we have received an increased number of questions on disease management. Common questions can be grouped into two areas: the first pertains to diseases that cause stand reduction and the second relates to seed quality.

Keywords

Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology



Disease management for specialty soybeans

Production of specialty soybeans, such as tofu soybeans, brings new opportunities for soybean growers. As more and more growers plant specialty soybeans, which are not commonly bred for disease resistance, we have received an increased number of questions on disease management.

Common questions can be grouped into two areas: the first pertains to diseases that cause stand reduction and the second relates to seed quality. Stand reduction is often caused by seedling diseases, such as *Phytophthora* damping-off, which can be a problem on soybeans that do not have *Phytophthora* resistance. This type of problem is easy to fix either by preparing a better seed bed or by planting specialty beans in a field with a low infestation. Conventional tillage also can reduce seedling disease problems if no-till fields are involved. Seed treatment can be another effective fix.

Some seedborne diseases cause discoloration in harvested seeds, which may affect seed quality of specialty beans. One type of discoloration is purple seed stain caused by *Cercospora kikuchii*. Infected seeds have seed coats with purple blotches. The stage of this disease in the summer is called *Cercospora* leaf spot, a fungal disease that has recently increased in importance. The fungus survives in infected seeds or soybean debris and during the growing season infects soybean seeds at pod set.

To avoid purple seed stain, one should not save seeds from infected soybean plants because this disease is seedborne. If the seed coat has a purple discoloration, it is an indication of infection. Planting infected seeds may cause emergence problems and result in further buildup of the disease on new crops. If you have to use infected seed, consider treating seed with fungicides containing Thiram. Chemicals of this type are cheap and can be applied at planting. Their application procedures are the same as those used for chemicals in regular soybean production.

You also should avoid planting specialty soybeans on continuous soybean ground because the disease risk is much lower in a corn-soybean rotation field than a field of continuous soybean. Most foliar diseases in Iowa can be managed with a corn-soybean rotation. If foliar diseases are a continual problem and cause a reduction of seed quality, such as decreased seed size or discoloration, consider using foliar-applied fungicides when the soybeans are at pod set. The use of Benlate or Topsin for control of foliar diseases costs about \$20 per acre.

Sometimes, one may find seeds with a dark discoloration caused by soybean mosaic virus (SMV), a disease often found in southern Iowa or in neighboring states. However, insect damage also can cause discoloration similar to SMV and the symptoms can be mistaken for disease. Last summer, bean leaf beetle damage was significant in some areas of Iowa and

seeds with dark brown discoloration were observed.

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