Soybean seed coat mottling

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Abstract
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What is seed coat mottling? Sometimes, seeds infected by SMV may have seed coat mottling, a dark discoloration from the hilum (the scar marking the attachment point of the ovule), and this symptom may be used to identify SMV. However, coat mottling should not be used as a main symptom for SMV identification because of inconsistency between coat mottling and SMV infections. An Iowa State University study shows that in some varieties, such as Williams, seed coat mottling is highly associated with SMV infection, but not for other varieties such as Corsoy. Some SMV-infected seeds do not have coat mottling symptoms. Physiological factors also can cause seed coat mottling. I have observed seed mottling from pods injured by insects, such as bean leaf beetles. The most reliable way to determine if seeds are infested with SMV is to send seed to the ISU Seed Science Center for a test at a reasonable price. The phone number of the Seed Science Center is 515-294-6821.

What is the problem? A common concern from producers is the possibility of stand reduction. If the seed is indeed infected by SMV, poor emergence may be a problem. Last year, we also experienced severe stand reduction problems after we planted seeds with severe coat mottling. The effects of SMV on seed germination can be inconsistent although reduction of germination of SMV-infected seed has been frequently observed. This means that other factors may be involved. Nondisease-related seed quality problems also can cause poor germination or emergence. ISU agronomy received reports on this matter last week.

What to do this season? Since the 1996 harvest, ISU Plant Pathology has received numerous reports on seeds having coat-mottling symptoms. If you are concerned about seeds that have coat mottling, observe the plants during the growing season. Infected
seedlings will have young leaves that are mottled, smaller than normal, and crinkled. Severely infected plants may be stunted. Keep in mind that plants that received certain herbicides can have similar symptoms. Soybeans affected by herbicides will grow out of the problem but they would not with SMV infection.

In Iowa the primary inoculum of SMV consists of infected seedlings from infected seeds. The disease is further spread in a soybean crop by aphids. If the growing season is dry, which may result in increased insect activity, you may want to watch aphid populations closely. To avoid SMV infection, you should not save seeds from SMV-infected plants. For more information on SMV, obtain the fact sheet Pm-888, Soybean Mosaic Virus from the ISU Extension Distribution Center [3] by calling 515-294-5247.

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