



Discoloration in Soybean Seed

Interactions of environment, insects, and disease can cause soybean seed to become discolored or appear damaged. Economic injury depends on the cause and timing of the causal agent. Discounts may occur at the elevator because of discoloration.

Crop Impact

Depending on the cause for seed discoloration, potential yield may not be impacted. However, discounts based upon quality and appearance may occur when the grain is delivered for market.

Seed Discoloration Causes

Purple seed stain and leaf blight may be caused by *Cercospora*. Infected seed is characterized by pink and varying depths of purple discoloration (Figure 1, top). The seed may have discolored specks to large blotches that cover the entire seed. Warm, humid weather favors development. Potential yield may not be reduced; however, under severe discoloration, dockage may occur. *Cercospora* can also infect leaves, stems and pods.

Pod and stem blight. Infected seeds are misshapen or oblong and may have a white mold growth (Figure 1, bottom). The seeds become infected when their fungal spores penetrate the pod. Infected plants are generally identifiable by the black specks that appear in rows on the stems and scattered over the pods or zone lines within cortical tissues. Warm, wet weather over prolonged periods during flowering and pod fill favor the disease.

Frogeye leaf spot is primarily a leaf disease. However, it can infect stems, pods and seeds. Circular to elongate, sunken and reddish brown fungal lesions on pods can penetrate into the seeds and cause light gray to dark gray or brown specks or large blotches to form on the seeds.

Anthraxnose. Diseased seeds may be smaller, moldy, dark brown, and shriveled. Anthraxnose is favored by warm, wet weather. Anthraxnose can also cause damage to leaves, stem, pods and petioles. Damage to seed has been noted in samples from fields that did not have fungicides applied at R3.

Bean pod mottle virus (BPMV) and soybean mosaic virus (SMV), can cause the hilum to “bleed” down the side of the seed. The intensity of the black or dark discoloration can be a factor of environmental conditions. The discoloration can also be characteristic of some soybean products. The viruses infect plants through the feeding of insects such as bean leaf beetle.

Stink bugs. Mouthpart pierces pods and suck fluids from developing seed causing the seeds to be shriveled, smaller, discolored, and low in oil content (Figure 2).



Figure 1. Purple seed stain (Top) and White coating on seed from Pod and Stem Blight (Bottom)



Figure 2. Varying degrees of stink bug damage to soybean pods and seeds.

Photo source: Ric Bessin, University of Kentucky.

Sources:

Sweets, L. 2011. Discolored soybean seed. Integrated Pest & Crop Management. University of Missouri. <https://ipm.missouri.edu>.
Malvick, D. 2018. Bean pod mottle virus on soybean. University of Minnesota Extension. <https://extension.umn.edu/>.
Giesler, L.J. Soybean mosaic virus. CROPWATCH. University of Nebraska-Lincoln. <https://cropwatch.unl.edu/>.

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** 181012111106 102018RDH