Soybean seed size and appearance was affected by the challenging growing conditions experienced across the Midwest during the 2012 growing season. However, soybean seed appearance normally does not affect quality. Seed that looks almost perfect can have poor germination rates while seed that appears flawed may actually be very high in quality. Growers should focus on germination rate and the ability of seed to produce a healthy seedling as they place seed orders for the 2013 season.

Environmental and disease issues from the 2012 growing season, combined with a few storage challenges since harvest, may have led to some seed beans with poor appearance. However, poor appearance is not necessarily an indicator of poor quality. Likewise, almost perfect looking seed can have poor germination. Conditions such as drought, aphids, viruses and other pathogens, bean leaf beetles, and a quick harvest drydown may lead to various conditions that can cause poor seed appearance. Low harvest moisture can increase the chances of mechanical damage from handling during conditioning and packaging. Rapid shutdown of soybean plants at harvest can create immature green seeds. Excess moisture in bins can contribute to surface mold on seed. Germination rate, not appearance, should be the focus as several conditions that cause poor seed appearance and surface mold do NOT affect germination.

**Purple Seed Stain** (Figure 1) is caused by the fungus *Cercospora kikuchii* and causes a purple seed discoloration. In cases with mild seed infection, the coat may be shed before seedling infection can occur. In more severe cases, it can be transmitted from the seed coat to the seedling as the seed germinates and infected seedlings may show a reduction in growth. Soybean seed treatments can help prevent transmission of Cercospora to the germinating seedling.

**Seed coat damage** (Figure 2) can occur during harvest and the handling process when seed is dry and humidity is extremely low. Chips, cracks, and broken seed result from mechanical damage. Asgrow® brand handling equipment is designed to handle seed gently and to reduce mechanical damage. Asgrow brand conditioning equipment removes most mechanically damaged seed during the cleaning process.

**Growth marks** (Figure 3) usually result when the seed coat does not close completely. The cause is not entirely understood, but is believed to result when the seed embryo develops faster than the seed coat.

**Green coloring** (Figure 4) can be found in areas where fields planted later than normal were hit by an earlier than normal frost. The green tint occurs because the chlorophyll has not dissipated entirely. The coloring has no effect on quality if the seed is fully mature.

**Bleeding Hilum** (Figure 5), also known as seed coat mottling, can be caused by specific genetics, stresses during seed development, or by soybean mosaic virus.
Sources:

Soybean Seed Appearance and Quality (continued)

virus. Bleeding hilum does not indicate that the virus is present in the seed. In most cultivars, transmission of the virus from seed to plant is less than 5%.

Soybean Seed Treatments

Wet, poorly drained soils, common during spring planting and crop emergence, favor the development of the fungal pathogens that cause soybean seedling diseases. These diseases may slow germination and plant growth. Early-season insect pest feeding can damage soybean seeds and seedlings, which can cause adverse effects on plant growth. Seed treatments can help protect seed and seedlings from labeled pests, and result in more uniform plant stands, better yield potential and ultimately an increase return on investment.

Acceleron® Seed Treatment Products have been selected to complement Genuity® Roundup Ready 2 Yield® and Roundup Ready® soybeans by helping to protect soybean seeds and seedlings from disease and insect damage. In the past, most seed treatments consisted of one or two active ingredients which primarily controlled seedling diseases. Acceleron Seed Treatment Products contain advancements in seed treatment technology, including multiple modes of action, broad spectrum control of insects and diseases with increased length of protection.

Acceleron Seed Treatment Products provide control for the diseases Pythium, Phytophthora, Fusarium and Rhizoctonia, and protection from key insects, such as bean leaf beetle, soybean aphid, seedcorn maggot, wireworm and white grub. This broad spectrum of control comes from an exclusive fungicide combination of pyraclostrobin and metalaxyl as well as the insecticide imidacloprid, which provides both above- and below-ground insect protection. Protection from Acceleron Seed Treatment Products can last for up to 30 days. For 2013, Acceleron Insecticide/Fungicide Seed Treatment Products for soybeans will contain the fungicides pyraclostrobin for Fusarium and Rhizoctonia control, metalaxyl for Pythium and Phytophthora control and fluxapyroxad for control of Fusarium and Rhizoctonia, as well as the insecticide imidacloprid.

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Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.

Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Acceleron®, Asgrow and the A Design®, Asgrow®, Genuity®, Roundup Ready 2 Yield®, Roundup Ready®, Roundup® and Technology Development by Monsanto and Design® are registered trademarks of Monsanto Technology LLC. Poncho® and VOTiVO® are registered trademarks of Bayer. All other trademarks are the property of their respective owners. ©2013 Monsanto Company.02042012AMH

For additional agronomic information, please contact your Asgrow®, DEKALB® and Deltapine® Brands Seed Representative.