

Mark Jeschke, Ph.D., Agronomy Manager

SUMMARY

- Excessive fall rains and harvest delays in soybean seed production areas can lead to lower seed quality for the following season.
- Corteva Agriscience conducts warm germination and other seed quality tests to ensure that its seed meets quality standards that lead the industry.
- In cases where poor weather conditions affect soybean seed production over a wide area, some soybean varieties may be tagged with a standard warm germination score of 80% in order to meet demand.
- Some varieties may be treated with an additional fungicide seed treatment to preserve seed quality and encourage rapid germination and emergence.
- Growers are encouraged to take the following steps to minimize further damage to lower quality seed:
 - Avoid planting into dry soil and waiting for a rain.
 - Avoid planting into excessively cold and wet soils.
 - Calibrate planters and drills to maximize placement and uniformity.
 - Reduce handling and subsequent physical impact on the soybean seed.



HANDLING LOWER QUALITY SOYBEAN SEED

Growers should take special care to minimize damage to lower quality soybean seed at each point of handling. Growers who use bulk-handling systems should be especially aware of the potential for increased damage when moving seed with these systems. The key to minimizing damage is moving soybeans gently from the bulk container to the seed hopper. In general, bulk transfer systems that use rubber conveyor belts for moving seed are the least damaging, followed by brush augers and plastic cup augers. Steel augers and vac systems are not recommended. In all cases, running the system full and at a slower speed will cause less damage to the seed.

POOR WEATHER CONDITIONS REDUCE SEED QUALITY

Poor weather conditions that occur after soybeans reach physiological maturity and before they are harvested can negatively impact soybean seed quality. Excessive rainfall can delay harvest, which extends this period and can increase the amount of seed deterioration. Wet conditions, especially when coupled with warm temperatures, can increase the prevalence of seed diseases such as Phomopsis seed decay (*Diaporthe longicolla*) and purple seed stain (*Cercospora kikuchii*).

When poor weather conditions during harvest occur over a wide area, it can lead to industry-wide issues with soybean seed supply and quality for the following season. Special management may be needed when dealing with fragile seed. This includes careful handling, avoiding high stress seedbed conditions, rethinking seeding rates because of limited supplies and quality, and in some cases substituting earlier maturities or an alternate crop for the planned soybean variety. Seed available for replant may be extremely limited, making it especially important to ensure all steps are taken to maximize emergence and stand establishment.



Soybeans being unloaded from the truck hopper onto a belt conveyor. Belt conveyors are designed to more gently handle seed.



PLANTING CONSIDERATIONS

Planting lower quality seed should begin with a well-tuned and calibrated planter or drill. Carefully check the following items for peak planting performance:

- Check seed size (seeds/lb listed on bag tag) carefully when switching lots or varieties and adjust planter accordingly. Be sure you are using the correct seed disk and planter transmission setting.
- Keep planter units and seed monitor sensors free of dirt, chaff and any seed treatment build-up. If broken seeds accumulate in planter boxes, remove them regularly.
- Check actual population and plant spacing under field conditions – planter charts provide only a starting point for calibration. Check frequently behind the planter/drill.
- Consider increasing seeding rate by 10% over the normal seeding rate.
- Do not exceed the planter manufacturer's recommended ground speed.

AVOID PLANTING INTO STRESSFUL ENVIRONMENTS

Growers should strive to reduce the stress placed on lower quality soybean seed. Planting early into cold and wet conditions extends the time that seed is in the soil before emergence and can consequently reduce germination by exposing seed to a number of stresses including seedling disease, herbicide damage, insect feeding, and crusting. Soybeans prefer soil temperatures near 60°F (16°C) or above for rapid germination and emergence.

Crusting often occurs when heavy rains fall on the seedbed after planting but before emergence. Fine-textured soils are especially prone to crusting. Early planting increases the time the seed is in the soil and susceptible to crusting.

Dry soils tend to be more of a problem with later plantings when temperatures are higher. Planting into dry soil and waiting for a rain is strongly discouraged with lower quality seed. Plant into a moist seedbed. In fields with pivot irrigation where the soil is too dry to plant, consider moistening the soil

with the pivot and then planting as opposed to watering the beans up after planting which will increase the likelihood of crusting.

SEED TREATMENT

Some seed may come treated with an additional fungicide seed treatment. This will preserve the existing seed quality and should improve germination and emergence by controlling seedling diseases like Phomopsis. **Pre-treated seed should not be over-treated, as it requires an additional handling step that may further damage seed.** If treated, steps should be taken to limit handling damage as much as possible.



CORTEVA AGRISCIENCE SOYBEAN QUALITY TESTS

There are several types of germination tests used by Corteva Agriscience to determine the health and quality of soybean seed prior to bagging. Warm germination is the test used to label seed as required by law. It shows the germination under non-stressed laboratory conditions. Warm germination results are printed on the seed tag.

Corteva Agriscience runs a battery of tests in addition to the standard warm germination to identify the seed lots that have the highest potential for stand establishment. The use of these multiple germination tests by Corteva Agriscience seed quality specialists helps improve the accuracy of predicting seed lot performance. The extensive testing and conditioning process employed by Corteva Agriscience helps assure quality and aids in eliminating seed lots that do not meet the company's rigorous standards.

Testing programs are designed to identify and make available for the sale the seed lots that will maintain quality and be viable at the time of planting.

The foregoing is provided for informational use only. Please contact your sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary. FF220128 | February 2022