

SEED MATTERS

What growers should know about seed testing

There are common questions growers have about seed testing and seed test results. To answer some of them, Kevin Hursh, farmer and ag journalist, spoke with Shanna Stolhandske-Dale, owner and lab manager of Seed Solutions based at Waldeck, Saskatchewan, and Sandy Junek, the molecular lab manager for Discovery Seed Labs in Saskatoon.

What does it mean when I get my seed test results back and the vigour is considerably lower than the germination percentage?

Seed vigour tests are not standardized from one lab to the next, and that's not likely to change. However, both Stolhandske-Dale and Junek say vigour tests provide essential information. In one kind of vigour test, seed is subjected to cold, wet conditions to see how well it germinates after being stressed. While the parameters are not standardized, it raises a red flag if the vigour is 10 points or more lower than the germination.

"If the difference is small, you know what you have," says Stolhandske-Dale. "That seed is likely to hold its germ for a long time." She notes that barley can be particularly bad for the germination percentage dropping in storage.

It's preferable to use seed where the germ is over 85 percent and the vigour doesn't lag by much. However, if a grower needs to use seed with a significant gap between the two measurements, choosing the proper seeding rate will depend on conditions at seeding time. The germination percentage is the most relevant if moisture is good and the soil is warm. Under cool, stressful conditions, the vigour percentage may be the factor used to determine seeding rate.

With Certified seed, although not required for certification, vigour test results are often available for growers.

When should seed be tested?

Growers will typically want to know germination, vigour and disease ahead of cleaning farm-saved seed — no use going to the effort and expense of cleaning only to find a quality problem later. Sandy Junek recommends doing a full package of tests on harvest samples and then re-testing after the farm-saved seed is cleaned. The re-test need not include a disease component as that is unlikely to change much.

"The germ, vigour and even the thousand kernel weight can change after cleaning," notes Junek. "On thousand kernel weight, the difference comes from removing smaller seeds. With germination and vigour, mechanical damage can occur during cleaning."

Time is also an important factor. It's best to have seed test results within a few months of seeding in case germ and vigour are declining. It's also crucial to submit a genuinely representative seed sample.

Of course, seed testing can't account for mechanical damage as the seed is handled and then run through the air seeder. While every farmer wants to avoid plugged seed runs, Shanna Stolhandske-Dale, who also farms, notes that having airflow too high adds to mechanical damage. Pulse crops tend to be more sensitive to mechanical damage particularly if harvest conditions were very dry.

Is there any relationship between seed treatments and germination?

Seed treatments are applied to deal with disease and insect issues. If a seed test shows disease, some seed testing labs can apply the seed treatment of your choice and then recheck disease levels. But do seed treatments have an impact on germination?

In Junek's experience, treating seed usually improves its vigour. As for carrying over treated seed to the following year, in Stolhandske-Dale's experience, any loss in germ or vigour won't be due to the seed treatment.

What about purity tests?

A mechanical purity test at a seed testing lab can determine the content of weed seeds and seed from other crop kinds. However, mechanical purity testing will not tell you about a mix of crop varieties which involves varietal purity. For instance, different classes of wheat could be co-mingled, or a malting barley sample might have more than one variety. Certified seed provides growers with an assurance of compliance with varietal purity standards.

A carefully drawn, representative sample needs to be sent to a lab capable of DNA testing to investigate varietal mixing. However, this isn't currently offered by most seed testing labs.

Of course, everyone in the seed industry will recommend seed tests, but is it a really worthwhile investment?

Growers can assume their farm-saved seed is fine, or they can do their own home germination testing. But seed testing through one of the many CFIA-accredited labs is a minimal investment compared to the value of the farm-saved seed being used or the cost of Certified seed. It's an even smaller investment compared to the cost of crop yield lost due to poor seedling emergence in the field.

Also, home testing won't give you both germination and vigour to compare. Nor will it tell you anything about potential disease issues.

More information about seed quality, seed rates, seed-borne diseases and interpreting seed testing results can be found in the *Varieties of Grain Crops* publication that comes out each year as part of the *SaskSeed® Guide* or the Interactive SaskSeed Guide™ at www.saskseed.ca/interactive-seed-guide/.