



Pulse Agronomy Network~ *Partnership in Industry*

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1. Seed germination and vigour.

(Kevin Zaychuk, Business Development Manager, 20/20 Seed Labs)

Check your pulse... germination and check your vigour as well!!

Germination and more importantly, seed vigour can have a significant impact on plant establishment especially under stressful conditions of early seeding or seed that has mechanical damage from harvest or handling.

Germination is the most widely accepted test for seed viability, but it does not assess factors that influence seed vigor. Germination tests are done under **optimum laboratory conditions** and do not detect quality differences between high germinating seed lots. "A small difference in percentage germination represents a large difference in the progress of deterioration of the seed."

The vigour test evaluates physiological quality and the potential of the seed to tolerate factors such as environmental stress. The major cause of the loss in vigour is attributed to deterioration and aging which commences at the time the seed becomes physiologically mature. Physical damage to cell membranes particularly in large seeds such as pulses and legumes is usually the primary cause of seed deterioration. The speed and uniformity of germination, inferior seedling emergence, seedling growth rate, intolerance to environmental stress and pathogens, and other similar reductions in performance capabilities can be detected. The loss of "seed vigor" **precedes** the loss of "germination"; therefore high germinating seed lots may mask the extent of the damage and consequently have poor vigor.

The most widely used vigor tests are Cold Germination, Accelerated Aging, Controlled Deterioration, Electrical Conductivity and Seedling Growth Rates. The **electrical conductivity** test is used primarily for pulses and large seeded legumes, but can also be used for canola. This test evaluates the integrity of the cell membranes and their ability to repair themselves during the "soak period". Seed is soaked in deionized water for a short period of time allowing sugars, starches and amino acids to leach from the seed, the higher the conductivity value of the soak water the lower the vigour. This test is used for determining the time at which the seed should be planted. Seed with high E.C. values should be used with caution.

If seed with less than optimum vigour consider seeding later into warmer soil, carefully monitoring seeding depth and fertilizer placement and definitely consider a seed treatment.

Check out the difference seed treatments make:

<http://www.pulse.ab.ca/library/cropPhotos.htm>

Announcements:

1. **Winter Super Pulse Sessions:** Feb 17th -Fort Saskatchewan; Feb 18th -Camrose; Feb 19th -Three Hills; Feb 20th -Taber; Feb 23rd -Grande Prairie.
Pre-register by calling 1-877-550-9398. Meetings registration 9:30 am.
2. **Fusarium Head Blight Management Seminar:** March 3, 2004
Strathmore Travelodge, Strathmore. Pre-register by calling 403-381-5929 or 403-381-5849.