



NewsFlash - Seed Dormancy

Extra to November 2010 "As We See'd It"

Quick Links



Dear Valued Client:

The article on dormancy in the last newsletter generated a huge response and many people asked for additional information. Please read my article below for more details on dormancy.

As always, please contact us if you have any questions or concerns about your seed or the service we provide to you.

Sarah

Sarah Foster, President and Senior Seed Analyst

Dormancy in Cereals Causing Low Germination and Vigour Results

Dormancy is prevalent in all crops, but more so in cereals this year; although many areas are not affected there are areas of the three Prairie provinces that are affected because of challenging harvest conditions.

Durum wheat samples from two different parts of Alberta submitted for vigour testing (cereal cold stress).

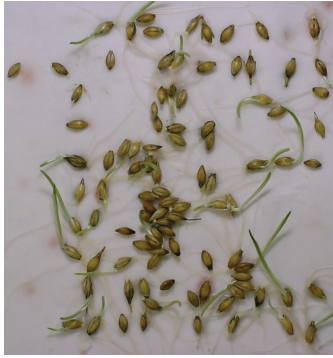


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Dormant Barley Seeds



Durum wheat
LEFT: Normal
RIGHT: Dormant



Dormant wheat seeds

IMAGE ON LEFT: a healthy, vigorous example of seedlings with good viability and vigour.
IMAGE ON RIGHT is affected by secondary dormancy. All of the seed is viable and the germination was 95%. Emergence under cold temperatures at this time cannot occur because the seed requires a quiescence period to cure.

Dormancy prevents seeds from germinating under optimal environmental conditions, which are precisely the conditions we provide in the laboratory for germination to occur. Dormancy is a state in which the seed is viable, but for various reasons cannot germinate. The key to breaking dormancy is to determine which type of dormancy is present. This year we have Exogenous dormancy which is broken into three sub types, one of which is physiological dormancy. Physiological dormancy is caused by chemical inhibitors that prevent the embryo from developing, and is usually associated with high moisture, a short drying down period and poor harvest conditions.



Dormant seed on a blotter after 7 days.

Events Calendar

Look for us this fall at:

Agri-Trade 2010
Westerner Park,
Red Deer, AB
November 10-13, 2010

Dormancy is typically broken in the laboratory with a stratification period of 3 days this is known as the 3 day pre chill, and the use of a growth promoter such as potassium nitrate KNO_3 . However this year in many cases this regime is not enough to completely break the dormancy and we are retesting with a 7 day Prechill period and potassium nitrate. This is naturally causing delays with germination, as we are often retesting as many as three times to obtain the best possible

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**Seed and Crop Tech
Workshop
Olds, AB
November 17 & 18, 2010**

>>>>>

**Advanced Agronomy
Conference
Nisku, AB
November 24 & 25, 2010**

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result.

We know that you are anxious for results because we understand that good seed is in short supply, but unfortunately this season is shaping up to be a challenge for us all. We expect this phenomenon to persist at least until we get some very cold weather.

Germination tests are taking longer.

If you are experiencing a delay, please go on-line to see the status of your germination test. We are taking care to provide good notes and revised ETA's for your information.

Physiological dormancy is certainly a factor in germination and we know that over time the dormancy will decrease. We need a cold storage period of up to three months to see a difference. We would like to suggest that you store your germination sample in the freezer for one week prior to submitting it to the laboratory, or pre drying the sample in a paper bag in a well ventilated area, if you are needing a germination result quickly, for 2-3 days before sending it in.

Vigour is also affected. We are seeing a number of high germination results (non dormant samples) with very poor vigour results that again are directly related to dormancy. In this case the seed may have secondary dormancy (dormancy is not observed in the germination test, only in the cold test). The reason for this is that we are exposing seed to conditions that are not favorable for germination. The seed does not like being seeded into cold conditions of 5°C which is the recommended cold stress. It is important to remember that this test does correlate very well with field emergence in the spring, but may not reflect the vigour at this time. This seed needs to cure before being subjected to stress; it should be retested later in the year, when a true vigour number can be obtained. Please do not retest this seed with another cold germination profile as it will not identify possible vigour issues in the spring. The cold test of 5°C is a recommended profile that has historically provided the best indicator for good field and stand establishment. **Using another test that may give you better results now will not truly reflect the quality at seeding time.**

My recommendation is to test for germination and vigour to establish if dormancy is present in either of the tests. We will provide the details on the report of seed analysis for you to determine the depth of the dormancy, and the field planting potential.

If you are using our website to stay current with your results, there will be a remark noting if your sample has been extended or retested.

Please call us at 1-877-420-2099 if you have any concerns or questions.

For more information on dormancy, please follow the link below:

<http://4e.plantphys.net/article.php?ch=t&id=8>

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