

# Tech Bulletin

## Cereal Cold Stress Test

**G**ermination and vigour are terms associated with a seed's ability to grow.

Germination testing is conducted under optimum growing conditions specific to each crop type. Temperature may be static or alternating, such as 8 hours of high temperature and 16 hours at a lower temperature. Perfect lighting and moisture also provide the necessary elements for seed to germinate.

For the germination test, seeds which germinate with all essential structures required in order to sustain a normal healthy plant are considered to be viable at the end of the test period. Seedlings with missing or major defects to essential structures will be

considered abnormal and seeds which do not grow are reported as dead or fresh. The seedlings in this profile can be any size, long or short, provided their structures are intact and have only minor injury. Unlike vigour, germination is a very forgiving test.

Recommended planting conditions for cereal are at 5°C or 6°C soil temperature and at a 1/2 – 1" seeding depth. Seeding into these temperatures is effective when germination results are really strong with no hidden deficiencies. However, in some cases germination results may be strong but the vigour results are much lower than usual. Sometimes, as much as a difference of 40% between the germination and vigour number as seen this past year, and in previous years too.

It's challenging to know how to mitigate potential loss of emergence if a decision is made to use this seed. We know the germination is good, so then how does one compensate for a low vigour? All seed has a sweet spot at which germination begins. Ideally strong seed will start to sprout at 5°C to 6°C and that's what every seed grower wants for his or her optimum field germination to avoid problems later on. However, climate, variety, maturity and various other issues can affect seed quality and in a year with many environmental challenges that have created this anomaly it's not always possible to plant this seed early.

20/20 Seed Labs Inc. has developed a system of finding the right temperature for uniform emergence. We use temperature profiling to identify the perfect temperature (the sweet

spot) for all seeds to germinate. We test the seed sample at multiple temperatures to obtain the temperature at which the most uniform and rapid emergence occurs. Our findings can help you make the best decision on seeding temperature specific to your seed lot.

You may have to wait for the soil temperature to warm up before planting. In the long run it will be very beneficial because you will get an even stand and establishment

Your Cereal Stress Profile will report rate of emergence at 4 different temperatures, allowing you to determine what your optimum emergence temperature is. In the example below, the emergence at 5°C is only 7%. However, by waiting for the soil temperature to warm up to 11°C, it may still be possible to establish an even stand.

**20/20 Seed Labs Inc.**  
*never stop growing*

## Report Of Seed Analysis

CFIA Accreditation No. 1065  
Date: Feb 08, 2019  
Lab No. AB1190200610

This designates that a sample of Barley  
Lot# Cereal Stress Profile Test 2

was received from: **Scarecrow Enterprises**  
507 11 Avenue  
Nisku, AB, CA  
T9E 7N5

tested at 20/20 Seed Labs Inc.:  
20/20 Seed Labs Inc.  
507 - 11 Avenue  
Nisku, AB, CA T9E 7N5  
p 780-955-3435 / 1-888-900-1810  
w <http://www.2020seedlabs.ca/>  
e [support@2020seedlabs.ca](mailto:support@2020seedlabs.ca)

signed by: **SENIOR MEMBER OF**  
  
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Carey Mathiesen

CEREAL STRESS PROFILE	
Total Emergence (%) at 5°C	7
Total Emergence (%) at 7°C	20
Total Emergence (%) at 9°C	67
Total Emergence (%) at 11°C	92

*If you have any questions regarding this test or other service offerings, please contact 20/20 Seed Labs at 780-955-3435 or [support@2020seedlabs.ca](mailto:support@2020seedlabs.ca).*



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