



2011 Carryover Seed – Be Aware

December 14, 2011

www.2020seedlabs.ca

Who We Are

- Located in Nisku AB, Lethbridge AB, and Winnipeg, MB
- First private commercial seed testing lab, still independently owned and operated
- ISO 9001:2008 Certified
- 20/20 Seed Labs Inc. is fully accredited by CFIA, CSI, and ISTA to test all crop kinds
- Range of services include seed quality (germination, purity, vigour), seed health, molecular analysis, crop inspection and research

Overview

- Almost 3 million acres of Manitoba cropland went unseeded in 2011
- Seed harvested from the 2010 crop was generally not of great quality



Overview

- Storage scenarios
- Seed quality issues
- Testing for storage potential and current quality



Events & Situations

- Storage
 - Time
 - Containers
 - Conditions



Storage

■ Time

■ Any period of time in conjunction with other factors can cause seed deterioration



■ Conversely, seed has been known to live for centuries when it doesn't have adverse conditions

Storage

- Containers

- Size

- Bins, bags, etc.

- Material

- Steel, wood, poly weave, polyethylene, cotton, paper, etc.

- Location

- Outside or inside



Storage

- Conditions

- Temperature

- Consistency

- Minimum & maximums



Storage

- Conditions

- Humidity

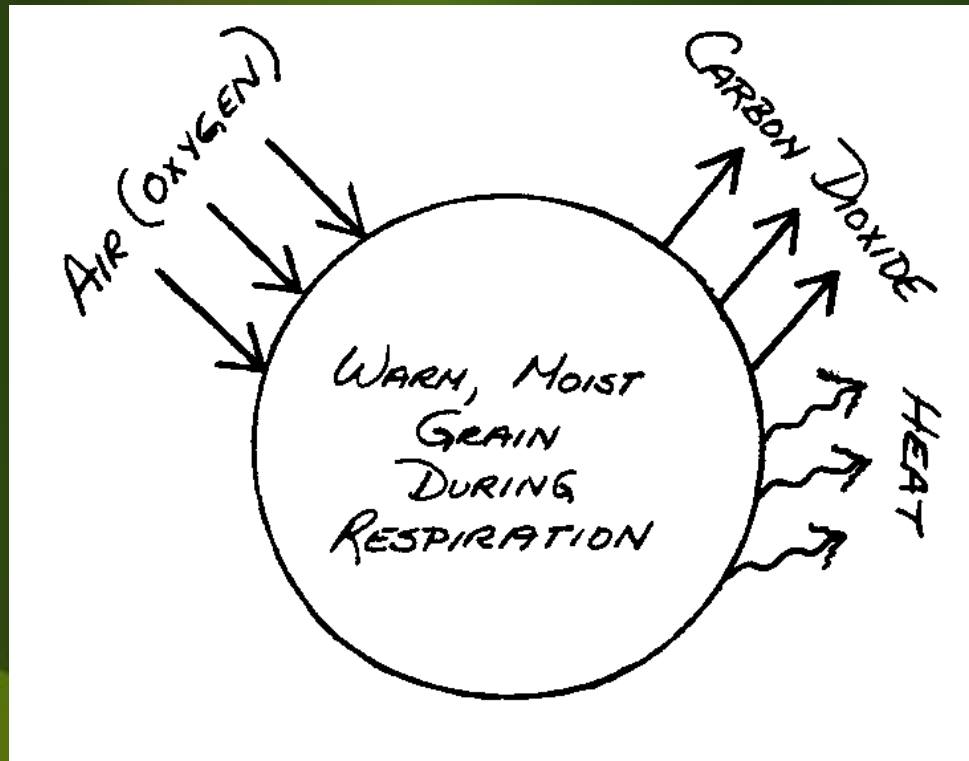
- Consistency

- Minimum & maximums



Storage

- ▣ Conditions
 - ▣ Anaerobic Environment
 - ▣ Limited by type of container



Events & Situations

- Seed
 - Maturity
 - Moisture
 - Pathogens
 - Treatments
 - Species



Seed

- Maturity

- Physiology

- Moisture content

- Canola green seed

- Seed weight



Seed

- Moisture

 - Stable

 - Increases longevity

 - Lower is better

 - Lower moisture decreases incidence of pathogens

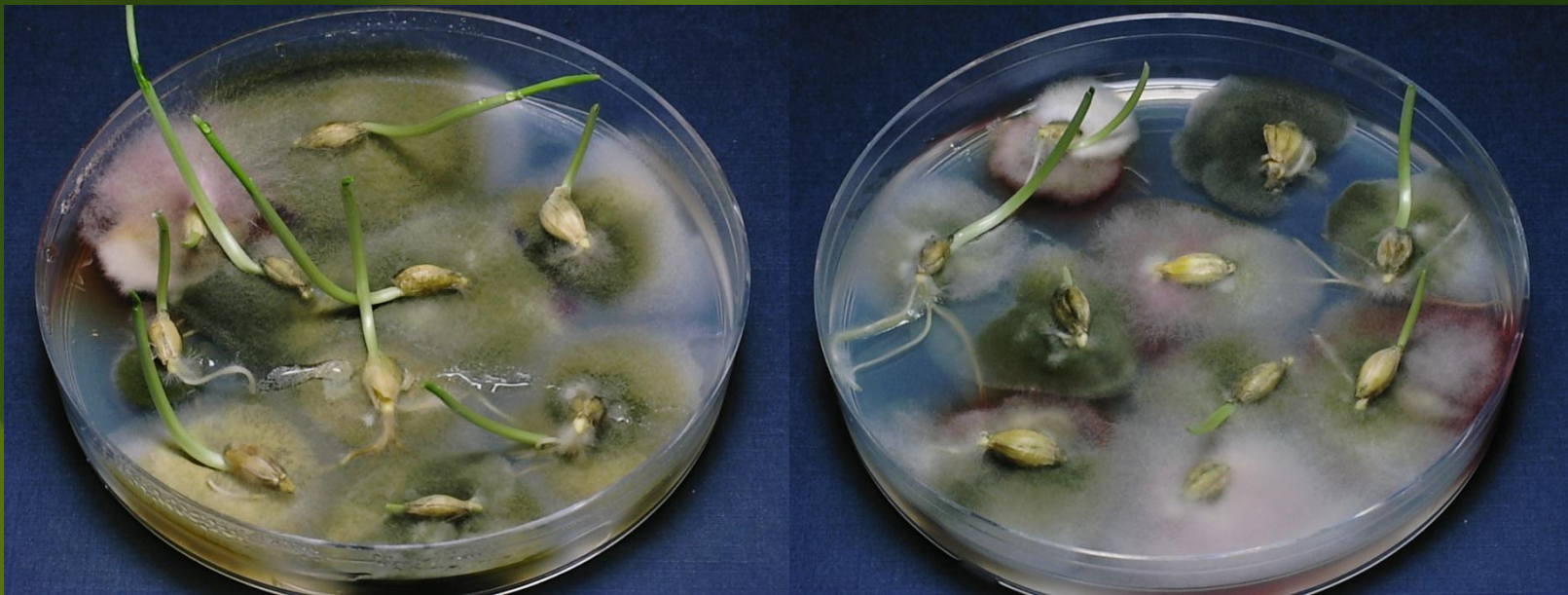
 - Too low, seed is subjected to mechanical damage in handling

Seed

■ Pathogens

■ Storage molds

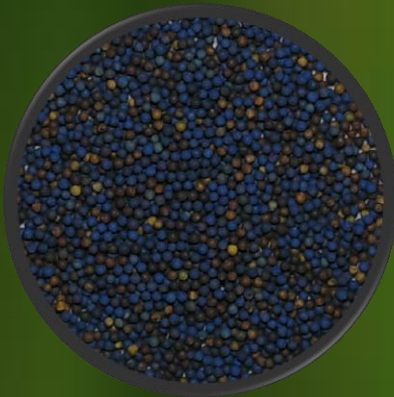
■ *Aspergillus* spp. and *Penicillium* spp.



Seed

■ Treatments

- Most current seed treatments, when properly applied, will not cause deterioration of seed quality



- Fertilizer and micronutrient products may affect germination

Seed

Species

 Brassica spp.

 Cereals

 Pulses

 Soybeans

 Forage grasses and legumes



Seed Tests

- Determine Carryover Potential
 - Vigour/Stress
 - Accelerated Aging
 - Controlled Deterioration



Determine Carryover Potential

- Accelerated Aging
 - Exposes seed to a high temperature and a high relative humidity
 - ISTA accredited test for soybeans



Determine Carryover Potential

- Controlled Deterioration
 - Exposes seed to a high temperature while at a constant raised seed moisture content
 - ISTA accredited test for canola



Seed Tests

- Viability of Carryover Seed
 - Germination
 - Vigour
 - Disease screen









Sampling

- Ensure the sample is representative of the whole seed lot
- Test results are only as accurate as the sample that is submitted
- Sampling
 - Primary samples
 - Composite sample
 - Duplicate sample
 - Submitted sample

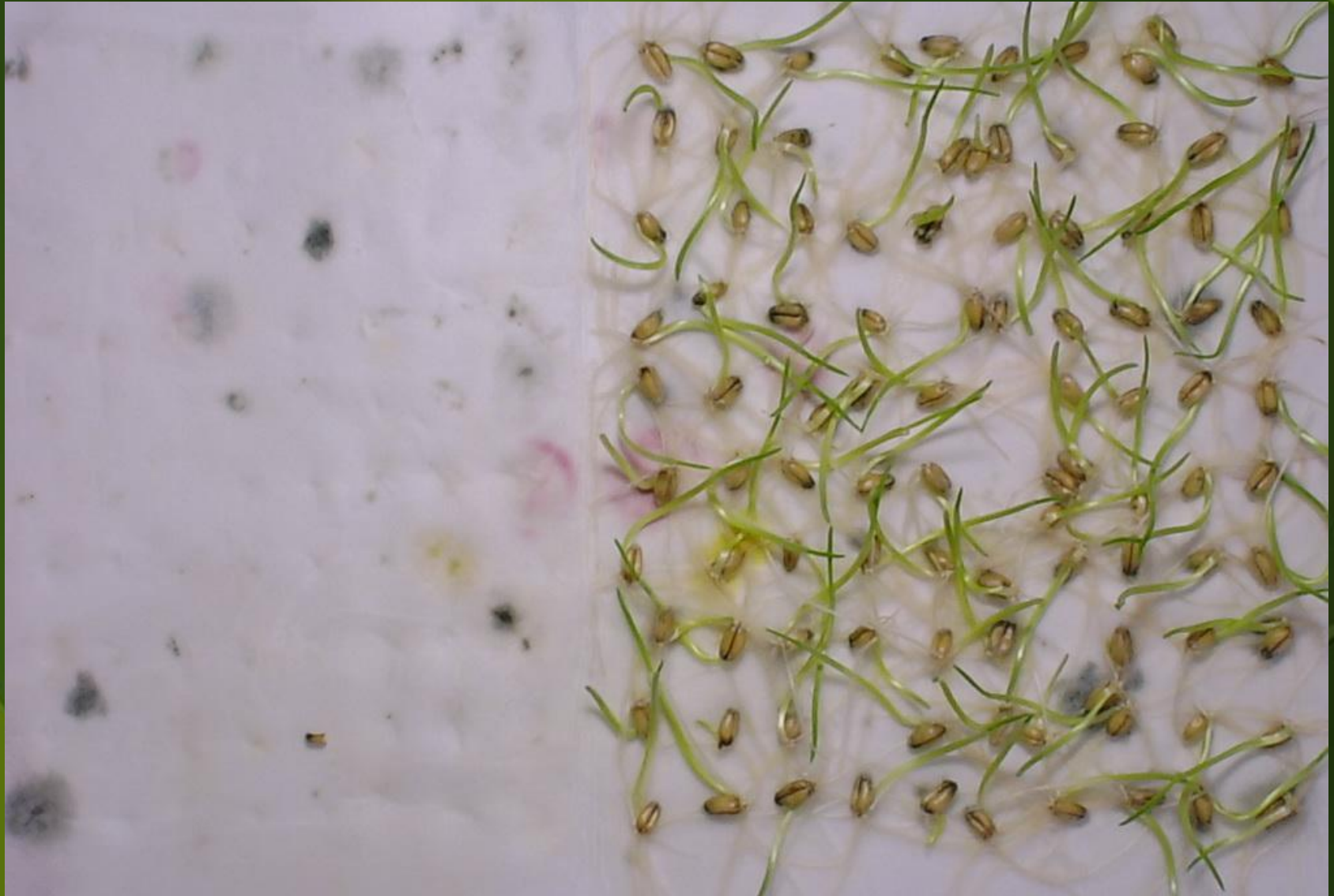


Viability of Carryover Seed

Germination

-  Normal – proper root and shoot structures
 -  Abnormal – mechanical, chemical, heating, frost, insect damage
 -  Fresh – dormant seeds
 -  Dead
 -  Analysts accredited remarks
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Viability of Carryover Seed




Viability of Carryover Seed





Viability of Carryover Seed

Vigour

-  Cold stress test

-  Designed to simulate spring planting conditions in western Canada

-  A measurement of the rate and uniformity of seed germination, an indication of field performance and storage potential

-  Wheat - 6°C for 12 days then counted to determine vigourous seedlings

Viability of Carryover Seed



Viability of Carryover Seed

■ Disease Screen

■ Cereals – Fungal Screen™


■ 10 seed borne diseases

■ Pulses – Complete Disease Diagnostic™

■ 6 seed borne diseases



Summary

- Many factors affect the quality of seed storage
 - There are usually multiple factors involved when seed quality has deteriorated
 - Stable storage conditions will usually result in little or no change in seed quality
 - Storage of lower quality seed is likely to continue to deteriorate over longer time periods
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Summary

- Testing is available to pre-determine seed carryover potential in some seed species
- A detailed germination test and a cold stress test can assess current quality and planting suitability of stored seed
- Testing for seed borne pathogens can assist with identification of any disease related storage issues

The Tests You Need The Results You Trust

Questions

Thank You

www.2020seedlabs.ca

