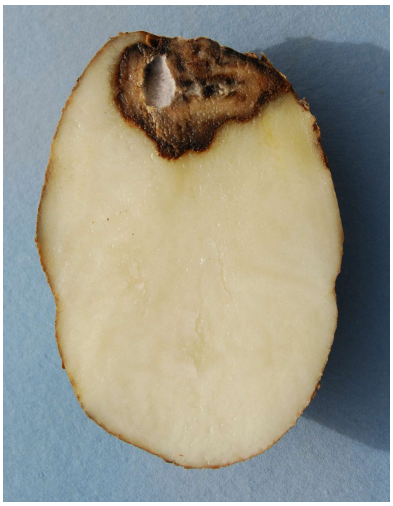
Avoiding Fusarium Dry Rot in Storage

Jeff Miller and Terry Miller

Fusarium sambucinum symptoms

Fusarium coeruleum symptoms

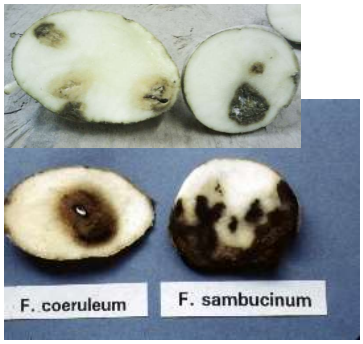


Fusarium graminearum

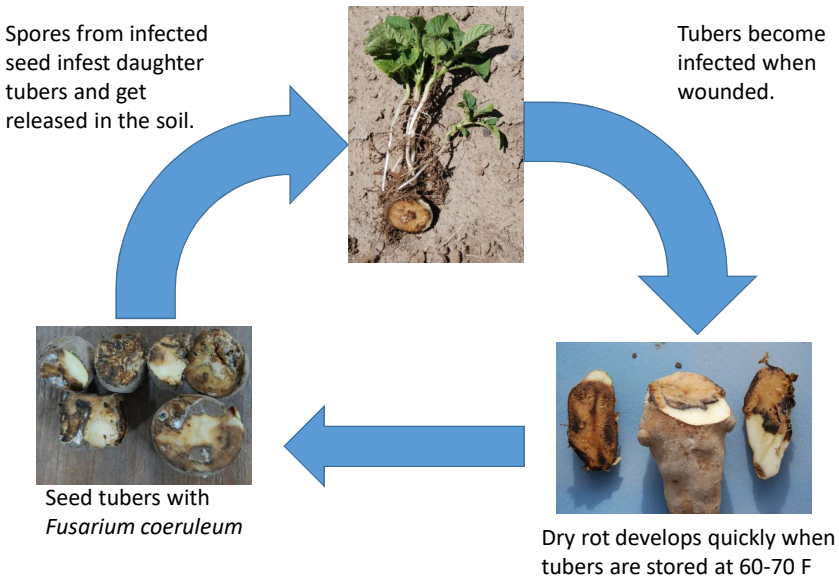

Photos courtesy of Dr. Gary Secor, NDSU

Does it matter which Fusarium I see?

- *F. sambucinum* predominates in storage.
  - Resistant to benzimidazole fungicides.
  - Resistance to fludioxonil reported in other areas of US and Canada.
  - Grows faster than *F. coeruleum*.
  - More problematic with pre-cut seed.
- *F. coeruleum* can be more damaging in the field
  - More problematic with fresh cut/planted seed.
  - Grows faster than *F. sambucinum* in soil.
  - Fungicide resistance has not been observed.
  - Not common in storage.



Fusarium Dry Rot/Seed Piece Decay Disease Cycle



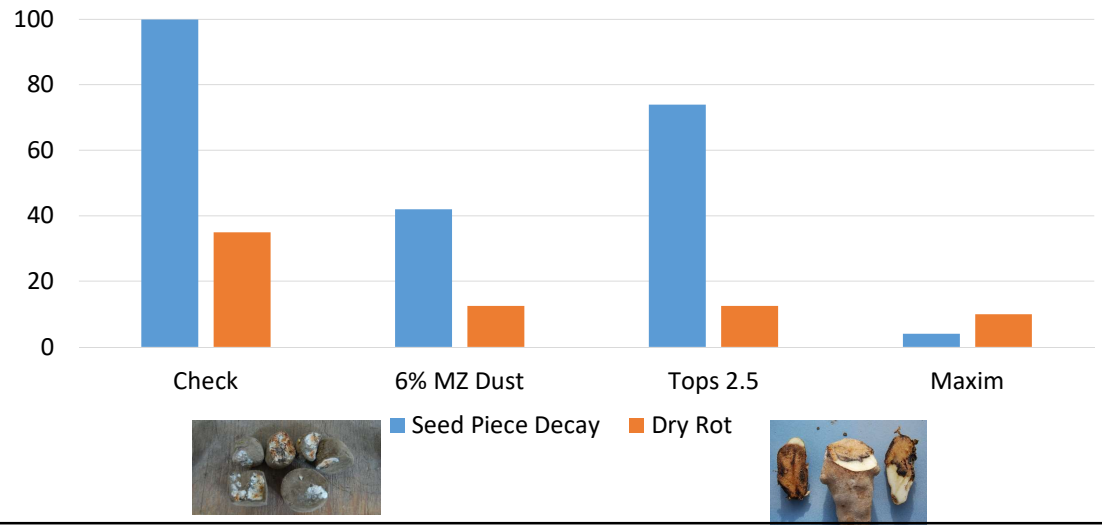
So what do I do to prevent seed piece decay and dry rot in storage?

1. Purchase seed with as little dry rot as possible.
2. Sterilize seed cutting equipment.
3. Sharpen seed cutting knives.
4. Avoid pre-cutting, if possible
5. Treat with an effective seed treatment.
6. Minimize wounding at harvest.

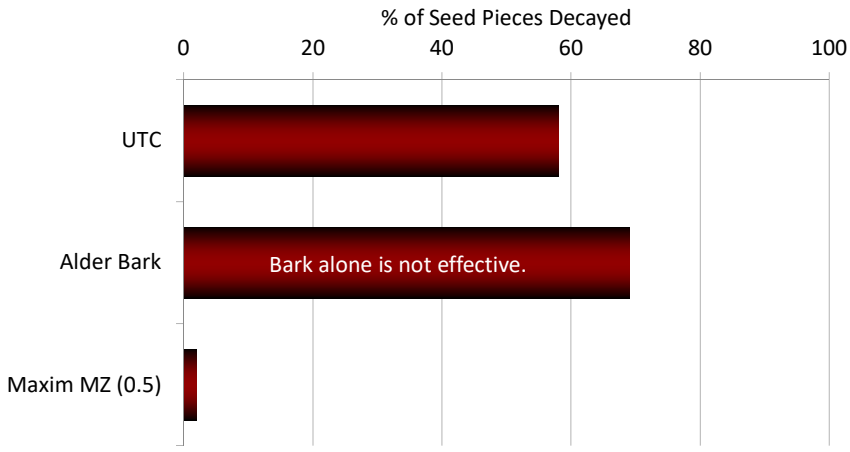
Which seed treatment do I use?

- Mancozeb dust
- Fludioxonil
  - E.g. Maxim/CruiserMaxx Potato, Spirato
- Difenoconazole
  - CruiserMaxx Potato Extreme
- Prothioconazole
  - Emesto Silver

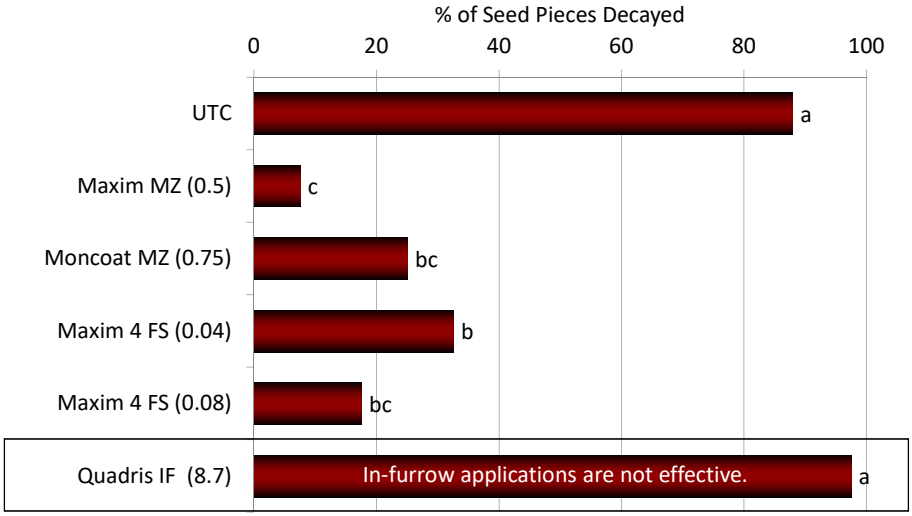
Relationship between seed piece decay and dry rot



Effect of Seed Treatments on Fusarium Seed Piece Decay



Effect of Seed Treatments on Fusarium Seed Piece Decay



Seed Treatments Summary

1. In general, seed treatment products combined with mancozeb protect best against Fusarium seed decay.

2. In-furrow fungicide applications do not control Fusarium seed decay.

3. Desire to move away from dust for worker protection/safety issues.
   - Liquid seed treatments have been effective

References

- Peters et al., 2012. Distribution and management of fungicide-resistant Fusarium spp. infecting potato seed tubers in Canada. Phytopathology 102(7), Suppl. 4:92.
- Gachango et al., 2012. Fusarium spp. Causing Dry Rot of Seed Potato Tubers in Michigan and Their Sensitivity to Fungicides. Plant Disease 96:1767-1774.
- Miller Research reports to the Idaho Potato Commission. Available upon request.