

# Fire blight and other fruit disease updates

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# Fire blight transmission using tools

- We cut symptomatic branches in August with sterile clippers and immediately rinsed the blades with water
- Water was plated onto agar and the plates were incubated for 24h.
- We recovered *Erwinia amylovora* from the blades after each cut of infected branches (total 10 branches) but not after cutting healthy branches

# Fire blight transmission using tools

- End of May 2013, trees at the Kaysville research farm were pruned with clippers either contaminated with bacteria or not.
- Sprayed bacterial suspension or water on blades and then cut five branches per tree per treatment. Total of five trees per treatment.
- Trees were evaluated starting one week after treatment.

# Results

Cultivar	trt	6/3/2013	6/10/2013
Gold	untreated	0	0
Gold	untreated	0	0
Gala	untreated	0	0
Gala	untreated	0	0
Gold	untreated	0	0
Gold	treated	1	1
Gold	treated	1	2
Gala	treated	4	4
Gold	treated	1	2
Gold	treated	2	3

- Total percentage of infected branches

Treatment	6/3/13	6/10/13
untreated	0%	0%
treated	36%	48%

- After the second evaluation, no additional branches showed symptoms



# Disinfecting pruning tools in the field

- New infections could be reduced if tools were cleaned after cutting infected branches
- Sprayed high concentration of bacteria on blades and let the blades dry. We wiped the some blades with disinfecting wipes. Blades were rinsed with water and water was plated on agar to recover bacteria.

# Results

- Cleaning blades with either Lysol or Chlorox wipes reduced the number of bacteria on the blades by 85 and 70%, respectively.



# Conclusion

- Fire blight bacteria can be spread with contaminated pruning tools
- Disinfecting wipes provide an easy solution for cleaning pruning tools in the field and reducing fire blight spread.

# Chemical control of fire blight

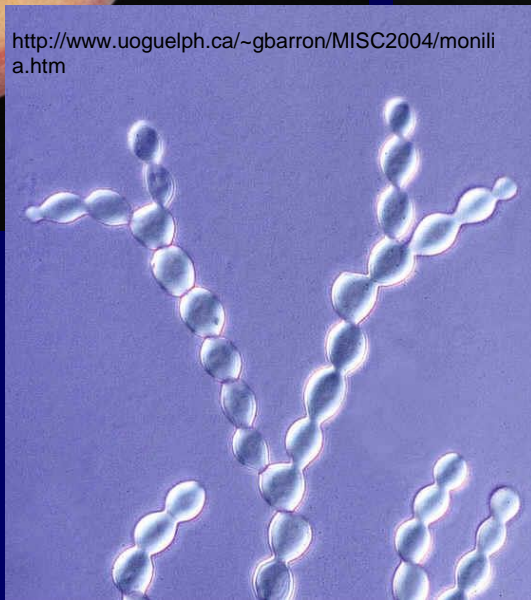
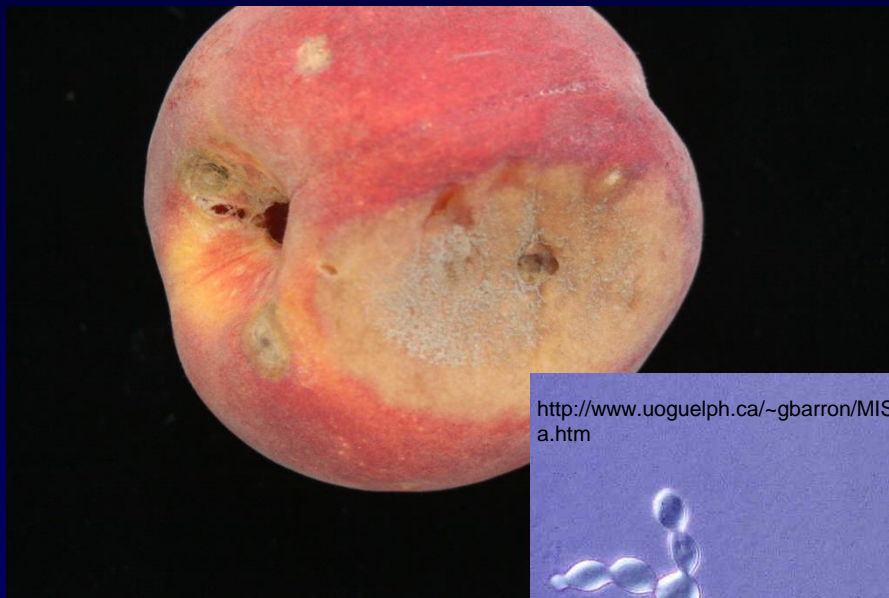
- This spring, a chemical/biological control trial will be conducted in Kaysville
- Products considered:
  - Streptomycin
  - Oxytetracycline
  - Cueva
  - Previsto
  - Kasumin
  - Bloomtime

# Chemical control of fire blight

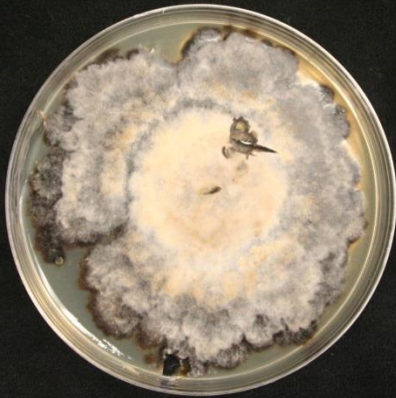
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# Brown Rot outbreak

- Early September, two samples came to UPPDL with brown rot symptoms  
→ nectarine and peach



- Brown rot was confirmed
  - Nectarine → *Monilinia laxa*
  - Peach → *Monilinia fructicola*



# *M. laxa* and *M. fructicola*

- Both species prefer stone fruits but they can infect apple and pears, too.
- They can cause blossom and twig blight
- Blossom susceptibility depends on *Prunus* sp.
  - Apricot (most susceptible)
  - Sweet cherry
  - Peach
  - Tart cherry
  - Plum



# *M. laxa* and *M. fructicola*

- Spores forming on infected blossoms later colonize fruit
- Both fungi can also cause twig blight. Lesions can develop after blossom infection or fruit infection. They have a sunken appearance and often have gumming associated with them
- Twigs can be girdled and then die back. Leaves often remain attached.





## *M. laxa* and *M. fructicola*

- Fruit susceptibility increases as fruit coloring develops and fruit get softer (fungus can infect fruit without wounds present)
- Most susceptible about two-three weeks before harvest
- Injured green fruit and fruit thinned after pit hardening laying on the ground can also be colonized
- Honey bees and sap beetles can carry spores to fruit that was wounded by other insects.



<http://www.agf.gov.bc.ca/cropprot/tfipm/brownrot.htm>

# Conditions for disease development

- Spores are produced in the spring at temperatures of 55-77F.
- Dispersed by wind and rain
- Optimum temperatures for blossom infection of peach is 72-77F
- Under favorable conditions three hours of wetness are enough for infection of blossoms and fruit
- Fruit can be completely rotted within two days.

# Storage of fruit

- Healthy looking fruit may still have spores attached to it and decay later in storage

# Where does *Monilinia* overwinter?

- Mummified fruit on trees or on the ground
- Infected twigs
  - ➔ Stone fruit, ornamental plum or quince, wild stone fruit species



# Management

- Cultural control
  - Remove infected fruit from orchards
  - Prune infected shoots
- Chemical control
  - Blossom treatment/pre-harvest:
    - Adament 50 WG
    - Elevate 50 WGD
    - Pristine
    - Captan 80WDG
  - Postharvest:
    - Scholar

# Acknowledgements

- Utah Dept. of Agriculture SCBG
- Tree fruit growers
- Utah Horticulture Association
- Christine Dhiman
- Undergraduate Research Assistants