

Update on chemical fire blight control and brown rot of peaches

Claudia Nischwitz

**Assistant Professor and Extension
Specialist**

Email: claudia.nischwitz@usu.edu

UtahStateUniversity
COOPERATIVE EXTENSION

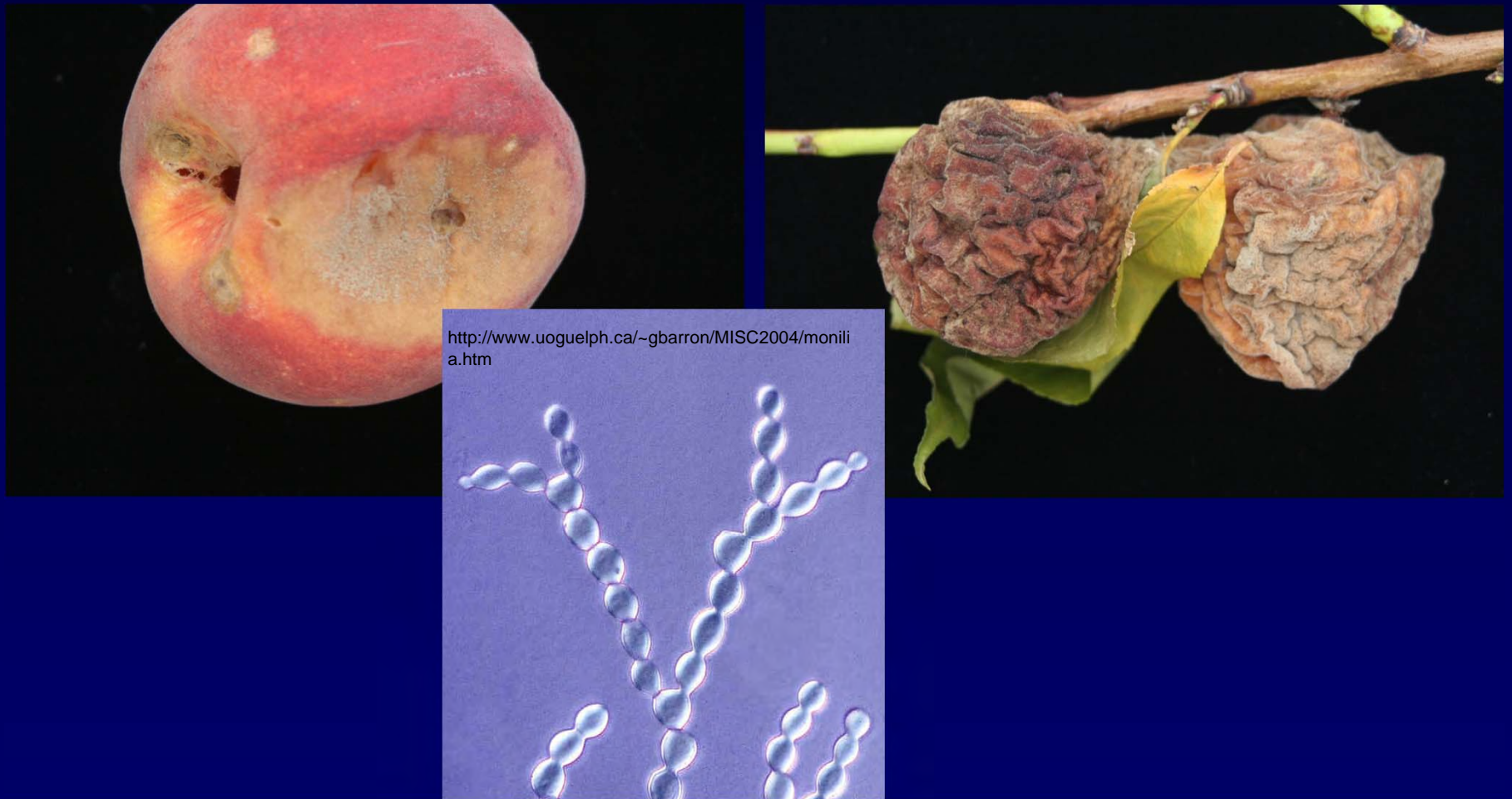
Fire blight

- Products used at full bloom:
 - Agrimycin
 - Oxytetracycline
 - Kasumin (just registered in Utah) (A.I. Kasugamycin)
 - Cueva (just registered in Utah) @ 0.5% and 1% rates; (A.I. Copper Octanoate (Copper Soap)); one application and multiple applications

Fire blight - Results

- Fire blight control
 - No fire blight in orchard last year
- Phytotoxicity
 - Cueva was evaluated for phytotoxicity. None of the varieties (Golden, Gala and Fuji) showed phytotoxicity even after repeated applications.
 - According to Certis sensitive varieties occasionally show phytotoxicity.

Brown rot of peach



Conditions for disease development

- Spores are produced in 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.

Brown rot of peaches

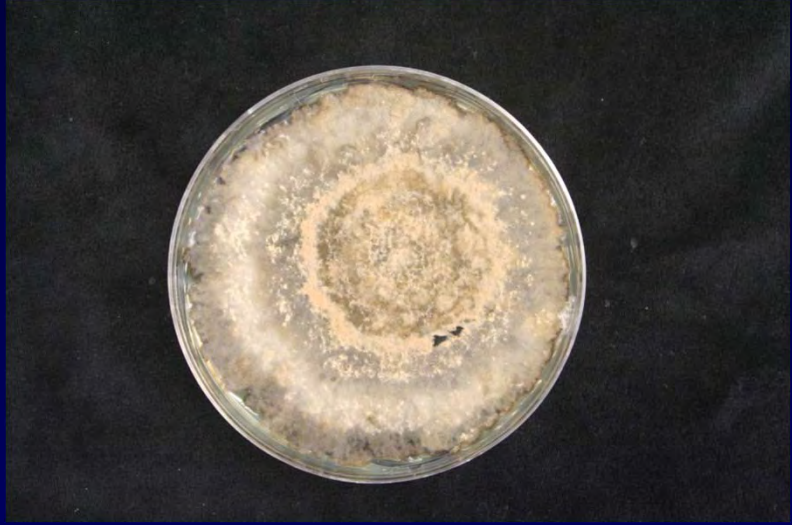
- Spores forming on infected blossoms later colonize fruit
- Can also cause twig blight. Lesions can develop after blossom infection or fruit infection. They have a sunken appearance and often have gumming associated with them
- Twigs can be girdled and then dieback. Leaves often remain attached.



Brown rot of peach

- 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 ripening fruit that was wounded by other insects.

- Last year we found two species
 - 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



http://www.apsnet.org/publications/imageresources/PublishingImages/PDCover2005/Nov_3.jpg



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

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



Brown rot on peach

- Survey of peach orchards in 2014
 - No brown rot during July survey
 - Brown rot in two locations in Utah county, one orchard in Davis county in August
 - Suspicious looking fruit in Box Elder county
- This year only *M. laxa* was identified
- Most infected fruit lay on the ground, a few were still hanging in the trees
- Later maturing varieties like O'Henry were affected

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
 - Rally 40WSP
 - Scala SC
 - Elite 45WP
 - Postharvest:
 - Scholar

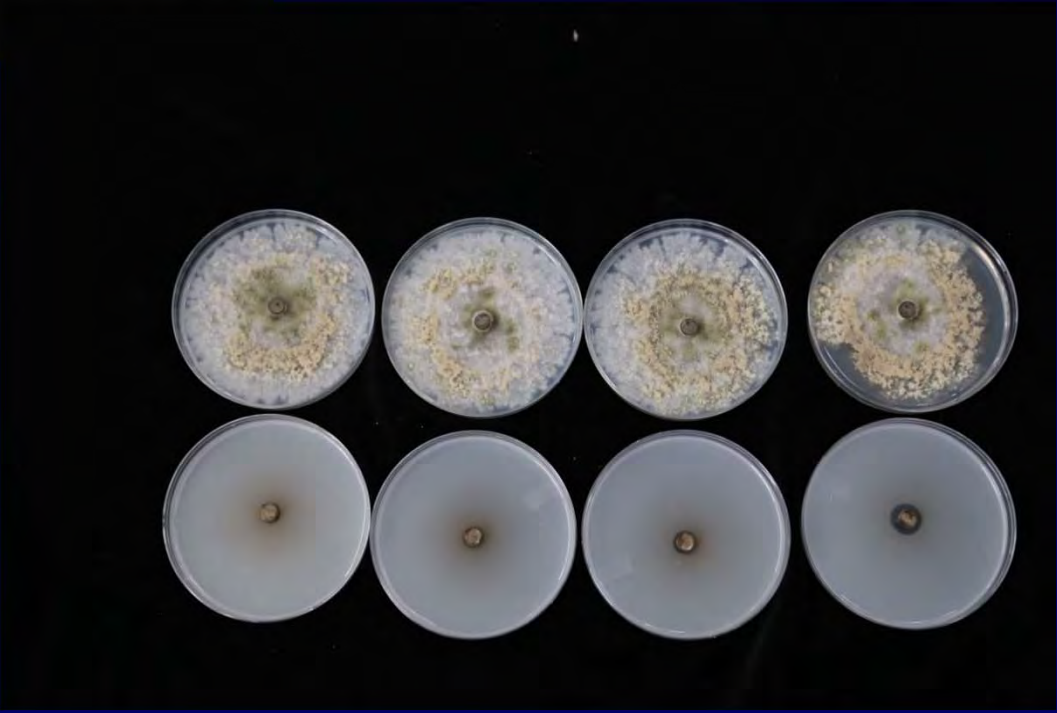
Brown rot on peach

- Fungicide resistance testing:
 - In-vitro testing of Rally, Scala, Elite and two copper products
 - Rally, Scala and Elite were very effective
 - Copper products did not slow the growth down on artificial media
 - Could be that too much copper was bound by the medium
 - Additional testing will be done to determine copper efficacy
- Survey will be repeated in 2015 and 2016



Rally

Scala



Acknowledgements

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