



Western Colorado Research Center



Cytospora Canker Research: WCHC 2024

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Plant Pathology
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Cytospora Research Agenda

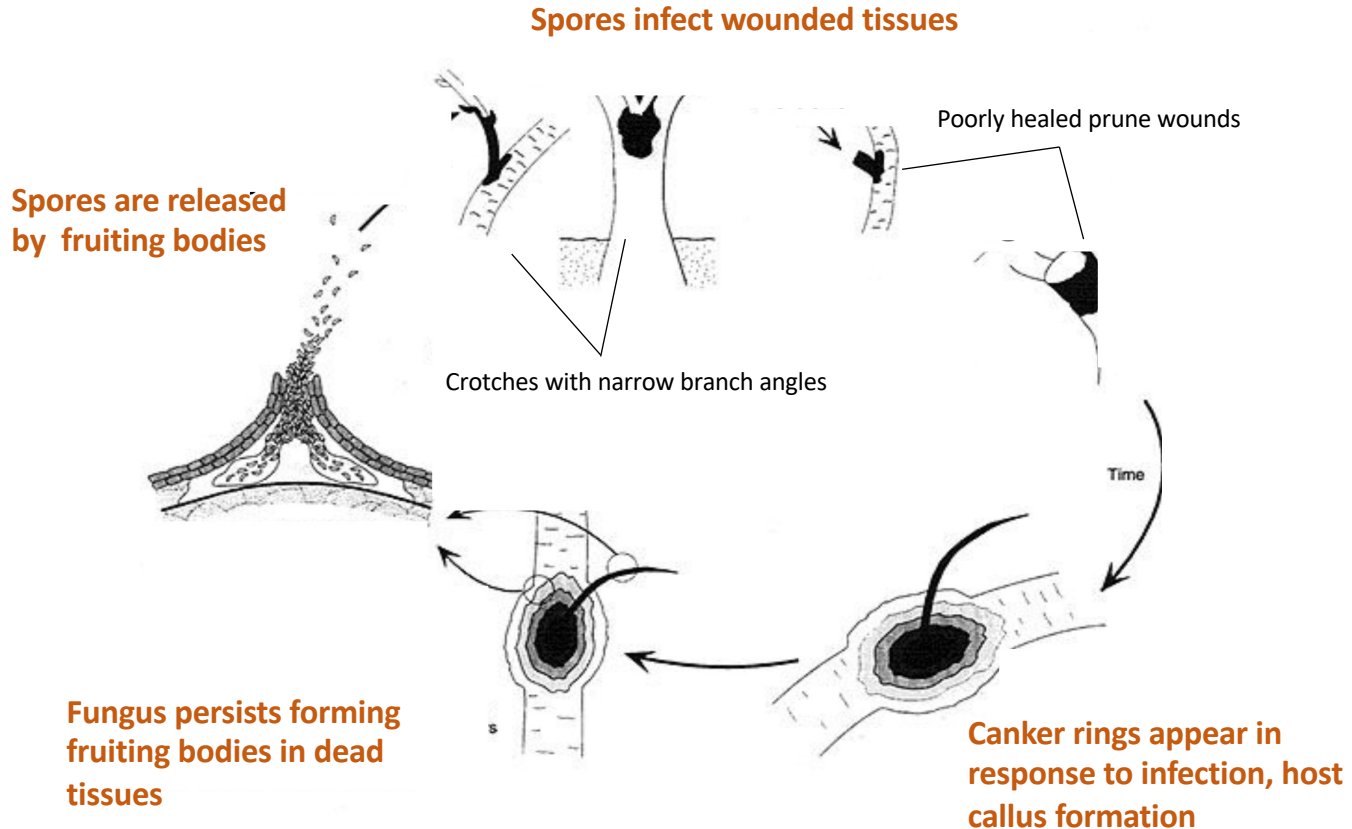
- Jane Stewart – Current research information
- Camden Meyer – Host specificity of *Cytospora* spp.
- Sal Greenberger – Canopy Spray Research
- Brad Tonnessen – Organic sprays for Cytospora management
- Dana Hoag and Brooke Fitzgerald – Economic tools for Cytospora canker
- Discussion – Question and Answer

Cytospora Disease Cycle

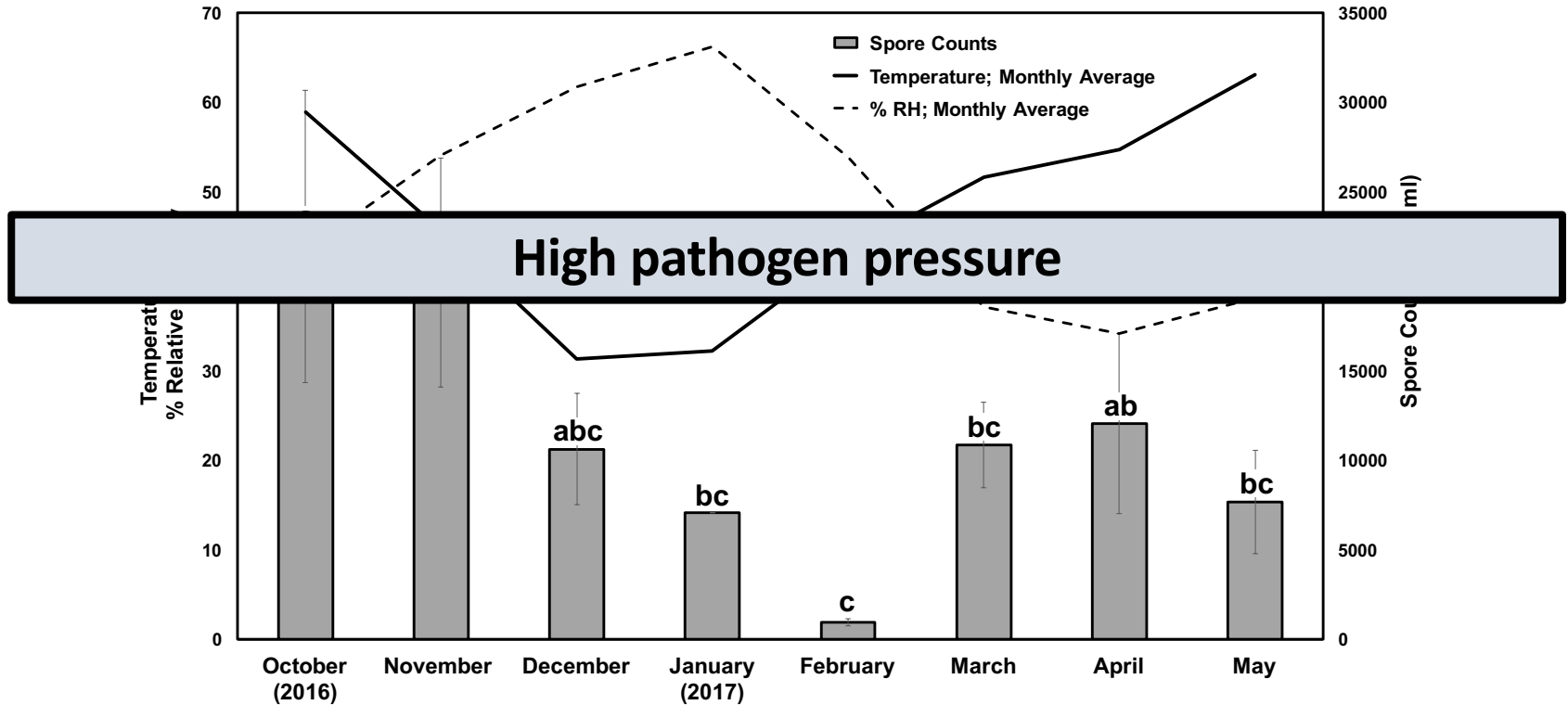
- Fungus grows in bark tissue through open wounds, and can also enter buds
- Kills by girdling branches or trunk of tree
- Trees affected by drought, late spring frosts, insect and fungi defoliation, sunscald, herbicides, or mechanical injury are more susceptible to Cytospora infection



Disease Cycle



Inoculum produced throughout the year



($\alpha = 0.05$) (Tukey's HSD adjusted p-values: $P < 0.05$)

Stewart Lab Ongoing Cytospora Projects – 2024

- Survey orchards in CO
- Root stock Cytospora tolerance trial
- Determine host range of *Cytospora* species
- Assess canopy sprays for efficacy against Cytospora canker and other fungal diseases



Sal Greenberger, Camden Meyer, Sean Toporek, Stephan Miller, Claudie Bertin, Grace Ganter

Cytospora Canker Severity In Colorado Fruit Tree Orchards

- Are tree fruit all affected by *Cytospora* canker?
- What *Cytospora* species are present?
- How does disease vary across orchards in W. CO?
- What factors drive the variation?
- How much does *Cytospora* increase over time?

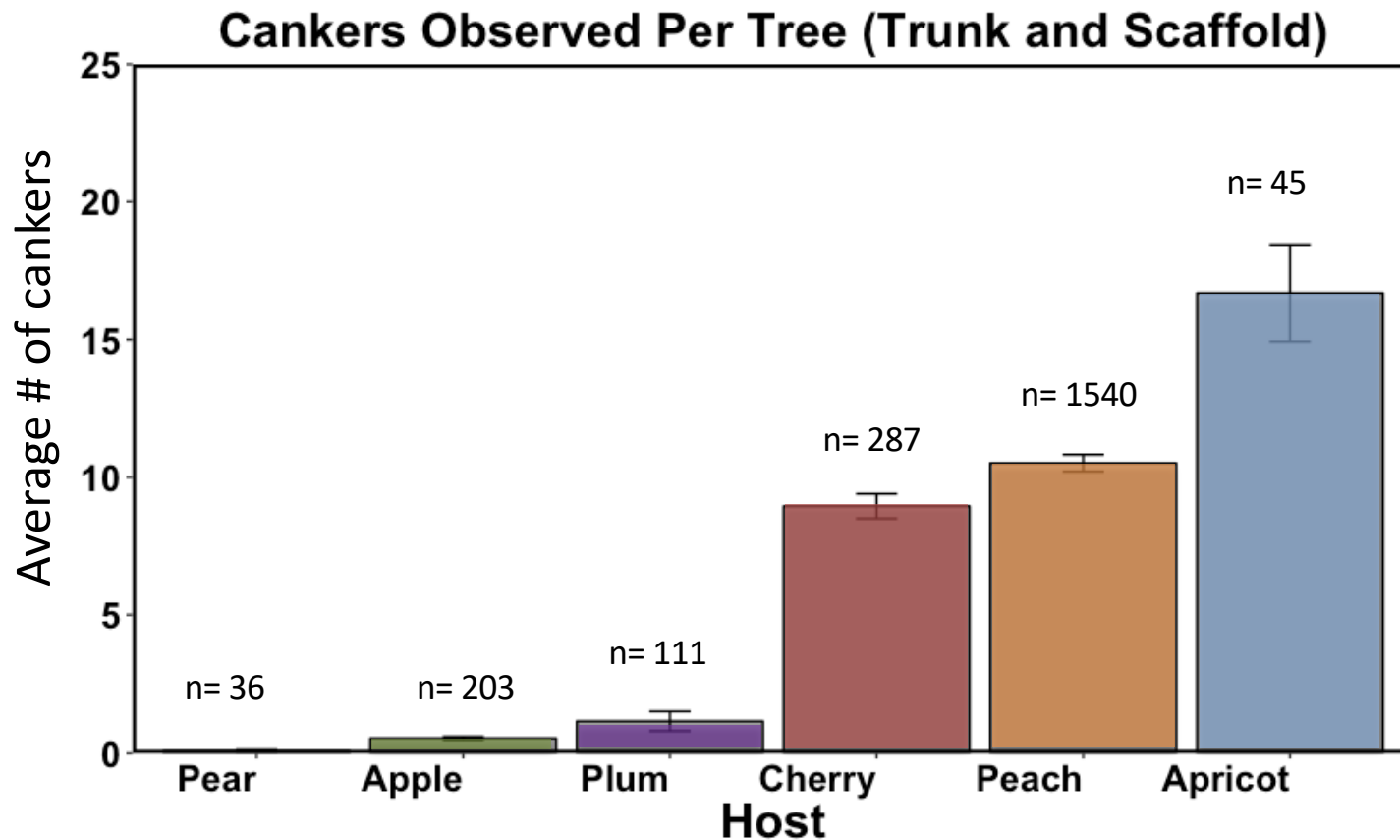
Winter 2021-2023 Cytospora Canker Ratings

29 orchards and 3,497 trees evaluated!

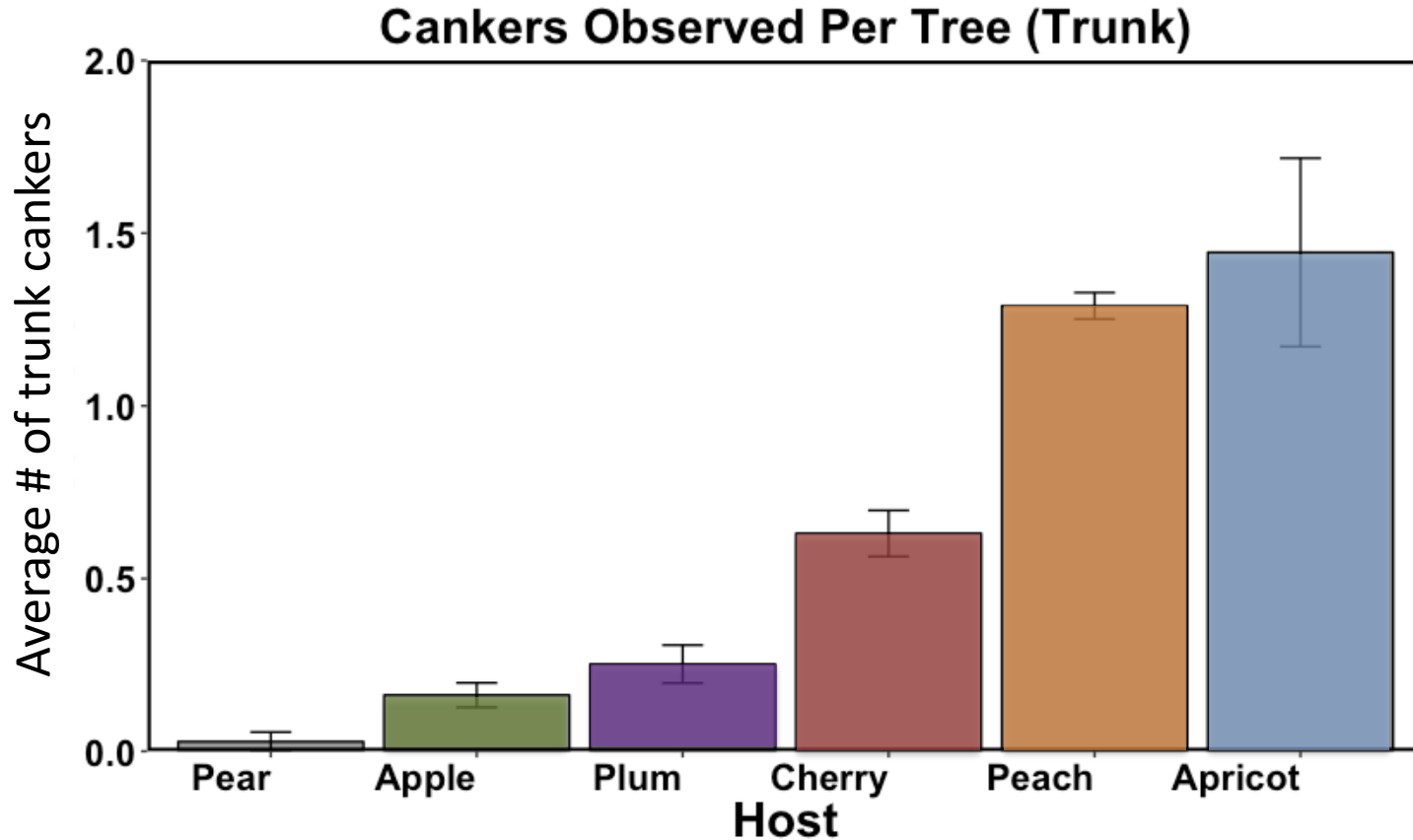
- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Apple<ul style="list-style-type: none">– 5 Orchards– 214 Trees evaluated• Cherry<ul style="list-style-type: none">– 5 Orchards– 428 Trees evaluated• Peach<ul style="list-style-type: none">– 15 Orchards– 2,663 Trees evaluated | <ul style="list-style-type: none">• Apricot<ul style="list-style-type: none">• 1 Orchard• 45 Trees Evaluated• Pear<ul style="list-style-type: none">• 1 Orchard• 36 Trees Evaluated• Plum<ul style="list-style-type: none">• 2 Orchards• 111 Trees Evaluated |
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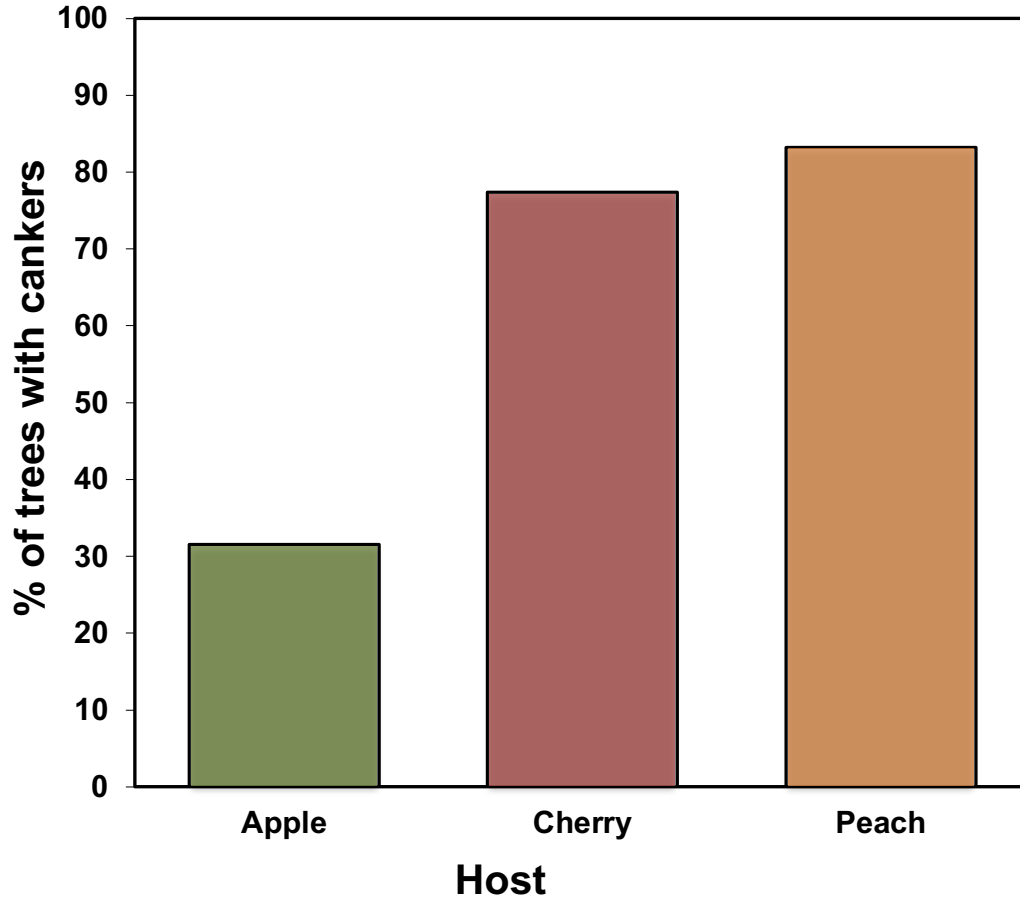
What is the most impacted tree host?



Which tree fruit has more trunk cankers?



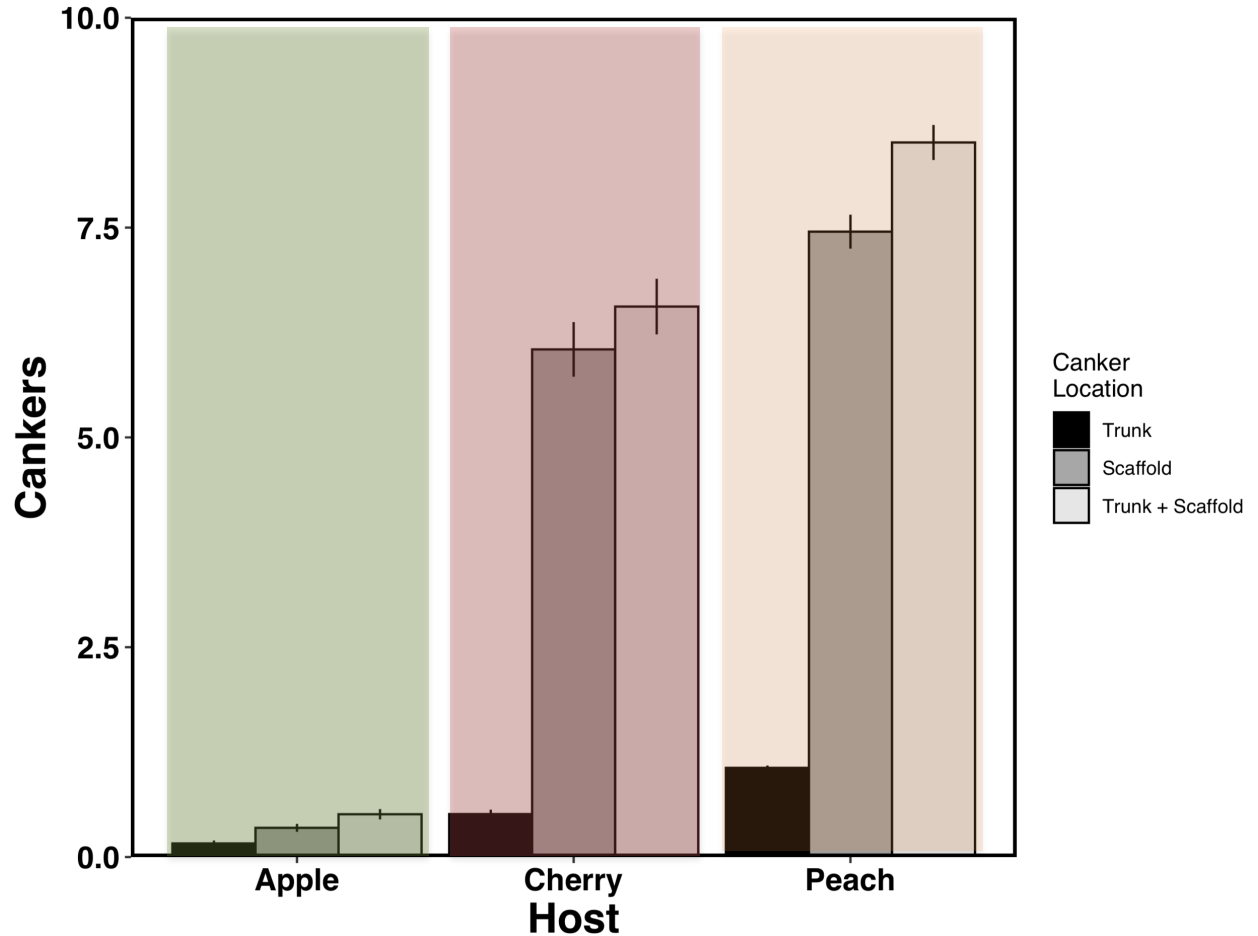
Many cherry and peach trees have at least 1 canker



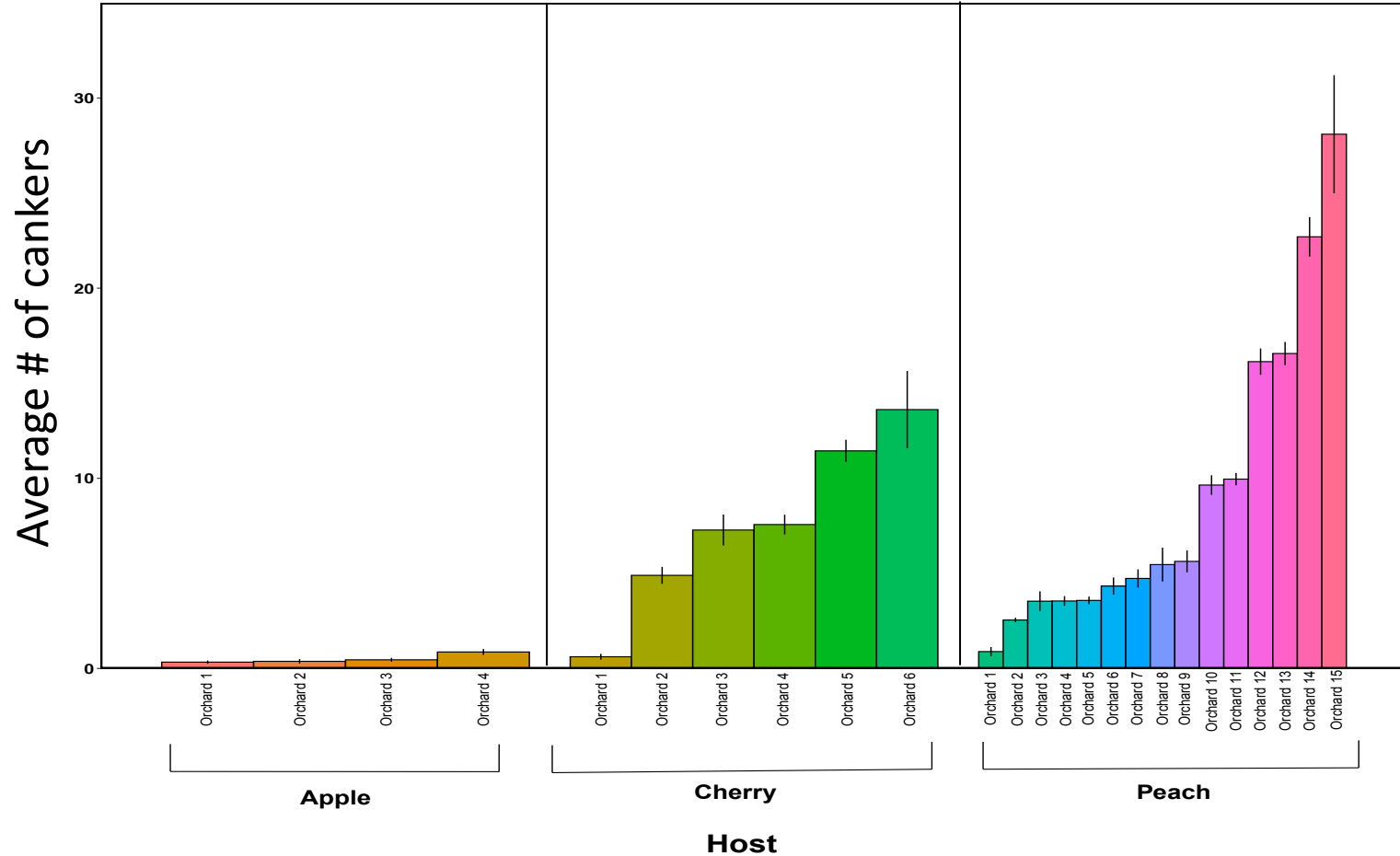
Host	Yes	No	Percent Yes
Apple	66	139	32
Cherry	301	88	77
Peach	2056	414	83

Where are cankers located, Trunk, Scaffold or Both?

- Many more scaffold cankers, compared to trunk
- Scaffold cankers likely rain down spores

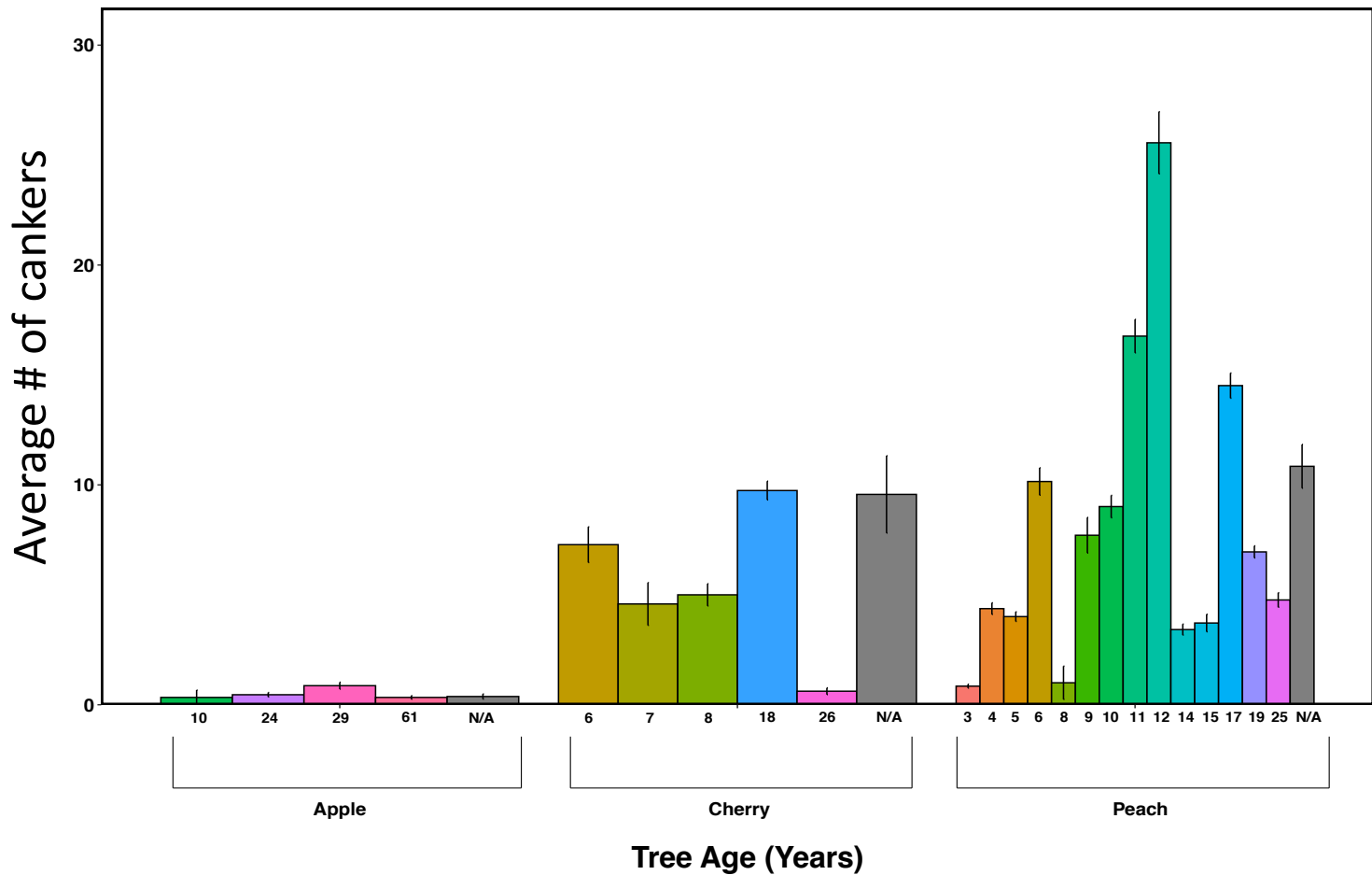


Variability in *Cytospora* severity across orchards

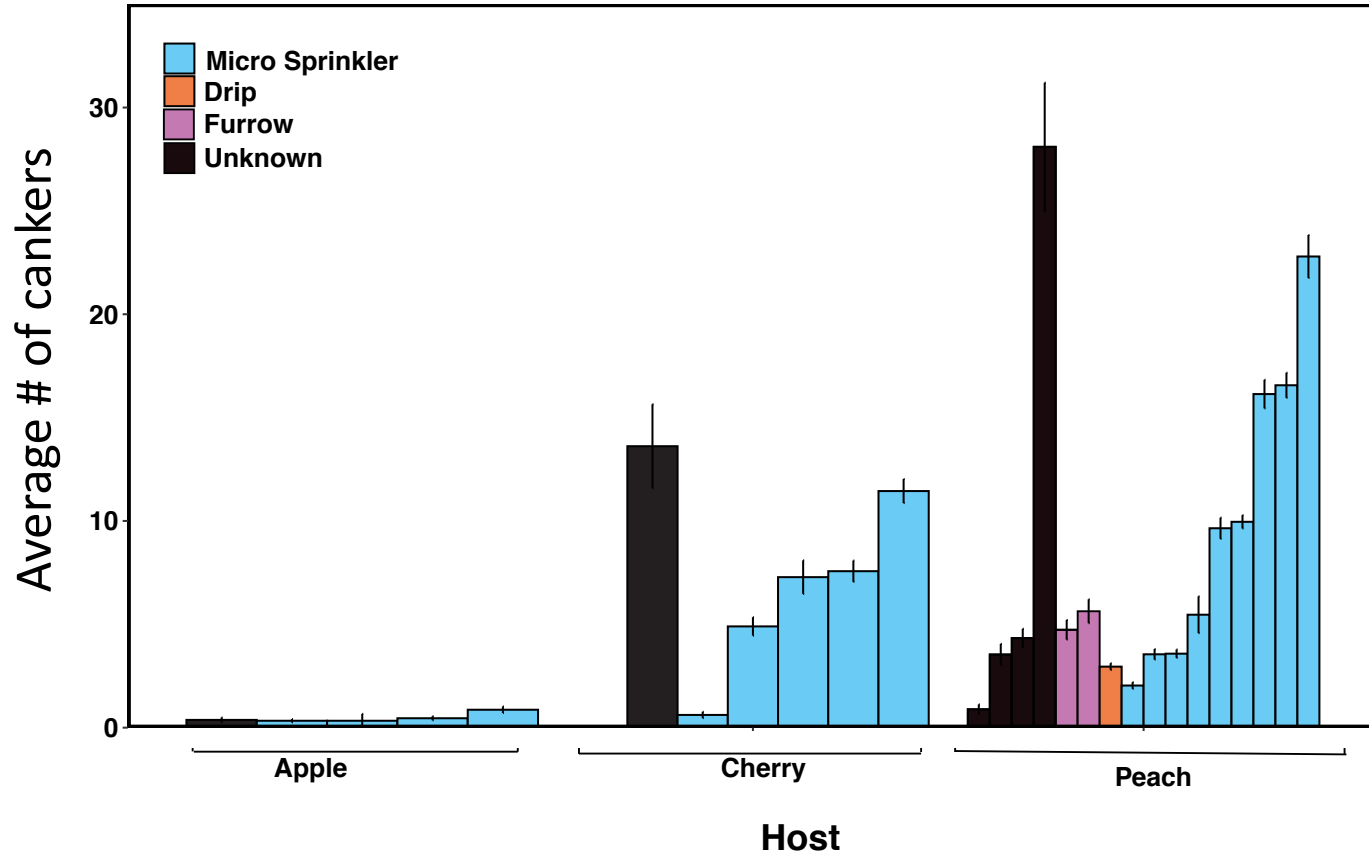


What factors that could drive that variability?

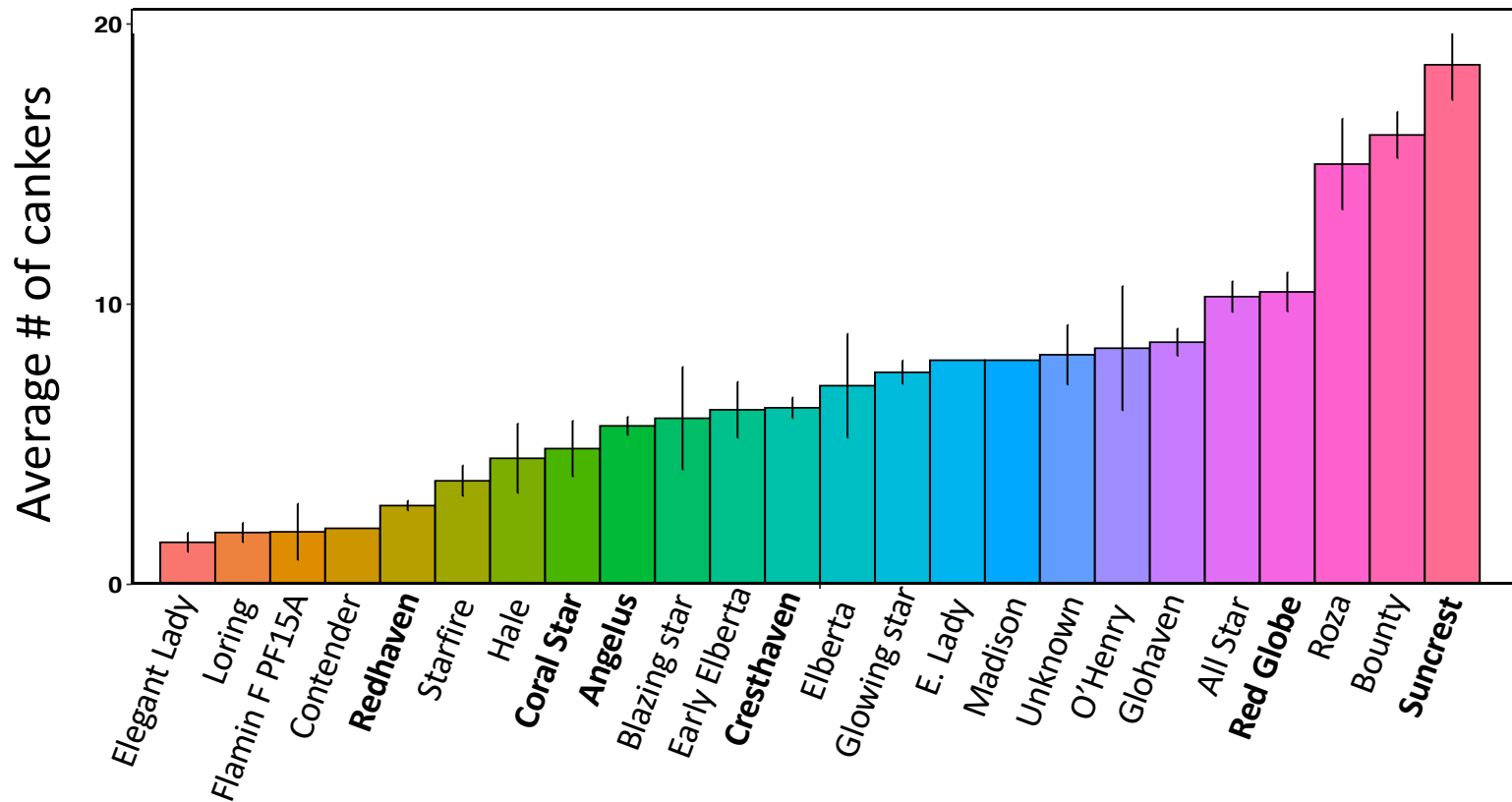
Tree Age:
larger trees
do not
have more
cankers



Irrigation type: Drip might be promising; need more data

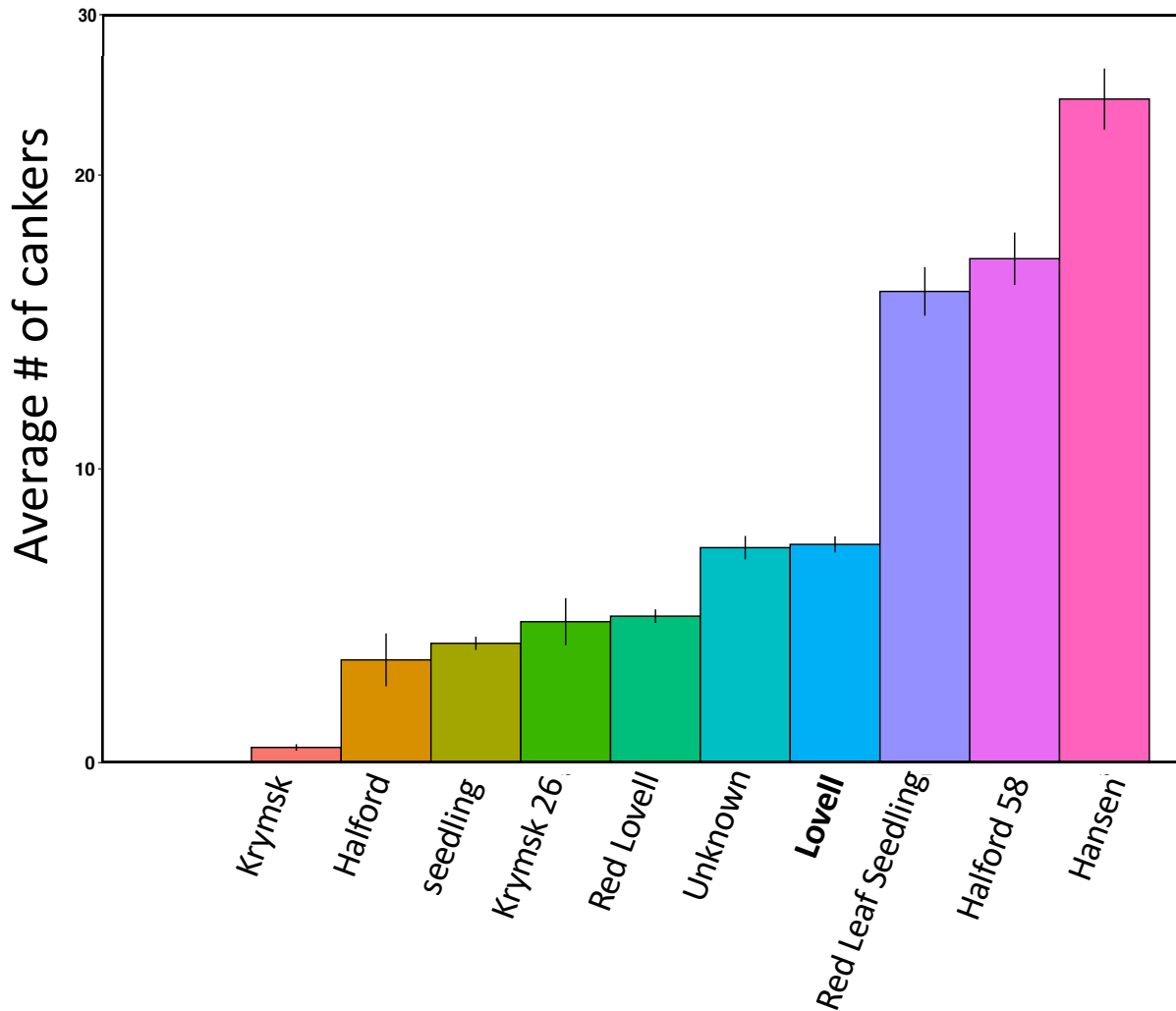


Cultivar: Very promising preliminary data



Root stocks

Too few data points for good comparisons



Winter 2021-2023 Orchard Cytospora Surveys

- Apricot, Peach and Cherry have significantly more cankers than other fruit trees
- Variation within peach orchards:
 - Cultivar – promising data
 - tree age
 - irrigation types
 - IPM practices?
 - Yield data?
- We are continuing to survey orchards to determine changes in incidence and severity over time
- Survey data is only as good as the grower information