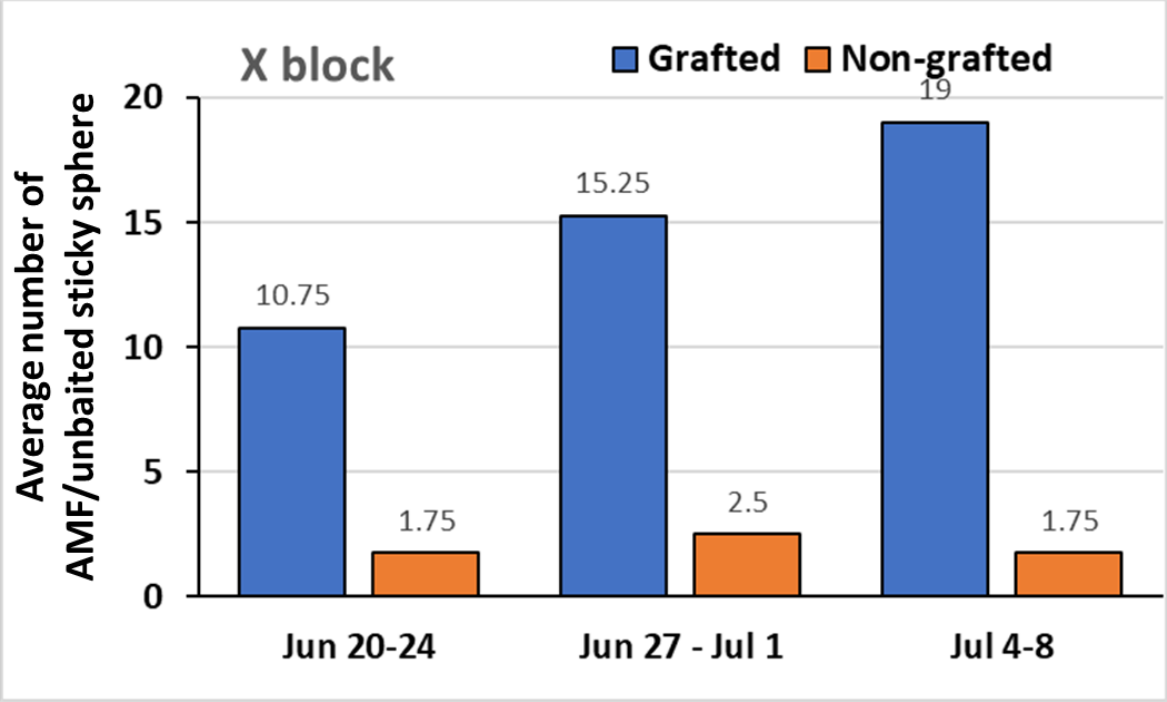
5a. AMF update/grafted trees

Jaime Pinero

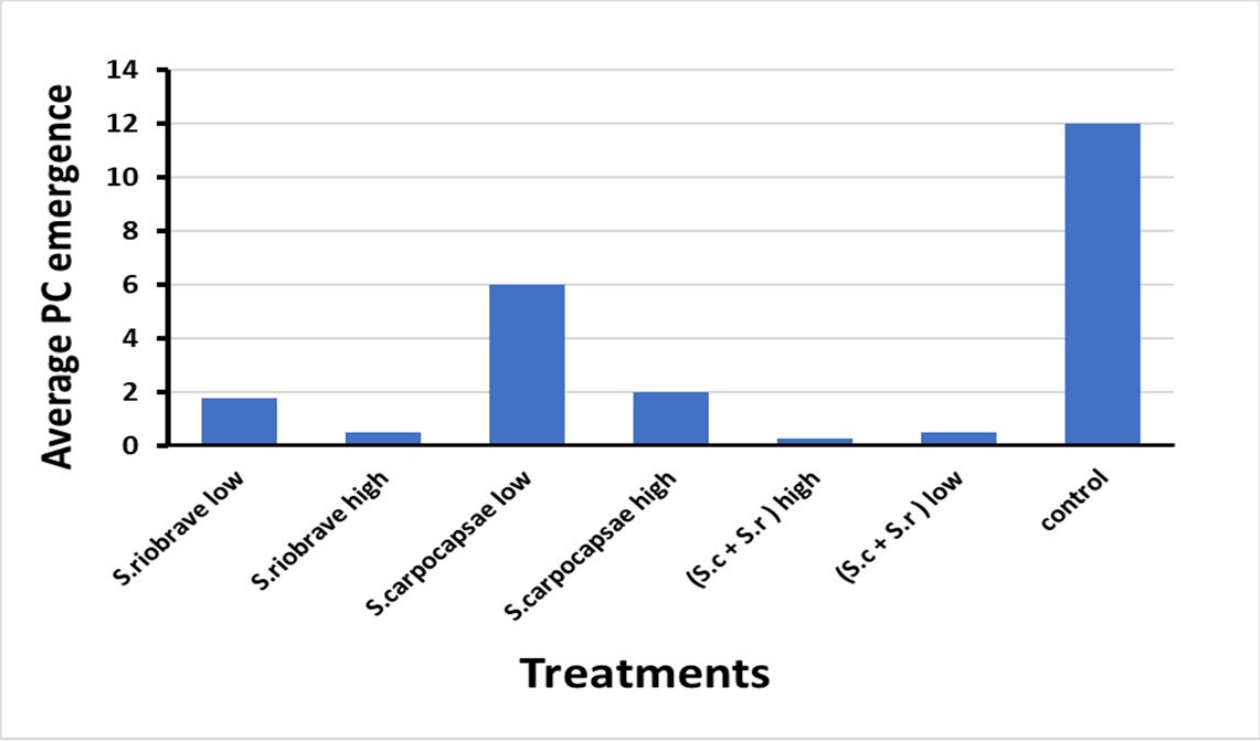
- AMF captures in 8/9 MA blocks: very low.
- In all, 23 AMF captured across 8 orchards in 3 weeks.
- Outlier: CSO X block: 204 AMF captured in 3 weeks (June 20th – July 8th)
- The chart below shows the distribution of captures in grafted versus non-grafted trees, in X block



5b. Beneficial nematodes

Jaime Pinero

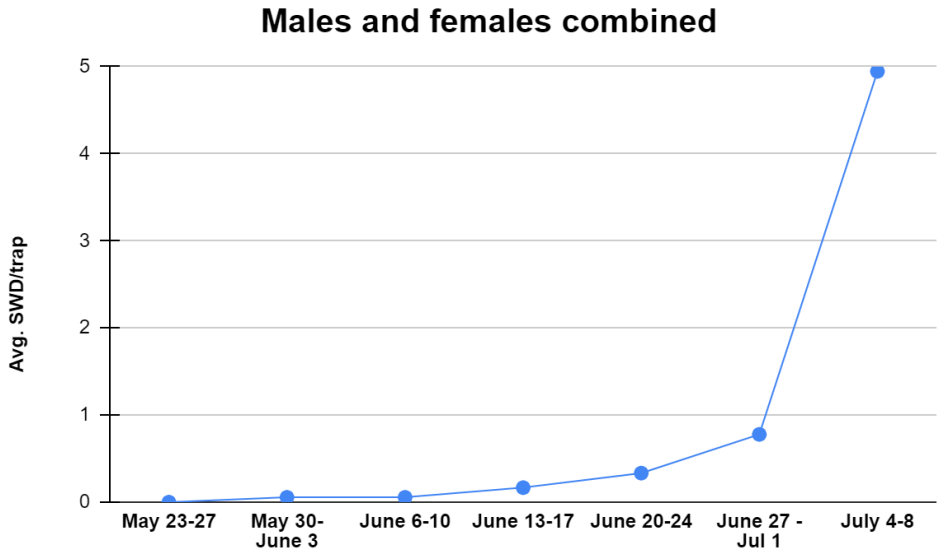
- Entomopathogenic nematodes (EPNs) kill insects in the soil.
- Field research with plum curculio larvae has been done for 10+ years. Results show up to 83% reduction in adult PC emergence.
- The chart below shows 2020 results. We applied 2 EPN species, either alone or in combination, at 2 application rates (low-high). Control: water.
- Relative to the water control, which shows normal PC emergence, all EPN treatments killed PC larvae in the soil.
- The EPN species *S. carpocapsae* applied at low rates was less effective.



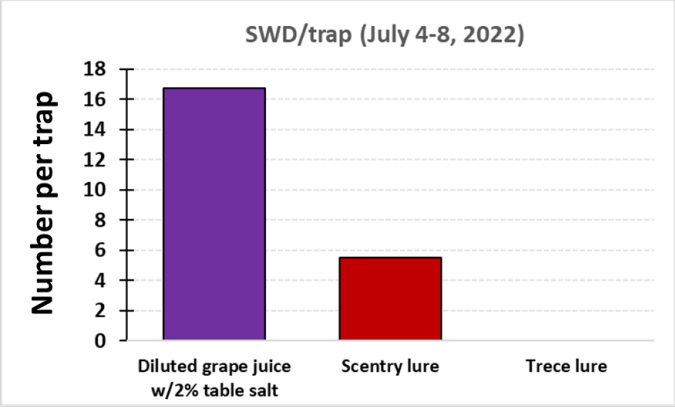
5c. Spotted-wing drosophila

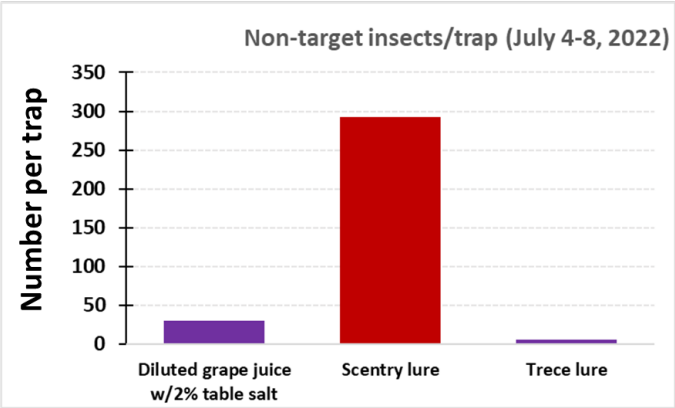
Jaime Pinero

- As shown in the chart below, SWD captures have increased 6.5-fold relative to one week ago



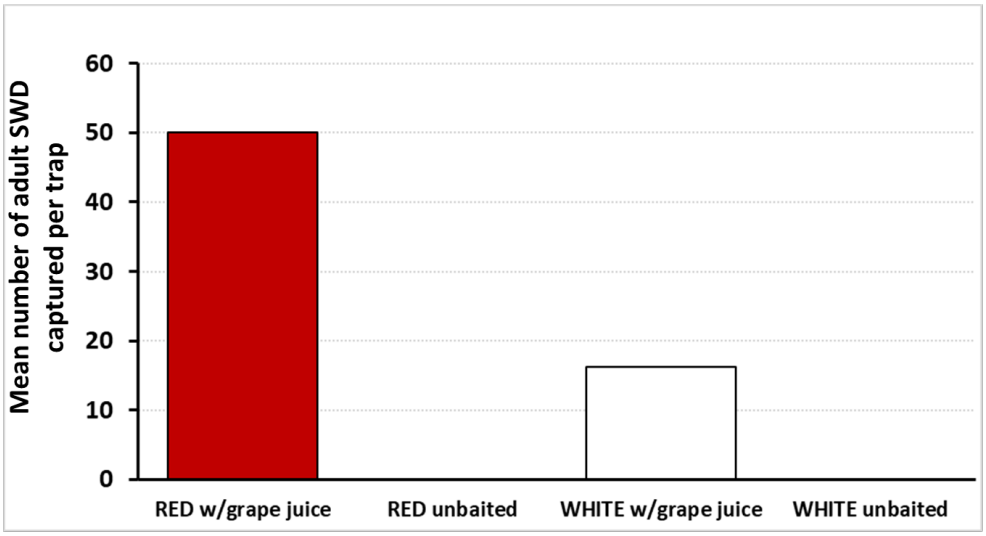
- The chart below shows the performance of diluted Concord grape juice with 2% table salt when compared to two commercial lures





- What about trap color?

White- and red-painted traps used for the 2020 study.



Average captures of male and female (data combined) SWD in red- and white-painted traps baited with either, diluted Concord grape juice or unbaited traps. Unbaited traps had 8 ounces of unscented soapy water to kill responding insects.

- **Recommended trap**: red-painted trap baited with diluted Concord grape juice (2 oz of water, 6 oz grape juice, 2 grams [= ⅓ teaspoon] of salt).

5d. Trap cropping/ghost trap for BMSB

Jaime Pinero

- **Goal**: To evaluate trap cropping in association with ghost trap (BMSB pheromone and insecticide-treated netting) as a potential IPM tool to manage BMSB near crop harvest.
- 2021 study: Ghost traps evaluated alone and in combination with dwarf sunflower and buckwheat as trap crop plants.

- 2021 results: Across 5 orchards (4 in MA, 1 in NH), 113 BMSB were killed in the trap crop area whereas 52 BMSB were killed in ghost traps alone.
- 2022 study: 11 orchards (10 in MA, 1 in NH). Preliminary results:

5e. Plant volatiles to trap codling moth & Oriental fruit moth

Ajay Giri

Objective: To evaluate the performance of Megalure CM 4K (blend of four kairomones) alone or in combination with benzaldehyde.

Methodology:

- Seven olfactory treatments were evaluated in orange Delta-shaped traps (Table 1).
- Each treatment was replicated 8 times.
- All captured moths were identified according to species and sexed.
- All lures and sticky liners were replaced every four weeks.

Table 1: Number of treatments and their abbreviation

Treatments	Abbreviation
Megalure	MEG
Benzaldehyde (Low dose)	BEN L
Benzaldehyde (Medium dose)	BEN M
Benzaldehyde (High dose)	BEN H
Megalure + Benzaldehyde (Low dose)	MEG+BEN L
Megalure + Benzaldehyde (Medium dose)	MEG+BEN M
Megalure + Benzaldehyde (High dose)	MEG+BEN H
Control	X

Results:

- The addition of benzaldehyde (BEN) to Megalure (MEG) increases captures of male OFM.
- Increasing the doses of BEN had a negative effect on OFM captures.
- BEN alone is as attractive as MEG alone for male OFM.
- Due to the low density of CM, it was difficult to evaluate its response.
- 2022: We are evaluating BEN at medium, low, and very low doses.

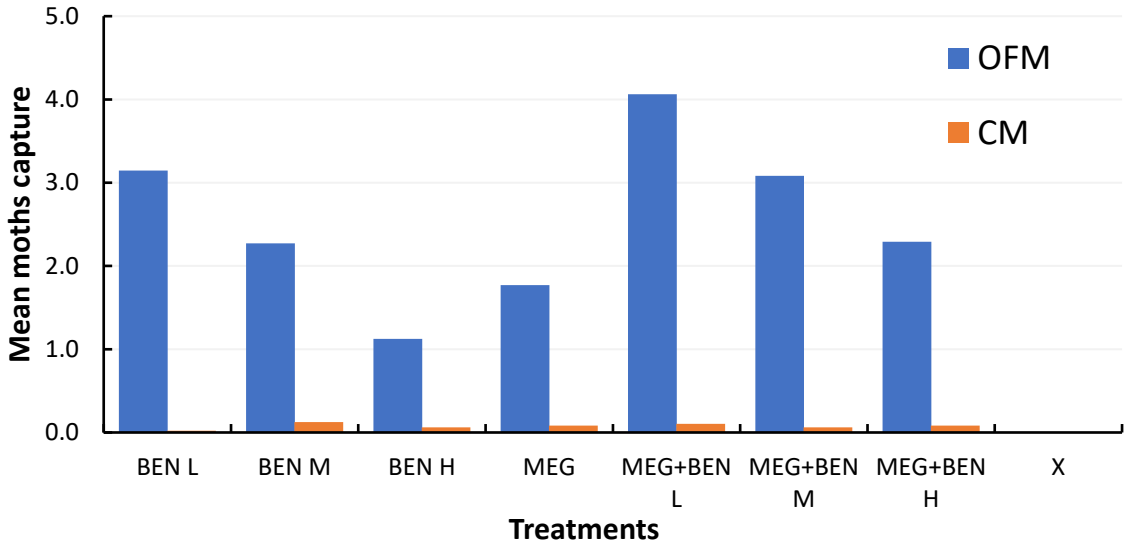


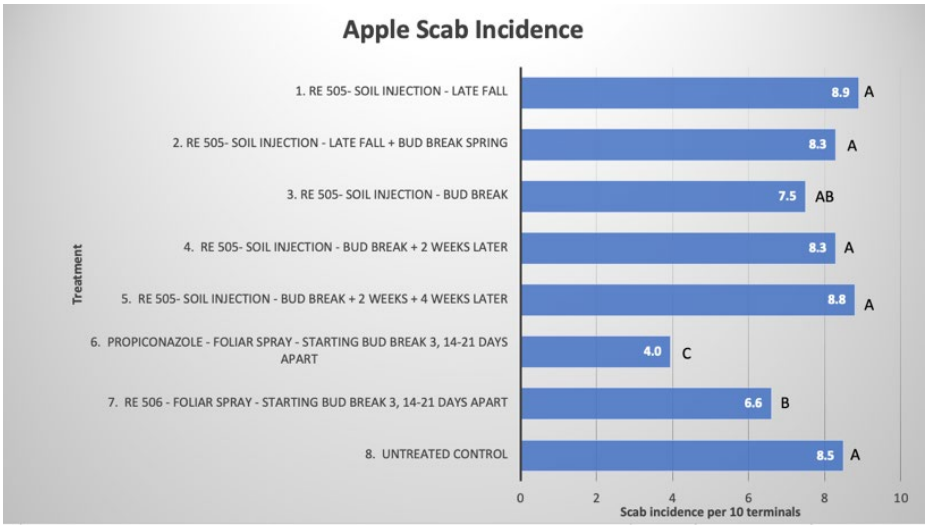
Figure 1: Mean total OFM (blue) and CM (red) captures from 12 weeks (June 4, 2021 to August 26, 2021).

5f. Soil Injections for apple scab control

Dan Cooley

This trial is done in collaboration with Rainbow Tree Products, a landscape management company. It is testing a product that can be injected into soil around trees to manage apple scab. The test looks at the timing of injections, basically fall vs. spring vs. both, and rates. Because the company is interested in landscape apples, they are primarily concerned with defoliation and aesthetics.

Last year, there were no differences between the various test treatments and the untreated control, though the test was confounded by heavy leafhopper damage to foliage. This year, looking at early incidence data, a foliar spray of the test material appear effective, and a bud break infection may be as well, though no treatments are as effective as standard fungicide sprays.



We will get defoliation data in August.