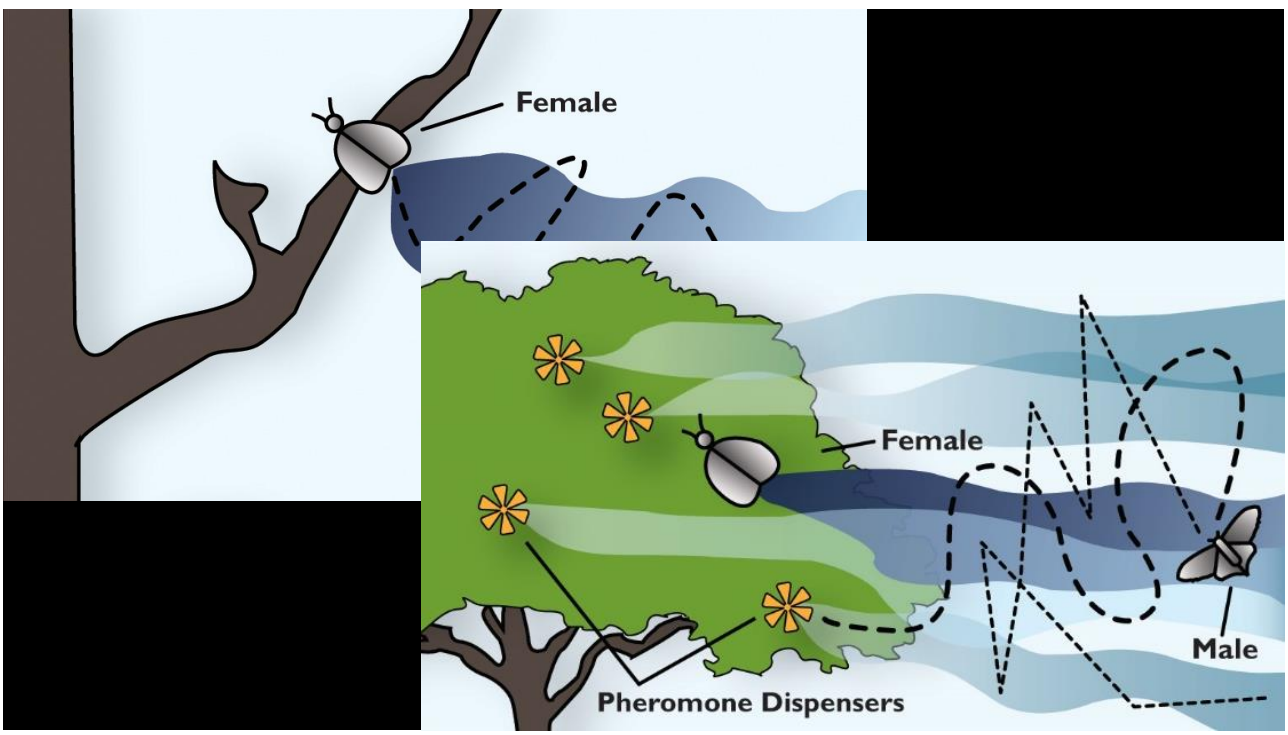
Codling Moth Mating Disruption and IPM Updates

Marion Murray
USHA 2020 Convention



Exploring Other Codling Moth MD Options

Cidetrak DA MEC Sprayable (Trece) - “add-on”

Cidetrak DA Combo Meso Dispensers (Trece) – alternative product

DA

- A naturally occurring compound (ethyl (2E, 4Z)-2,4-decadienoate) emitted from mature ripening pear fruit
- Also known as **pear ester** and referred to as a kairomone.
- Primarily attracts female Codling Moth adults, but also males.
- Larvae wander and stop frequently between hatch site and feeding site.

DA-Combo

- Combines the pear ester with the codling moth pheromone
- When used in a lure, the threshold is 10 moths total or 1 female

MD Product: Trece Cidetrak DA MEC (Sprayable)

How to use it:

Applied at beginning of each generation
Tank mixed (0.5 oz/acre) with any spray

Restrictions:

None; compatible with most products, and no phytotoxicity

Residual:

14 days

Cidetrak DA-MEC, Year 1 and 2

Data used from two orchard sites using Isomate CM-Flex mating disruption

Farm A – high codling moth population

Farm B – lower codling moth population

MEC applied six times (**Farm A**) or two to four times (**Farm B**)

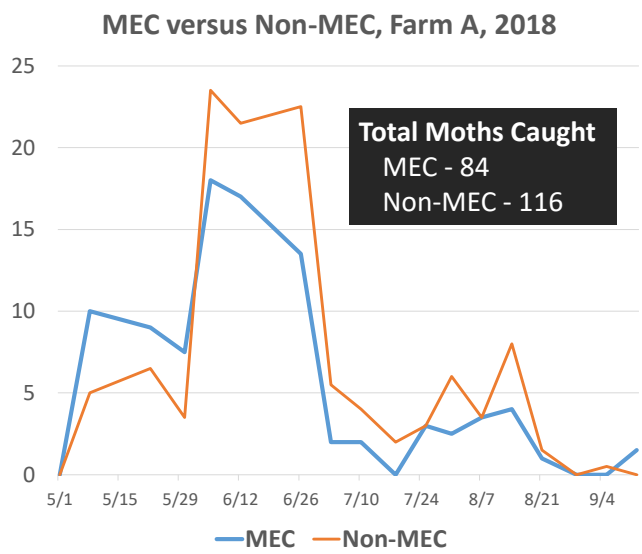
Assessment in MEC and nearby non-MEC blocks:

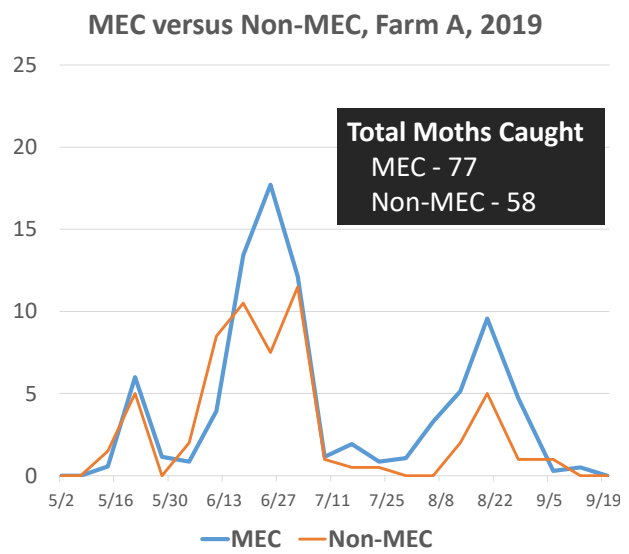
Weekly trap catch in CM-DA Combo traps and *Combo+Acetic Acid Traps*

Moth gender

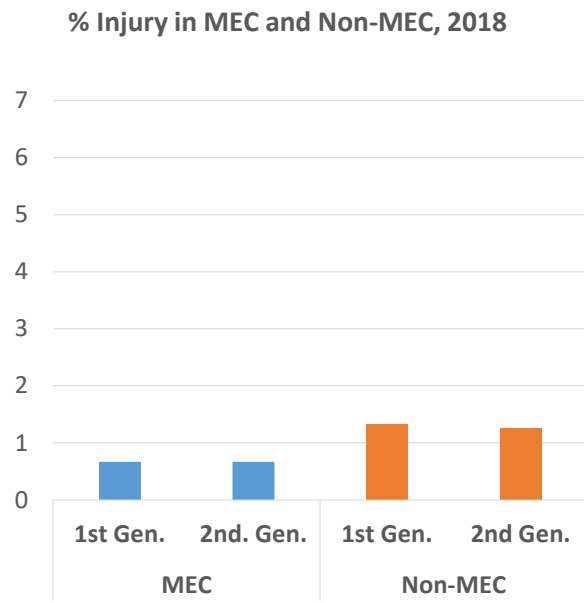
Fruit injury after first and second generations

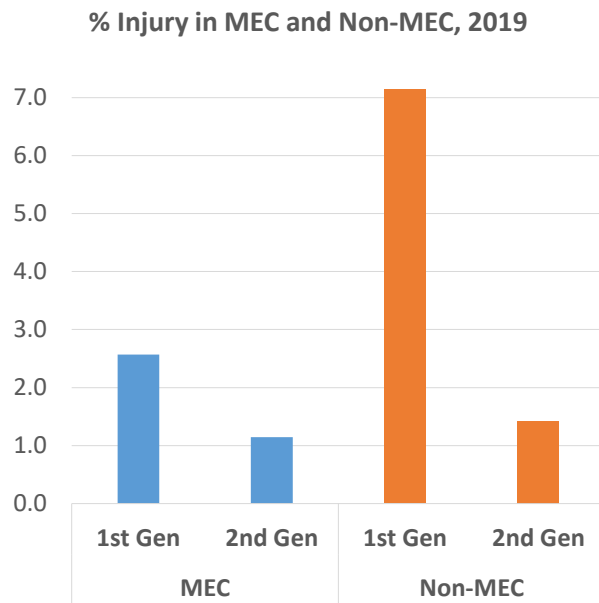
Cidetrak DA-MEC Trap Catch, Farm A, 2018 and 2019



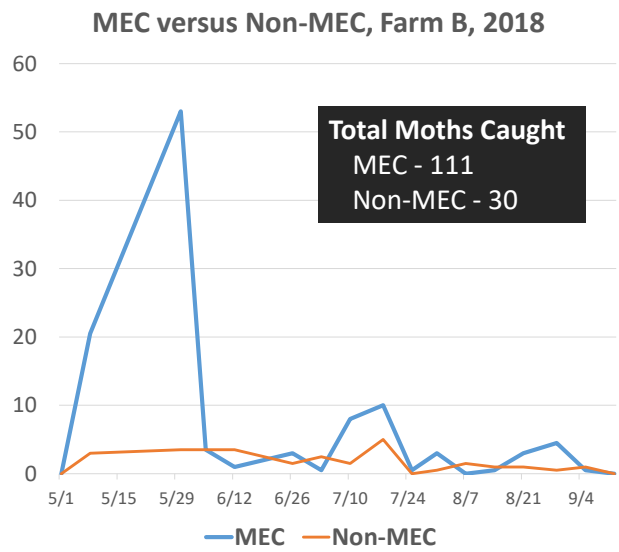


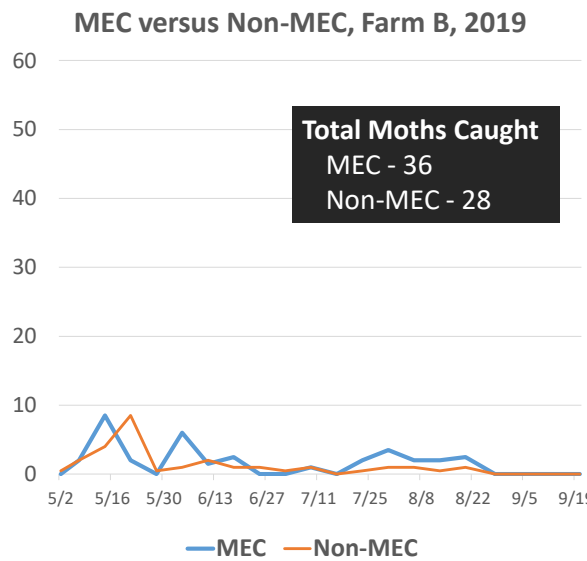
Cidetrak DA-MEC Injury, Farm A, 2018 and 2019



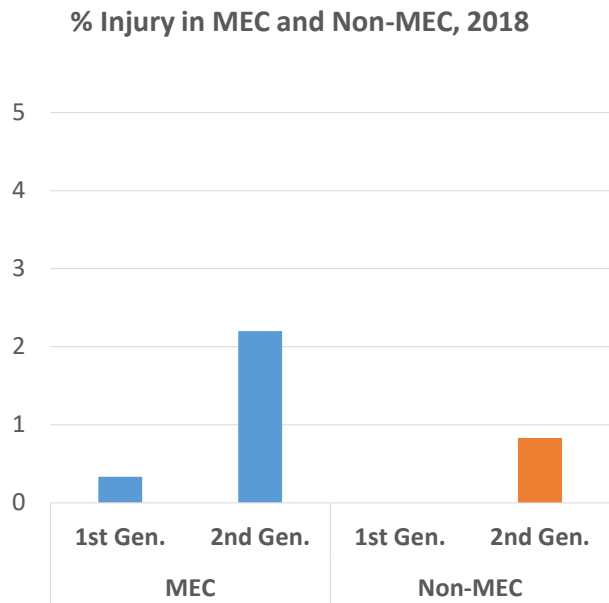


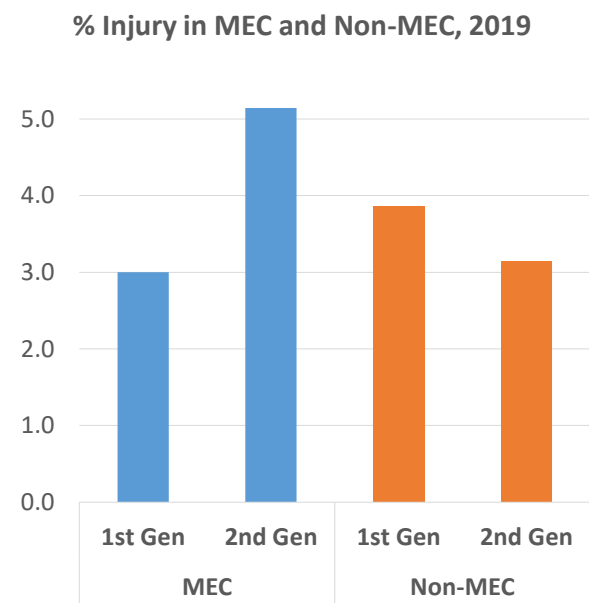
Cidetrak DA-MEC Trap Catch, Farm B, 2018 and 2019





Cidetrak DA-MEC Injury, Farm B, 2018 and 2019





Cidetrak DA MEC Conclusions

For both **Farm A** and **Farm B**, trap catch decreased slightly from 2018 to 2019 in both the MEC and Non-MEC blocks

In general, fruit injury increased in all blocks from 2018 to 2019

For **Farm A**, MEC block had 50% less injury than non-MEC in 2018 and 57% less injury in 2019

- higher moth population
- MEC was applied six times

For **Farm B**, MEC application had no improvement on fruit injury in either year

- lower moth population
- MEC was applied two to four times

Still to Do:

Look at trap catch of the AA (acetic acid) traps and look at #males/#females from traps

Cidetrak DA MEC Conclusions - Cost

Farm A

With MEC application (6 times) and 1.8% injury:

Harvest 58.9 bins @ $30,392 net return - $27,532 costs - $90 for MEC

= $2,770/acre return

Without MEC application and a 3.9% injury:

Harvest 57.6 bins @ $29,722 - $27,532

= $2,190/acre return

MEC application is $15/acre (product only)

Return is estimated at $516/bin, 60 bins/acre, and 1,000 apples/bin[1]

Fixed plus Variable costs estimated at $27,532/acre[1]

[1]From WSU Enterprise Budget for tall spindle Fuji

MD Product: Trece Cidetrak CMDA Combo MESO Dispenser

Contains a combination of codling moth pheromone and pear ester kairomone (DA)

Clips onto branches with pole applicator at rate of 18 – 27/acre

Cidetrak CMDA Combo MESO Dispenser

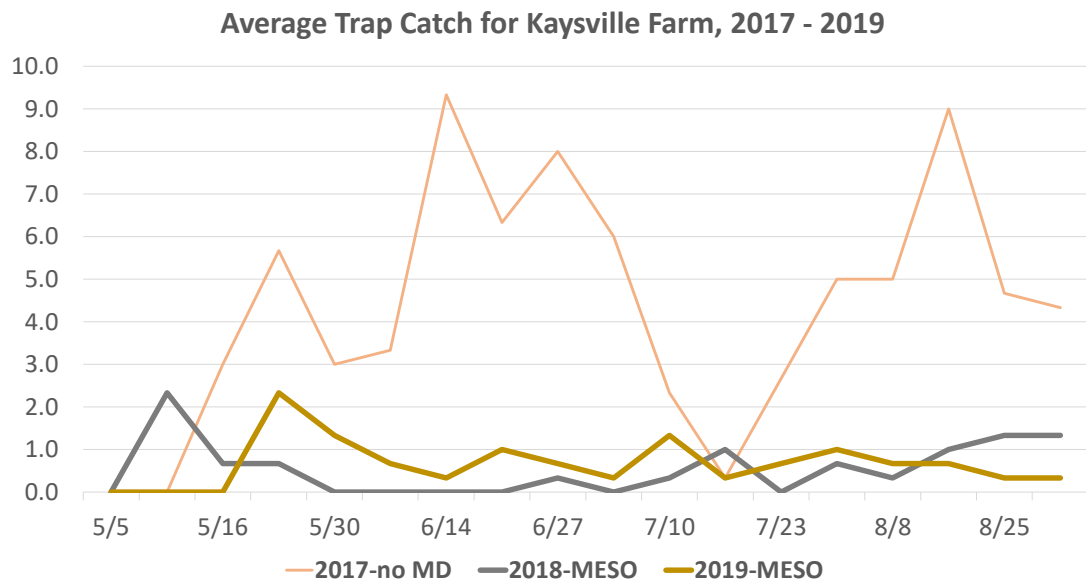
Used in one orchard – USU Ag. Experimental Farm in Kaysville

24 dispensers/acre (no control comparison) in 2018 and 2019

Assessment Compared to 2017:

Weekly trap catch in CM-DA Combo traps and *Combo+Acetic Acid Traps*
Moth gender
Fruit injury after first and second generations

Cidetrak CMDA Combo MESO Dispenser, Trap Catch



Cidetrak CMDA Combo MESO Dispenser, Fruit Injury

	Average Weekly Trap Catch - Entire Farm	% Injury Entire Farm	% Injury Block A	% Injury Block B
2017	4.6 moths	~ 6%	~ 8%	~ 4%

Cidetrak CMDA Combo MESO Dispenser Conclusions

Weekly trap catch in CM-DA Combo traps was reduced significantly in 2018 and 2019 compared to 2017 (no MD)

Fruit injury was reduced significantly in 2018 and in Block A in 2019, compared to 2017 (no MD)

Fruit injury in Block B significantly increased due to ineffective disruption (backyard trees, wind)

Still to Do:

Look at trap catch of the AA (acetic acid) traps and look at #males/#females from traps

IPM Updates

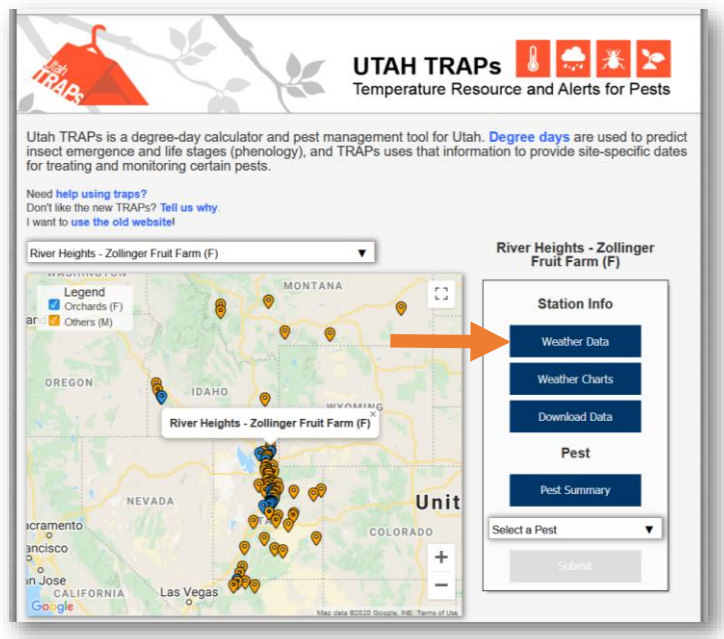
Orchard weather station upgrades

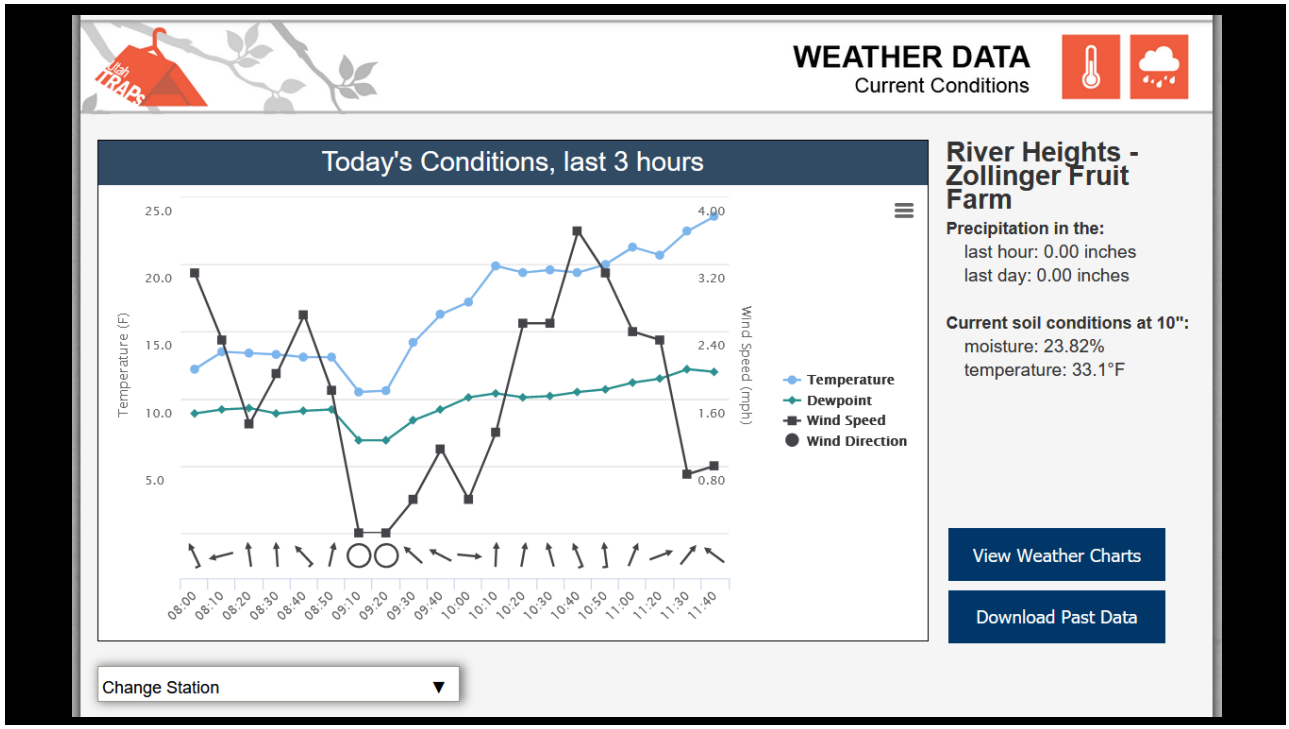
1. All Temperature and Rh Sensors, batteries, and modems have been replaced

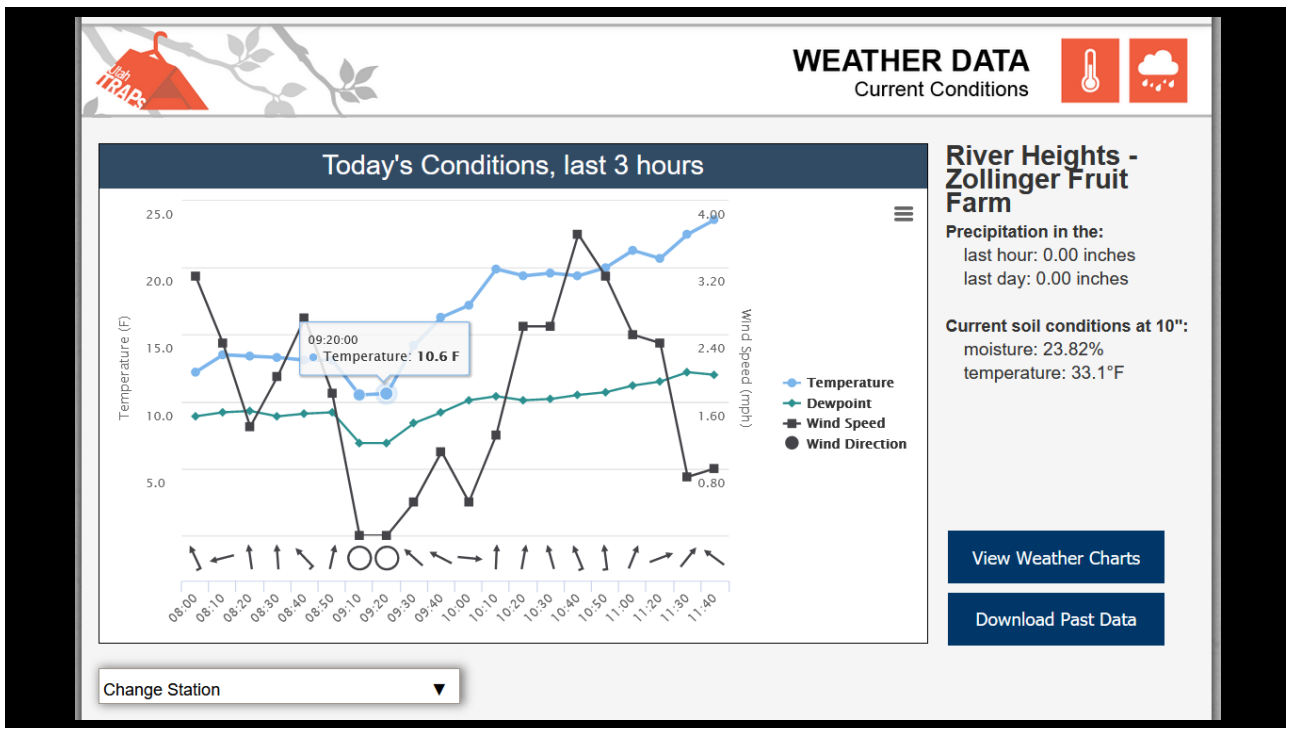
2. Calibrations will occur Spring 2020

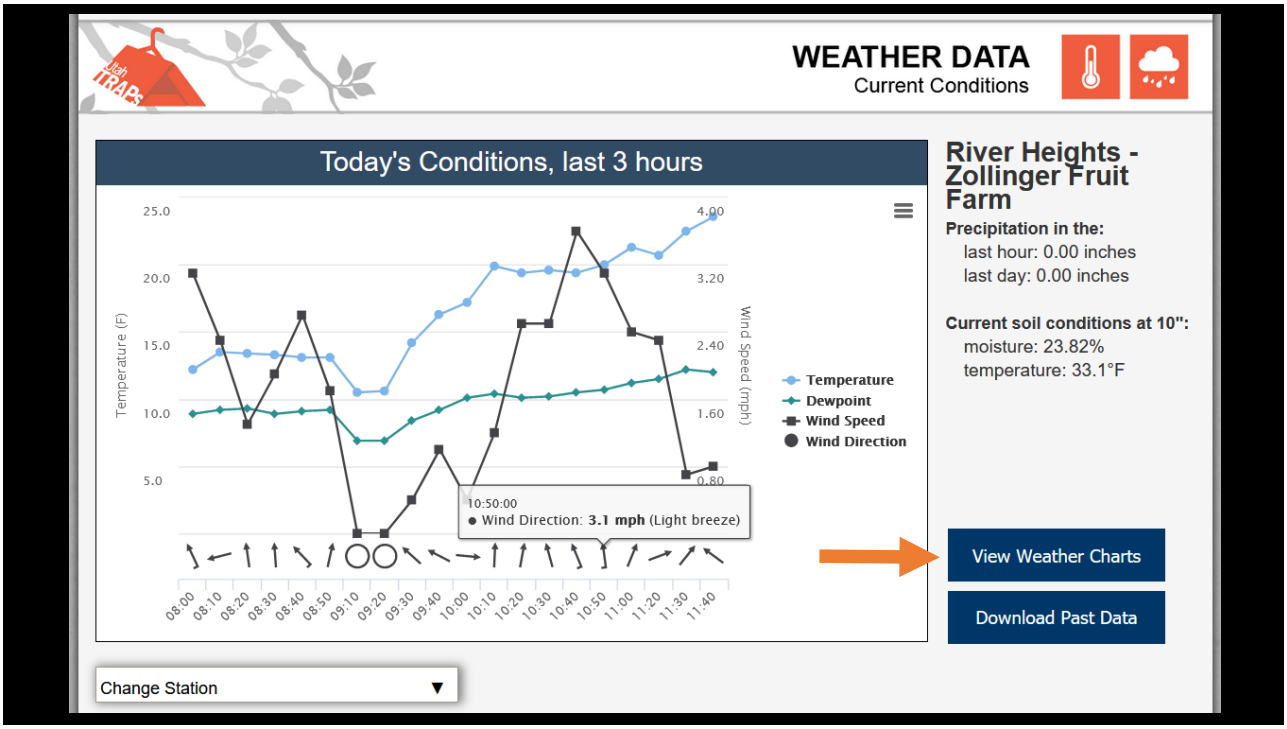
IPM Updates - Utah TRAPs Website

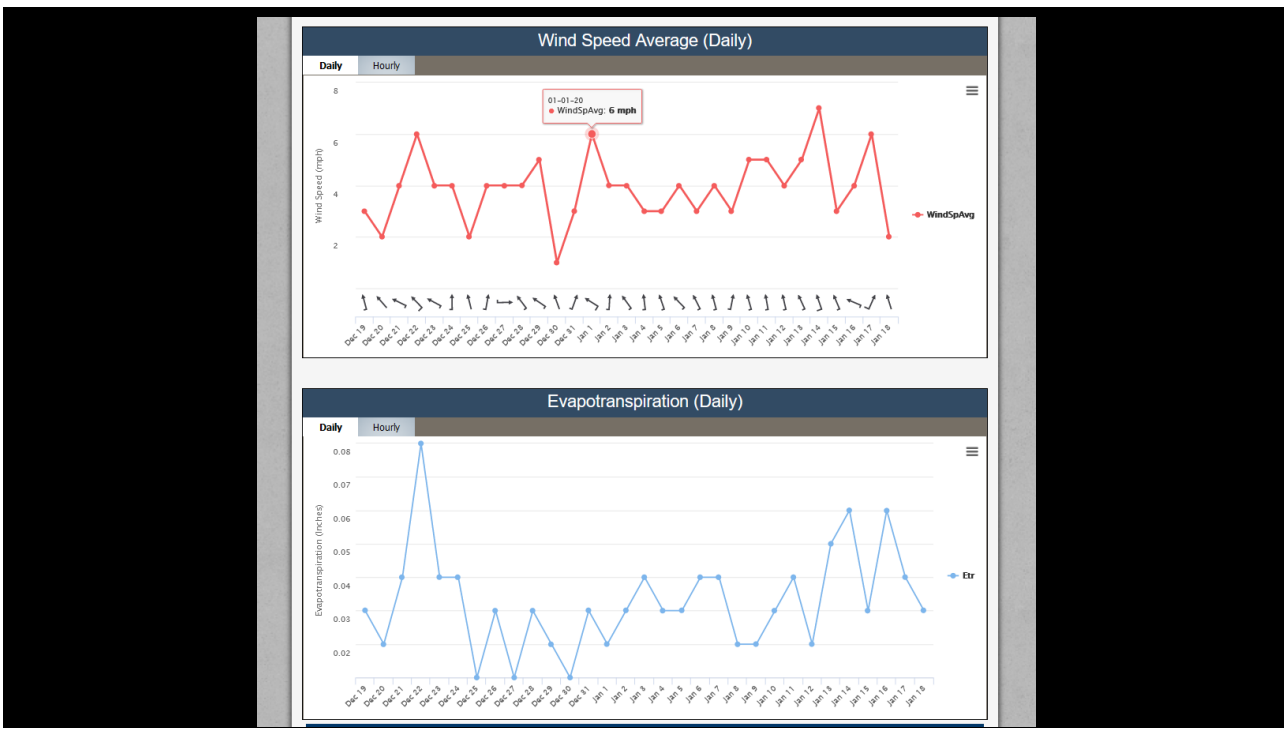
climate.usu.edu/traps

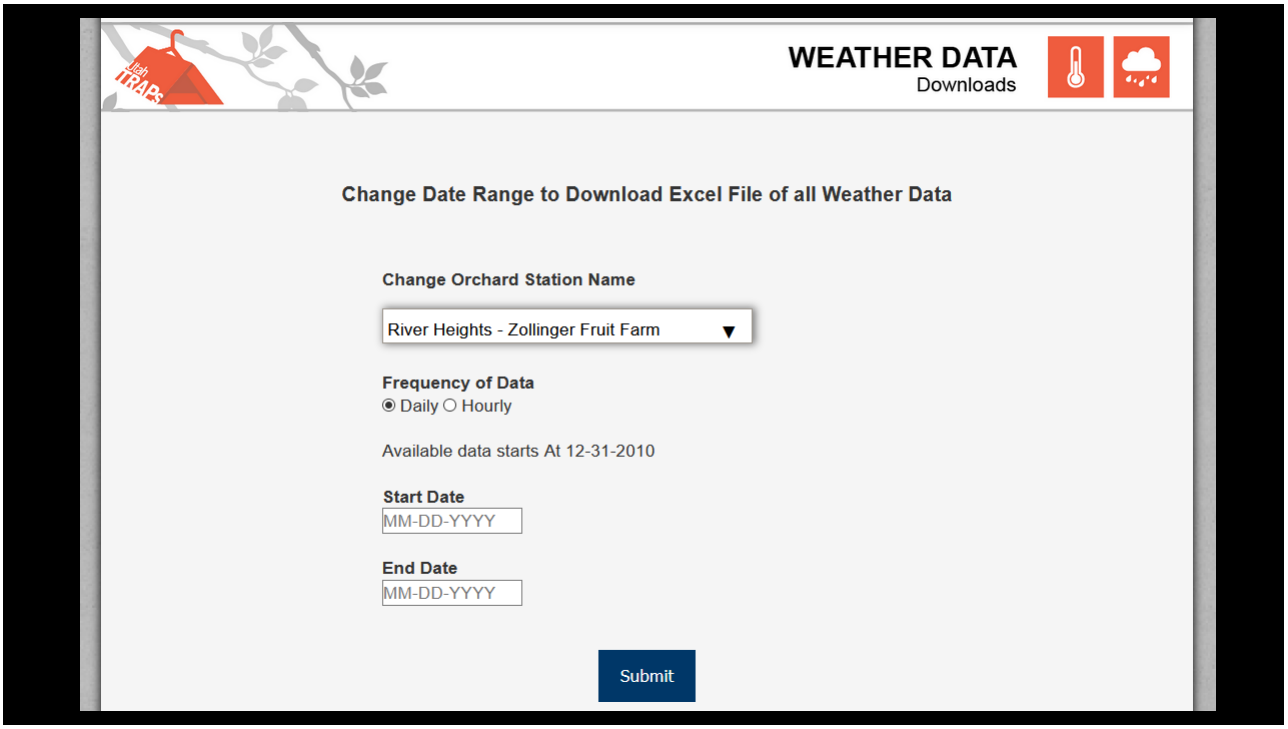



WEATHER DATA
Current Conditions
Today's Conditions, last 3 hours
Temperature (F)
Wind Speed (mph)
Temperature
Dewpoint
Wind Speed
Wind Direction
River Heights - Zollinger Fruit Farm
Precipitation in the:
last hour: 0.00 inches
last day: 0.00 inches
Current soil conditions at 10":
moisture: 23.82%
temperature: 33.1°F
View Weather Charts
Download Past Data
Change Station


WEATHER DATA
Current Conditions
Today's Conditions, last 3 hours
09:20:00
Temperature: 10.6 F
Temperature (F)
Wind Speed (mph)
Temperature
Dewpoint
Wind Speed
Wind Direction
River Heights - Zollinger Fruit Farm
Precipitation in the:
last hour: 0.00 inches
last day: 0.00 inches
Current soil conditions at 10":
moisture: 23.82%
temperature: 33.1°F
View Weather Charts
Download Past Data
Change Station


WEATHER DATA
Current Conditions
Today's Conditions, last 3 hours
Temperature (F)
Wind Speed (mph)
Temperature
Dewpoint
Wind Speed
Wind Direction
10:50:00
Wind Direction: 3.1 mph (Light breeze)
River Heights - Zollinger Fruit Farm
Precipitation in the:
last hour: 0.00 inches
last day: 0.00 inches
Current soil conditions at 10":
moisture: 23.82%
temperature: 33.1°F
View Weather Charts
Download Past Data
Change Station

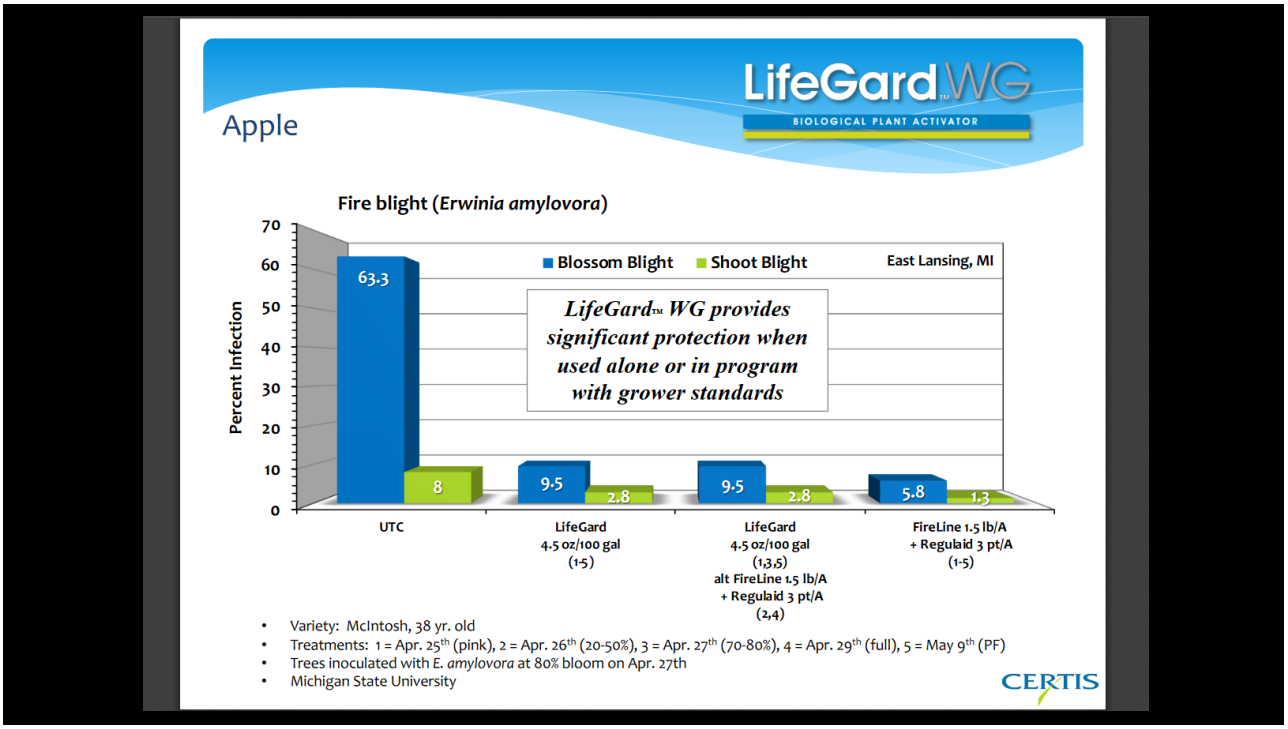

Wind Speed Average (Daily)
Daily
Hourly
01-01-20
WindSpAvg: 6 mph
Wind Speed (mph)
WindSpAvg
Evapotranspiration (Daily)
Daily
Hourly
Evapotranspiration (inches)
Etr



IPM Updates – Fire Blight Trials, Spring 2020

Test blossom-spray options to determine the efficacy of each

Streptomycin, Kasumin, Oxytetracycline (antibiotics)
Blossom Protect (biological)
Regalia (biological)
Double Nickel (biological)
Phyton 27, Cueva (copper soap)
LifeGard (biological plant activator)



IPM Updates – Fire Blight Trials, Spring 2020

Test other products for their efficacy in reducing the growth of existing fire blight cankers

Actigard applied as soil drench pre-bloom
Apogee applied after bloom
Actigard applied after pruning out cankers in late spring