FloraPulse LABFERRER

New developments

February 5-6, 2024

Outline

Here we'll discuss new developments at FloraPulse!

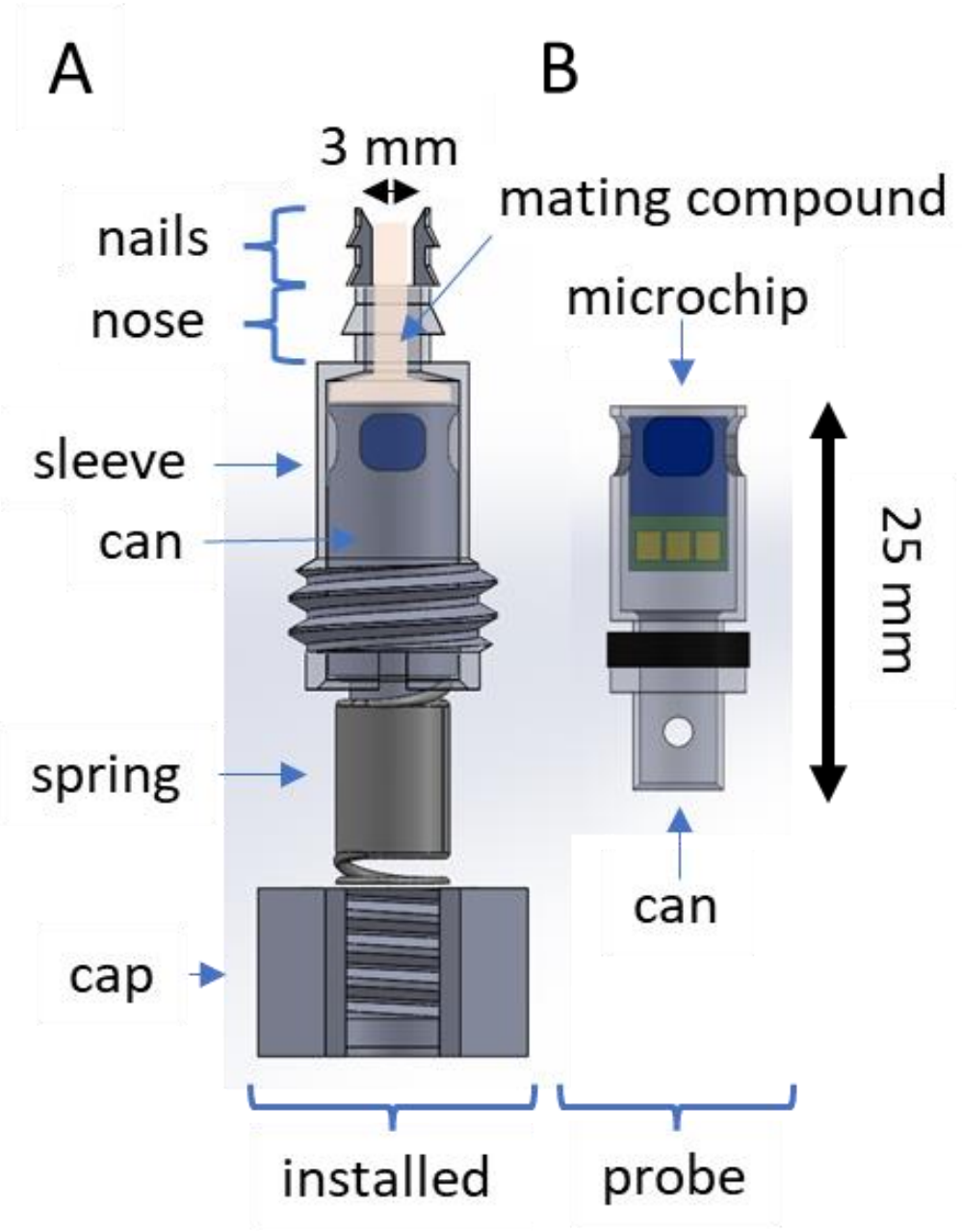
- Small sensor for small crops
  - Installation
  - Test results
  - Upcoming trials
- Heading cut install for avocado, walnut, pecan
- Potential venues: soil microtensiometer, osmometer
- SWP closed-loop irrigation shown possible, and beneficial!

Small sensor

- New smaller sensor and installation for use in stems down to ~1.2 cm in diameter.
- Still under development, but we're working with testers. Interested? Let's discuss.
- Improved:
  - Installation into small stems, more crops accessible.
  - Probably works better for large trees too.
  - Designed for reusability.
  - Smaller wound may increase reliability and accuracy.
  - Use of sealant will create better seal, especially during rain events.

Small sensor – how it works

- Everything shrunk down compared to normal sensor. Sleeve pushed into xylem, holds sensor inside. Fluid exchange through the kaolin clay compound.



Small sensor installation

Pick trunk

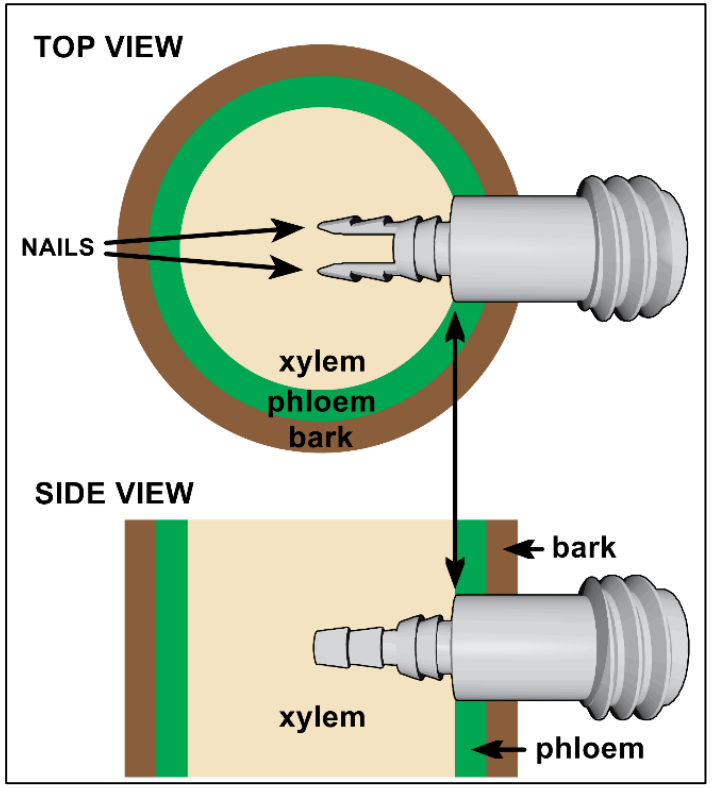
Attach guide

Place sleeve on piston

Place piston inside guide and align

Installation #2

Press into place with C-clamp



Drill into sleeve

Fill with mating clay

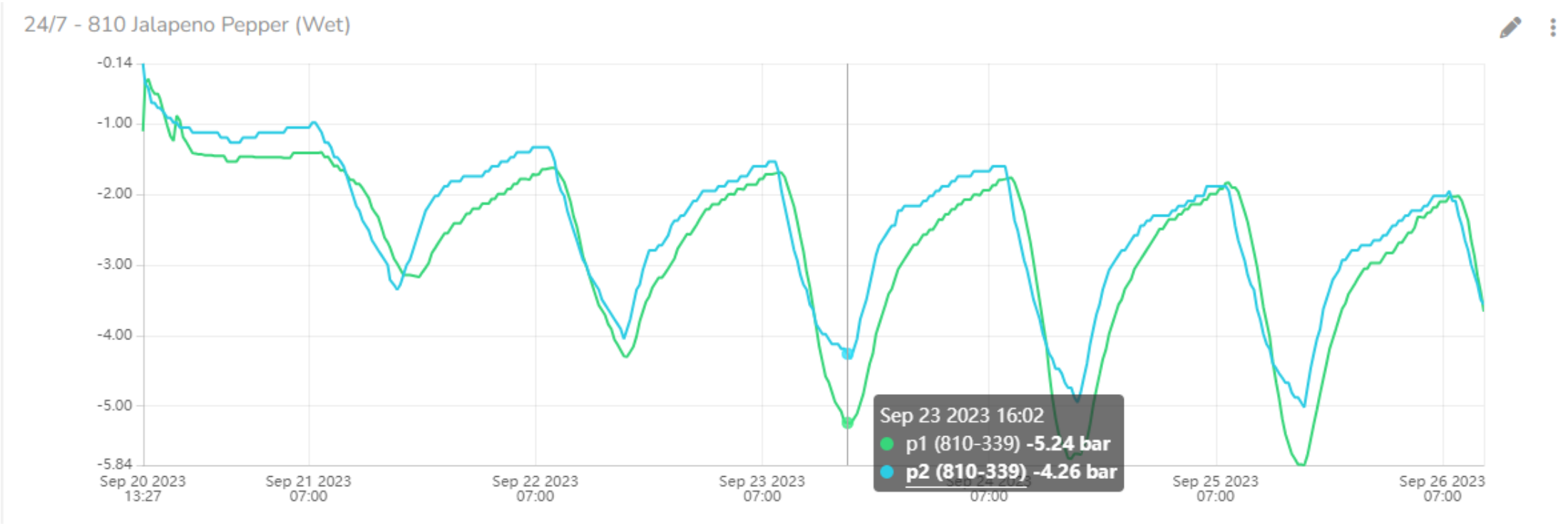
Installation #3 – insert probe and cover

Insert probe and follow with cap.

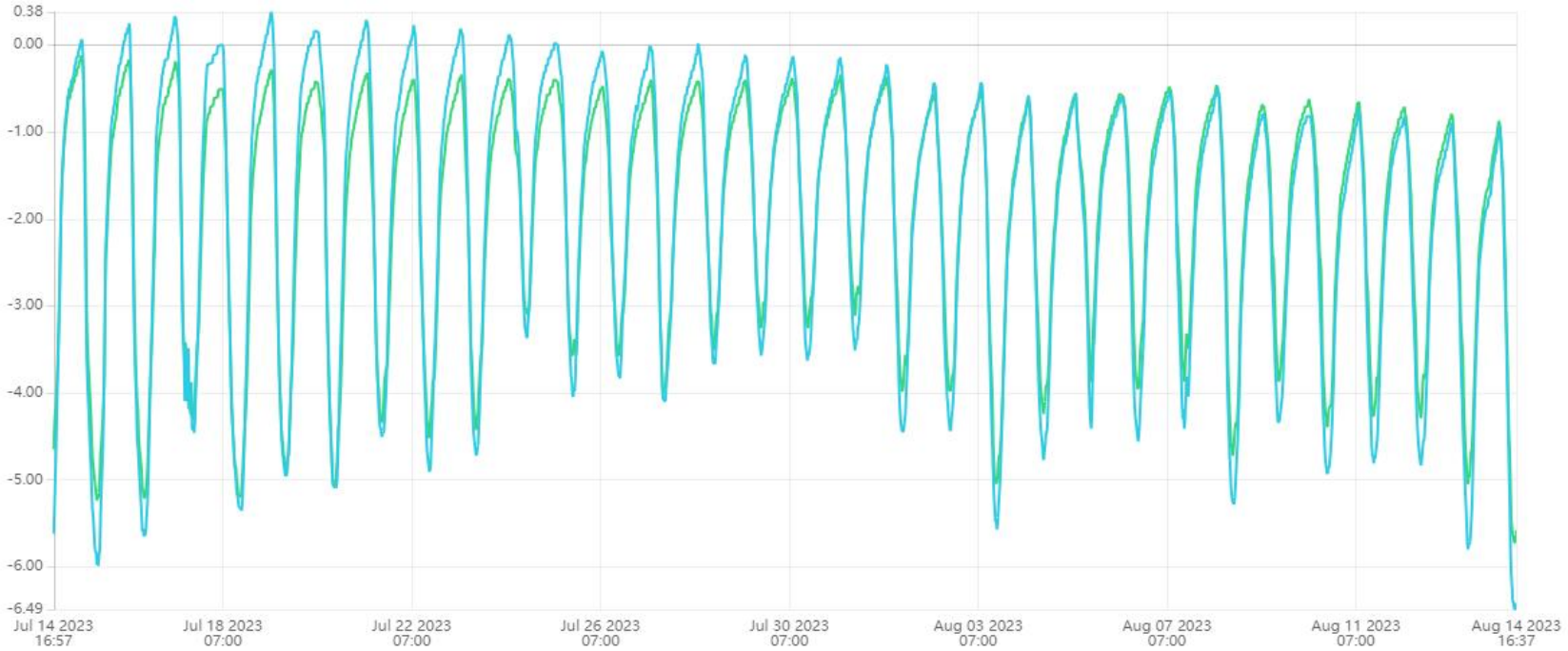
Add sealant
(not grease, photo outdated)

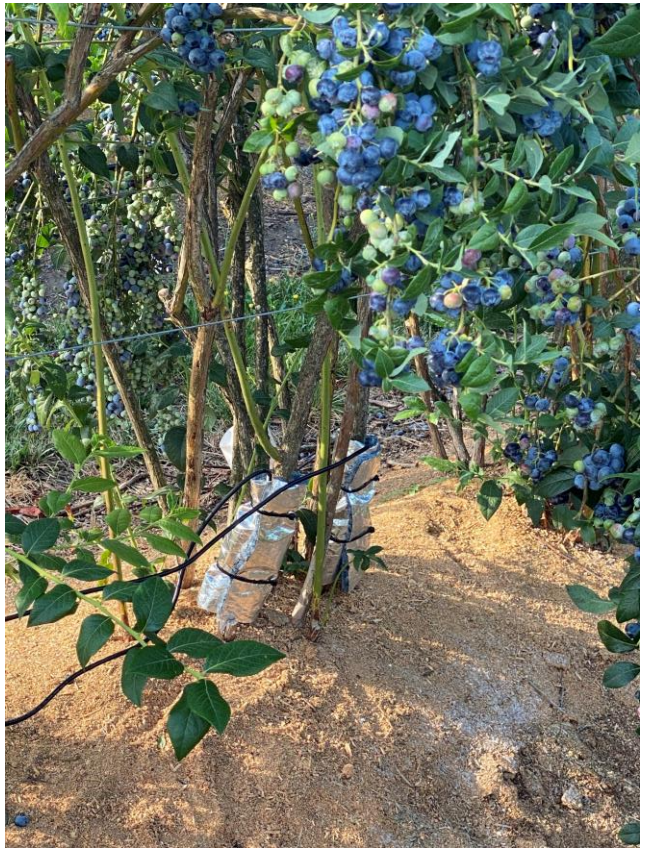
Add insulation

Bell Pepper

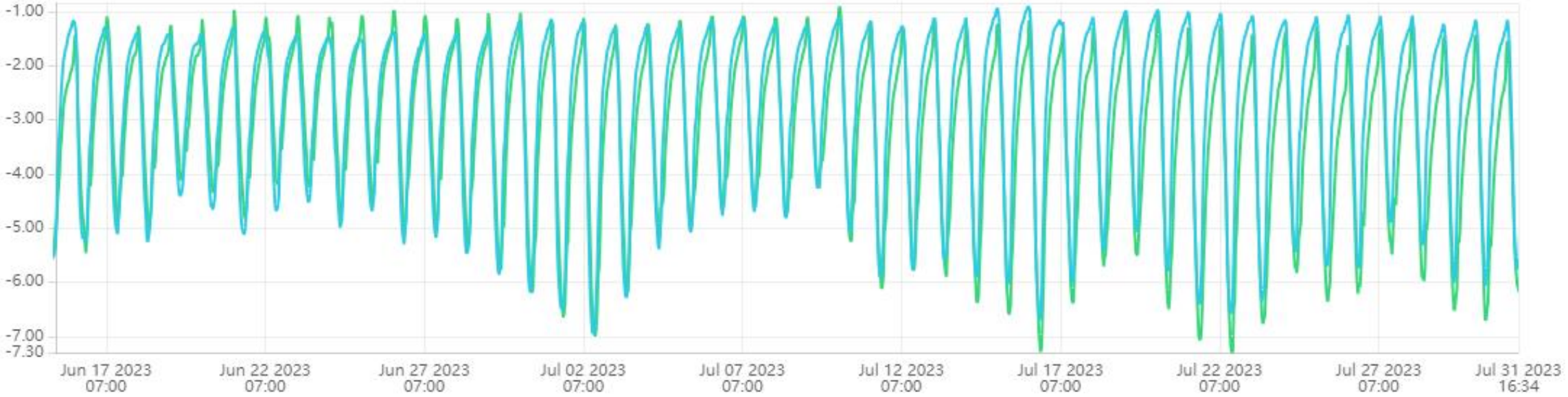

24/7 - 810 Jalapeno Pepper (Wet)
-0.14
-1.00
-2.00
-3.00
-4.00
-5.00
-5.84
Sep 20 2023 13:27
Sep 21 2023 07:00
Sep 22 2023 07:00
Sep 23 2023 07:00
Sep 24 2023 07:00
Sep 25 2023 07:00
Sep 26 2023 07:00
Sep 23 2023 16:02
p1 (810-339) -5.24 bar
p2 (810-339) -4.26 bar

Blueberry

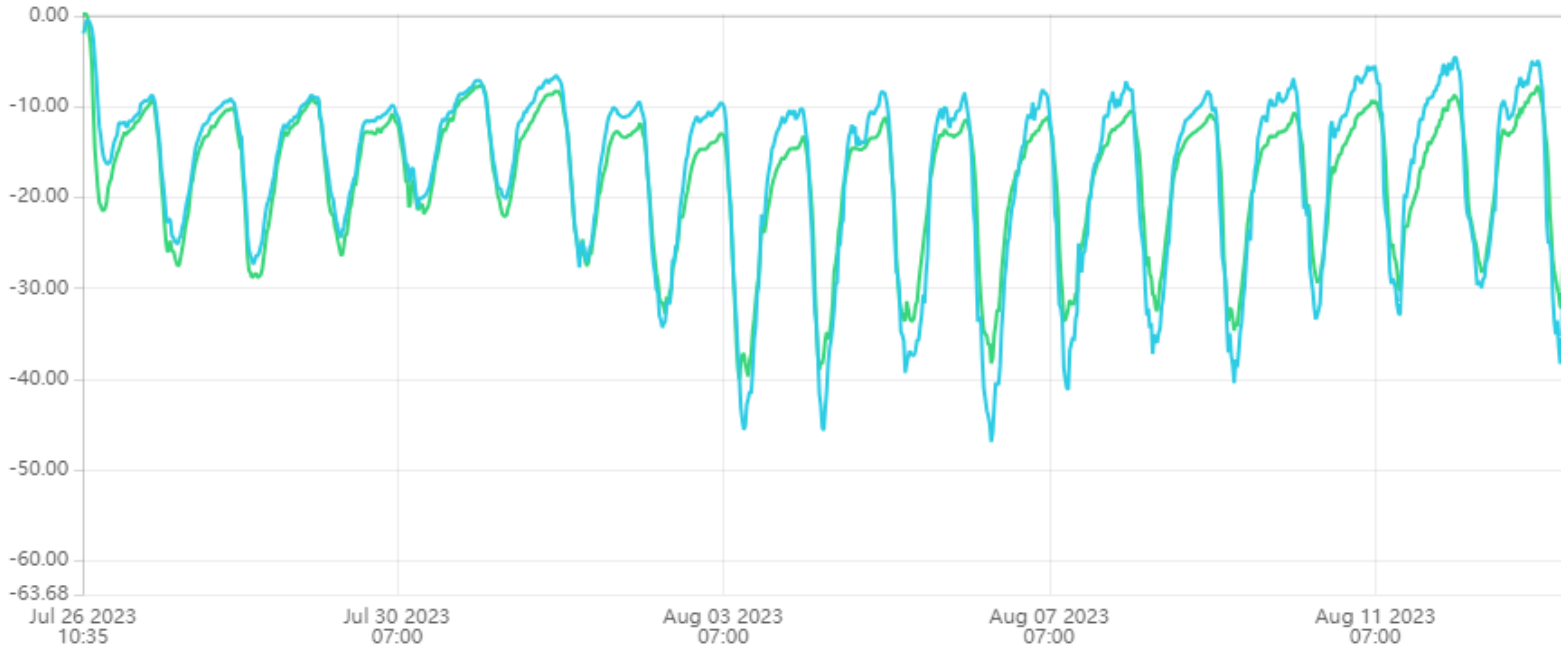

0.38
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-6.49
Jul 14 2023 16:57
Jul 18 2023 07:00
Jul 22 2023 07:00
Jul 26 2023 07:00
Jul 30 2023 07:00
Aug 03 2023 07:00
Aug 07 2023 07:00
Aug 11 2023 07:00
Aug 14 2023 16:37



Grape


-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-7.30
Jun 17 2023 07:00
Jun 22 2023 07:00
Jun 27 2023 07:00
Jul 02 2023 07:00
Jul 07 2023 07:00
Jul 12 2023 07:00
Jul 17 2023 07:00
Jul 22 2023 07:00
Jul 27 2023 07:00
Jul 31 2023 16:34

Cotton


0.00
-10.00
-20.00
-30.00
-40.00
-50.00
-60.00
-63.68
Jul 26 2023
10:35
Jul 30 2023
07:00
Aug 03 2023
07:00
Aug 07 2023
07:00
Aug 11 2023
07:00

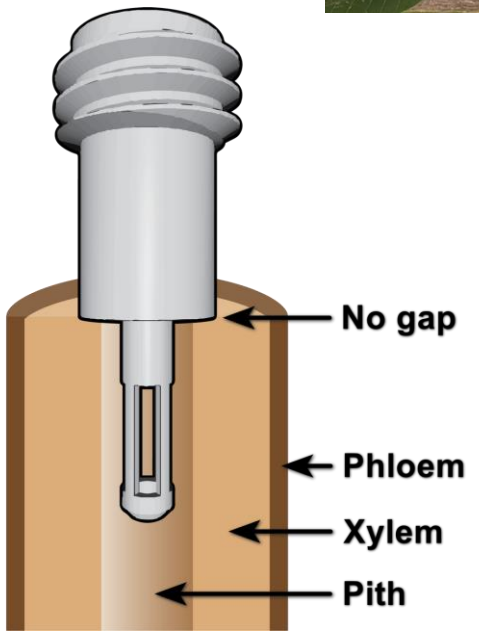
We’re doing sales for limited initial users of the small probe this summer.

Contact your FloraPulse distributor!

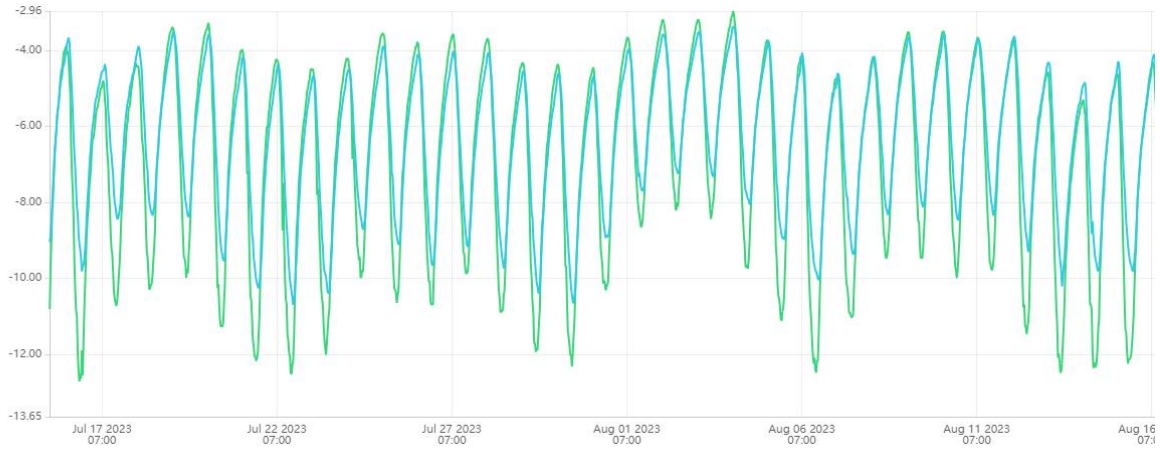
Hands on: install small sensor

Heading cut for walnut, avocado and pecan

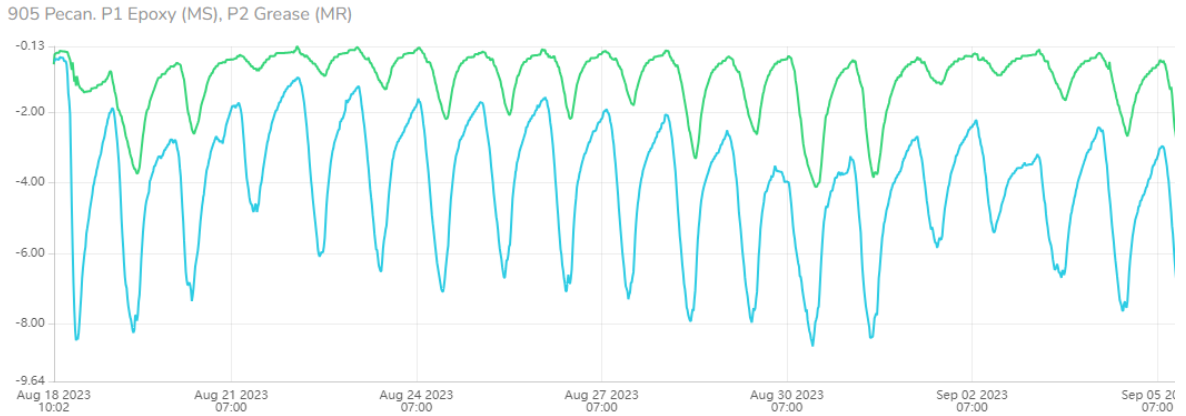
- Walnut, avocado, pecan show very strong wounding response to sensor installation. The sensor usually floods within a week or two and reads zero.
- In collaboration with UC Davis, we developed a new installation style that might avoid this issue.
- Sensor installed in the branch pith, to avoid excessive wounding response.
- Testing so far is promising, but there are still challenges. We expect 2024 trials to be conclusive.



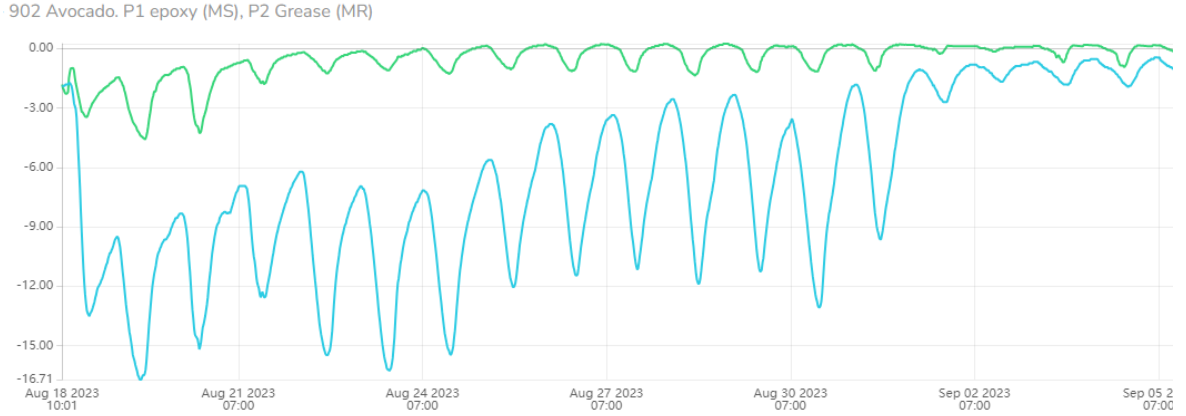
Heading cut representative data



Walnut



Pecan

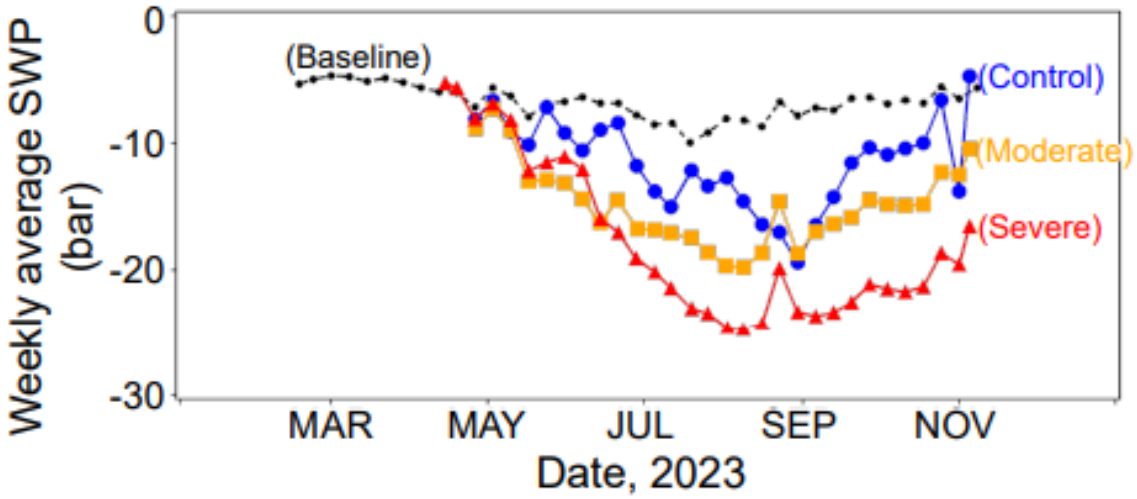


Avocado

Hands on: show heading cut install

Closed-loop irrigation: promising results

- Professor Ken Shackel from UC Davis set up a closed-loop irrigation system based on FloraPulse SWP data in almonds.
- Lots of industry interest, but need development partner to build into commercial product.



Automatically irrigating to a target level of stress resulted in a very large reduction in total seasonal irrigation.

- Control: 32.5” irrigation
- Moderate stress: 11.5” irrigation
- Severe stress: 4” irrigation