



**WATER CHALLENGES**  
2022



**THE SMART WATER  
TECHNOLOGY SOLUTION FOR  
CLIMATE CHANGE AND  
WATER SECURITY**

Thomas Gradek, B. Eng. CEO

Almond Farm Trial  
Woodland, CA

Intermediate Results  
October 2022





# Almond Farm Trial - Woodland California



Picture of the trial field with Water Pearls mats and surface irrigation lines and sensors

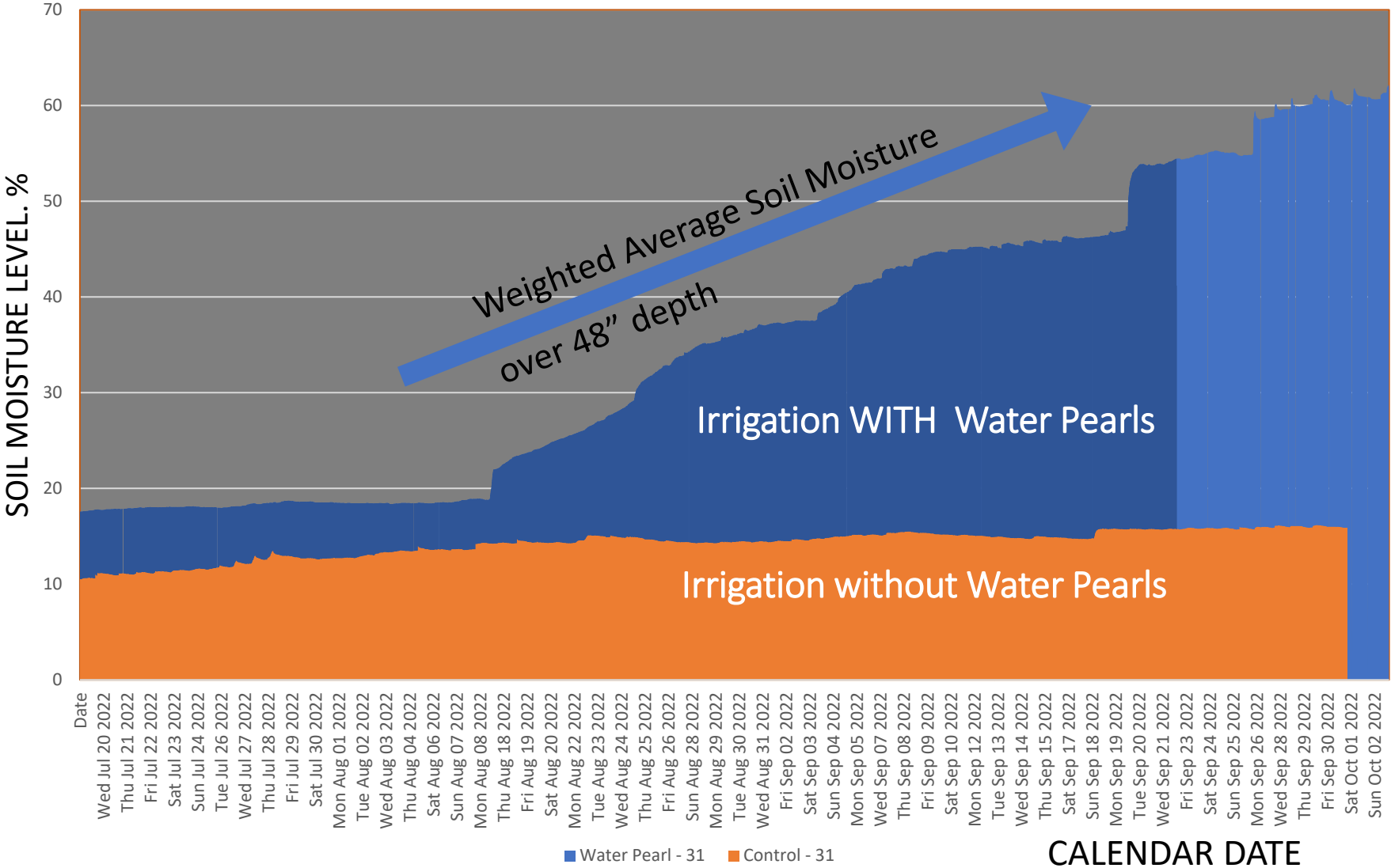


# Almond Farm Trial - Woodland California

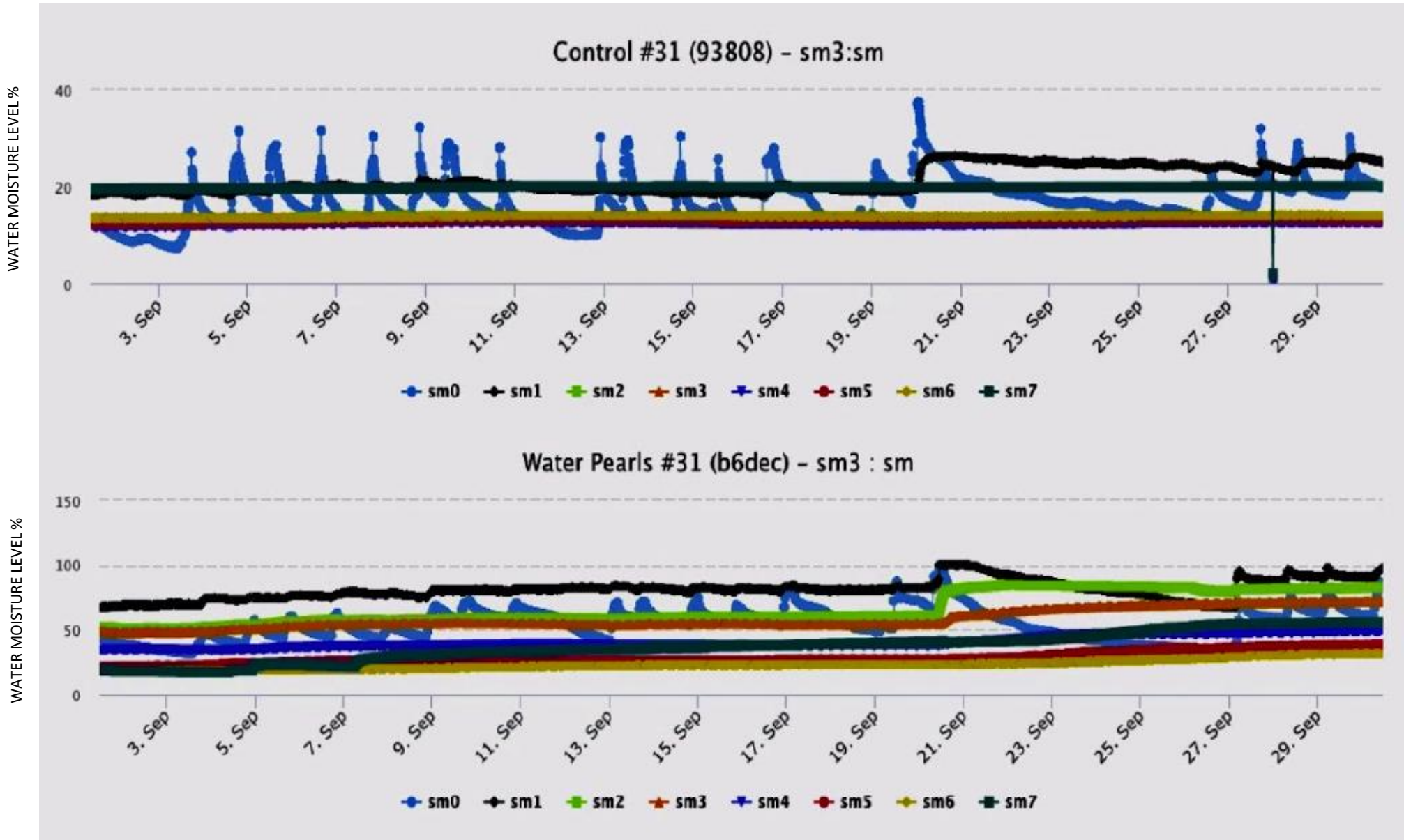
- Installation of field sensors with Water Pearls mats
- Water Moisture sensors (GroPoint<sub>TM</sub> Multi Segment 6" intervals over 48" length)
- Collaborators –   




# Weighted Average Soil Moisture Profile - Water Pearls vs Business As Usual



- Soil Moisture conserved from avoided evaporation
- Recharges moisture levels to maximum infiltration capacity in 3.5 months
- 3 X times more water stored underground
- Significantly reduces irrigation needs over time



In-Ground soil moisture levels for irrigated almond farm, Control vs WaterPearl mats (Woodland CA.)

# Summer 2022 in Woodland, CA : no rain !



Weather in Woodland in July 2022

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				1 +64° night +55°	2 +64° night +57°	3 +64° night +57°
4 +72° night +57°	5 +70° night +66°	6 +70° night +63°	7 +66° night +59°	8 +72° night +57°	9 +68° night +57°	10 +72° night +57°
11 +75° night +61°	12 +73° night +59°	13 +70° night +63°	14 +70° night +57°	15 +68° night +57°	16 +72° night +57°	17 +72° night +57°
18 +72° night +59°	19 +68° night +57°	20 +68° night +55°	21 +68° night +55°	22 +68° night +55°	23 +68° night +55°	24 +70° night +57°
25 +68° night +57°	26 +70° night +59°	27 +68° night +59°	28 +66° night +55°	29 +66° night +57°	30 +68° night +59°	31 +70° night +57°



Weather in Woodland in August 2022

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1 +75° night +61°	2 +72° night +63°	3 +70° night +59°	4 +73° night +61°	5 +72° night +63°	6 +72° night +64°	7 +70° night +57°
8 +70° night +61°	9 +72° night +63°	10 +73° night +64°	11 +72° night +63°	12 +72° night +63°	13 +73° night +61°	14 +72° night +57°
15 +77° night +59°	16 +82° night +61°	17 +79° night +63°	18 +72° night +59°	19 +72° night +57°	20 +77° night +59°	21 +72° night +57°
22 +79° night +59°	23 +75° night +61°	24 +72° night +59°	25 +72° night +61°	26 +72° night +61°	27 +70° night +61°	28 +72° night +57°
29 +73° night +61°	30 +72° night +59°	31 +73° night +59°				



Weather in Woodland in September 2022

Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1 +79° night +59°	2 +73° night +59°	3 +79° night +59°	4 +82° night +57°
5 +93° night +66°	6 +95° night +73°	7 +90° night +68°	8 +91° night +68°	9 +81° night +64°	10 +79° night +64°	11 +82° night +57°
12 +72° night +63°	13 +72° night +61°	14 +73° night +63°	15 +70° night +63°	16 +70° night +61°	17 +68° night +59°	18 +70° night +57°
19 +73° night +63°	20 +72° night +59°	21 +72° night +61°	22 +73° night +59°	23 +81° night +59°	24 +81° night +63°	25 +72° night +57°
26 +68° night +59°	27 +59° night +59°	28 +77° night +63°				

Precipitation Days = 0    Cloudy Days = 21    Sunny Days = 71

# Almond Farm Trial - Woodland California

- INVESTIGATE water savings from Evaporation Suppression
  - Reducing evaporation loss demonstrated over irrigation schedule
    - Improved water use efficiency – ILLUSTRATING nonbeneficial water use
    - Data covering 75 days of summer with no precipitation
    - Increased groundwater levels by 3X
    - Improved resiliency to climate change demonstrated
    - Decreased water uptake for irrigation can be scheduled for water savings
      - Increased water available for downstream users if reduced irrigation schedule implemented

# Almond Farm Trial - Woodland California

- BENEFITS:
  - WATER SAVINGS from Evaporation Suppression with Water Pearls
    - **DECREASE** WATER uptake for irrigation
    - **INCREASE** WATER available for downstream users with reduced irrigation schedule implemented
    - **NO FOLLOWING** is required to reduce water footprint for **SGMA compliance**

# Farmers are the Solution to Water Supply

- WATER PEARLS ARE A SUSTAINABLE SOLUTION TO:
- ELIMINATE USDA compensation for fallowing and lost production
- INVEST in more efficient use of water
  - Reduce evaporation loss
    - Improve water use efficiency – eliminate non-beneficial water use
    - Improve soil health – active biota below ground
    - Improve nutrient use efficiency – stabilizing nutrient concentrations
    - Increase groundwater levels
    - Improve resiliency to climate change
    - Reduce risk of subsidence
    - Decrease water uptake for irrigation
  - Increase water available for downstream users in the watershed



*“My **purpose** is to improve the quality of life for future generations by providing you with sustainable practices. That is the **legacy** that I want to leave”*

- Thomas Gradek, Founder B Eng., B Com.



The 2021  
MEANINGFUL  
BUSINESS 100

