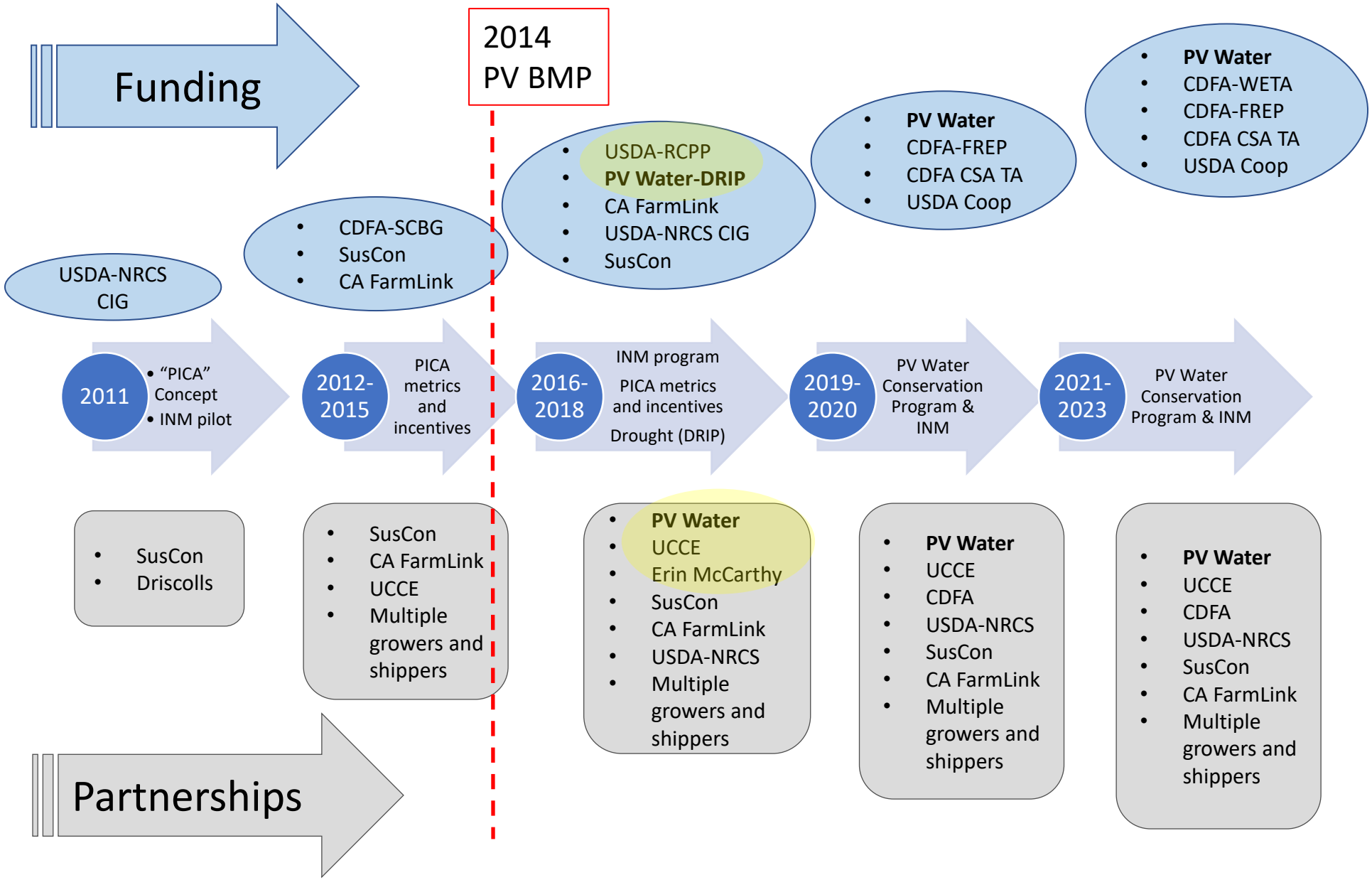
Pajaro Valley Water Management Agency

RESOURCE CONSERVATION DISTRICT OF SANTA CRUZ COUNTY

UC CE

PV Water Conservation Program 2022 Update

RCDSCC Program Development, Leveraged Funding and Partnerships



2016-2022 Program Growth

- **PV Water funding: $1.5 million since 2016 -** essential to develop a robust water conservation program with high technical and material capacity to serve local growers
- **RCDSCC additional grant funding: $1.6 million** (CDFA, USDA-NRCS, SusCon and CA FarmLink) - leveraged $$ to strengthen and sustain continuity of the program

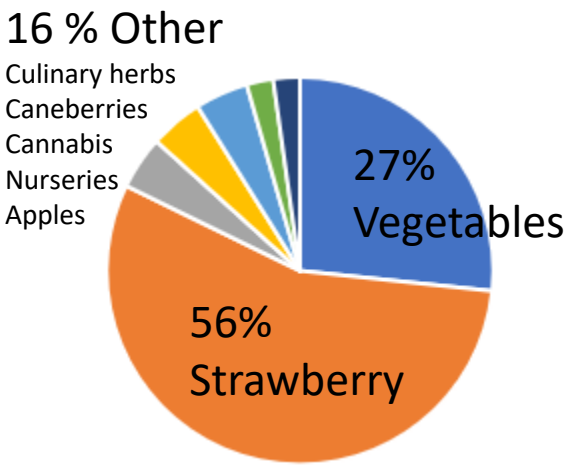
Partnerships synergy and leveraged funding have made the following possible:

- Increased equipment inventory, organization and material capacity available for program participants (**29 flowmeters and 32 telemetry units** currently in stock)
- Augmented RCD staff capacity from 1 to **3.5 stably funded staff positions**
- Augmented overall program capacity to serve a larger annual cohort of growers/ranches (from 10-12 to **25-30 participants per year**)

Enclosure	Datalogger	Modem	Solar Panel	Battery Date	Solar Panel Hard	Current Location	QR Code	Inv Status
RCDSCC12	RCDSCC-DL10(SI	IP: 166.144.206.	SP-RCD26		none	Freedom		Verified

Program Participation

Program participation	2019-2020	2021-2023
No. Farm Operations (growers)	19	33
No. Ranches (monitoring sites)	26	45
Total Acres	1,008	1,363
Percentage of ranches <40ac	58%	71%
No. Rebate Requests processed	4	15
Total $$ rebate requested	$16,875	$75,587
Drip irrigation participants (%)	73%	67%
Sprinkler irrigation participants (%)	27%	33%



2021-2023 participants by crop

2020-2022 Grower Rebate Program

Implementation of new practices

Efficient sprinkler heads

Sprinkler check valves

Pressure regulators

Flowmeters & telemetry

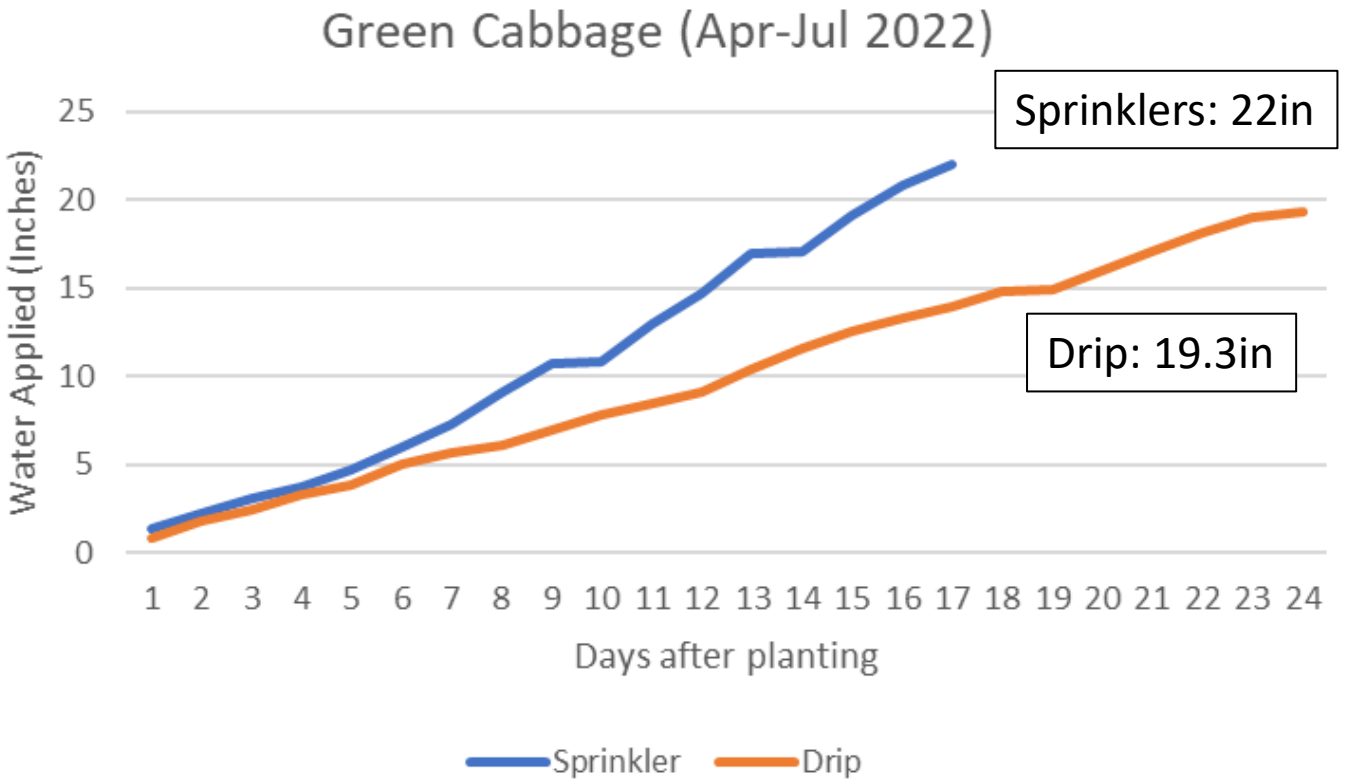
- A total **$92,462** in grower rebate requests processed since 2020

Rebates have been used for: windfighter sprinklers, new sprinkler heads and raisers, aluminum pipe joints and gaskets, pressure regulators, check valves, flush valves, flowmeters and telemetry, drip irrigation trials for vegetables, nurseries and orchard operations, PC drip tape and drip irrigation supplies, VFDs, VFD booster pump for storage tanks, soil tensiometers, and alternative sprinkler system for use under high tunnels

Implementation of new practices
(Rebate Program)

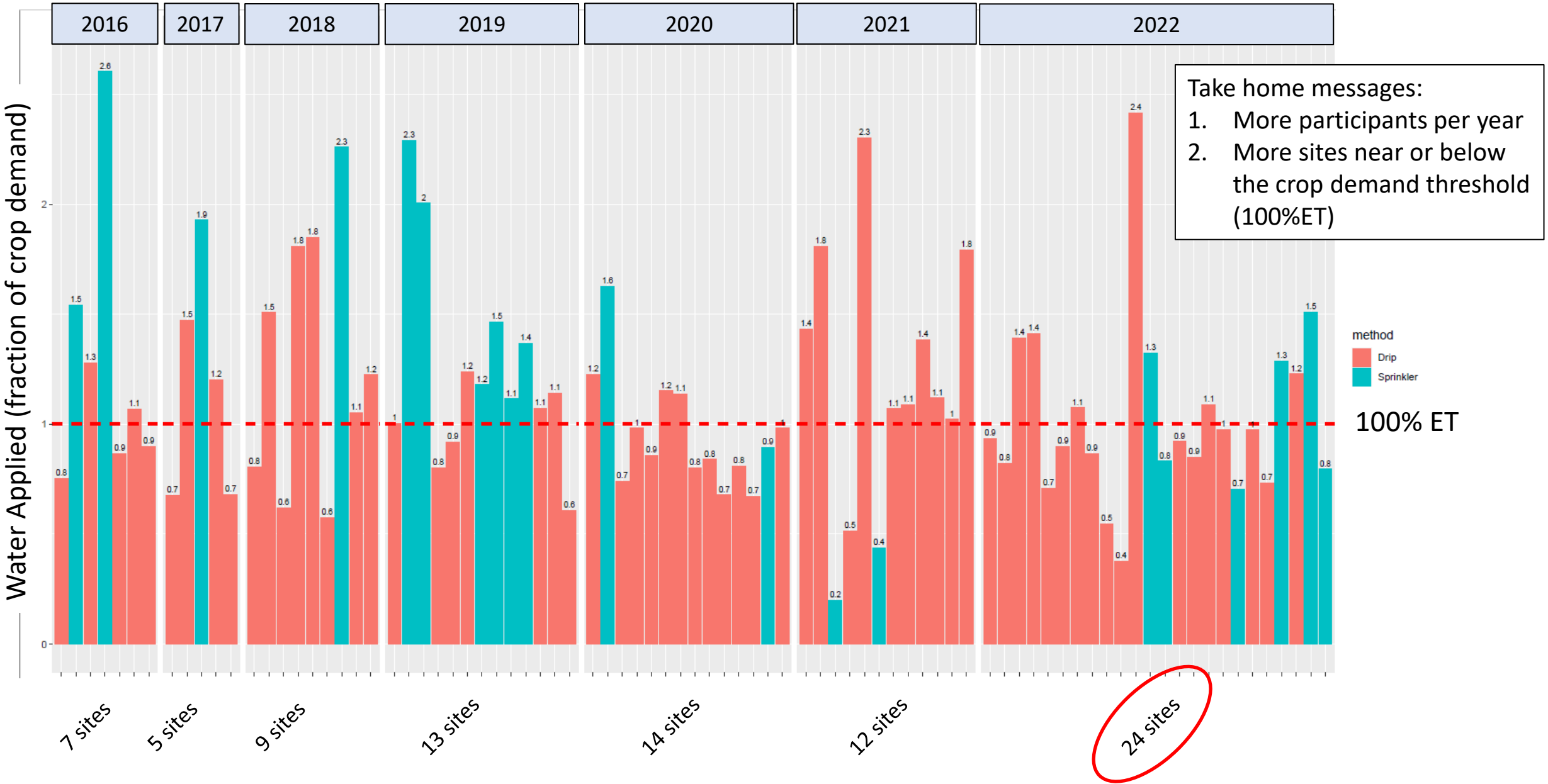
Sprinkler to drip conversion

Side-by-side trial



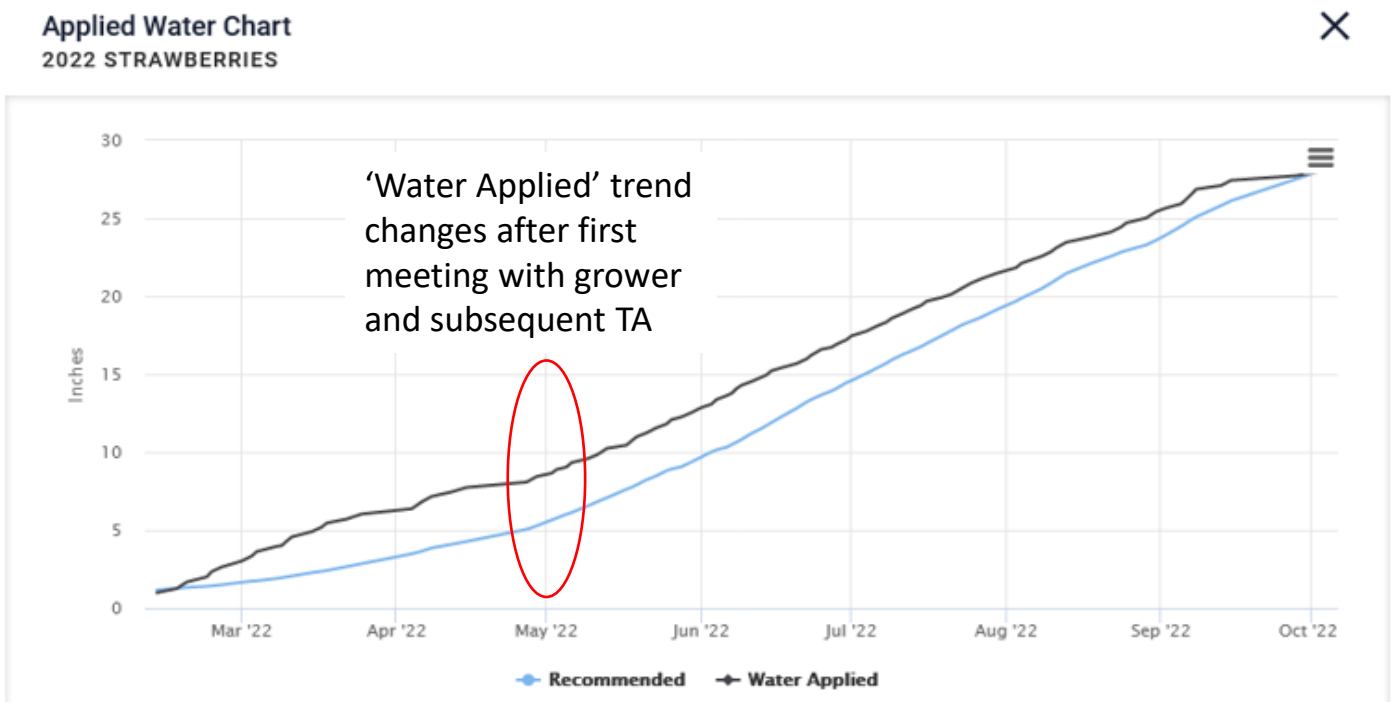
(Drip block had more irrigation events but lower total applied)

2016-2022 Program Growth & Performance



Water Conservation Impact

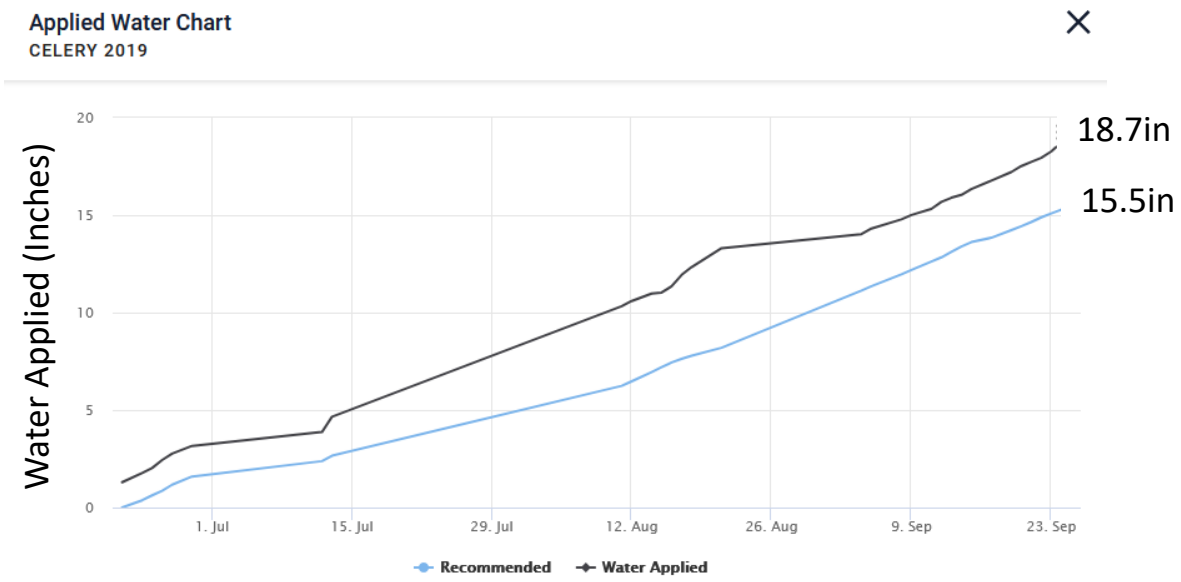
Do growers adjust their management based on monitoring feedback?



Many of them do!…and some even use CropManage to generate and follow recommendations (as intended by its designers)

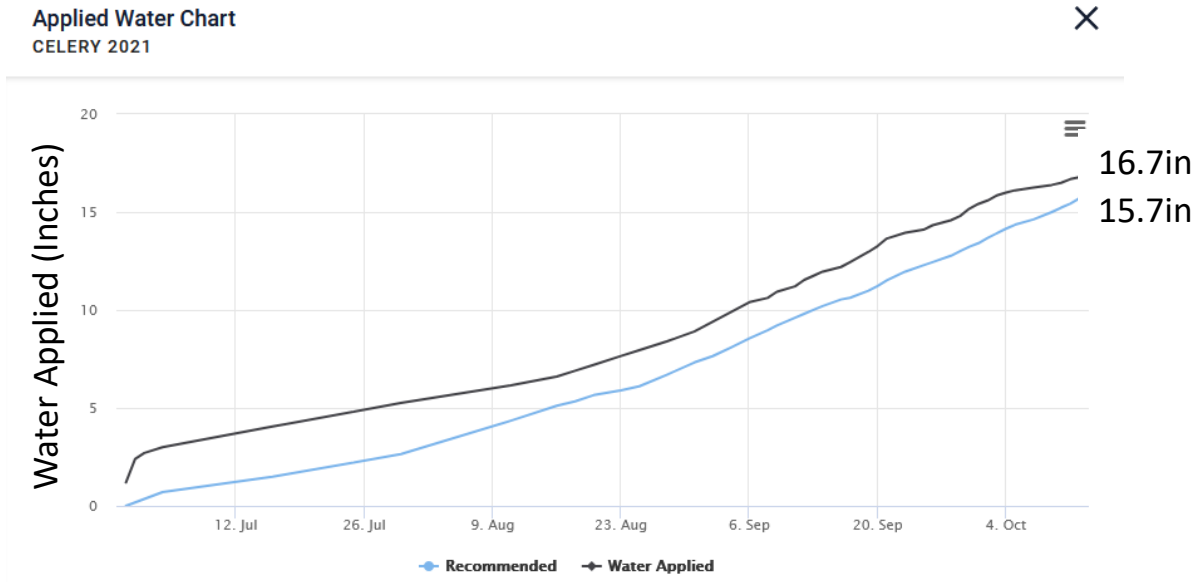
Example of grower response and improvement
Same ranch and crop, two different years
(Celery, Sprinklers)

2019



Applied water = 18.7in

2021



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Water Conservation Impact

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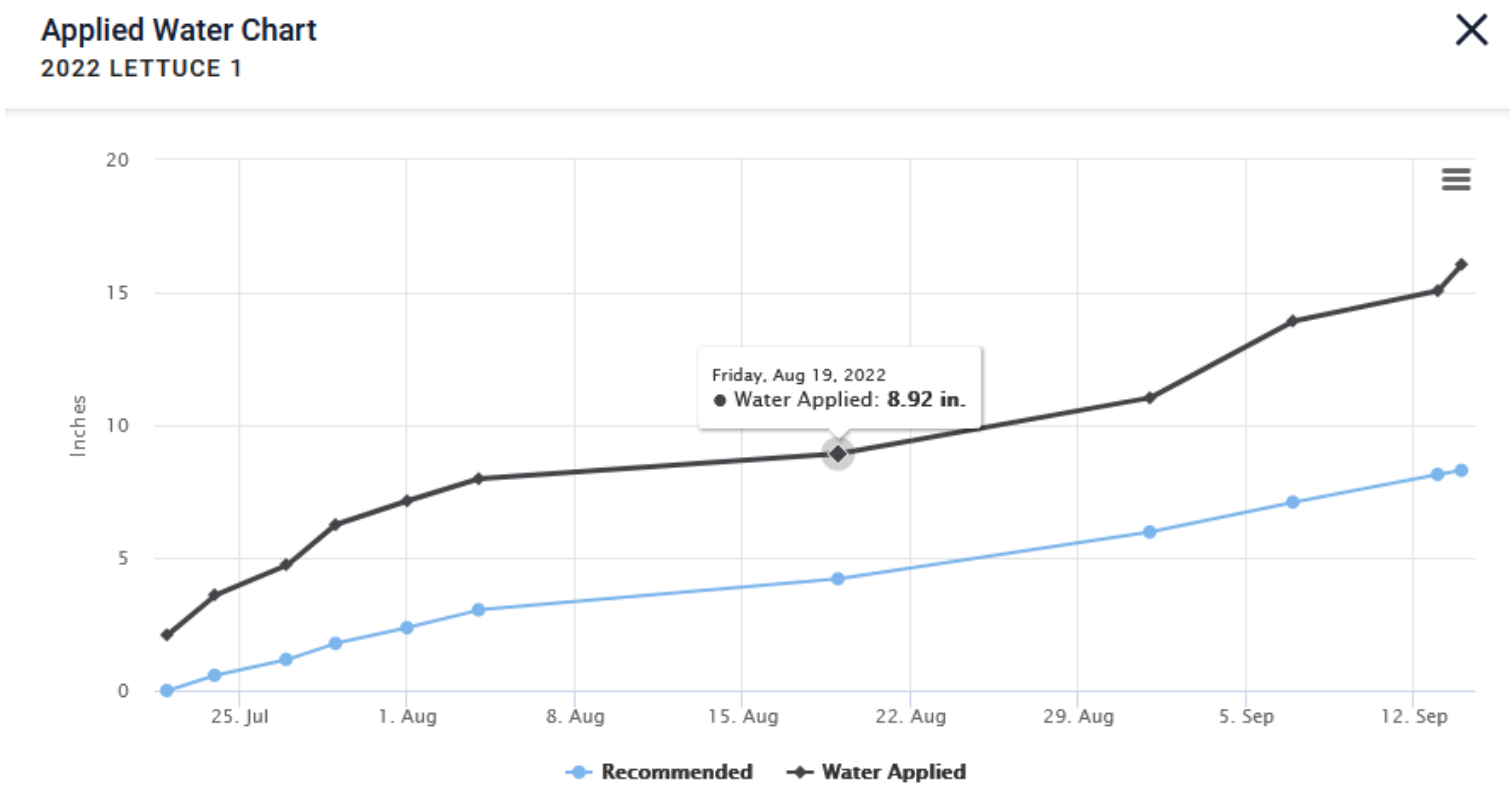


Some don’t… but still find value in the program (it’s a process)

Focus Areas moving forward…

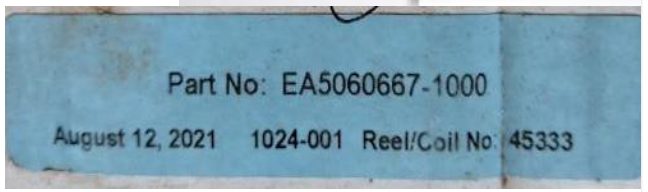
Pay attention to the whole system

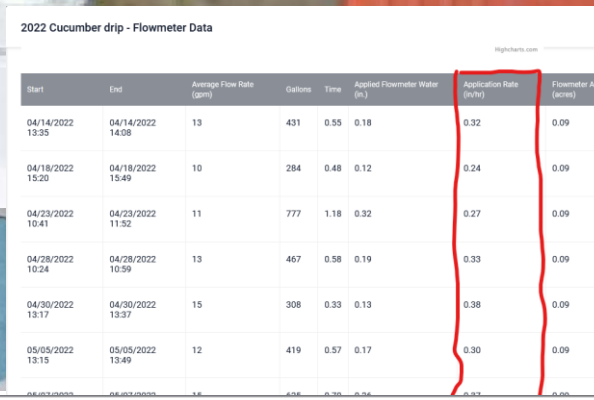
- Typical Irrigation Efficiency work can focus on one or two technical components without considering actual use
  - For example, uniformity as only measure of efficiency
- Reality can be quite different
  - Shared Wells
  - Block sizes
  - Labor constraints
  - Control of system
- All can contribute to overwatering!

High Value Concepts

aka “low hanging fruit”

- Pressure Measurement
  - Relatively easy
  - Much to be learned if this is done
- Drip tape or Sprinkler flow rate
  - Match to soil type
  - Decrease flow rate to conserve water
- Application rate
  - Highly variable!
  - Irrigators speak in minutes/hours
  - This is the translator





Emitter Flow Part Number	Outlet Spacing		Emitter Flow Rate				Q-100				Emitter Exponent
			gph		lph		gpm/100 ft		lph/1 meter		
	in	cm	@ 8 psi	@ 10 psi	@ 0.55 bar	@ 0.7 bar	@ 8 psi	@ 10 psi	@ 0.55 bar	@ 0.7 bar	
Ultra-Low Flow											
0.07 gph emitter											
EAXxx0817	8	20	0.07	0.08	0.26	0.30	0.17	0.20	1.30	1.47	0.55
EAXxx1609	16	40	0.07	0.08	0.26	0.30	0.09	0.10	0.65	0.74	
0.09 gph emitter											
EAXxx0822	8	20	0.09	0.10	0.34	0.38	0.22	0.25	1.66	1.88	0.53
EAXxx1611	16	40	0.09	0.10	0.34	0.38	0.11	0.13	0.83	0.94	
0.10 gph emitter											
EAXxx0825	8	20	0.10	0.11	0.38	0.43	0.25	0.28	1.86	2.11	0.50
EAXxx1613	16	40	0.10	0.11	0.38	0.43	0.13	0.14	0.93	1.05	
0.13 gph emitter											
EAXxx0467	4	10	0.13	0.15	0.51	0.57	0.67	0.75	4.99	5.58	
EAXxx0644	6	15	0.13	0.15	0.51	0.57	0.44	0.50	3.33	3.72	
EAXxx0834	8	20	0.13	0.15	0.51	0.57	0.34	0.37	2.50	2.79	
EAXxx1222	12	30	0.13	0.15	0.51	0.57	0.22	0.25	1.66	1.86	0.50

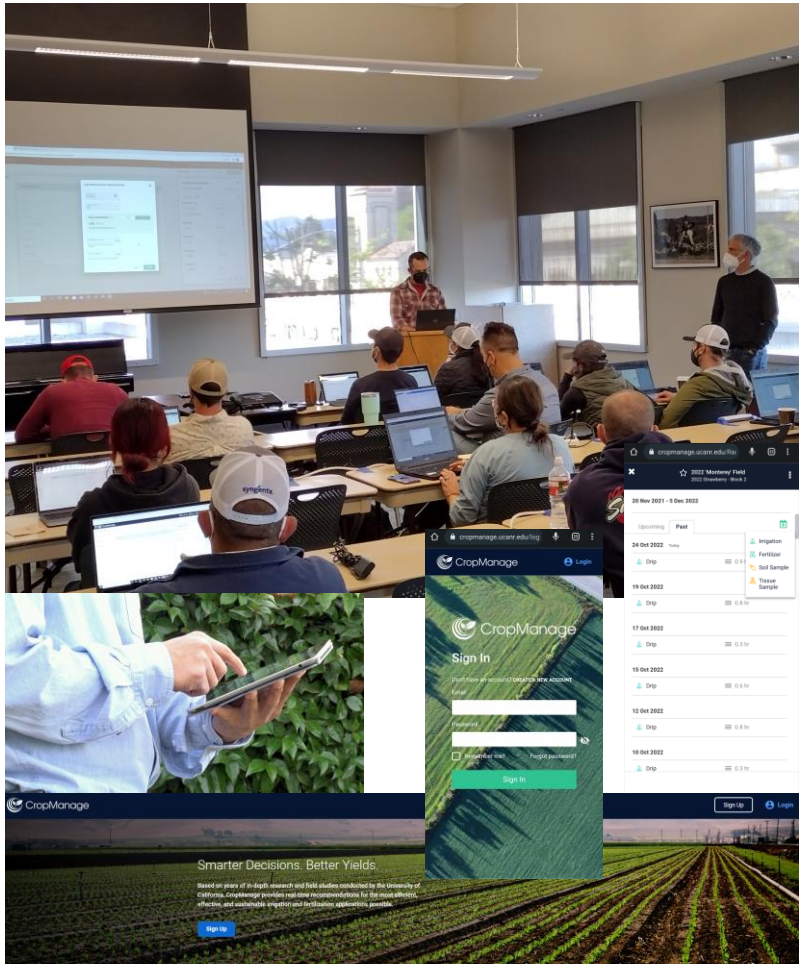
Not all growers are created equal

- Important to custom tailor assistance to growers need.
  - Involve the right people – irrigators, managers, etc.
  - Printed vs. online reports
  - Language appropriate
  - Train to participants knowledge level

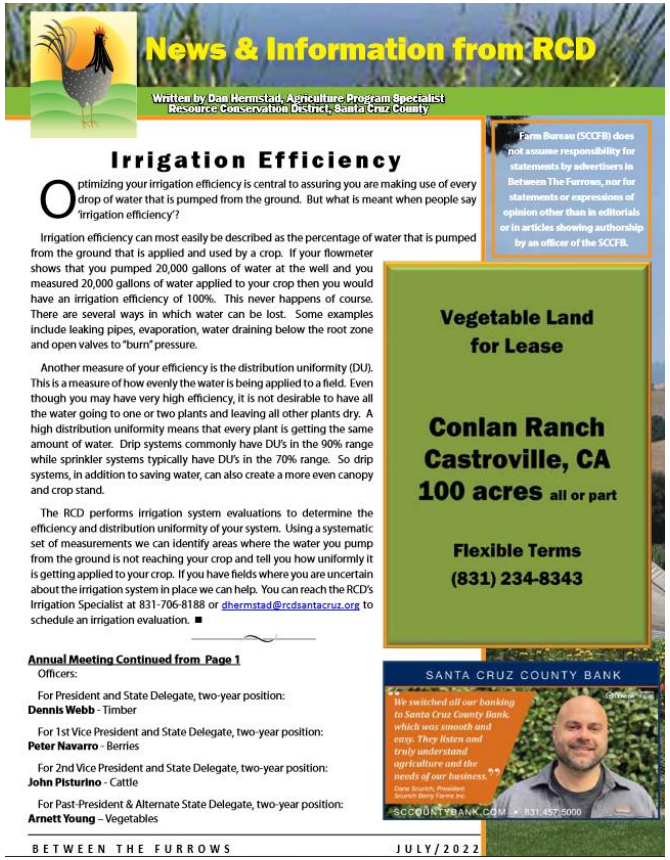
Outreach and Education

Irrigator trainings in Spanish

CropManage workshops



Newsletter articles



News & Information from RCD

Written by Dan Hermstad, Agriculture Program Specialist
Resource Conservation District, Santa Cruz County

Irrigation Efficiency

Optimizing your irrigation efficiency is central to assuring you are making use of every drop of water that is pumped from the ground. But what is meant when people say 'irrigation efficiency'?

Irrigation efficiency can most easily be described as the percentage of water that is pumped from the ground that is applied and used by a crop. If your flowmeter shows that you pumped 20,000 gallons of water at the well and you measured 20,000 gallons of water applied to your crop then you would have an irrigation efficiency of 100%. This never happens of course. There are several ways in which water can be lost. Some examples include leaking pipes, evaporation, water draining below the root zone and open valves to "burn" pressure.

Another measure of your efficiency is the distribution uniformity (DU). This is a measure of how evenly the water is being applied to a field. Even though you may have very high efficiency, it is not desirable to have all the water going to one or two plants and leaving all other plants dry. A high distribution uniformity means that every plant is getting the same amount of water. Drip systems commonly have DU's in the 90% range while sprinkler systems typically have DU's in the 70% range. So drip systems, in addition to saving water, can also create a more even canopy and crop stand.

The RCD performs irrigation system evaluations to determine the efficiency and distribution uniformity of your system. Using a systematic set of measurements we can identify areas where the water you pump from the ground is not reaching your crop and tell you how uniformly it is getting applied to your crop. If you have fields where you are uncertain about the irrigation system in place we can help. You can reach the RCD's Irrigation Specialist at 831-706-8188 or dhermstad@rcdsantacruz.org to schedule an irrigation evaluation. ■

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Annual Meeting Continued from Page 1

Officers:

For President and State Delegate, two-year position:
Dennis Webb - Timber

For 1st Vice President and State Delegate, two-year position:
Peter Navarro - Berries

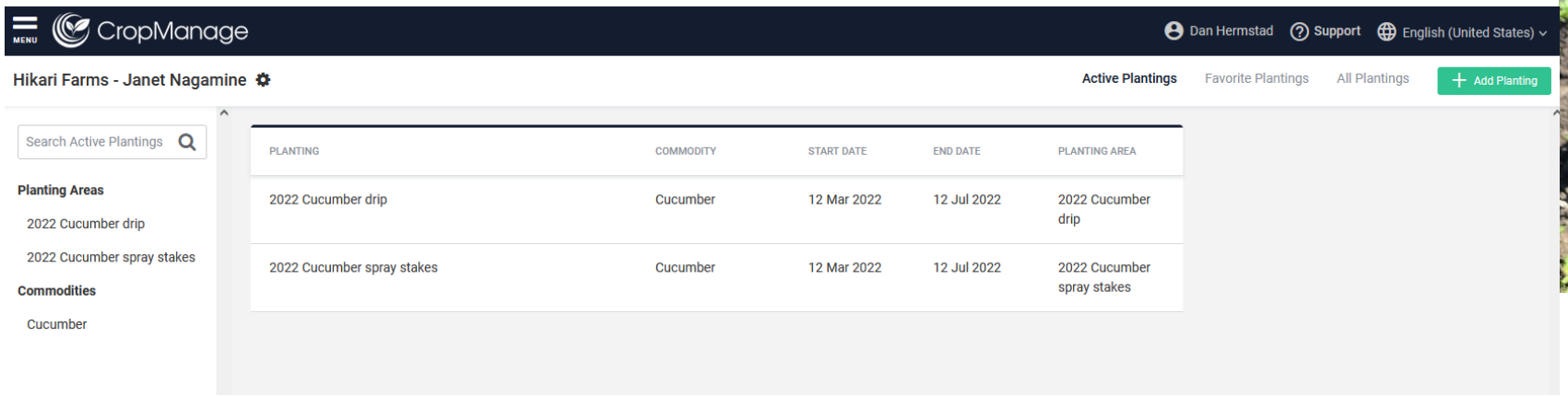
For 2nd Vice President and State Delegate, two-year position:
John Pisturino - Cattle

For Past-President & Alternate State Delegate, two-year position:
Arnett Young – Vegetables

BETWEEN THE FURROWS JULY/2022

Pro’s and Con’s to Tech

- System automation
- When is Ag tech ready for the real world?
- What new products are being used to save water?
- Will it disappear or remain?



Previous recommendations that have been incorporated through adaptive management

- Improve rebate program to match 50% of grower's costs to implement practices – up to $10,000
- Increase resources for conservation program by hiring more RCD staff
- Expand outreach to vegetable growers and overhead sprinkler users
- Implement conversion to drip in vegetables and nurseries
- Assure that CIMIS stations are maintained and establish one station inland
- Expand outreach and engagement with growers

Questions?

RESOURCE
CONSERVATION DISTRICT
OF SANTA CRUZ COUNTY

UCCE University of California Cooperative Extension