

Update on the Arkansas Discovery Farms Program

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Today's presentation

- Why we need it
- How it operates
- The Discovery Farms
- What we have found so far
- Herding elephants
- Lessons learnt on water quality



Why we need it

- Several core farms across region
 - Reflect dominant farm systems across Arkansas
- On-farm research and demonstration
- Address local and regional water issues
 - Northwest Arkansas
 - Gulf of Mexico hypoxia
 - Water quantity and use issues
- Demonstrate success stories



Why we need it

- Sound science
- Research-based and unbiased
- Transparent
- Stakeholder driven / producer led
- Partnerships

“Address with science not emotion”

Our Discovery Farm Team:



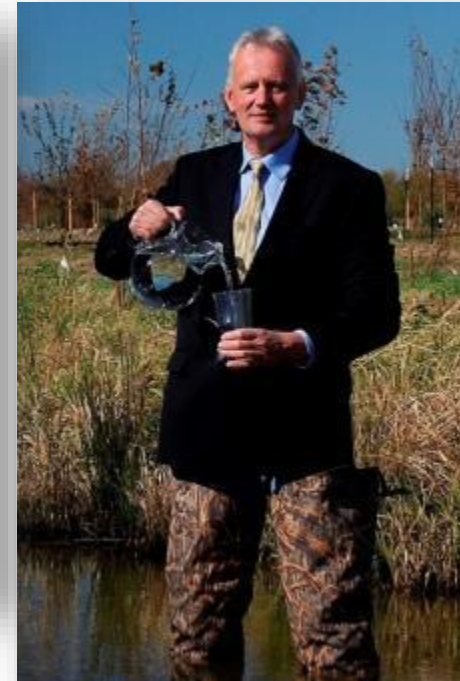
Mike Daniels



Cory Hallmark



Larry Berry



Andrew Sharpley





Stakeholder Committee

Woody Bryant (Chair)	Dairy Producer
Andrew Wargo (Liaison)	Association of Conservation Districts
Max Braswell	AR Forestry Association
Terry Dabbs	AR Farm Bureau
Brad Doyle	AR Soybean Association
Jennifer James	Rice Federation
Adam McClung	AR Cattlemen's Association
Gene Pharr	Poultry Producers
Scott Simon	Nature Conservancy
Steve Stephan	Pork Producers Association
Dennis Sternberg	Rural Water Association



Technical Committee

Adrian Baber (Chair)

Natural Resources Commission

Debbie Moreland (Liaison)

Association of Conservation Districts

Dewayne Goldman

Monsanto Inc.

Jamey Johnson

Plant Board

Billy Justus

U.S. Geological Survey

David Long

AR Game and Fish Commission

Teresa Marks

AR Dept. Environmental Quality

Larry Nance

AR Forestry Commission

Cliff Snyder

International Plant Nutrition Institute

Evan Teague

AR Farm Bureau

Lewis Wray

Livestock and Poultry Commission

Nancy Young

Natural Resource Conservation Service

Wedington

Rotational beef

Elkins & Lincoln

Poultry - beef

Lincoln

Poultry

Cherry Valley

Soybean, wheat, rice

Atkins

Poultry - beef

Morrilton

Beef

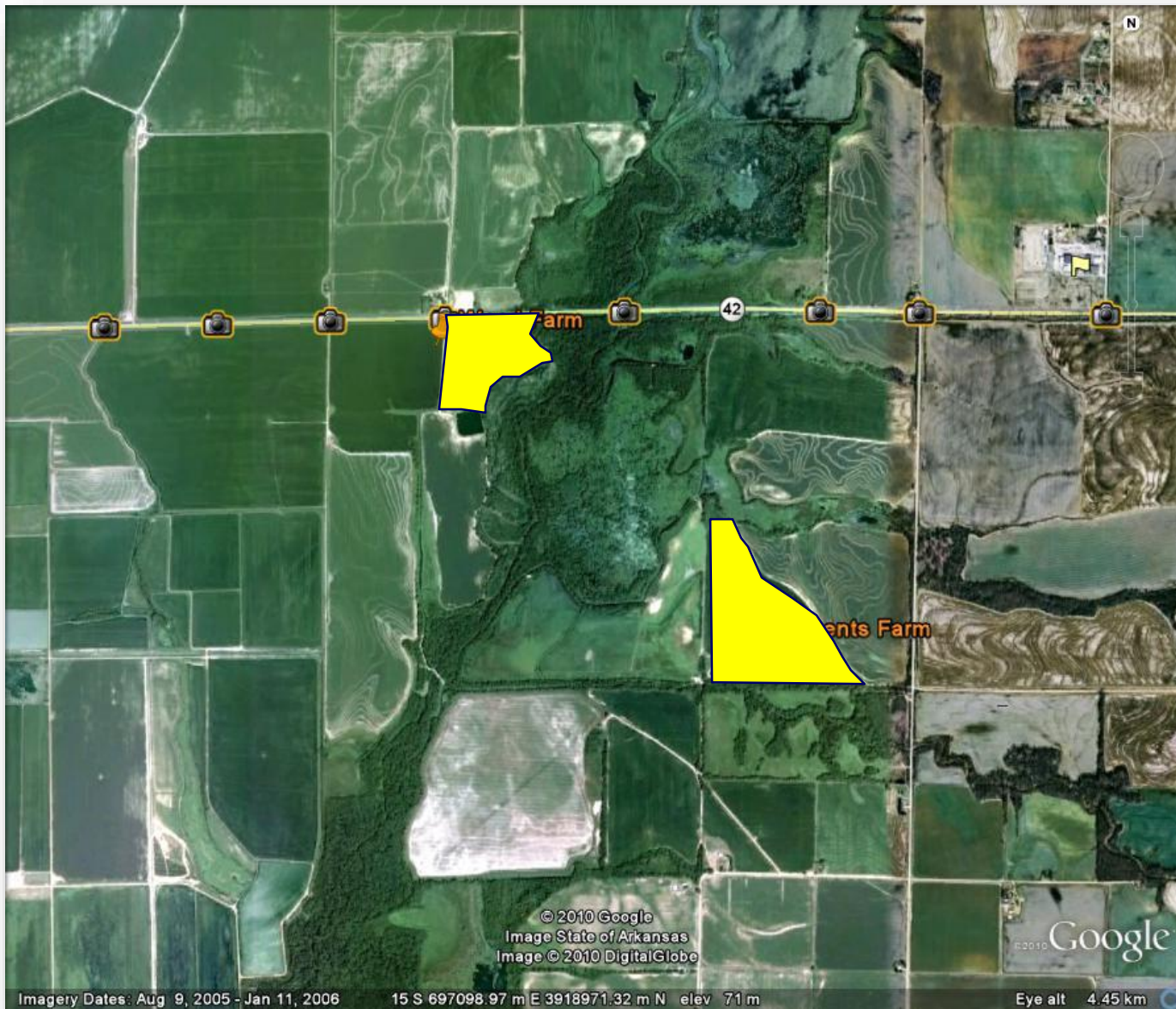
Stuttgart

Rice, soybean, corn

Dumas

Cotton & corn

Cherry Valley





Clements Farms

- Cherry Valley, Cross Co., L'Anguille Watershed
 - Soybean (1,100 ac), rice (500 ac), wheat (300 ac)
 - Conventional tillage & water management











Wood Farms

- Cherry Valley, Cross Co., L'Anguille Watershed
 - Soybean (1,600 ac), rice (1,000 ac)
 - Conservation tillage & buffers
 - Conversion to surface water w/ reservoir and relift as MRBI participant

L'Anguille River

42

Wood Soybean Flow Meter



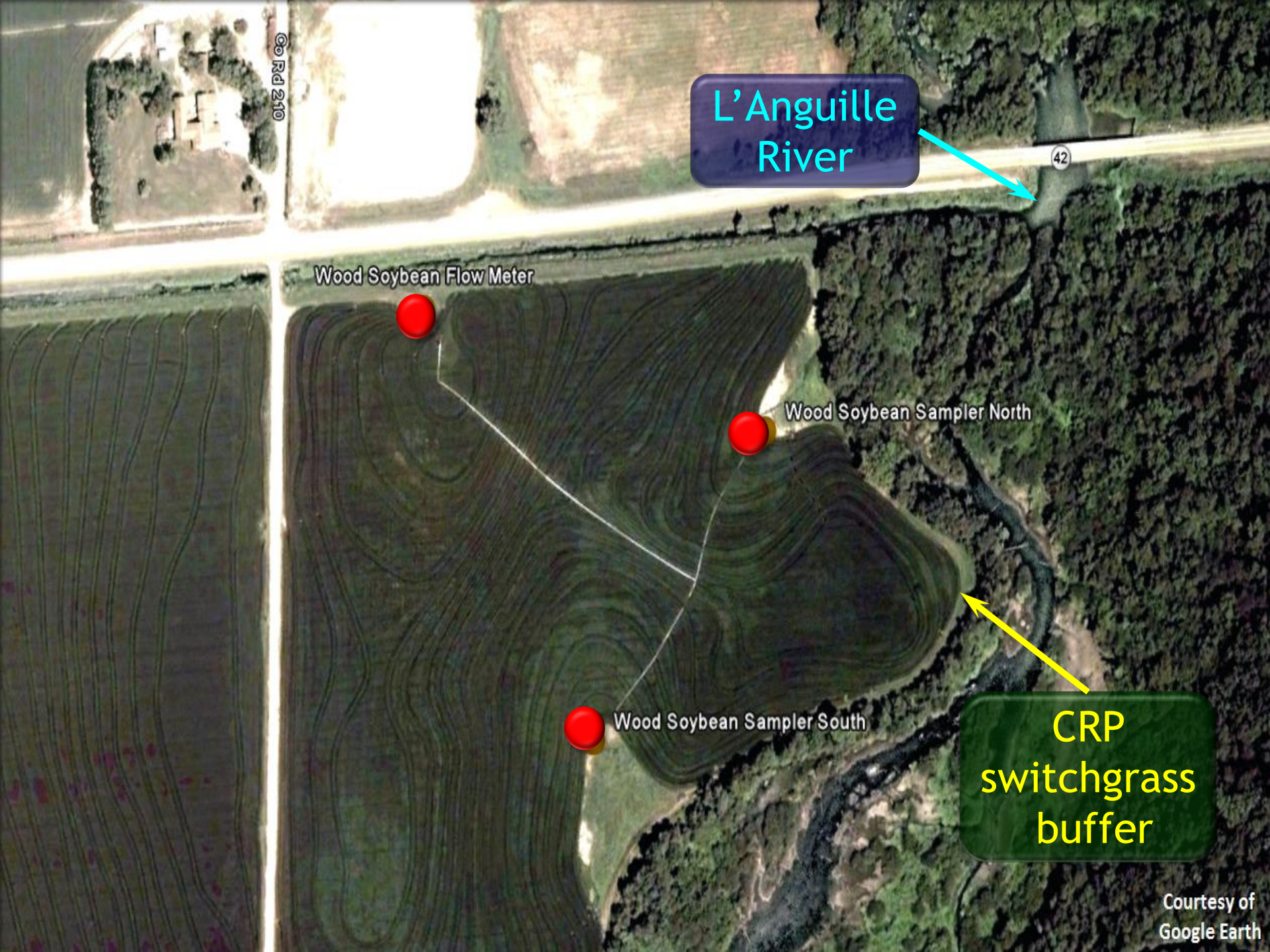
Wood Soybean Sampler North



Wood Soybean Sampler South



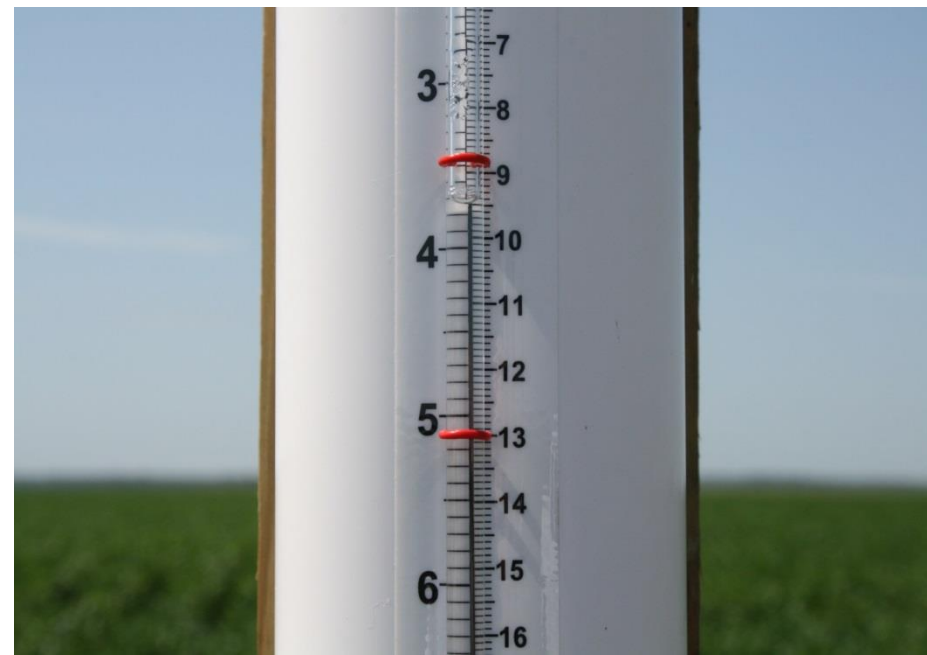
CRP switchgrass buffer







Monitoring Irrigation Water Management





MAN'S

WARNING
DO NOT
LOOSELY









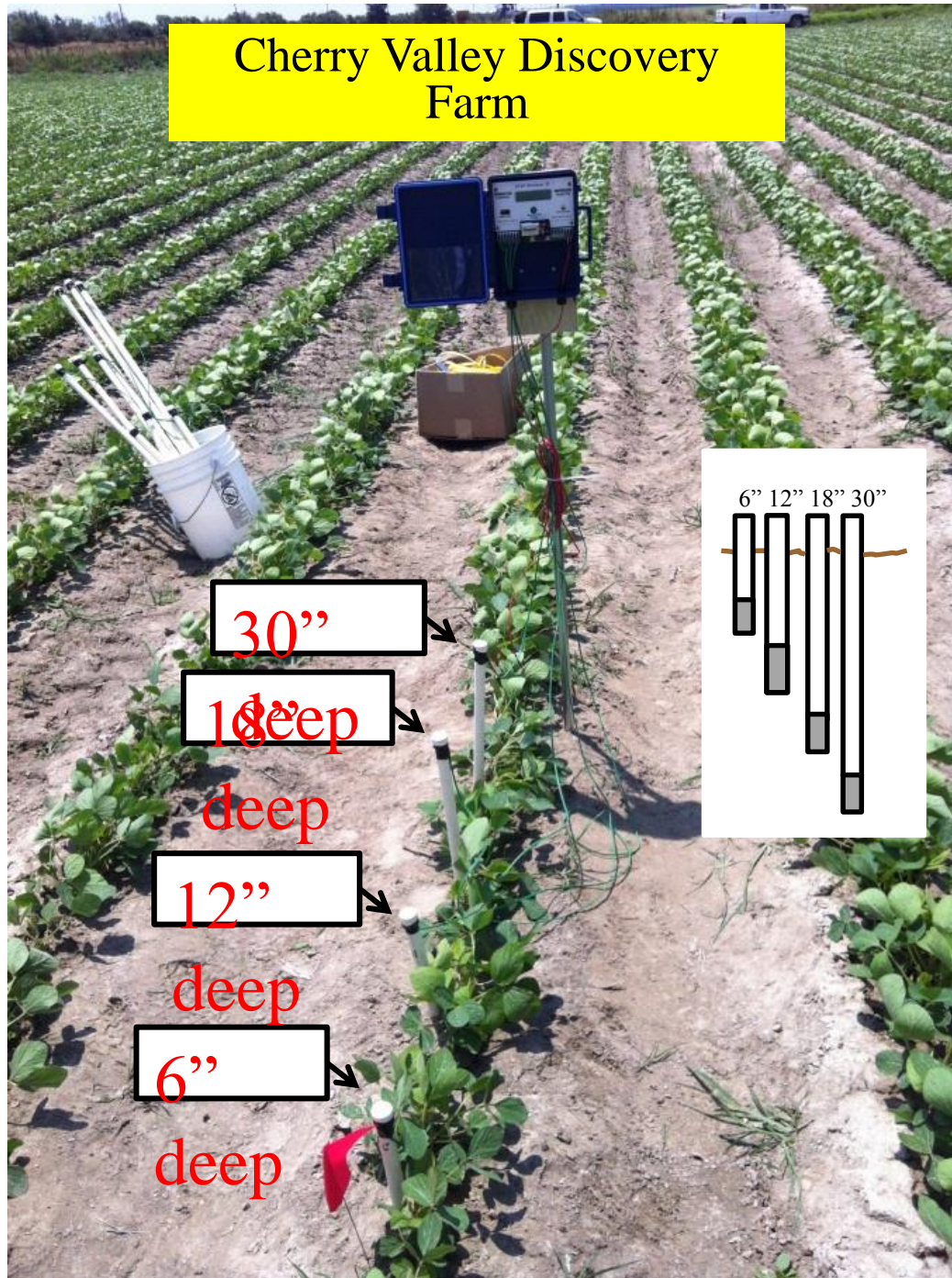
Diss. P	Total P	Nitrate-N	Total solids
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----- ppm -----

Well water	0.010	0.038	0.05	500
Clements 1	0.071	0.353	0.21	762
Clements 2	0.027	0.285	0.66	565
Well water	0.023	0.064	0.10	437
Wood 1	0.081	0.344	0.40	532
Wood 2	0.095	0.429	0.75	428



Cherry Valley Discovery Farm



- Soybean field split in half
 - Half irrigated according to Arkansas Irrigation Scheduler (AIS treatment)
 - Other half irrigated according to the Atmometer (ET treatment)
- Two sets of Watermark sensors (4 depths) in AIS half of field and two sets of Watermark sensors in ET half of field
- “There was virtually no difference between the two scheduling methods.” –Rick Wimberley Both sides of the field were irrigated at the same time.

Water flow



ET 1

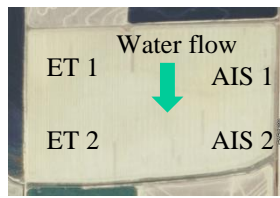
AIS 1

ET 2

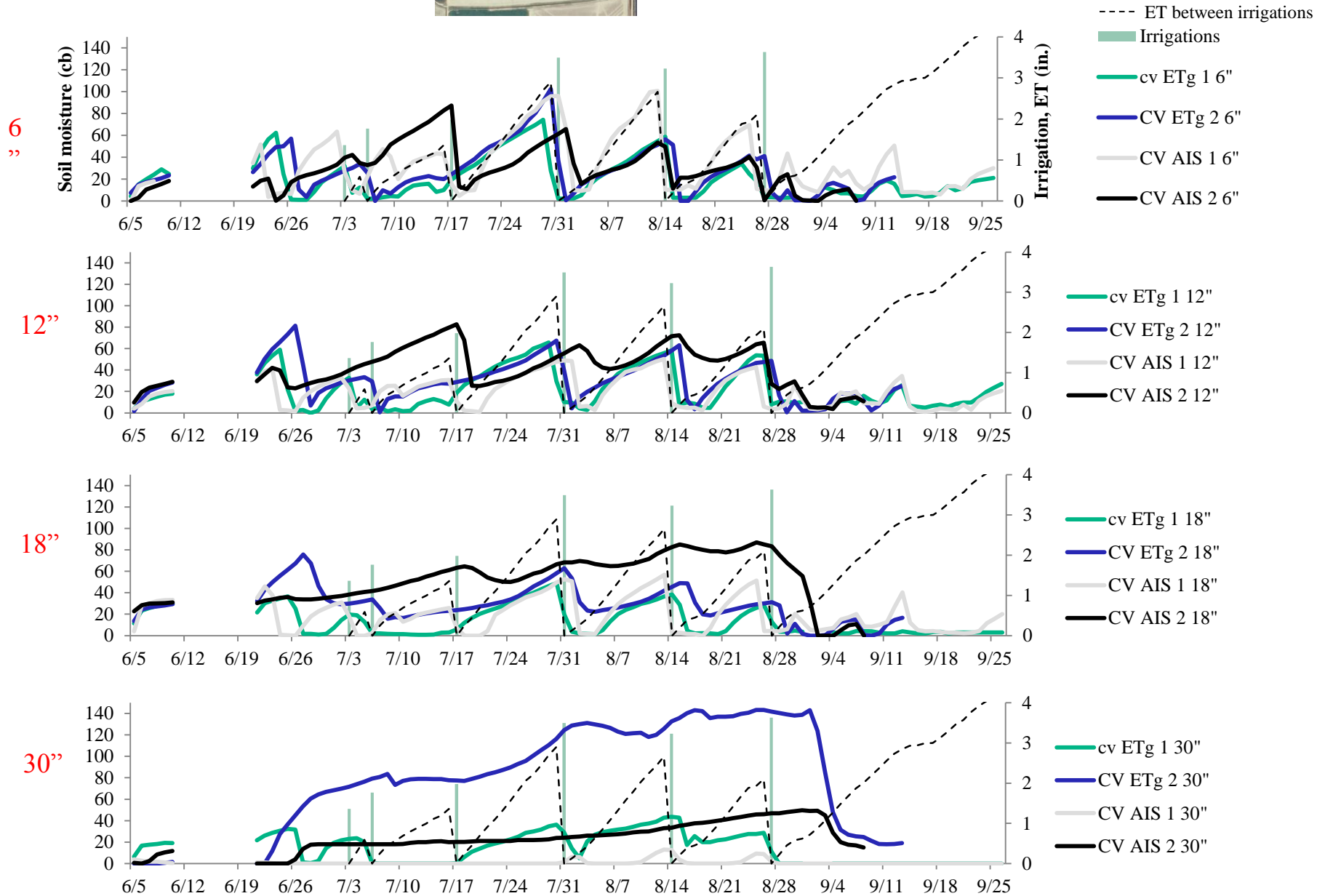
AIS 2

0011912

Cherry Valley Discovery Farm



Soil moisture trends



Cherry Valley Discovery Farm

Site	Size (acres)	Crop	Total irrigation amount (acre-in)	# of times irrigated
AR Irrig. Scheduler soybean field (west half)	52.5	Soybean	~18.0	7
ET gage soybean field (east half)	52.5	Soybean	~18.0	7
Wood farm 1/2	21	Soybean	10.4	3
Clements farm 1/2	66	Soybean	10.0	3

Most important farmer involvement







Thank you

