

Yuma Fall 2025 Romaine Trial

Stretta – Drought Evaluation

PI: Robert Masson

Assistant Ag Extension Agent

Yuma County Cooperative Extension



THE UNIVERSITY OF ARIZONA

Cooperative Extension

Yuma County

Summary

- Reduced water plants were slightly heavier than full water plants, and slightly more marketable heads (lower walkby percent). For evaluation purposes we may want to consider the full water group as slightly excessive water, with an irrigation level above 100% of ETC requirements.
- Stretta plants had similar total biomass yield to UTC in corresponding irrigation groups.
- Two types of salinity probes were used, but the technology was found to be too highly correlated to soil moisture to be trusted.
- Soil samples taken at the end of the trial, particular SAR salt paste extract analysis, showed significantly less “salts” Na, Mg, Ca than UTC in the ‘Full Water’ group and similar levels in the reduced water group, indicating a better leaching when Stretta is applied and higher water levels are used.
- Note: Temperatures were significantly hotter than normal, advancing harvest date two weeks ahead of initial forecast
- Note: Aphids encountered on plants but spray was applied multiple times to control them

Trial Details

- Product comparison trial
 - Trt1: Full water UTC
 - Trt2: Full water + Stretta 2 QT/AC + 1 QT/AC
 - Trt3: Reduced water UTC
 - Trt4: Reduced water + Stretta 2 QT/AC + 1 QT/AC
- Four treatment, six replication trial
- Planting Date: 11 Nov 2025
- Harvest Date: 26 Feb 2026 (108 DAP)

Product Applications

- App A: 2 QT/AC on Nov 10 (-1DAP)
- App B: 1 QT/AC on Dec 9 (29 DAP)

Mar-5-2026 (T-6 Stretta Water Reduction Trial)

ARM 2025.5 Spray/Seeding Plan Page 1 of 1

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T-6 Stretta

Trial ID: T-6 Stretta Water Reduction Trial
 Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025
 Project ID: T-6 Stretta Water Reduction Trial
 Study Director: Robert Masson Sponsor Contact:
 Investigator:

Reps: 6 Appl Code: A Plots: 3.5 by 30 feet
 Appl. Amount: 40 GAL/AC Mix Size: 2.19 L (total for 6 plots; minimum=2.19 L)

Trt No.	Treatment Name	Form Type	Rate	Appl Unit	Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
2	Full Water Stretta	L	2 qt/a	A		27.37 mL/mx	1207	1408	1209	1410	1211	1112
4	Reduced Water Stretta	L	2 qt/a	A		27.37 mL/mx	1407	1308	1409	1110	1311	1312

Reps: 6 Appl Code: B Plots: 3.5 by 30 feet
 Appl. Amount: 40 GAL/AC Mix Size: 2.19 L (total for 6 plots; minimum=2.19 L)

Trt No.	Treatment Name	Form Type	Rate	Appl Unit	Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6
2	Full Water Stretta	L	1 qt/a	B		13.69 mL/mx	1207	1408	1209	1410	1211	1112
4	Reduced Water Stretta	L	1 qt/a	B		13.69 mL/mx	1407	1308	1409	1110	1311	1312

Fertilization Plan

- Total N: 151
- 200# 11-52-0 MAP at preplant
- 12 GPA UAN 32
 - 12/8 (28 DAP)
 - 1/13 (54 DAP)
 - 2/2 (84 DAP)

Field Map

Mar-5-2026 (T-6 Stretta Water Reduction Trial)

University of Arizona

T-6 Stretta

Trial ID: T-6 Stretta Water Reduction Trial
 Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025
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Trial Map Treatment Description

Trt	Code	Description
1	CHK	Full Water UTC
2		Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
3		Reduced Water UTC
4		Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A



Pesticide

Date	Pesticide	Rate	Type	Method
11/13	Prefar	6.0 Q/A	Pre-emerge Herbicide	Sprinkler
1/15	Orondis Ultra	8.0 Oz/A	Fungicide	Spray
1/15	Quadris	12.0 Oz/A	Fungicide	Spray
1/15	Nu-Film	4.0 Oz/A	Adjuvant	Spray
1/25	Sequoia	4.0 Oz/A	Insecticide	Spray
2/4	Verimark	10.0 Oz/A	Insecticide	Spray
2/5	Verimark	10.0	Insecticide	Drip

Irrigation

Sprinkler rate: 0.1 IN/HR
 Drip rate: 0.186 Acre IN/HR

**Total Water Applied to full water
 treatment area 14.872 Acre IN
 Reduced Area 11.711**

Irrigation Date	Type	Full Irr Treatment Irrigation Hours	Full Irr Water Used (AC IN)	Reduced Irr Treatment Irrigation Hours	Reduced Irr Treatment Water Used (AC IN)
11/10	Drip	4	0.744	4	0.744
11/11	Sprinkler	10	1.000	10	1.000
11/12	Sprinkler	10	1.000	10	1.000
11/13	Sprinkler	8	0.800	8	0.800
11/14	Sprinkler	8	0.800	8	0.800
11/19	Sprinkler	8	0.800	8	0.800
11/20	Sprinkler	8	0.800	8	0.800
11/25	Drip	4	0.744	4	0.744
12/8	Drip	6	1.116	6	1.116
12/9	Drip	3	0.558	3	0.558
12/22	Drip	4	0.744	0	0
1/7	Drip	4	0.744	0	0
1/13	Drip	5	0.930	5	0.930
1/29	Drip	2	0.372	2	0.372

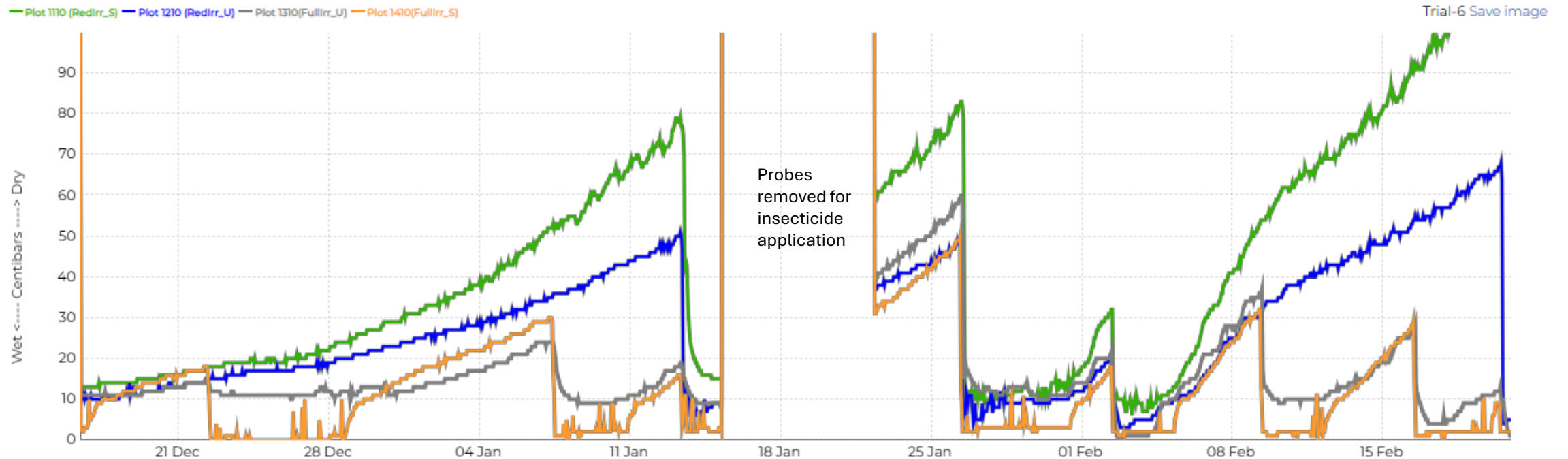
Irrigation

Sprinkler rate: 0.1 IN/HR

Drip rate: 0.186 Acre IN/HR

**Total Water Applied to full water
treatment area 14.872 Acre IN
Reduced Area 11.711**

Irrigation Date	Type	Irrigation Hours	Water Used (AC IN)	Reduced Irr Treatment Irrigation Hours	Reduced Irr Treatment Water Used (AC IN)
2/2	Drip	5	0.93	5	0.93
2/5	Drip	2	0.372	2	0.372
2/9	Drip	5	0.93	0	0
2/16	Drip	4	0.744	0	0
2/21	Drip	4	0.744	4	0.744

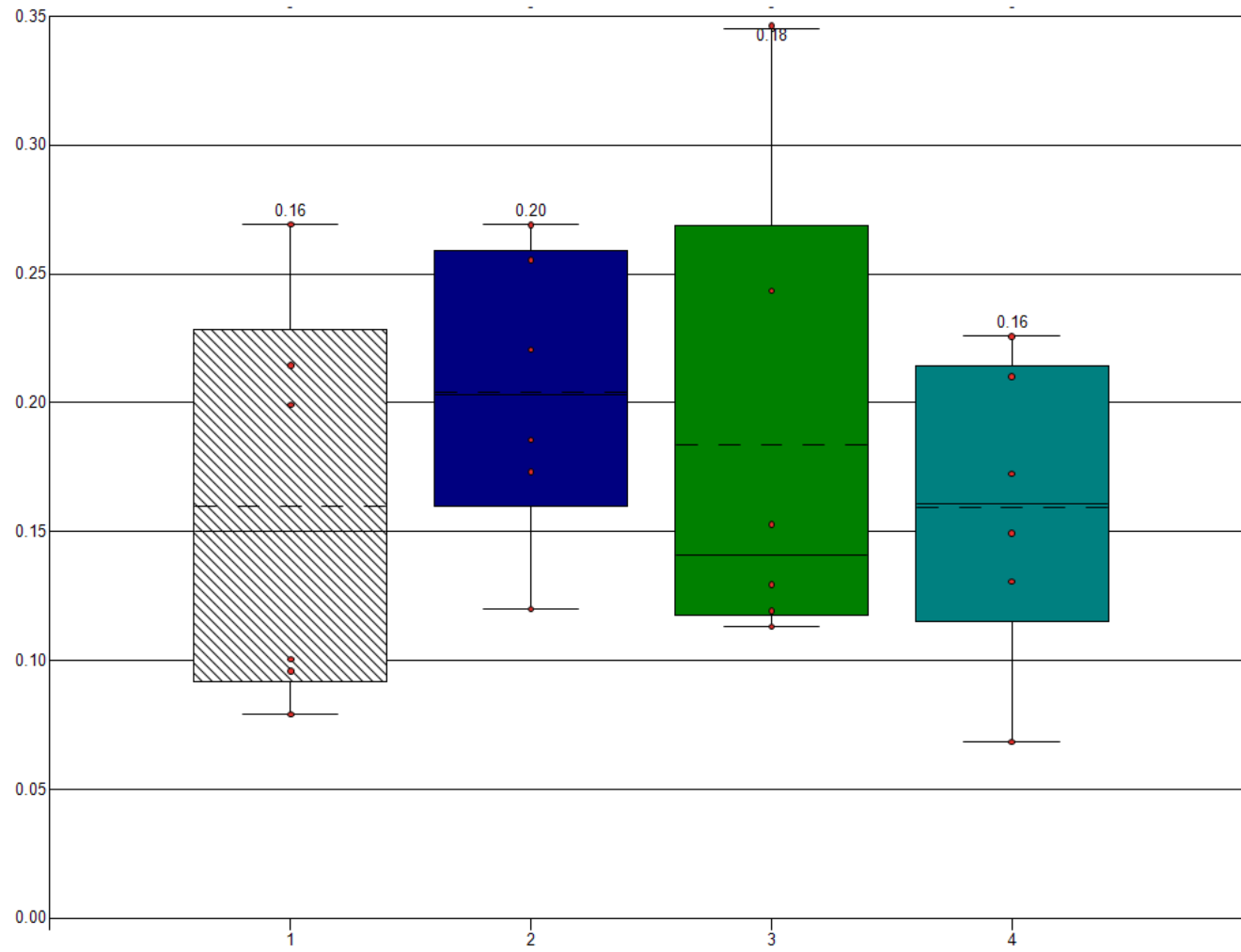


In Season Measurements (Dr. Bhupinder Singh)

- Net photosynthesis
- Gas exchange traits
 - Transpiration rate
 - Stomatal conductance
 - Vapor pressure deficit
- Light uptake traits
 - Maximum quantum yield
 - FY/FM
 - Electron transport rate
 - Chlorophyll content
- Meteorological traits
 - Canopy temperature
 - Surface temperature

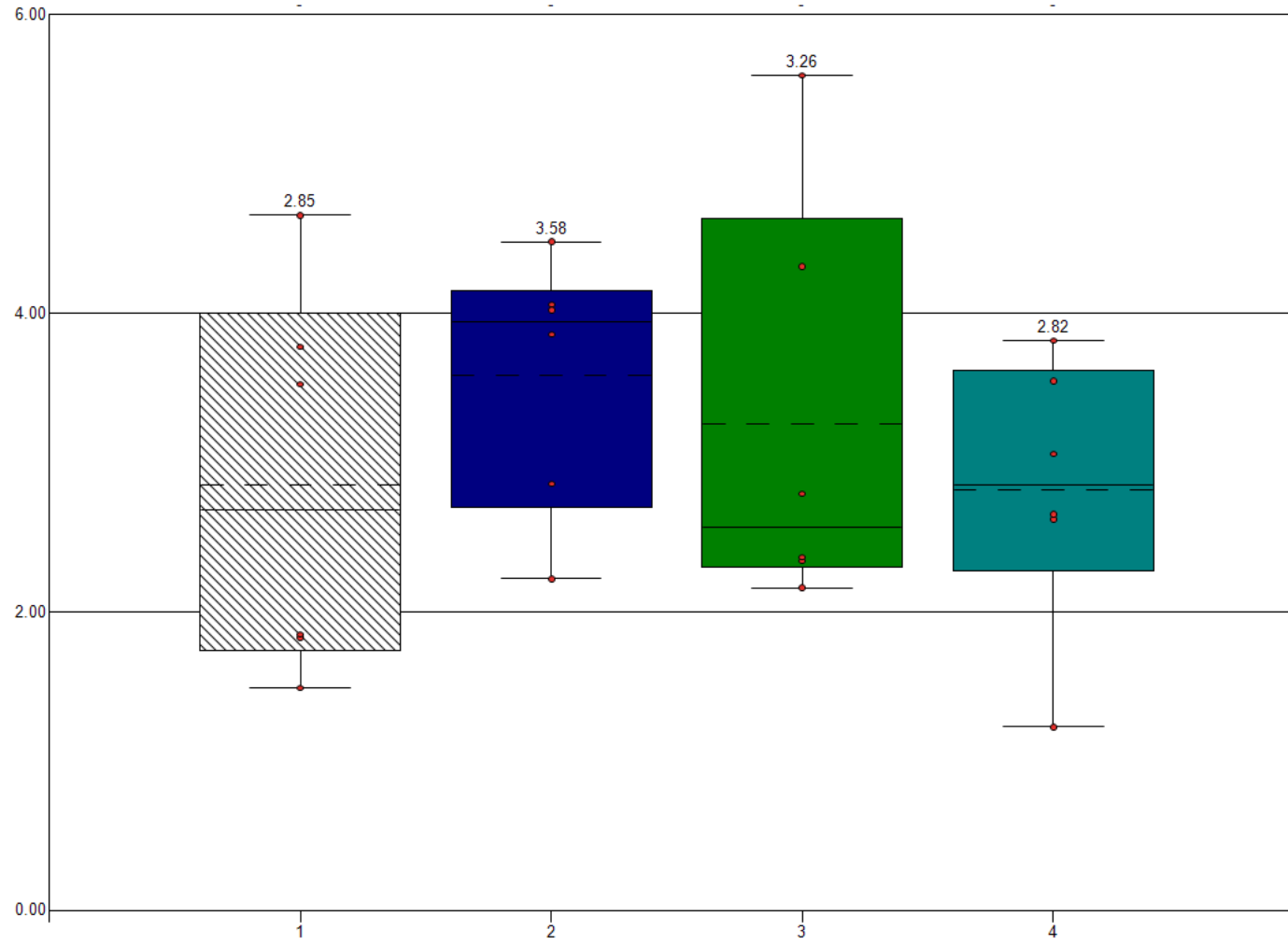


mol m⁻² Stomtal conductance



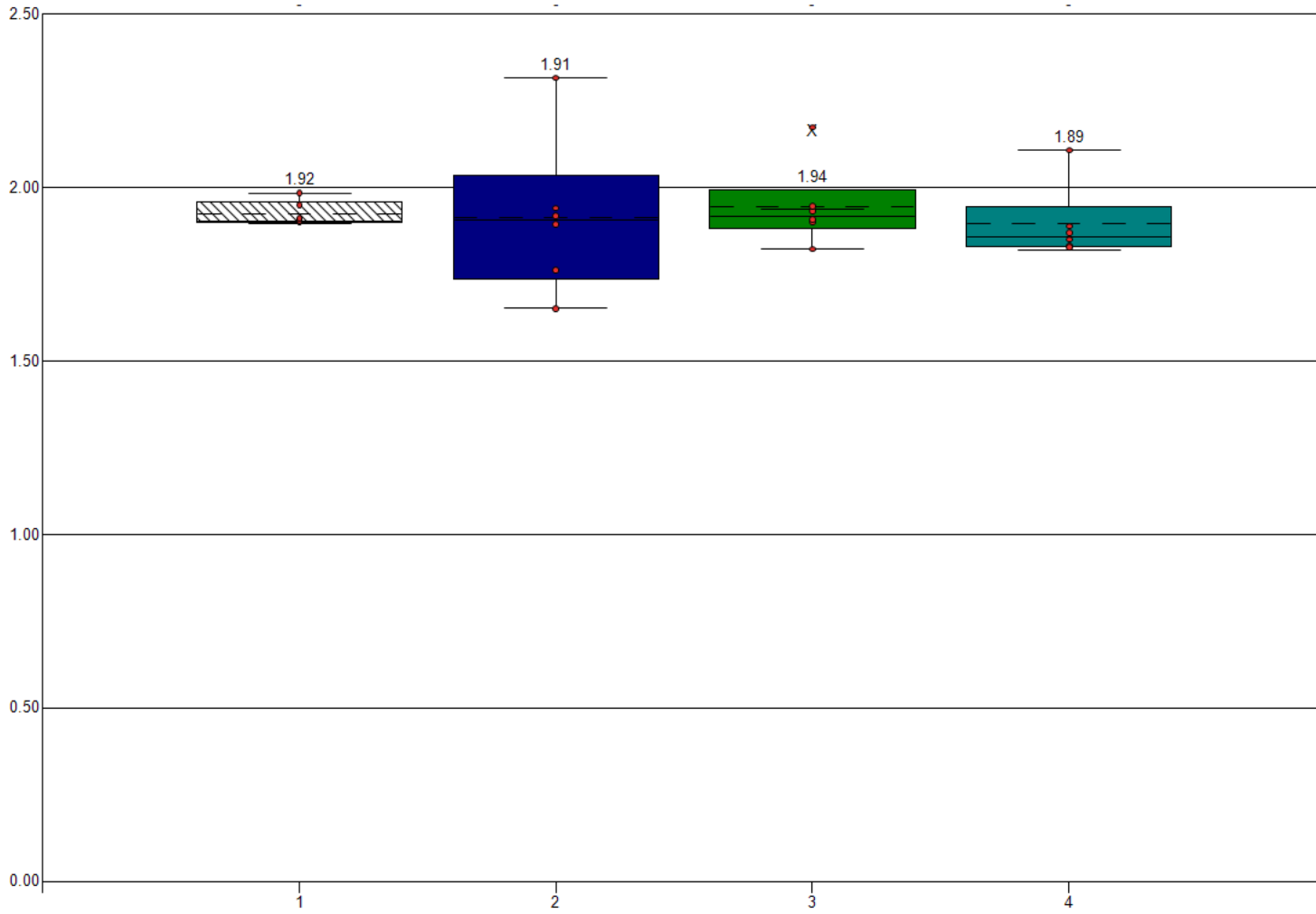
- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

mol m⁻² Transpiration



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

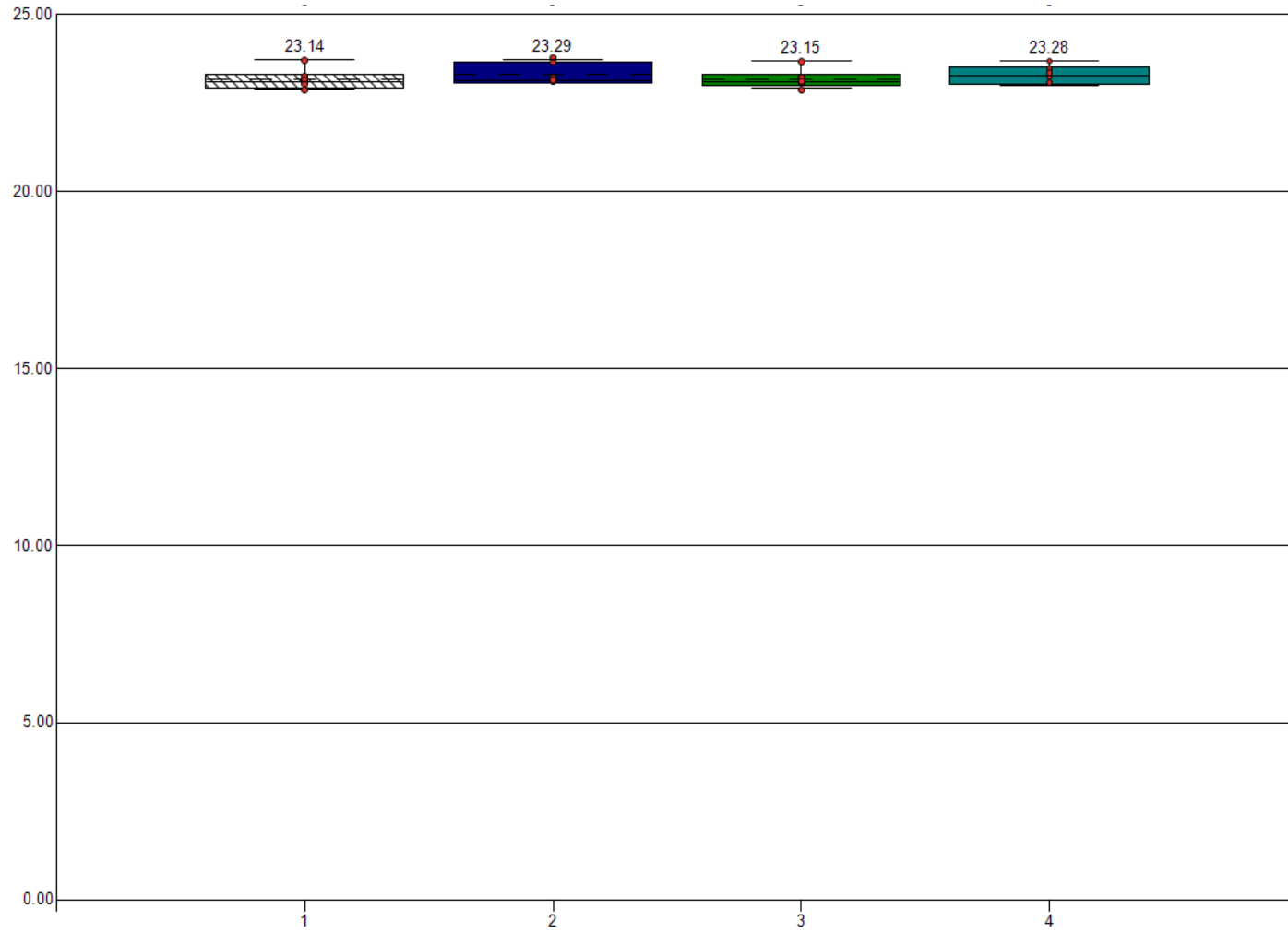
kPa VPDleaf



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

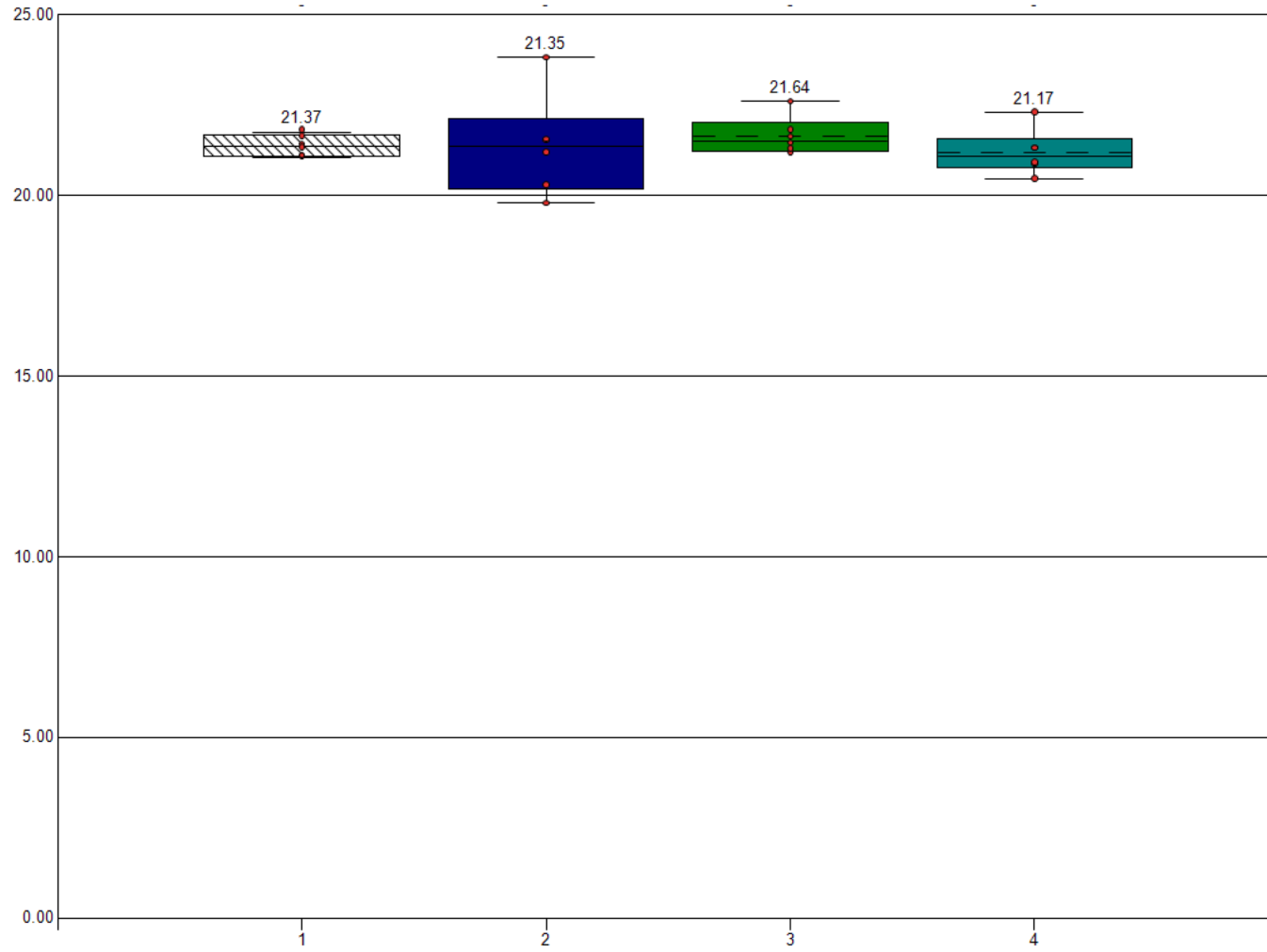
Yuma Romaine - Stretta Trial - Fall 2025

°C air temperature



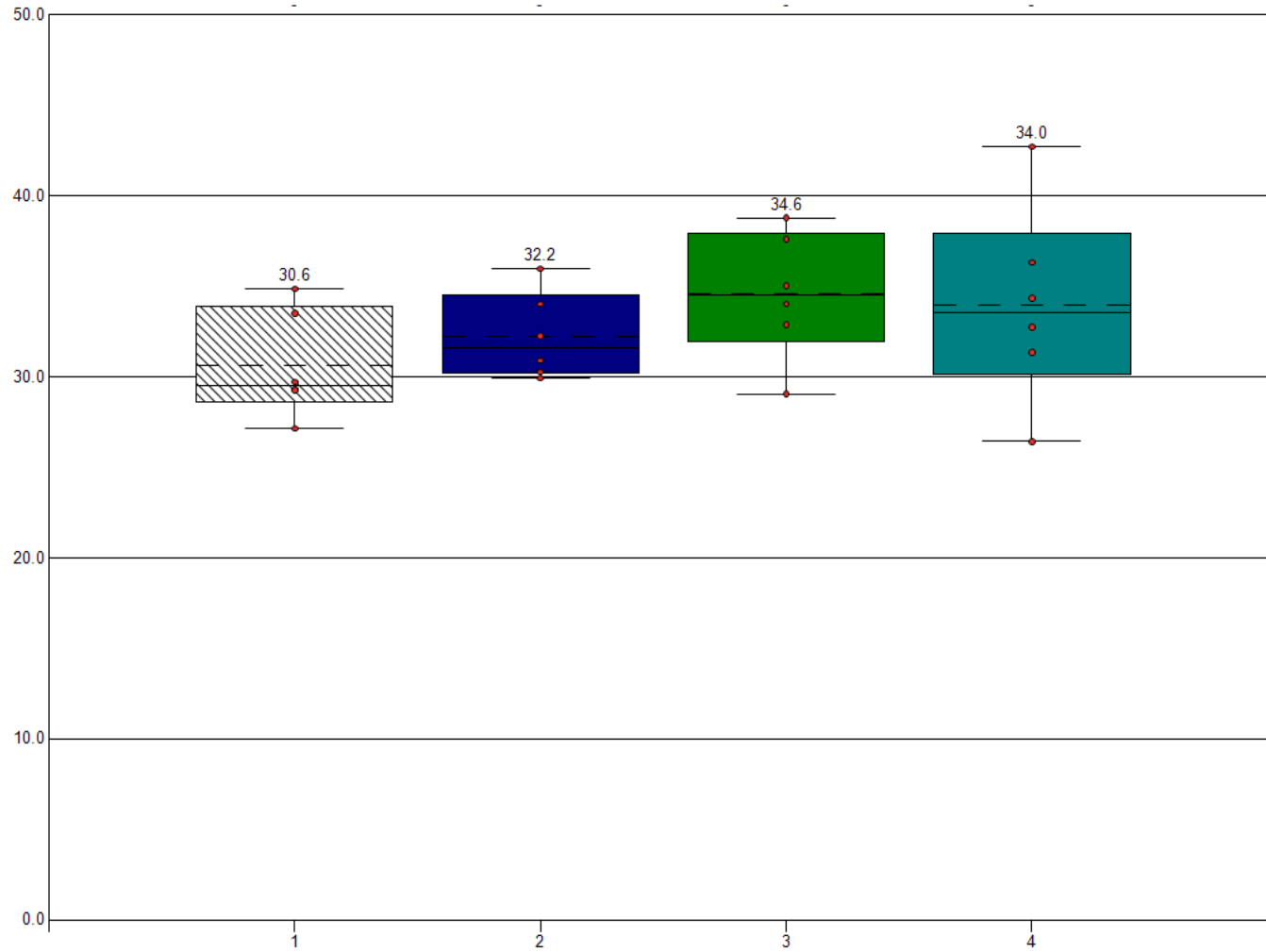
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°C Canopy Temperature



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

µg m-2 Chlorophyll content



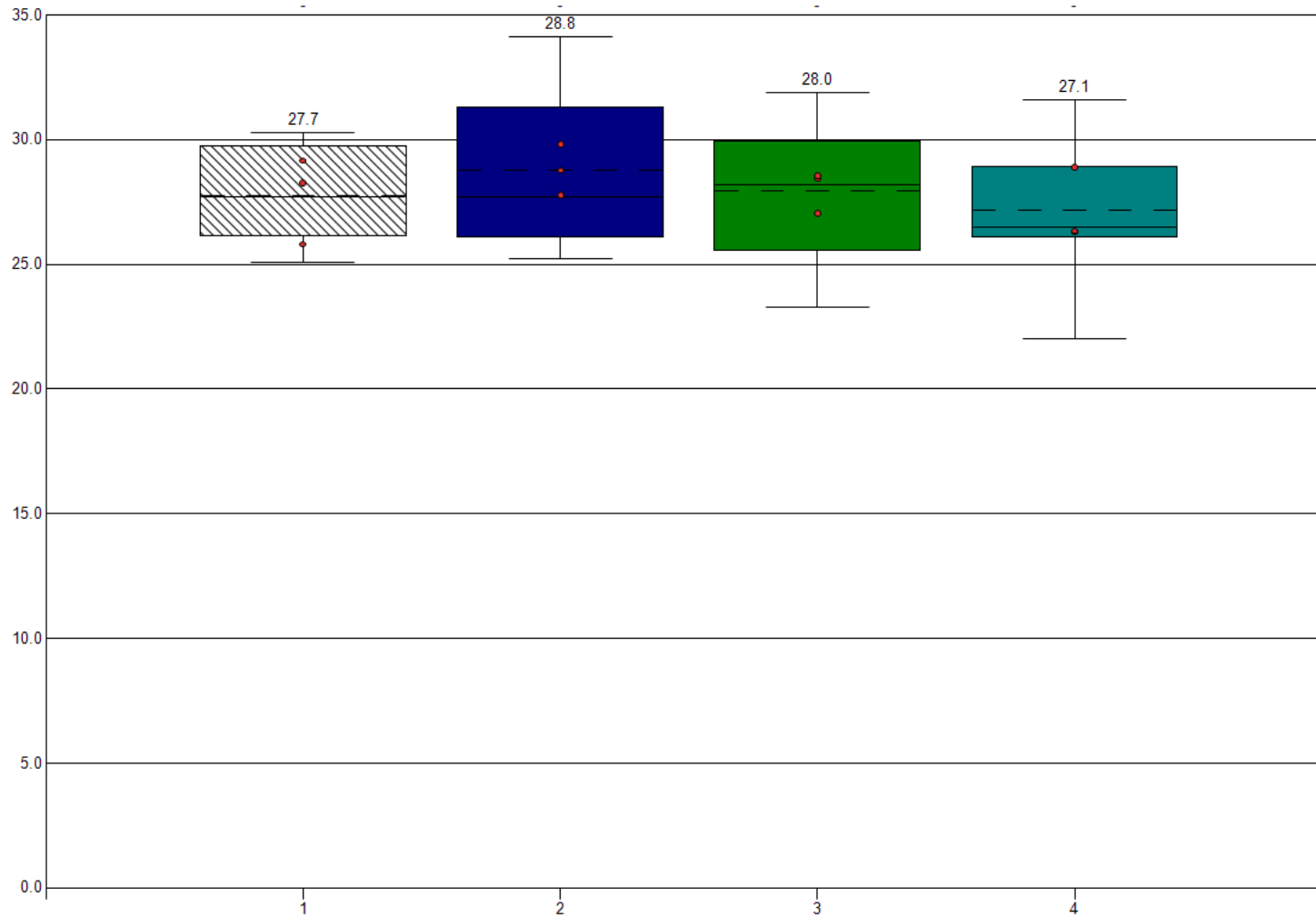
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Salinity Meters

Evaluation of the Soil Cub and GrowBud DRO moisture and salinity meters.

Soil Cub 12/16

Yuma Romaine - Stretta Trial - Fall 2025



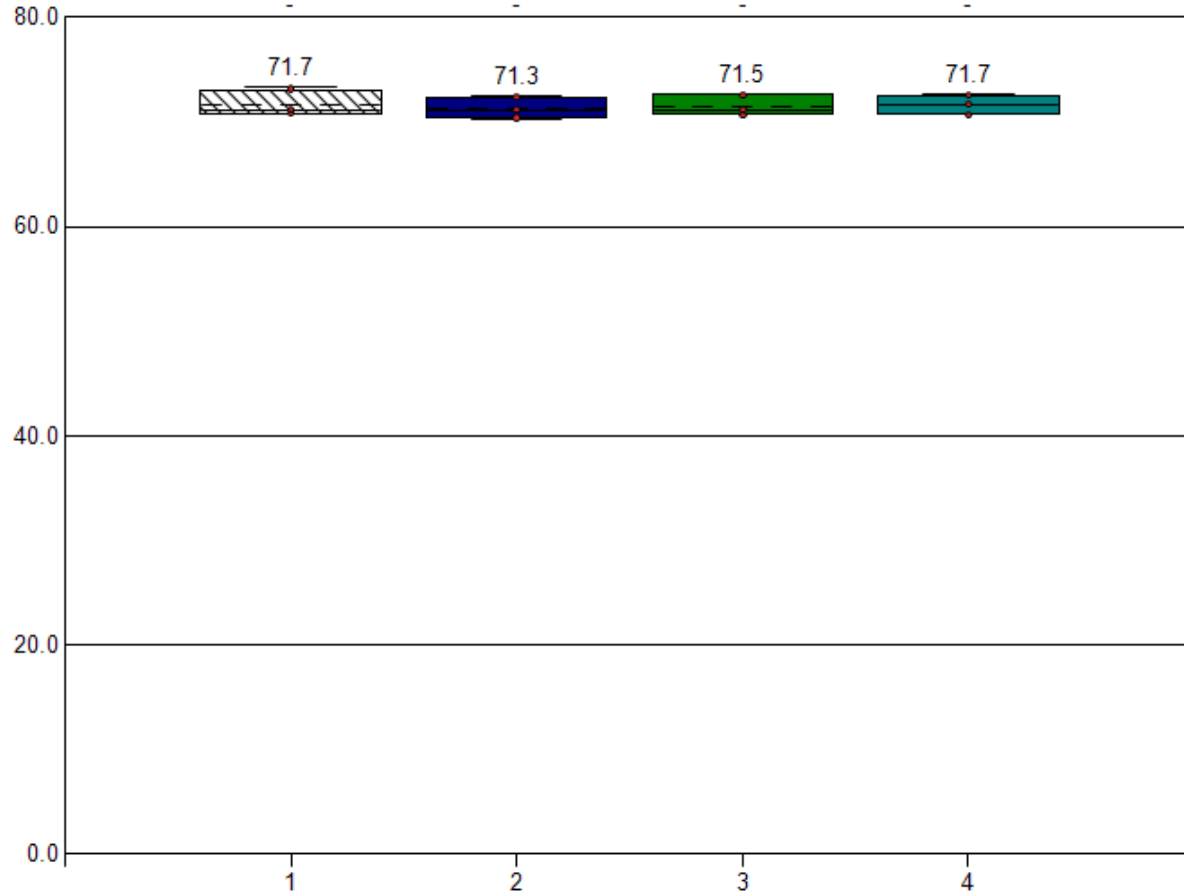
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*Soil VWC %

Soil Cub 12/16

Yuma Romaine - Stretta Trial - Fall 2025

Soil Temp °F



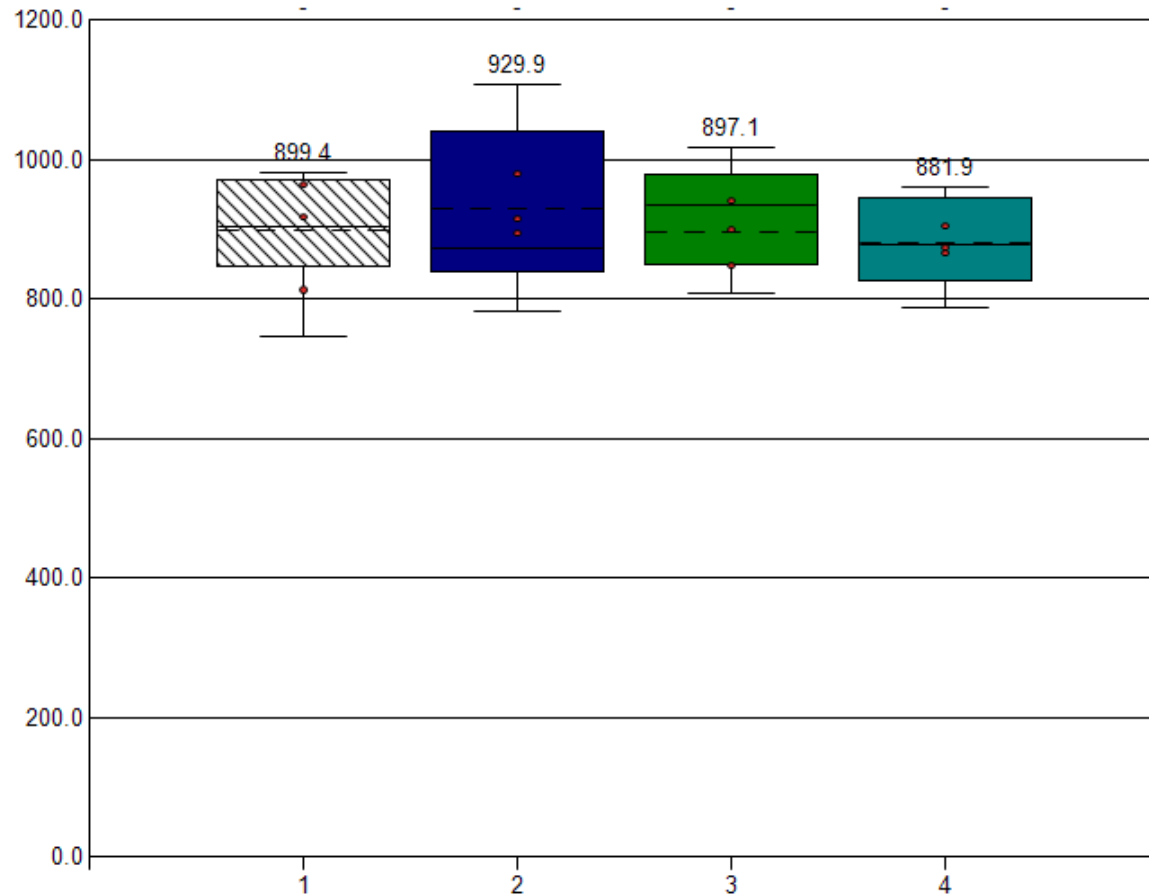
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Trial ID: T-6 Stretta Water Reduction Trial

Soil Cub 12/16

Yuma Romaine - Stretta Trial - Fall 2025

*Soil E.C uS/cm

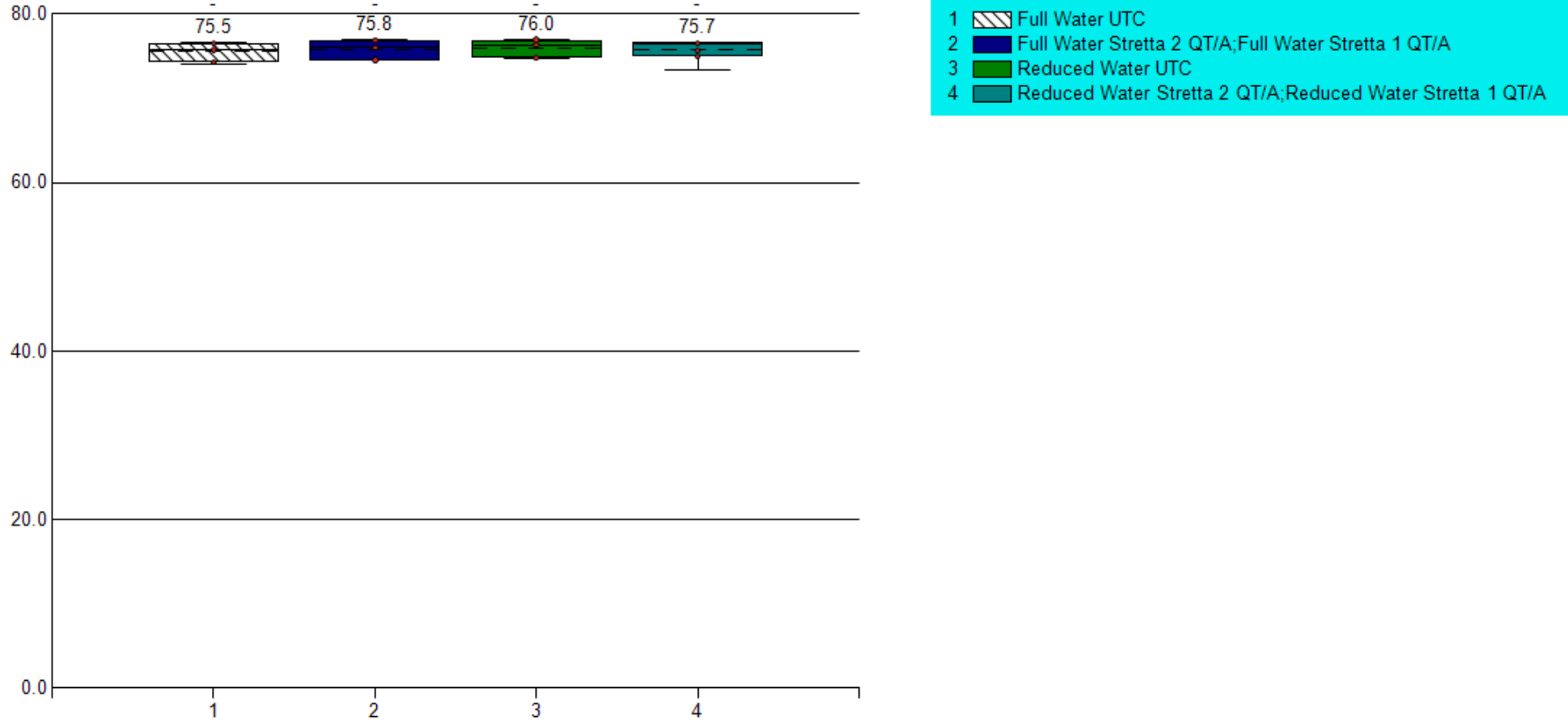


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Soil Cub 12/16

Yuma Romaine - Stretta Trial - Fall 2025

Ambient Temperature °F

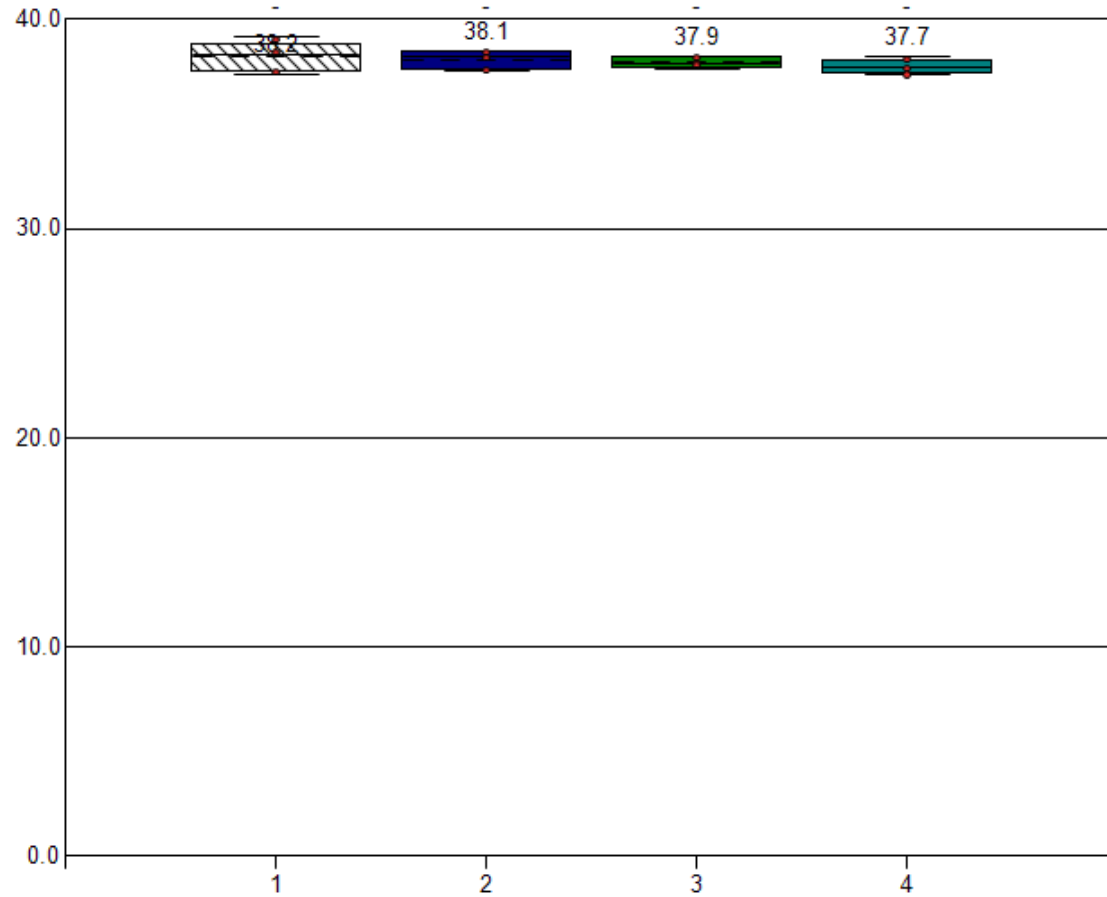


Trial ID: T-6 Stretta Water Reduction Trial

Soil Cub 12/16

Yuma Romaine - Stretta Trial - Fall 2025

Relative Humidity %

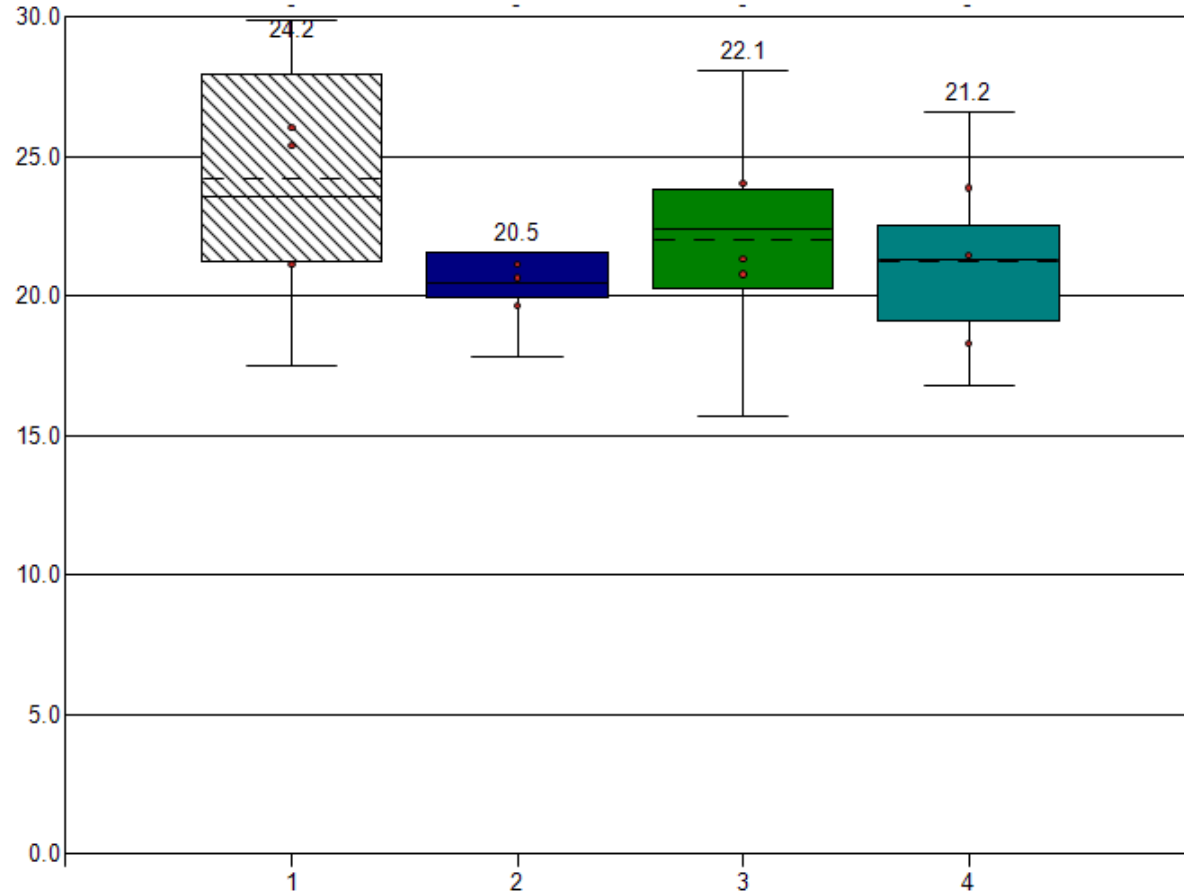


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- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

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Soil Cub 1/14

Yuma Romaine - Stretta Trial - Fall 2025



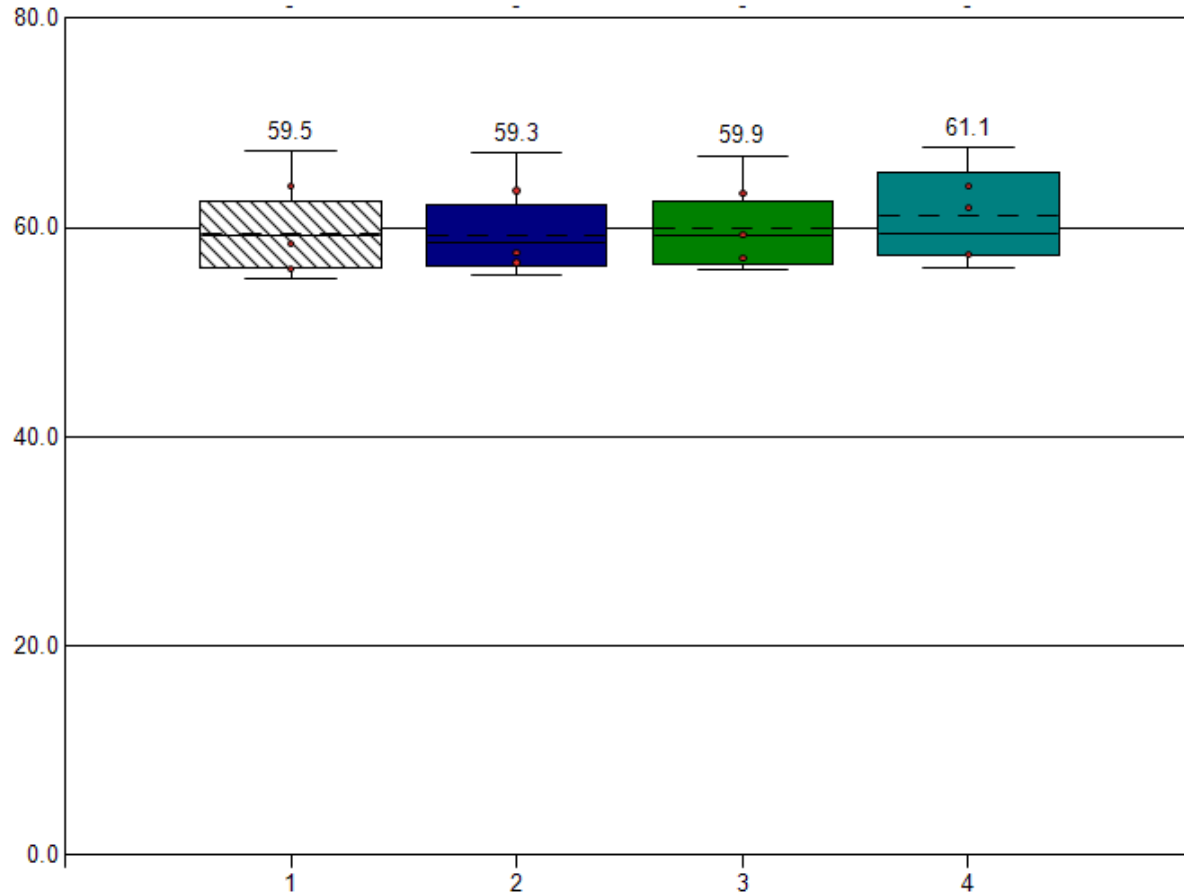
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- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

*Soil VWC %

Soil Cub 1/14

Yuma Romaine - Stretta Trial - Fall 2025

Soil Temp °F



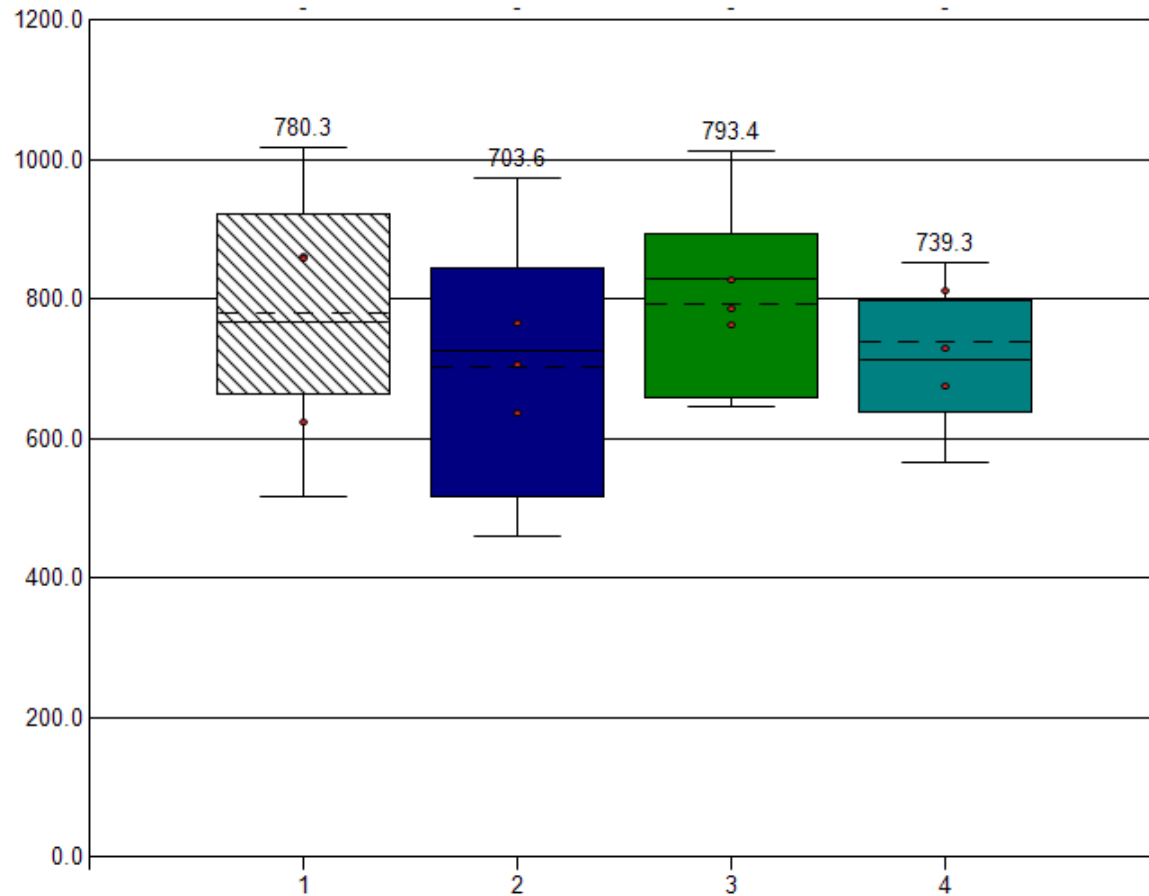
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Soil Cub 1/14

Yuma Romaine - Stretta Trial - Fall 2025

*Soil E.C uS/cm



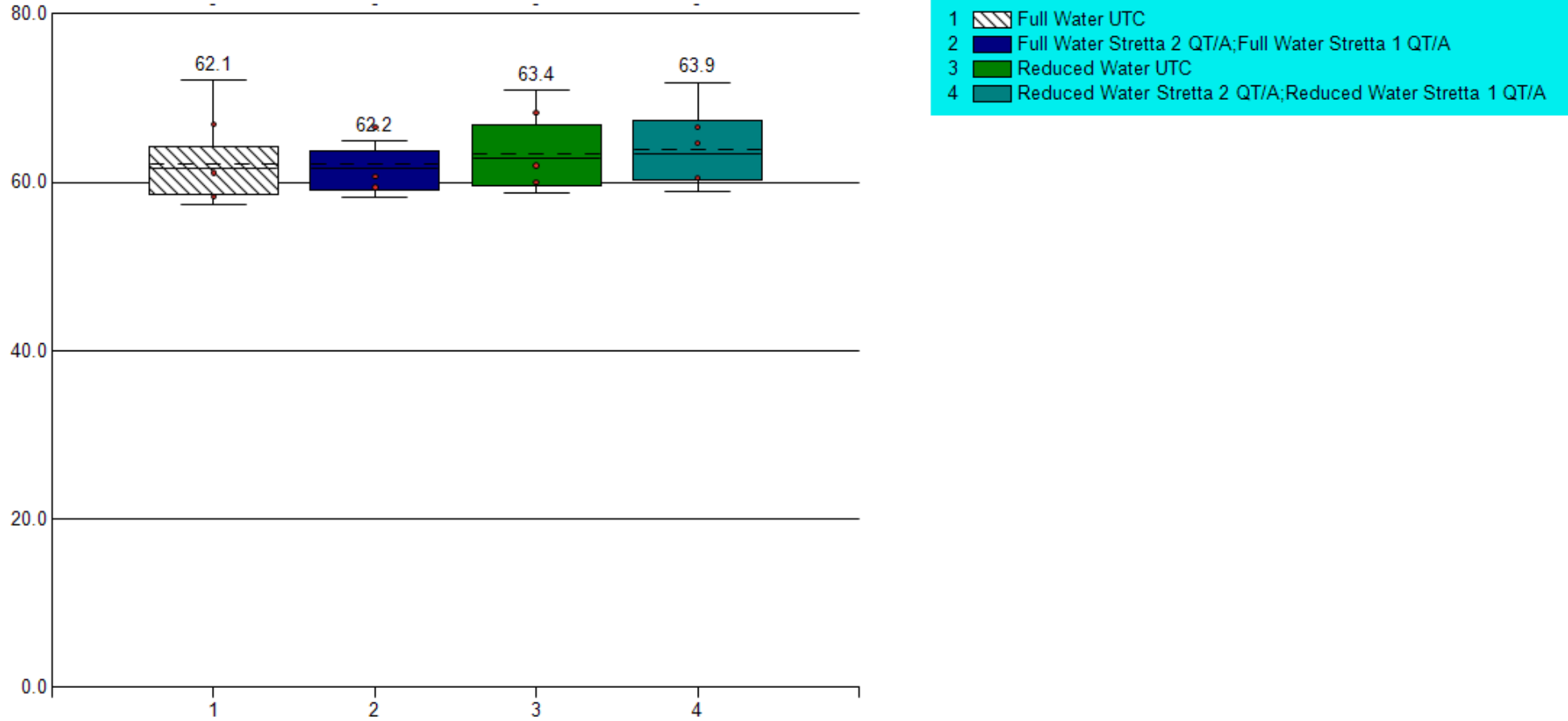
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Soil Cub 1/14

Yuma Romaine - Stretta Trial - Fall 2025

Ambient Temperature °F

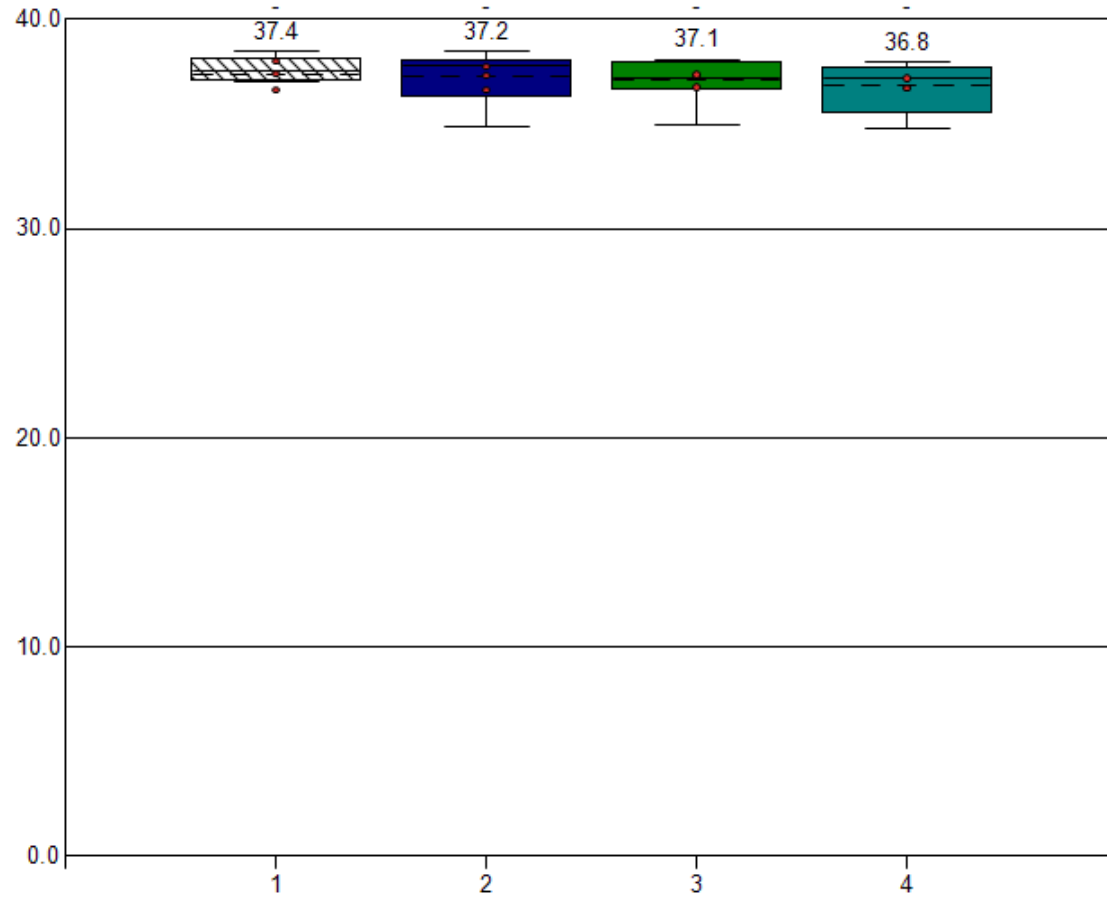


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Soil Cub 1/14

Yuma Romaine - Stretta Trial - Fall 2025

Relative Humidity %

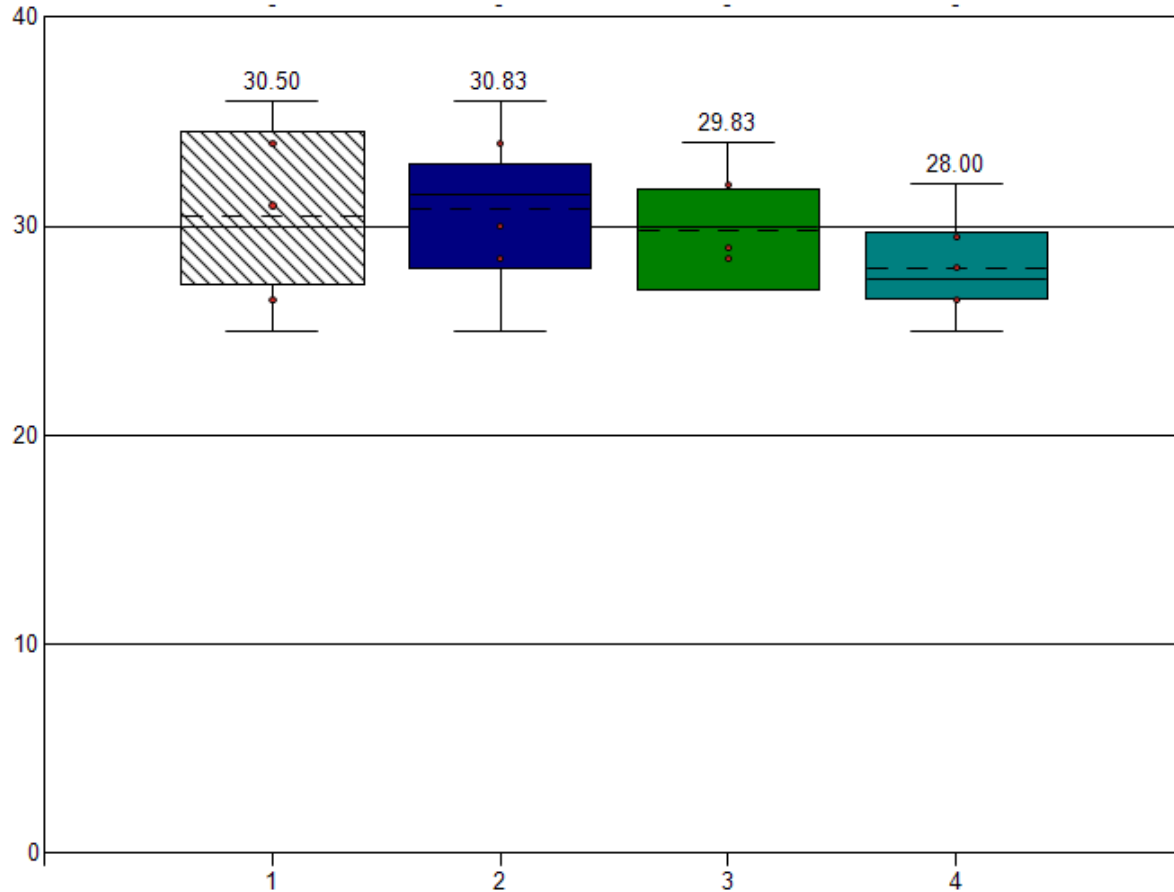


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- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

Water Content



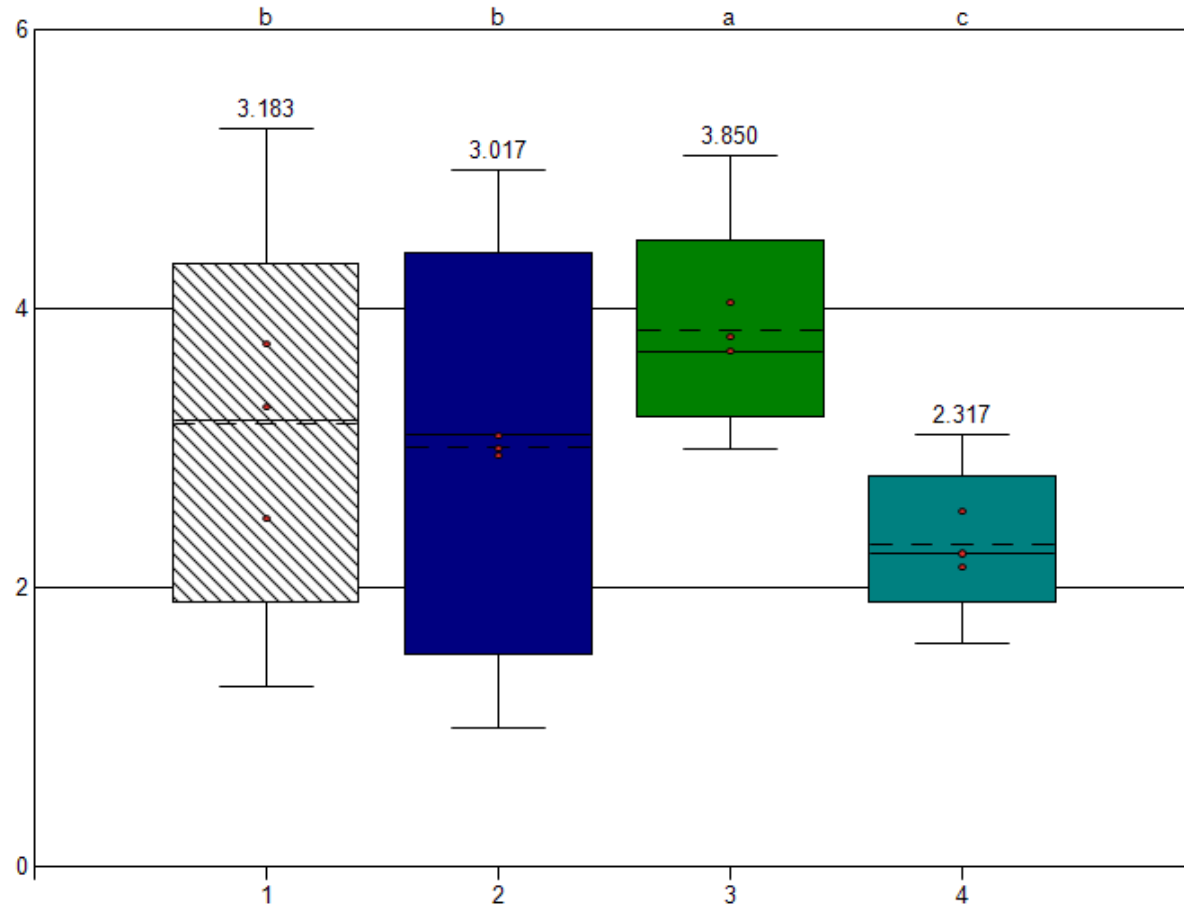
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Trial ID: T-6 Stretta Water Reduction Trial

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

Pore Water EC

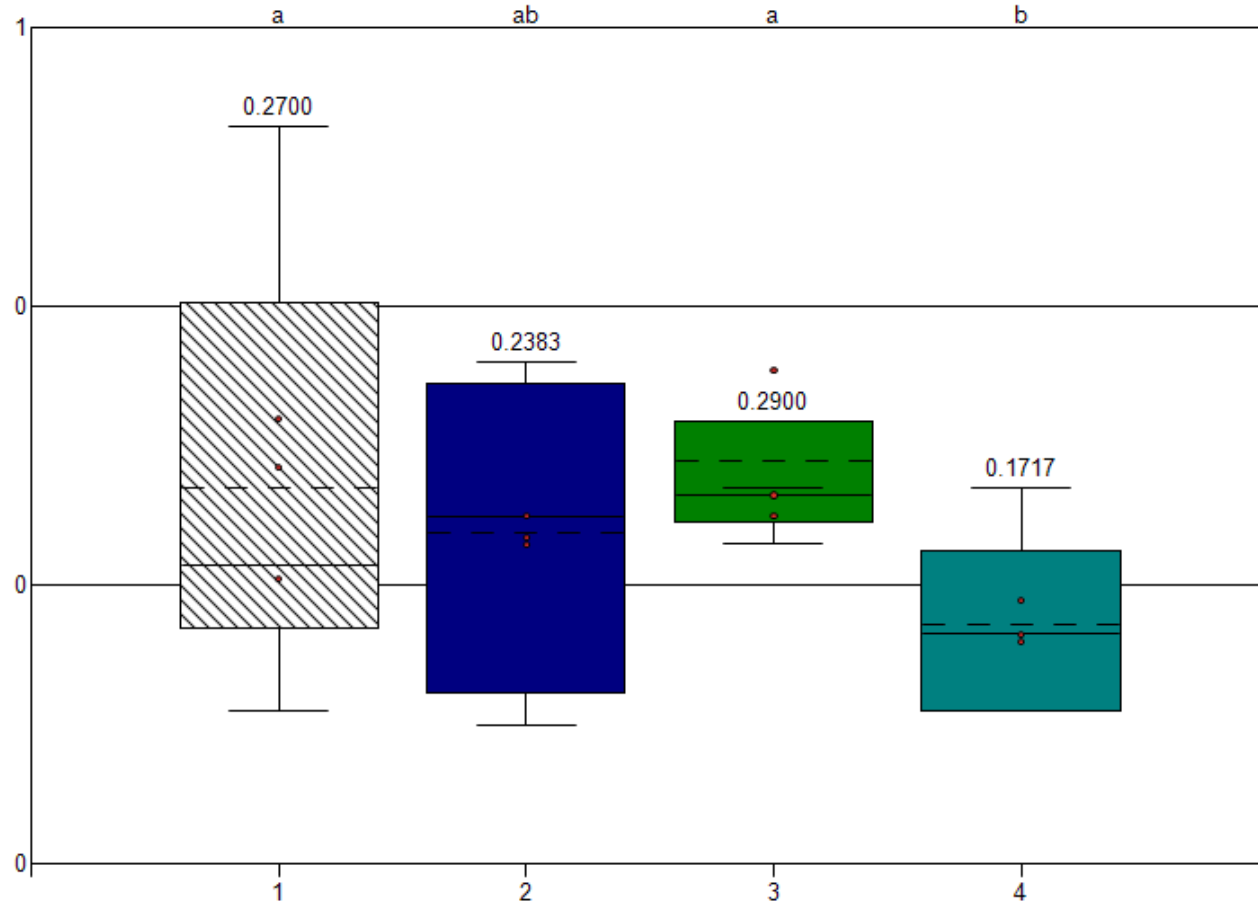


- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

Bulk EC



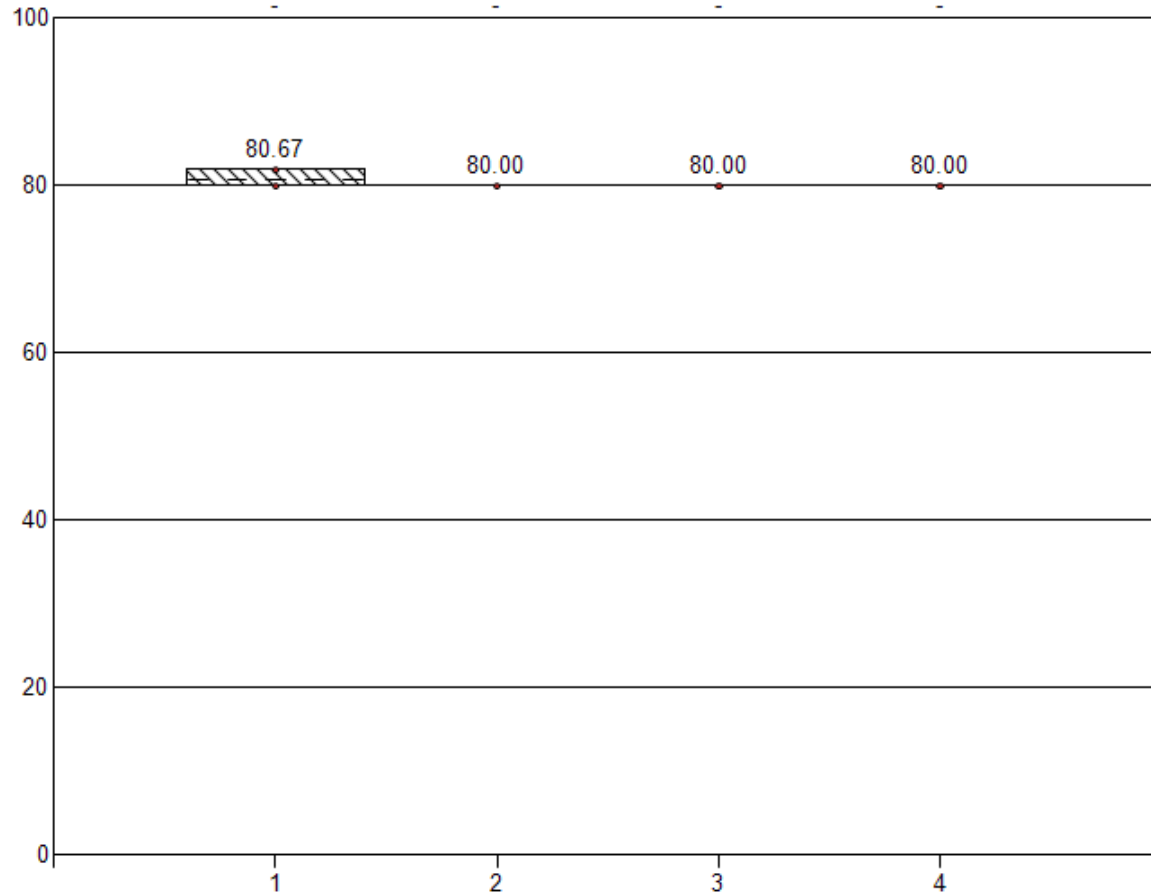
- 1 Full Water UTC
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- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Trial ID: T-6 Stretta Water Reduction Trial

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

Air Surface Temp



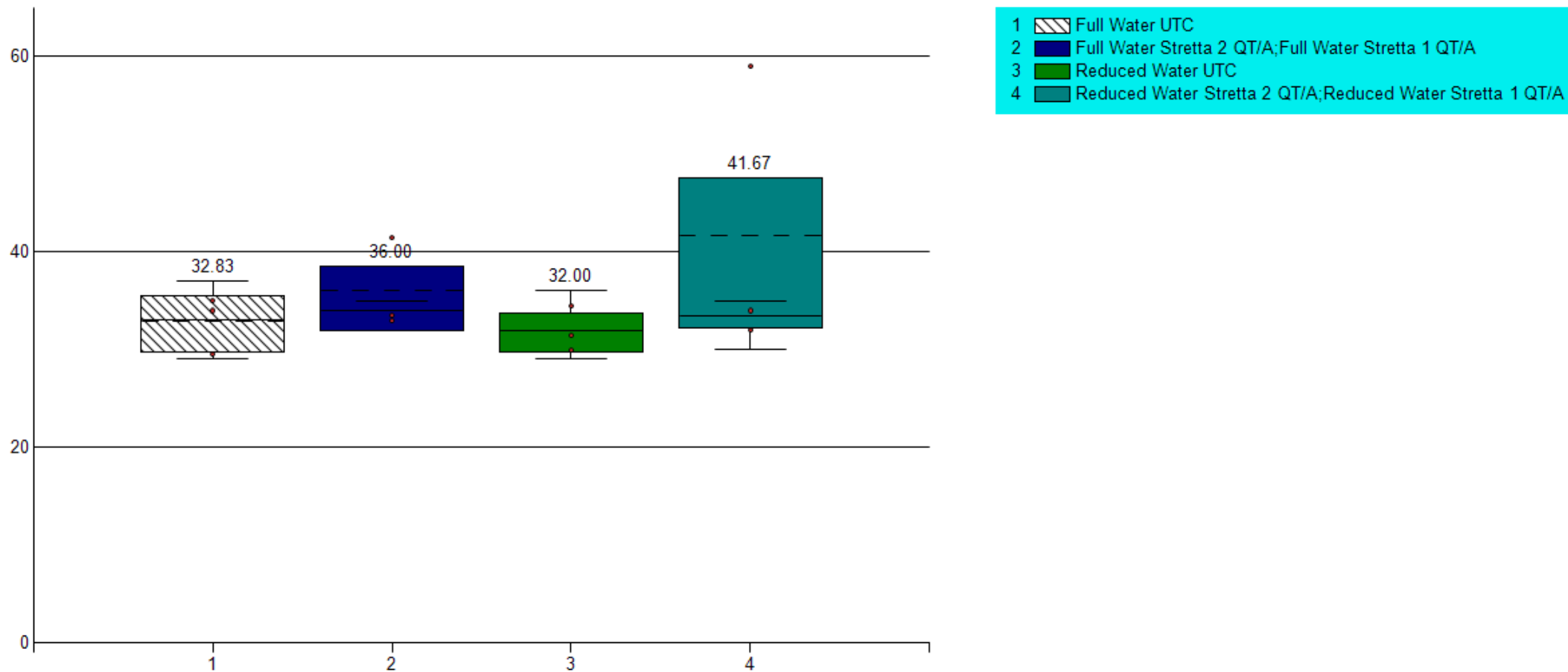
- 1 Full Water UTC
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GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

Humidity

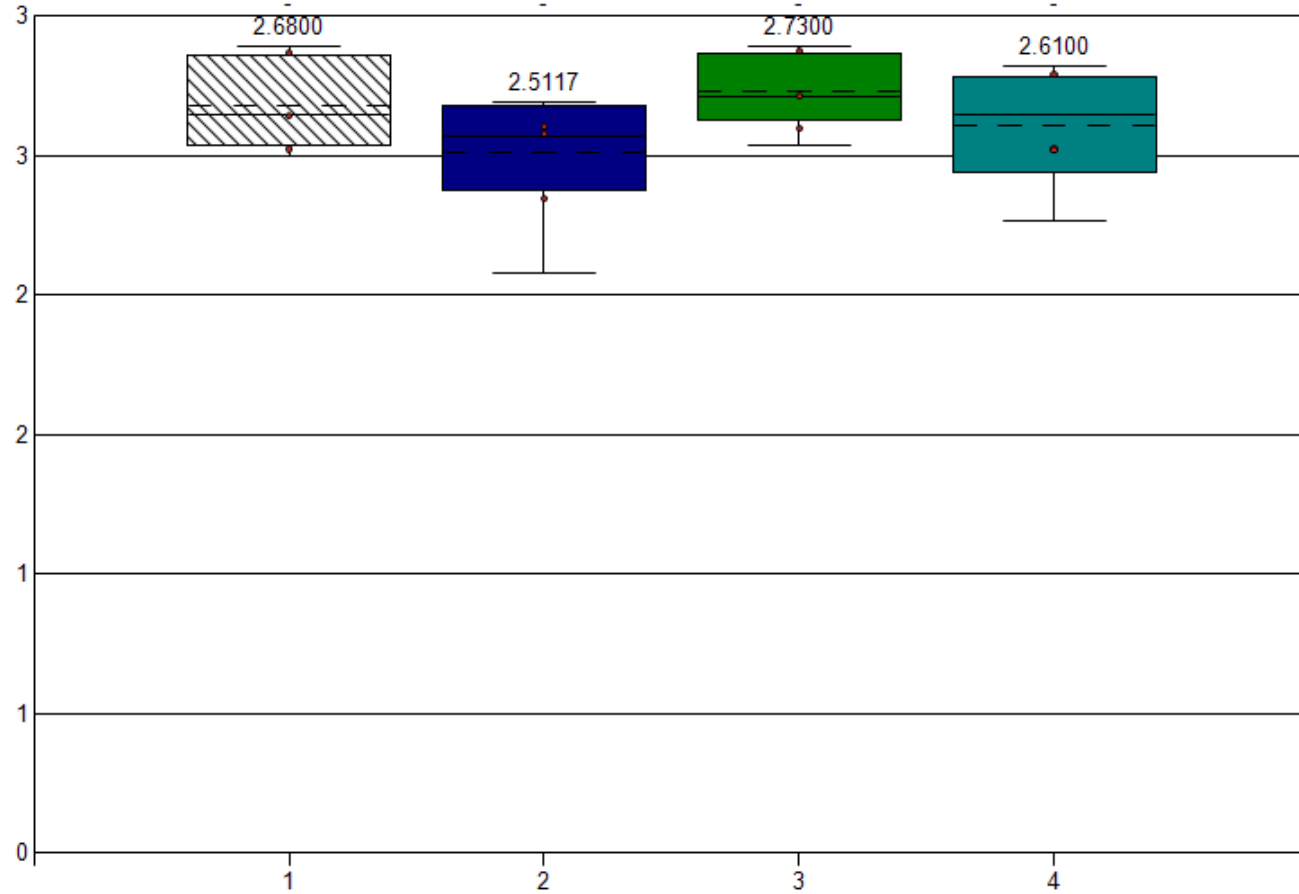


Trial ID: T-6 Stretta Water Reduction Trial

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

VPD

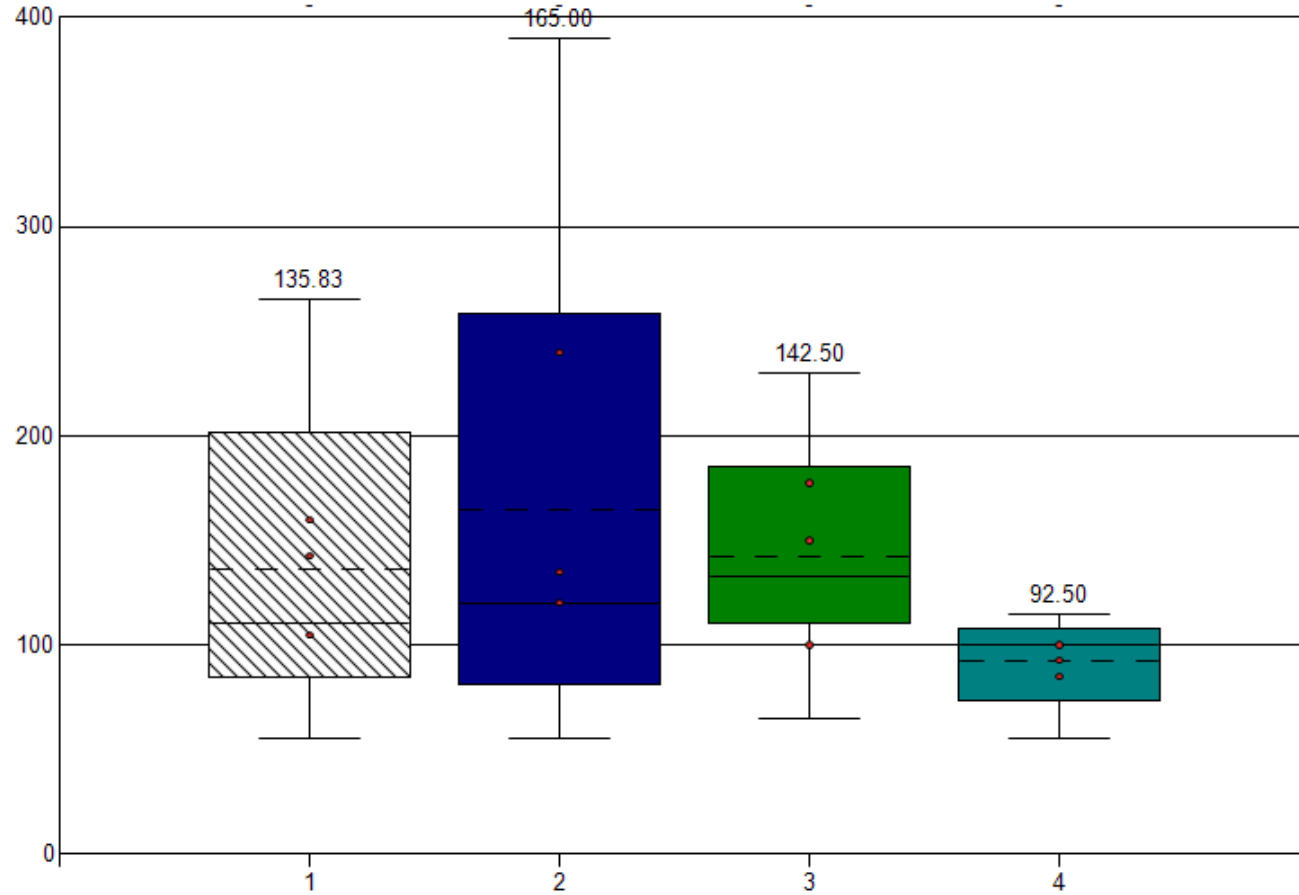


- 1 Full Water UTC
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- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

GrowBud DRO 3/2

Yuma Romaine - Stretta Trial - Fall 2025

TDS

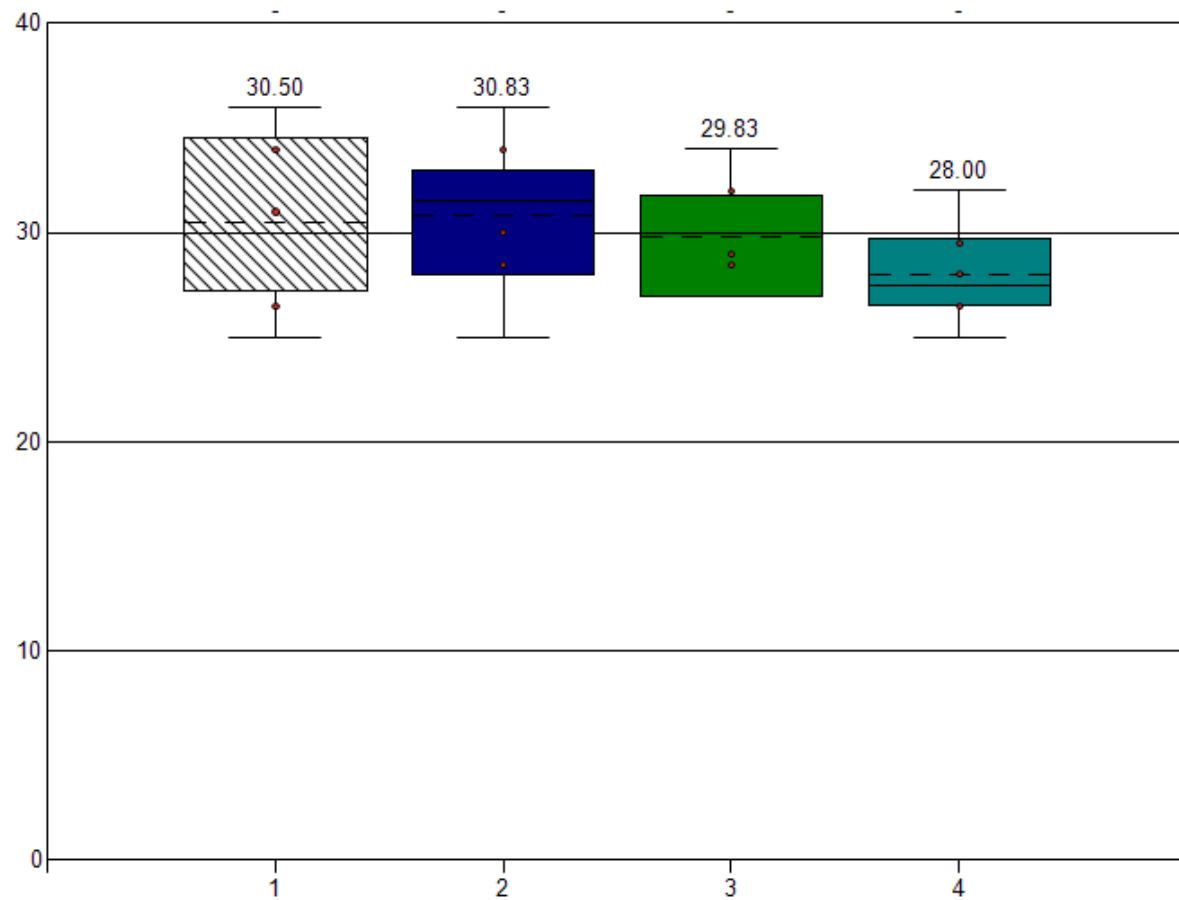


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Trial ID: T-6 Stretta Water Reduction Trial

Yuma Romaine - Stretta Trial - Fall 2025

Water Content



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Harvest

- 26 Feb 2026
- Harvest a 10 foot section of each plot
- Each plant weighed for total above ground biomass
- Hearts were trimmed from the biomass and weighed individually
- Walkby percentage was calculated by counting the plants that did not make a marketable heart (lower values = more harvestable plants per plot)
- Heart circumference and length was recorded for each trimmed head





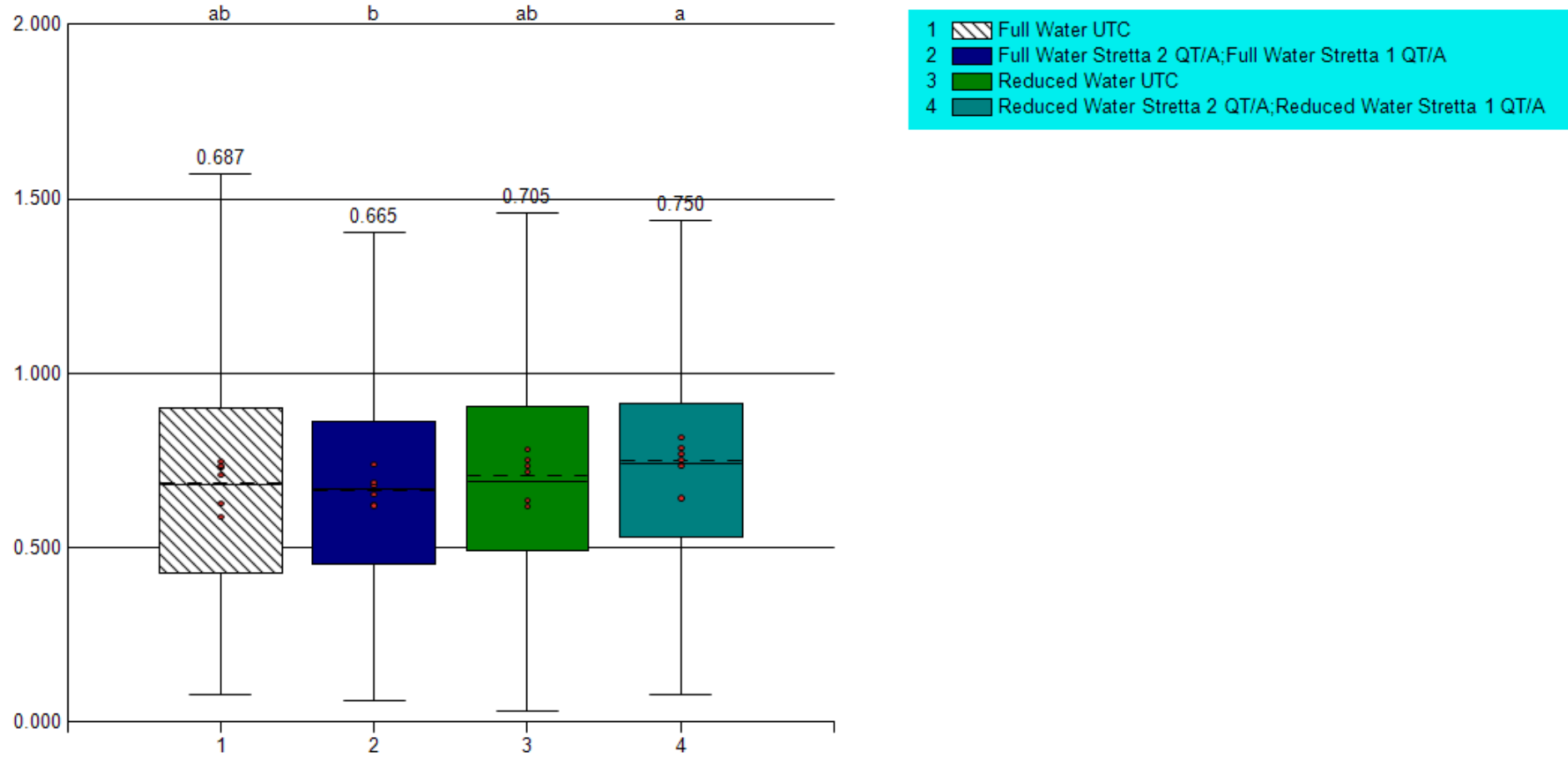




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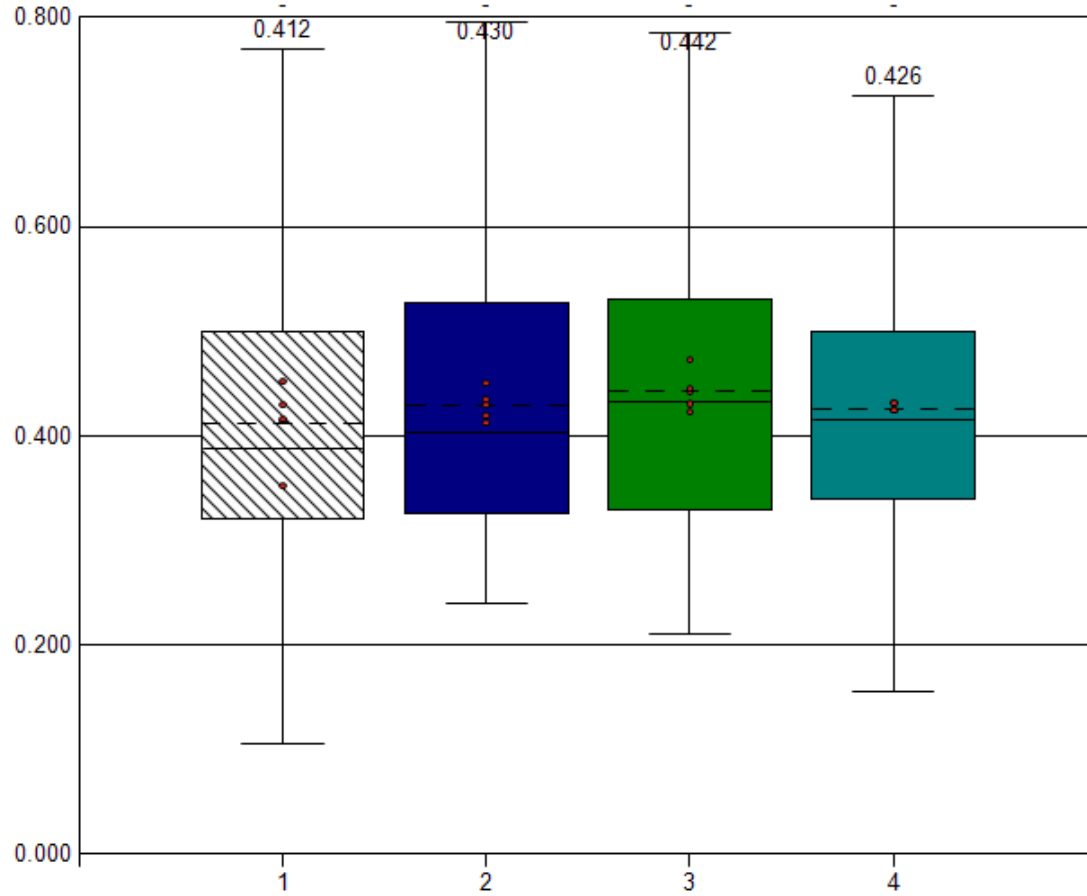
Yuma Romaine - Stretta Trial - Fall 2025

KG/Plant AboveGroundBiomass



Yuma Romaine - Stretta Trial - Fall 2025

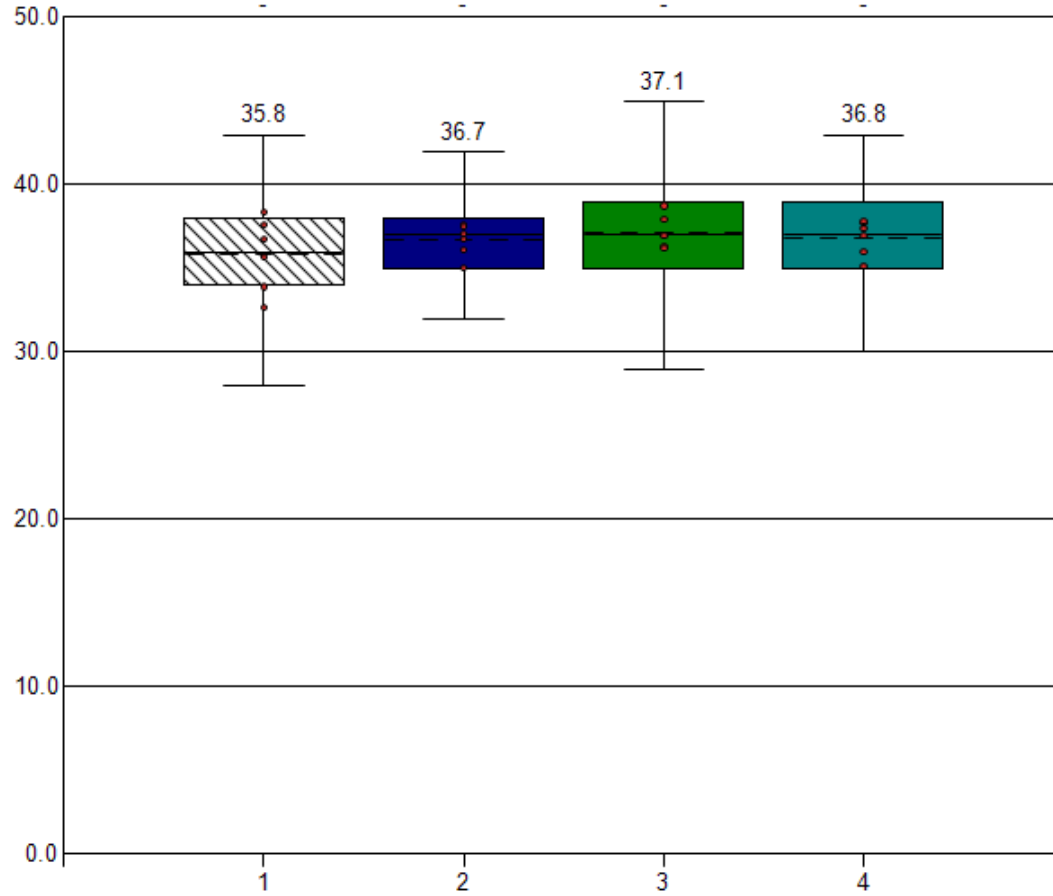
KG/Heart Heart Weight



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
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- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

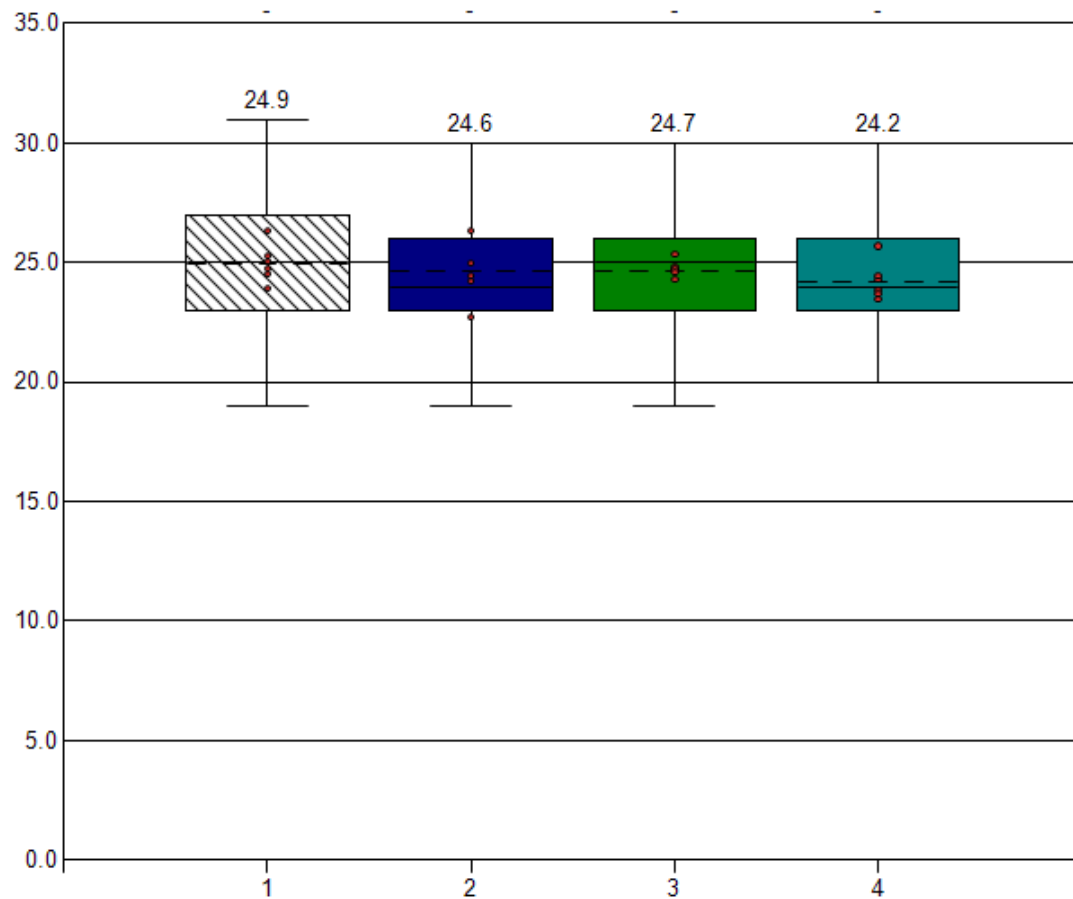
CM/Heart Circumference







- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

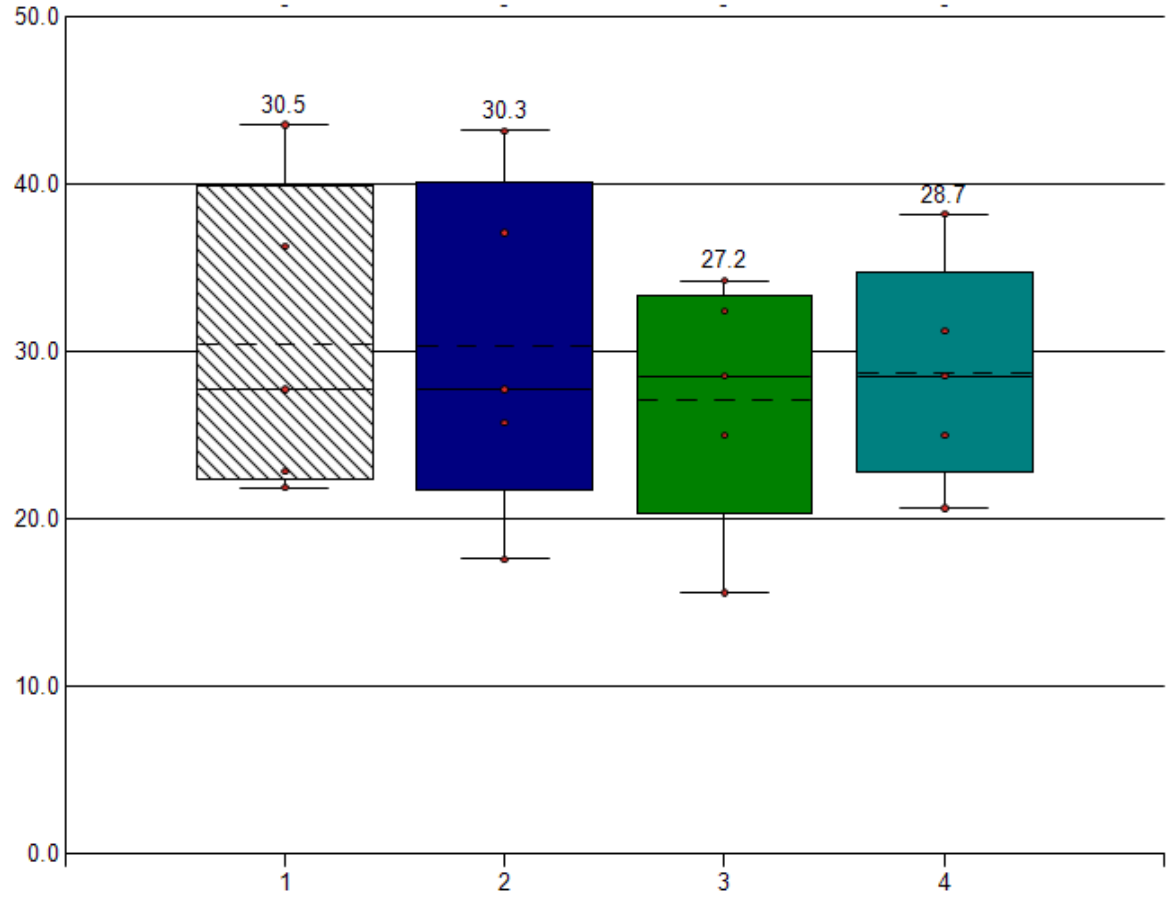
CM/Heart Heart Length







- 1  Full Water UTC
- 2  Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3  Reduced Water UTC
- 4  Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

Walkby Percent



- 1  Full Water UTC
- 2  Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3  Reduced Water UTC
- 4  Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

ANVOA Statistics

University of Arizona

T-6 Stretta											
Trial ID: T-6 Stretta Water Reduction Trial											
Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025											
Project ID: T-6 Stretta Water Reduction Trial											
Study Director: Robert Masson Sponsor Contact: Investigator:											
Rating Date	Dec-16-2025	Dec-16-2025	Dec-16-2025	Dec-16-2025	Dec-16-2025	Dec-16-2025	Jan-14-2026				
SE Group No.	22	22	22	22	22	22	22				
Rating Type	Soil Cub	Soil Cub	Soil Cub	Soil Cub	Soil Cub	Soil Cub	Soil Cub				
Rating Unit											
Rating Min/Max/Interval											
Number of Subsamples	3	3	3	3	3	3	3				
Days After First/Last Appl.	43, 43	43, 43	43, 43	43, 43	43, 43	43, 43	72, 72				
Treatment Appl. Interval	43 DA-A	43 DA-A	43 DA-A	43 DA-A	43 DA-A	43 DA-A	72 DA-A				
Planting Interval	43 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1	72 DP-1				
Description	*Soil WWC %	Soil Temp °F	*Soil E.C uS/cm	Ambient Tempera>	Relative Humidi>	*Soil WWC %					
Number of Decimals	1	1	1	1	1	1	1				
Data Entry Date	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026				
Trt No.	Treatment Name	Rate	Appl Unit	Code	1*	2*	3*	4*	5*	6*	
1	Full Water UTC				27.7 -	71.7 -	899.4 -	75.5 -	38.2 -	24.2 -	
2	Full Water Stretta	2 qt/a	A		28.8 -	71.3 -	929.9 -	75.8 -	38.1 -	20.5 -	
	Full Water Stretta	1 qt/a	B								
3	Reduced Water UTC				28.0 -	71.5 -	897.1 -	76.0 -	37.9 -	22.1 -	
4	Reduced Water Stretta	2 qt/a	A		27.1 -	71.7 -	881.9 -	75.7 -	37.7 -	21.2 -	
	Reduced Water Stretta	1 qt/a	B								
LSD P=.05		3.07		0.59		117.57		1.00		0.44	4.96
Standard Deviation		1.54		0.30		58.85		0.50		0.22	2.48
CV		5.5		0.41		6.52		0.66		0.58	11.28
Levene's F^		0.197		1.437		0.57		0.389		0.776	0.476
Levene's Prob(F)		0.895		0.302		0.65		0.764		0.54	0.708
Shapiro-Wilk^		0.9491		0.957		0.9876		0.8773		0.9658	0.9563
P(Shapiro-Wilk)^		0.6245		0.7399		0.9989		0.0809		0.862	0.73
Skewness^		-0.0208		-0.1714		-0.1546		-0.8801		-0.2685	-0.3616
P(Skewness)^		0.9746		0.7929		0.8128		0.1947		0.6817	0.5818
Kurtosis^		-0.9534		0.7606		-0.055		1.3854		0.2443	-0.5808
P(Kurtosis)^		0.4554		0.5496		0.9652		0.2848		0.8464	0.6466
Replicate F		0.001		47.925		0.074		14.474		15.977	0.009
Replicate Prob(F)		0.9988		0.0002		0.9296		0.0051		0.0040	0.9912
Treatment F		0.590		1.013		0.350		0.525		2.773	1.245
Treatment Prob(F)		0.6441		0.4500		0.7910		0.6811		0.1331	0.3735

University of Arizona

T-6 Stretta					
Trial ID: T-6 Stretta Water Reduction Trial					
Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025					
Project ID: T-6 Stretta Water Reduction Trial					
Study Director: Robert Masson Sponsor Contact:					
Investigator:					
Rating Date	Jan-14-2026	Jan-14-2026	Jan-14-2026	Jan-14-2026	22
SE Group No.	22	22	22	22	22
Rating Type	Soil Cub	Soil Cub	Soil Cub	Soil Cub	Harvest
Rating Unit					KG/Plant
Rating Min/Max/Interval					0.01, 2, -
Number of Subsamples	3	3	3	3	39
Days After First/Last Appl.	72, 72	72, 72	72, 72	72, 72	
Treatment Appl. Interval	72 DA-A	72 DA-A	72 DA-A	72 DA-A	
Planting Interval	72 DP-1	72 DP-1	72 DP-1	72 DP-1	
Description	Soil Temp °F	*Soil E.C uS/cm	Ambient Tempera>	Relative Humidi>	AboveGroundBiom>
Number of Decimals	1	1	1	1	3
Data Entry Date	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code			
	7*	8*	9*	10*	11*
1 Full Water UTC	59.5 -	780.3 -	62.1 -	37.4 -	0.687 ab
2 Full Water Stretta	59.3 -	703.6 -	62.2 -	37.2 -	0.665 b
Full Water Stretta	2 qt/a A				
	1 qt/a B				
3 Reduced Water UTC	59.9 -	793.4 -	63.4 -	37.1 -	0.705 ab
4 Reduced Water Stretta	61.1 -	739.3 -	63.9 -	36.8 -	0.750 a
Reduced Water Stretta	2 qt/a A				
	1 qt/a B				
LSD P= .05	1.98	187.59	2.09	0.44	0.0566
Standard Deviation	0.99	93.89	1.05	0.22	0.0460
CV	1.65	12.45	1.66	0.6	6.56
Levene's F^	0.296	0.571	0.76	0.319	3.07
Levene's Prob(F)	0.827	0.65	0.547	0.811	0.051
Shapiro-Wilk^	0.9664	0.9464	0.9728	0.9487	0.9828
P(Shapiro-Wilk)^	0.8702	0.5845	0.9374	0.6177	0.9413
Skewness^	0.3843	-0.4224	0.1105	-0.2174	-0.1153
P(Skewness)^	0.5588	0.5211	0.8655	0.7394	0.8093
Kurtosis^	-0.3315	0.2134	0.2307	-1.0564	-0.7124
P(Kurtosis)^	0.7929	0.8657	0.8549	0.4096	0.4455
Replicate F	49.663	0.227	52.545	16.851	3.568
Replicate Prob(F)	0.0002	0.8032	0.0002	0.0035	0.0252
Treatment F	2.018	0.568	2.274	3.328	3.730
Treatment Prob(F)	0.2129	0.6561	0.1802	0.0979	0.0348

University of Arizona

T-6 Stretta							
Trial ID: T-6 Stretta Water Reduction Trial							
Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025							
Project ID: T-6 Stretta Water Reduction Trial							
Study Director: Robert Masson Sponsor Contact:							
Investigator:							
Rating Date							
SE Group No.		22	22	22	22	22	22
Rating Type		Harvest	Harvest	Harvest	Harvest	SinghProbe	SinghProbe
Rating Unit		KG/Heart	CM/Heart	CM/Heart		mol m-2	mol m-2
Rating Min/Max/Interval		0.01, 1.2, -					
Number of Subsamples		28	28	28	1	1	1
Days After First/Last Appl.							
Treatment Appl. Interval							
Planting Interval							
Description		Heart Weight	Circumference	Heart Length	Walkby Percent	Stomtal conduct>	Transpiration
Number of Decimals		3	1	1	1	2	2
Data Entry Date		Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-4-2026	Mar-5-2026	Mar-5-2026
Trt Treatment	Rate Appl	12*	13*	14*	15*	16*	17*
No. Name	Rate Unit Code						
1	Full Water UTC	0.433 -	35.8	24.9 -	30.5 -	0.16 -	2.85 -
2	Full Water Stretta	0.436 -	36.7 -	24.6 -	30.3 -	0.20 -	3.58 -
	Full Water Stretta						
	1 qt/a A						
	1 qt/a B						
3	Reduced Water UTC	0.433 -	37.1 -	24.7 -	27.2 -	0.18 -	3.26 -
4	Reduced Water Stretta	0.424 -	36.8 -	24.2 -	28.7 -	0.16 -	2.82 -
	Reduced Water Stretta						
	2 qt/a A						
	1 qt/a B						
LSD P=.05		0.0294	0.97	0.93	7.76	0.093	1.480
Standard Deviation		0.0147	0.76	0.76	5.63	0.076	1.203
CV		2.56	2.05	3.08	19.29	42.78	38.49
Levene's F^		1.574	0.467	0.27	0.161	0.278	0.42
Levene's Prob(F)		0.247	0.636	0.846	0.921	0.841	0.741
Shapiro-Wilk^		0.9719	0.9452	0.9458	0.9513	0.9632	0.9545
P(Shapiro-Wilk)^		0.8684	0.3552	0.2189	0.3878	0.5069	0.3377
Skewness^		0.1857	-0.7473	0.675	0.2034	-0.44	-0.6437
P(Skewness)^		0.7466	0.1814	0.1664	0.6957	0.3611	0.1861
Kurtosis^		-0.3851	0.0384	0.1602	-0.7825	-0.1268	0.097
P(Kurtosis)^		0.729	0.9709	0.863	0.4401	0.8913	0.9168
Replicate F		0.418	3.230	1.898	5.992	0.681	0.593
Replicate Prob(F)		0.6762	0.0541	0.1544	0.0069	0.6449	0.7060
Treatment F		0.338	0.554	0.937	0.379	0.481	0.543
Treatment Prob(F)		0.7994	0.5911	0.4472	0.7701	0.7003	0.6601

University of Arizona

T-6 Stretta							
Trial ID: T-6 Stretta Water Reduction Trial							
Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025							
Project ID: T-6 Stretta Water Reduction Trial							
Study Director: Robert Masson Sponsor Contact:							
Investigator:							
Rating Date					Mar-2-2026	Mar-2-2026	
SE Group No.	22	22	22	22	22	22	
Rating Type	SinghProbe	SinghProbe	SinghProbe	SinghProbe	GrowBudDro	GrowBudDro	
Rating Unit	kPa	°C	°C	µg m-2			
Rating Min/Max/Interval							
Number of Subsamples	1	1	1	1	2	2	
Days After First/Last Appl.					119, 119	119, 119	
Treatment Appl. Interval					119 DA-A	119 DA-A	
Planting Interval					119 DP-1	119 DP-1	
Description	VPDleaf	air temperature	Canopy Temperat>	Chlorophyll con>	Water Content	Pore Water EC	
Number of Decimals	2	2	2	1			
Data Entry Date	Mar-5-2026	Mar-5-2026	Mar-5-2026	Mar-5-2026	Mar-5-2026	Mar-5-2026	
Trt Treatment No. Name	Rate Appl Rate Unit Code	18*	19*	20*	21*	22*	23*
1 Full Water UTC		1.92 -	23.14 -	21.37 -	30.6 -	30.5 -	3.18 b
2 Full Water Stretta	2 qt/a A	1.83 -	23.29 -	21.35	32.2 -	30.8 -	3.02 b
Full Water Stretta	1 qt/a B						
3 Reduced Water UTC		1.94 -	23.15 -	21.64 -	34.6 -	29.8 -	3.85 a
4 Reduced Water Stretta	2 qt/a A	1.90 -	23.28 -	21.17 -	34.0 -	28.0 -	2.32 c
Reduced Water Stretta	1 qt/a B						
LSD P=.05		0.151	0.389	0.703	4.95	2.96	0.638
Standard Deviation		0.110	0.316	0.547	4.03	1.48	0.319
CV		5.78	1.36	2.56	12.26	4.97	10.33
Levene's F^		1.536	0.203	0.678	0.424	0.273	0.589
Levene's Prob(F)		0.244	0.893	0.523	0.738	0.843	0.639
Shapiro-Wilk^		0.9406	0.8474*	0.9648	0.9776	0.8828	0.961
P(Shapiro-Wilk)^		0.2458	0.002*	0.696	0.8478	0.0952	0.7978
Skewness^		0.6757	0.8979	0.1364	0.2138	-0.8851	-0.4862
P(Skewness)^		0.2027	0.0699	0.8022	0.6549	0.1924	0.4616
Kurtosis^		-0.1856	-0.5809	0.0095	-0.6637	-0.4746	0.0679
P(Kurtosis)^		0.8536	0.533	0.9928	0.4769	0.7075	0.9571
Replicate F		0.988	0.146	0.559	0.450	9.835	1.730
Replicate Prob(F)		0.4505	0.9782	0.7295	0.8066	0.0128	0.2552
Treatment F		0.939	0.356	1.127	1.183	2.187	11.662
Treatment Prob(F)		0.4521	0.7852	0.3618	0.3495	0.1906	0.0065

University of Arizona

T-6 Stretta

Trial ID: T-6 Stretta Water Reduction Trial
 Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025
 Project ID: T-6 Stretta Water Reduction Trial
 Study Director: Robert Masson Sponsor Contact:
 Investigator:

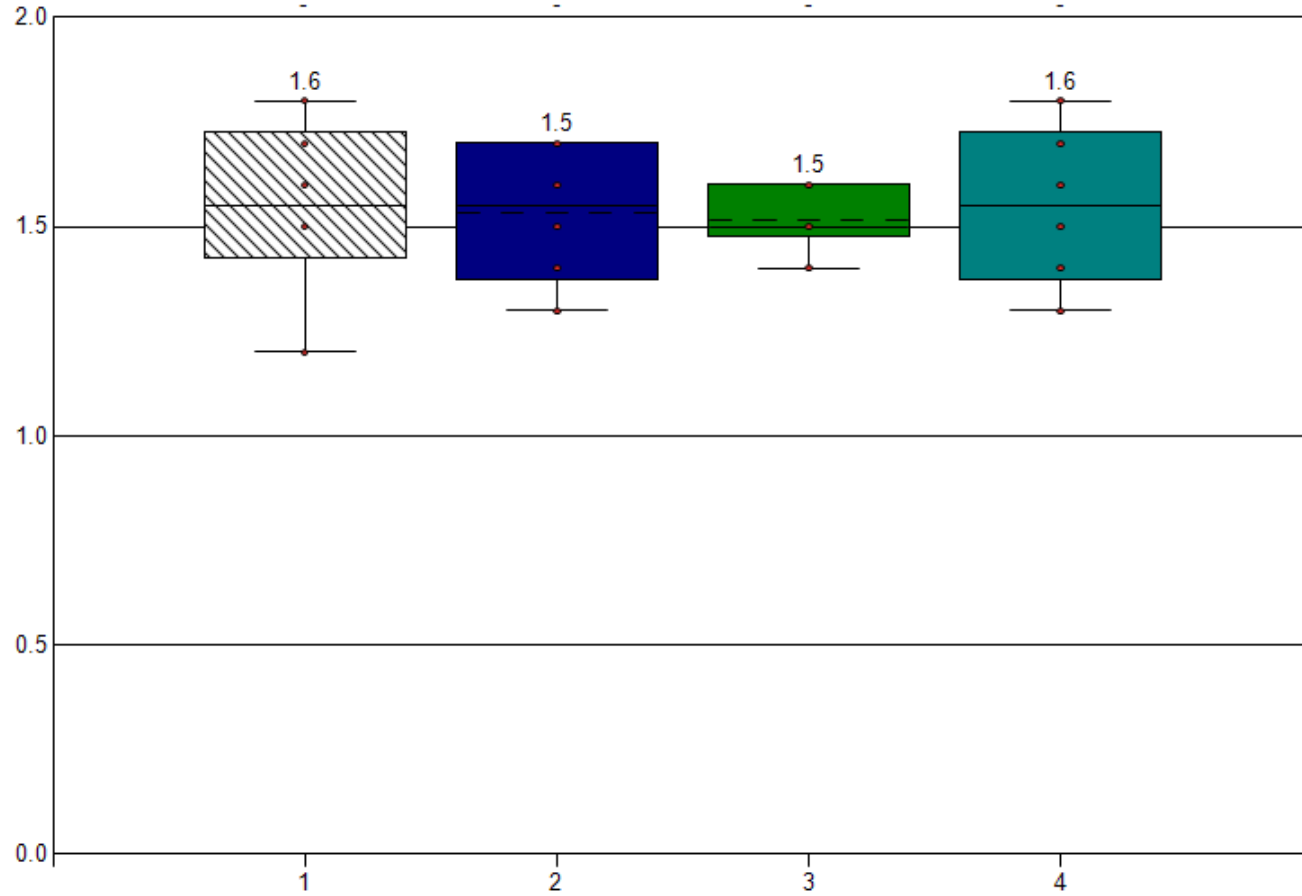
Rating Date	Mar-2-2026	Mar-2-2026	Mar-2-2026	Mar-2-2026
SE Group No.	22	22	22	22
Rating Type	GrowBudDro	GrowBudDro	GrowBudDro	GrowBudDro
Rating Unit				
Rating Min/Max/Interval				
Number of Subsamples	2	2	2	2
Days After First/Last Appl.	119, 119	119, 119	119, 119	119, 119
Treatment Appl. Interval	119 DA-A	119 DA-A	119 DA-A	119 DA-A
Planting Interval	119 DP-1	119 DP-1	119 DP-1	119 DP-1
Description	Bulk E C	Air Surface Temp	Humidity	VPD
ARM Action Codes		&AS	ET4	
Number of Decimals				
Data Entry Date	Mar-5-2026	Mar-5-2026	Mar-5-2026	Mar-5-2026
Trt Treatment	24*	25*	26	27*
No. Name	Rate Appl Rate Unit Code	d&AS		
1 Full Water UTC	0.270 a	80.7 -	32.8	2.680 -
2 Full Water Stretta	2 qt/a A	80.0 -	36.0	2.512 -
Full Water Stretta	1 qt/a B			
3 Reduced Water UTC	0.290 a	80.0 -	32.0	2.730 -
4 Reduced Water Stretta	2 qt/a A	80.0 -	41.7	2.610 -
Reduced Water Stretta	1 qt/a B			
LSD P=.05	0.0778	1.15 - 1.15	.	0.2973
Standard Deviation	0.0389	0.03t	.	0.1488
CV	16.06	0.36t	.	5.65
Levene's F^	0.399	0.333	.	0.477
Levene's Prob(F)	0.758	0.802	.	0.707
Shapiro-Wilk^	0.8973	0.8266*	0.9274	0.9229
P(Shapiro-Wilk)^	0.1462	0.0191*	0.4568	0.3113
Ske wne ss^	0.5994	0.9381	0.5978	-0.8621
P(Ske wne ss)^	0.3671	0.1691	0.4287	0.2033
Kurtosis^	-0.9162	1.5278	-0.591	1.1938
P(Kurtosis)^	0.4728	0.2408	0.684	0.3535
Replicate F	1.661	1.000		1.301
Replicate Prob(F)	0.2666	0.4219		0.3394
Treatment F	5.308	1.000		1.213
Treatment Prob(F)	0.0399	0.4547		0.3828

Final Soil Tests

Standard analysis and SAR (saturated paste extract). Each plot sampled and tested individually.

Yuma Romaine - Stretta Trial - Fall 2025

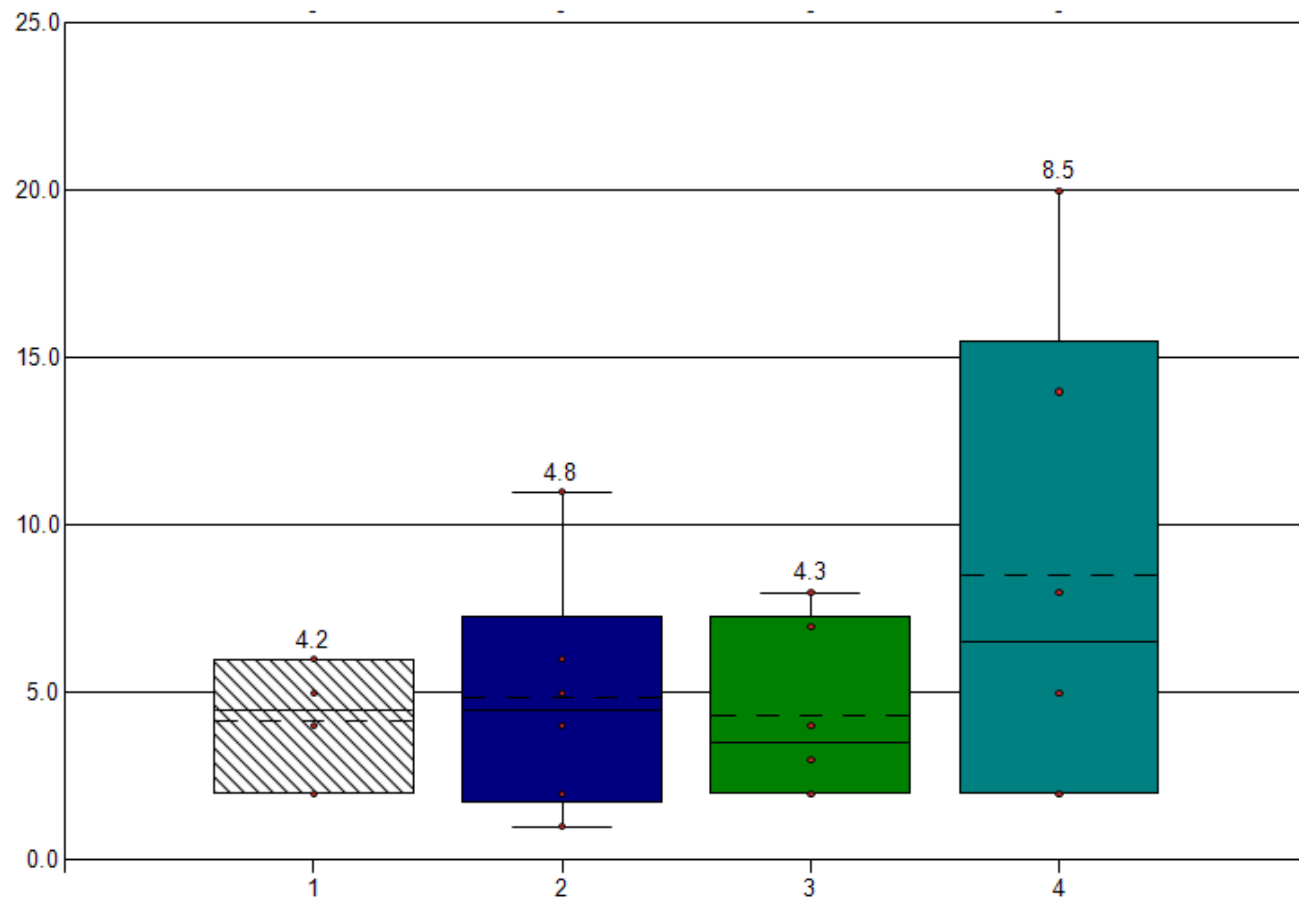
OM



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

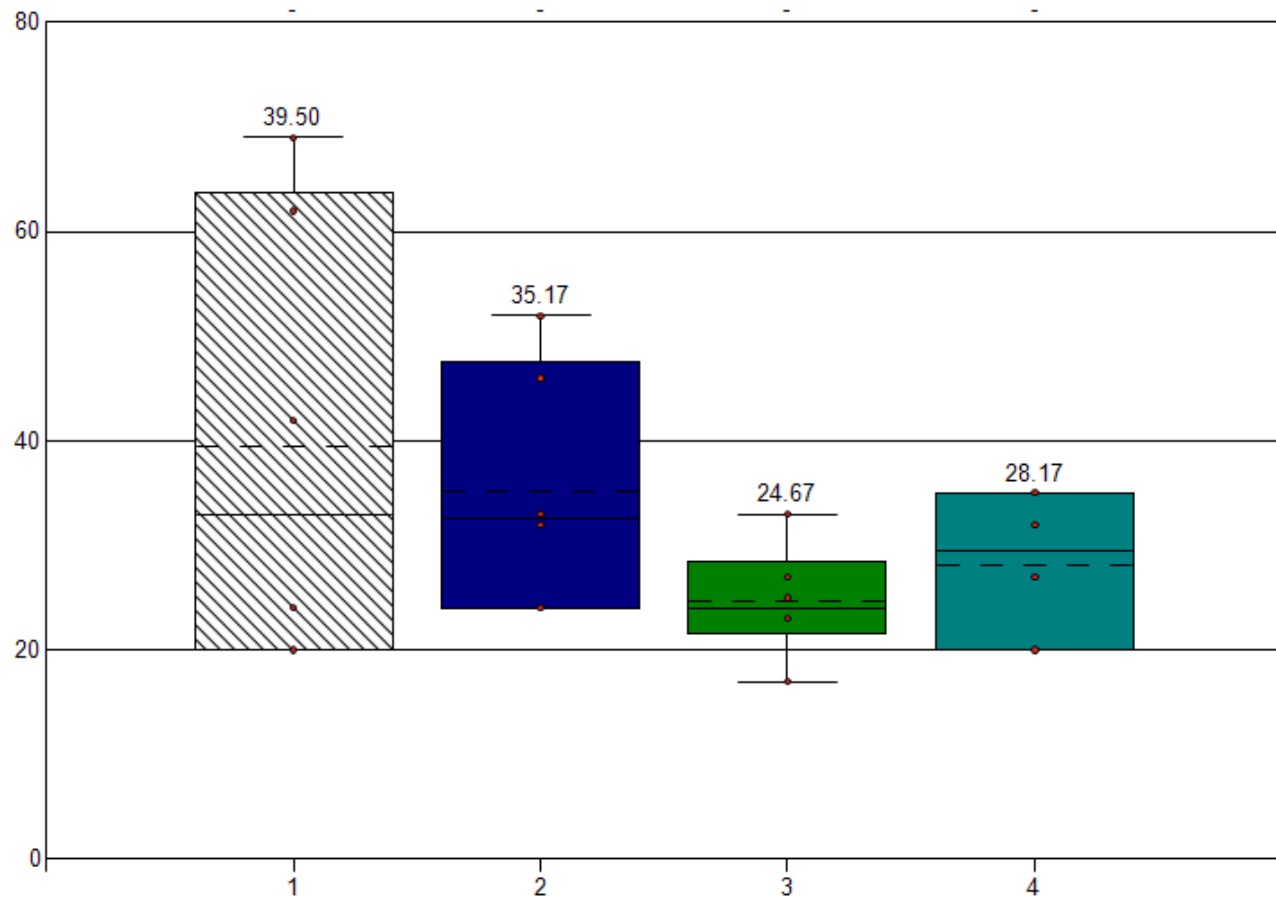
P1



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

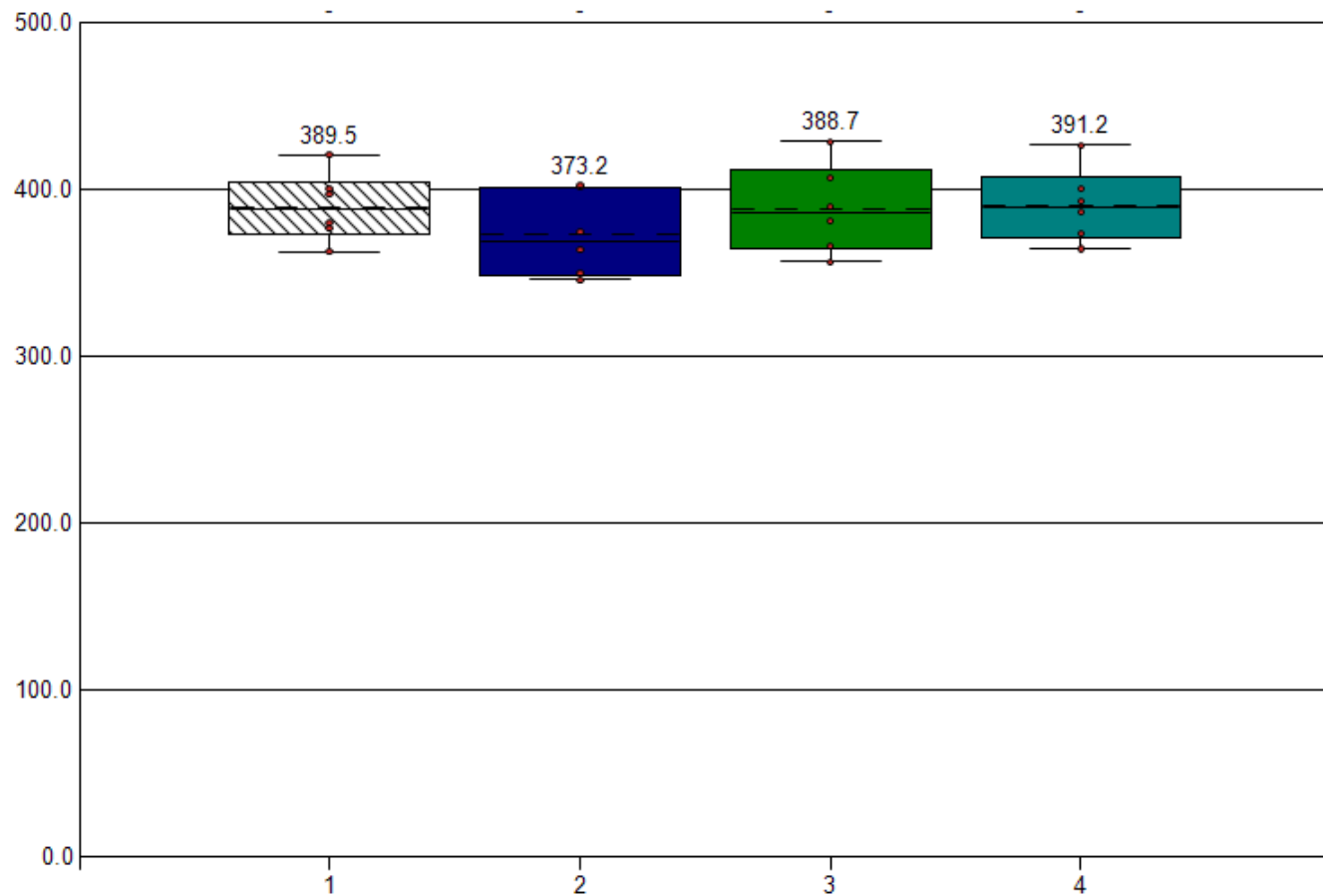
Olsen



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

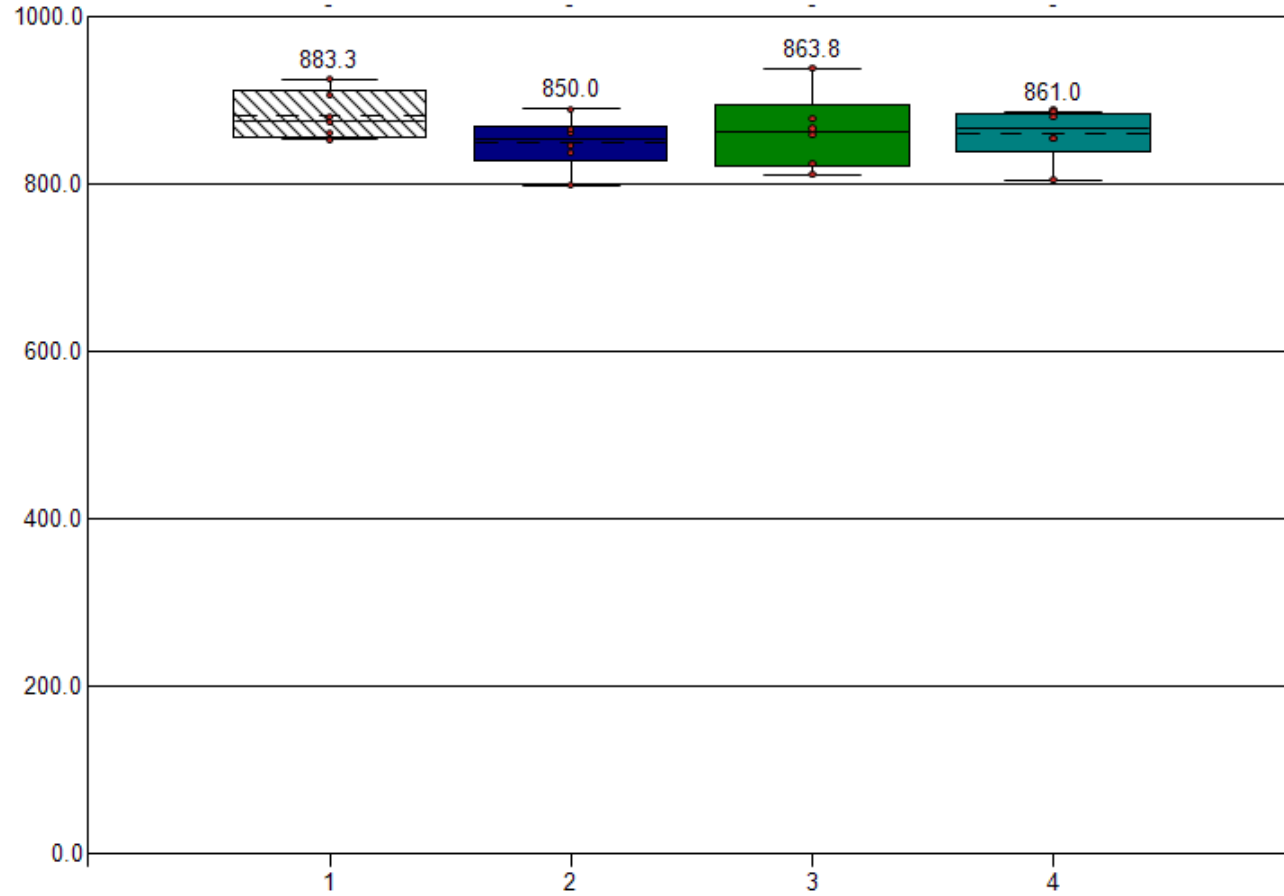
K



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

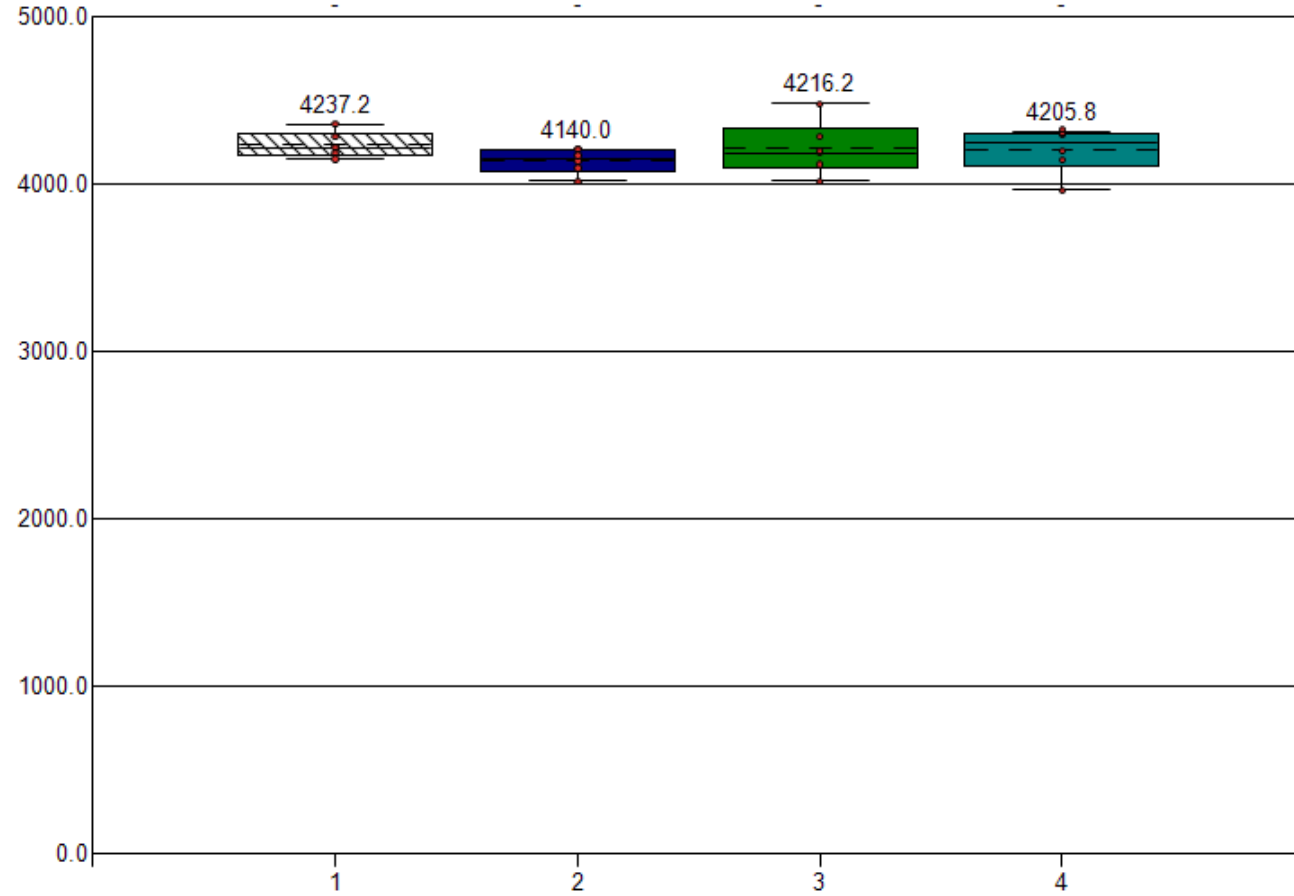
MG



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

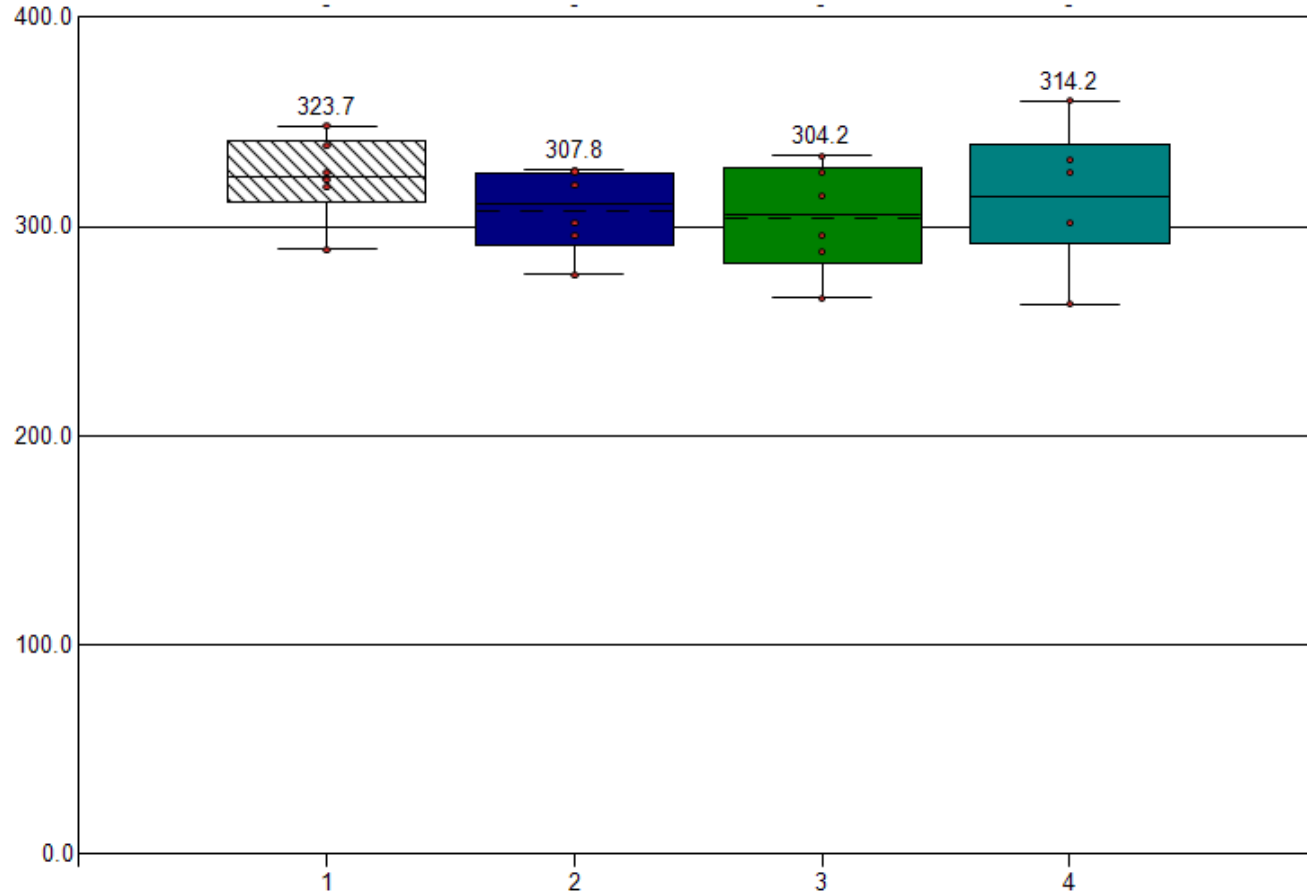
CA



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

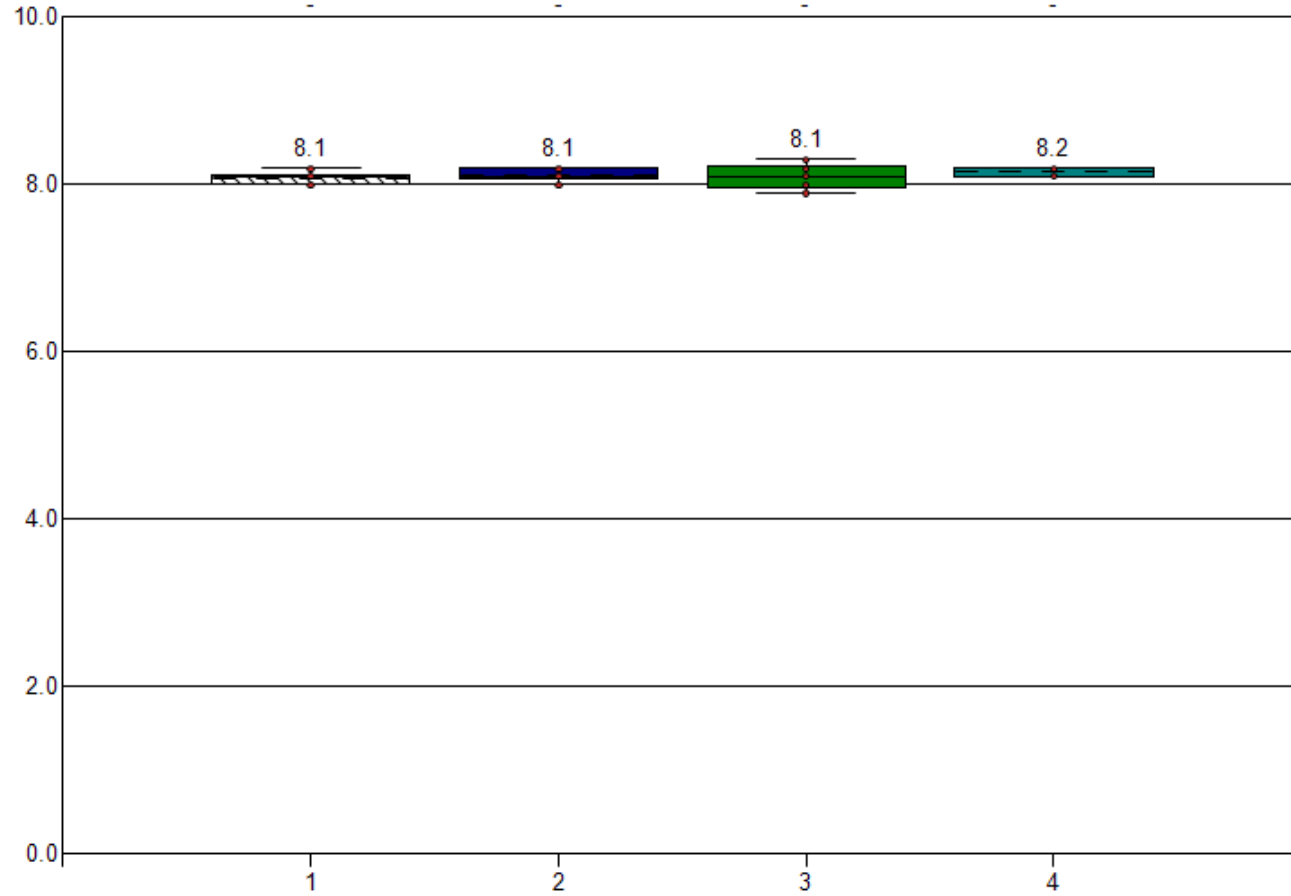
NA



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

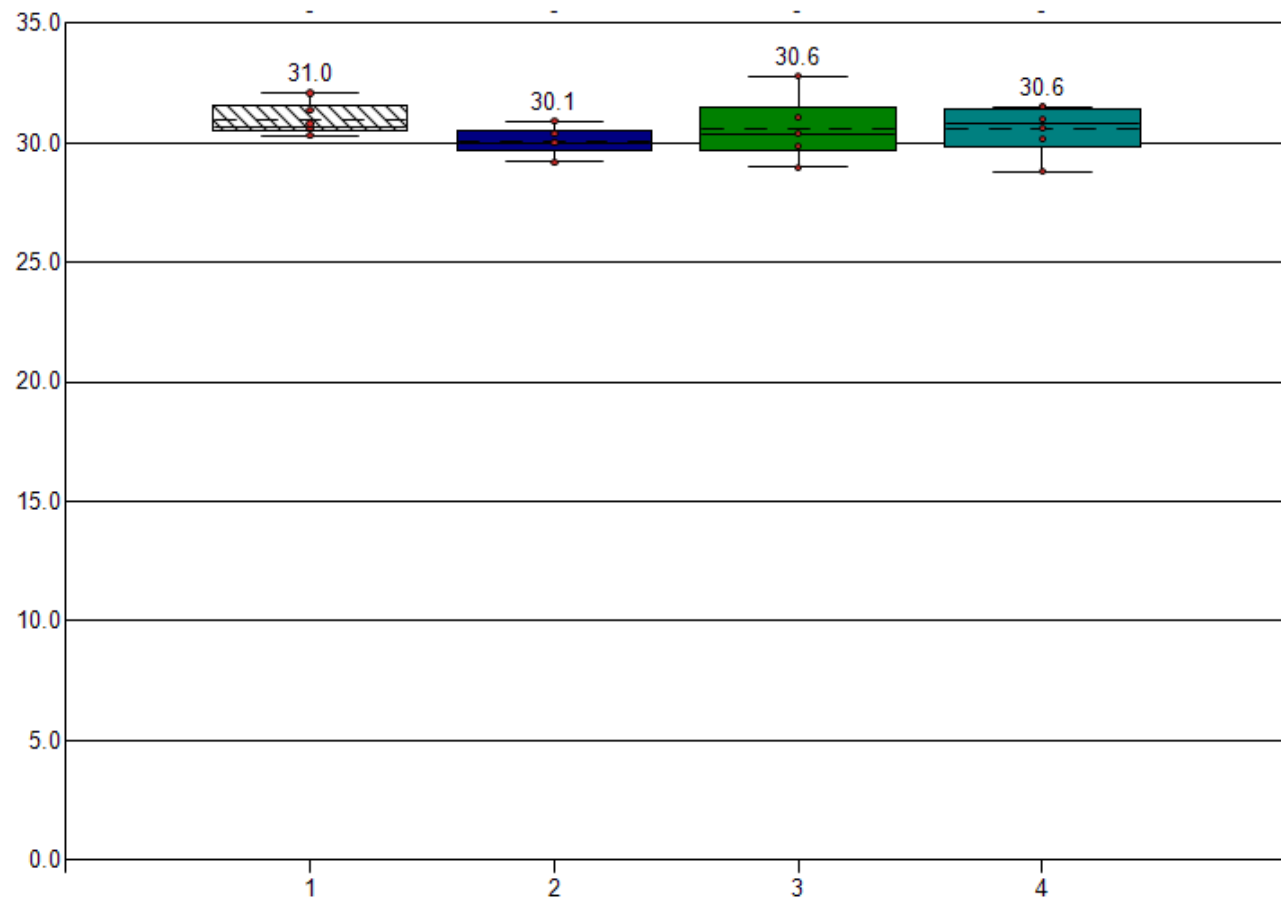
PH



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

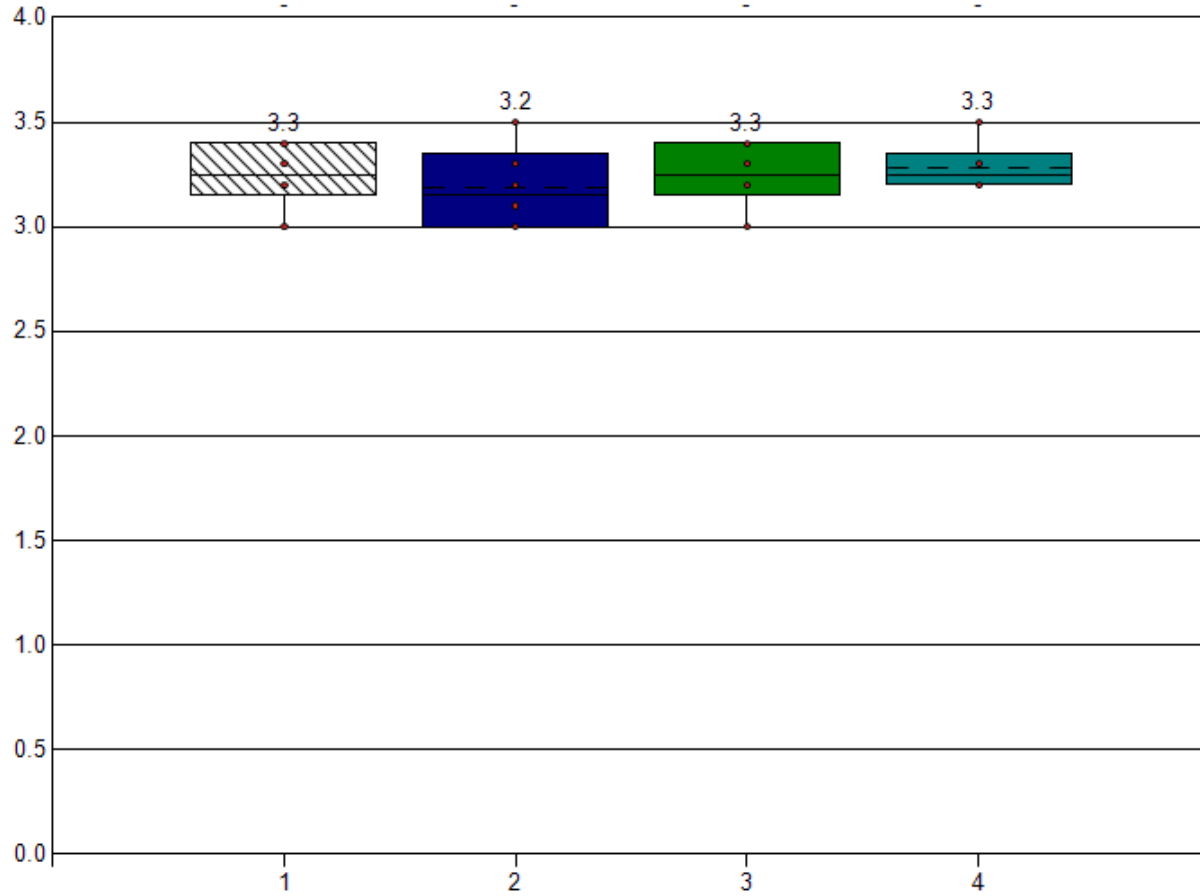
CEC



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

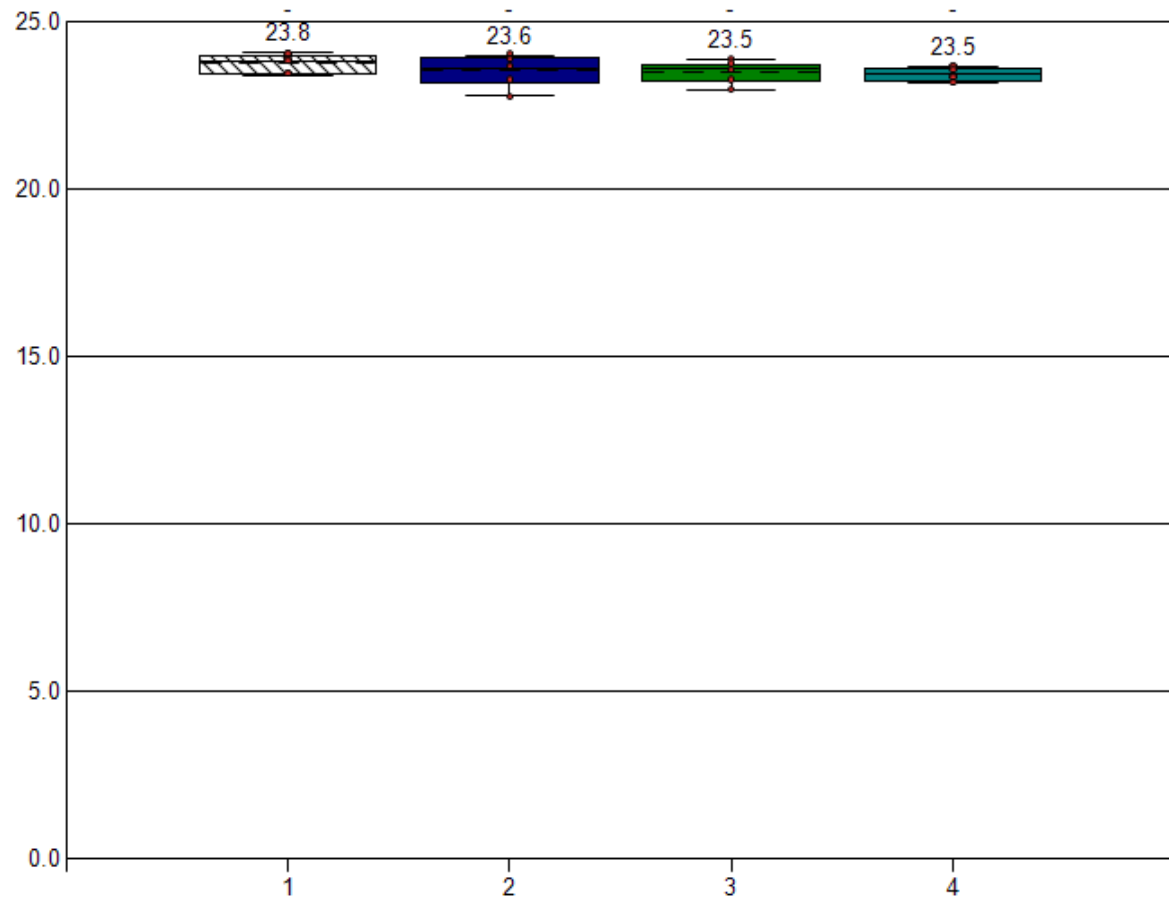
PERCENT K



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

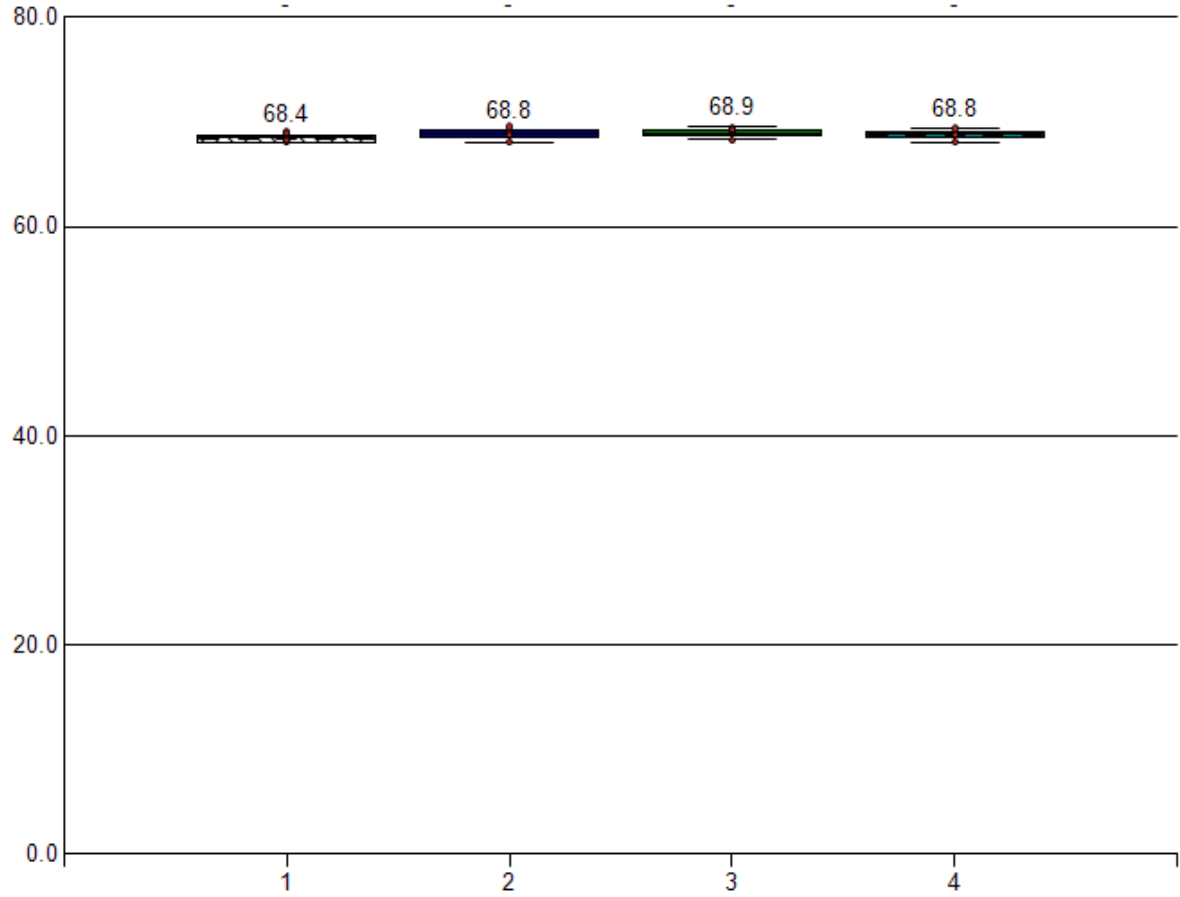
PERCENT MG







- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

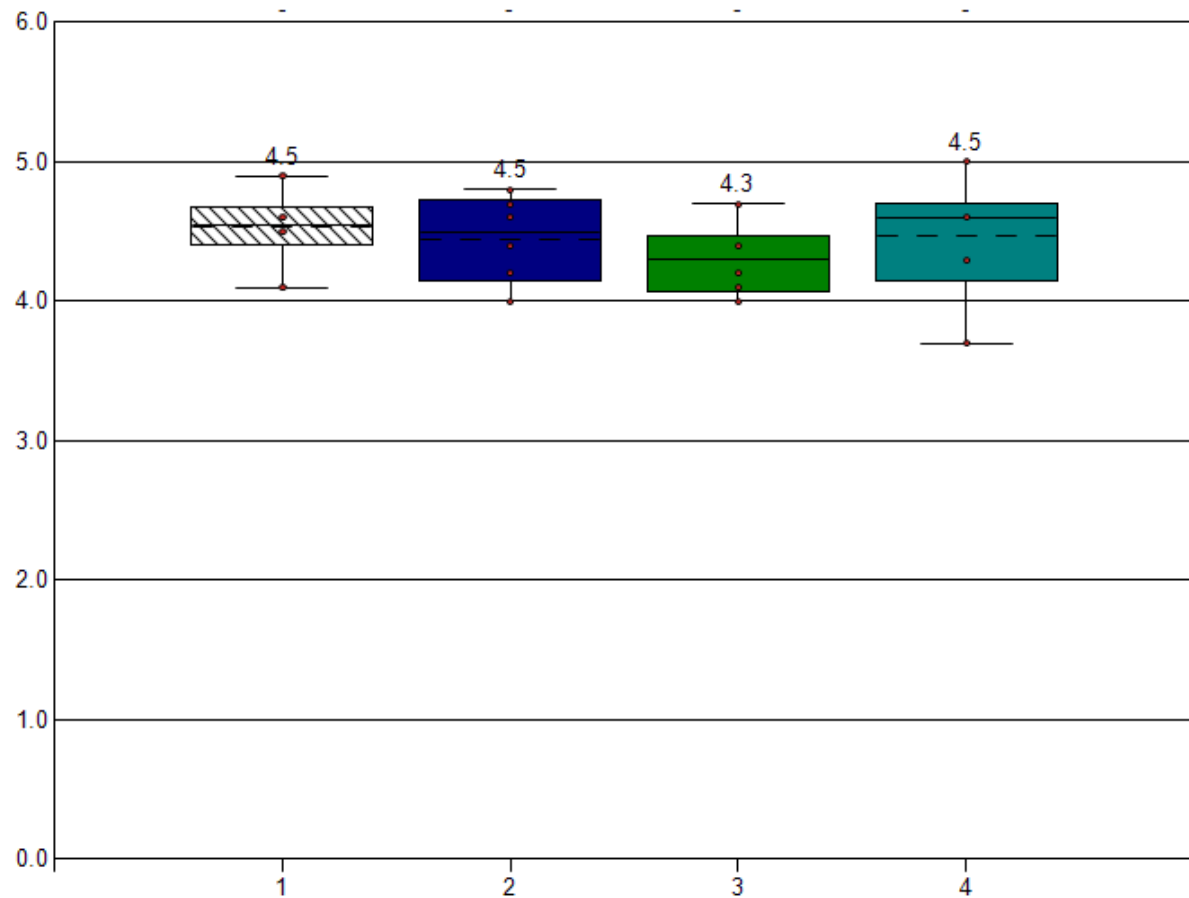
PERCENT CA



- 1  Full Water UTC
- 2  Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3  Reduced Water UTC
- 4  Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

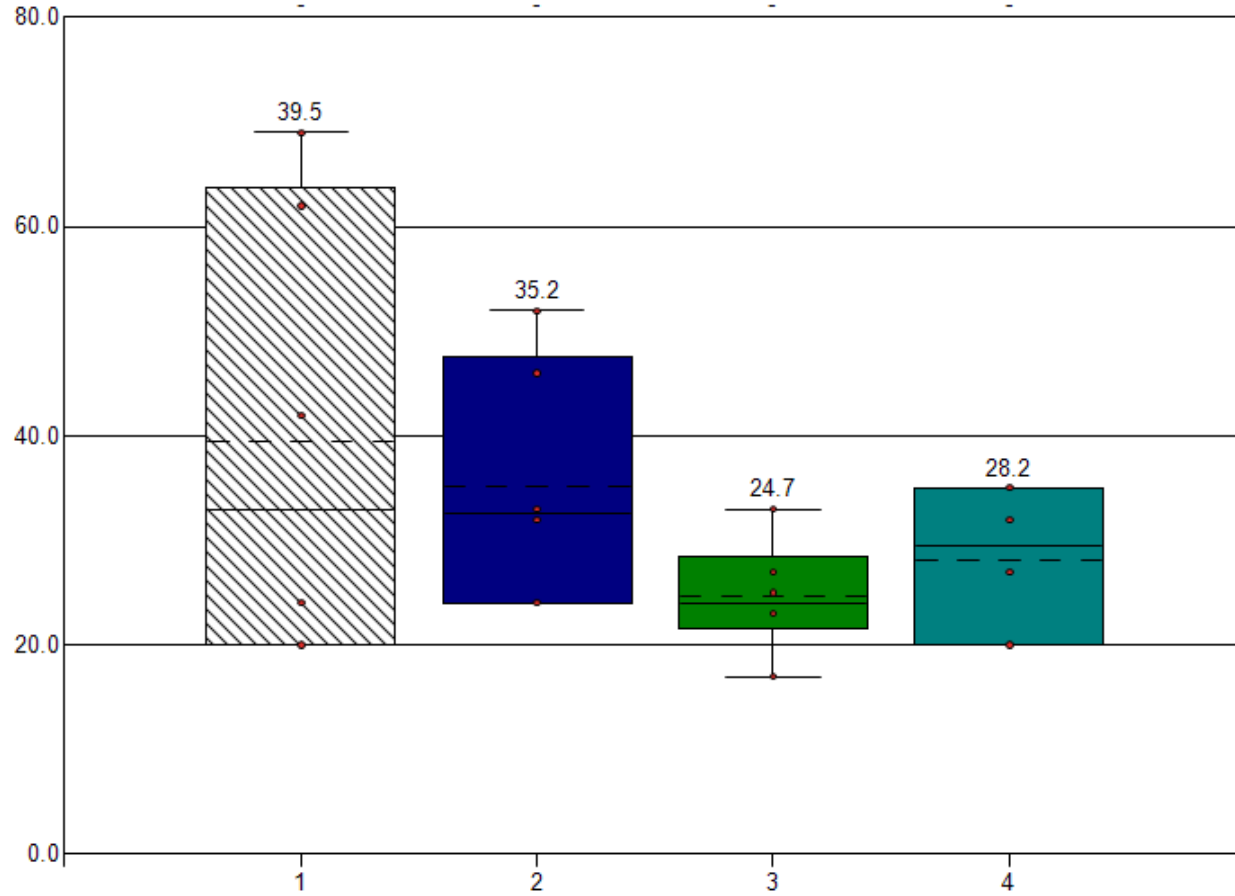
PERCENT NA



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

BICARB

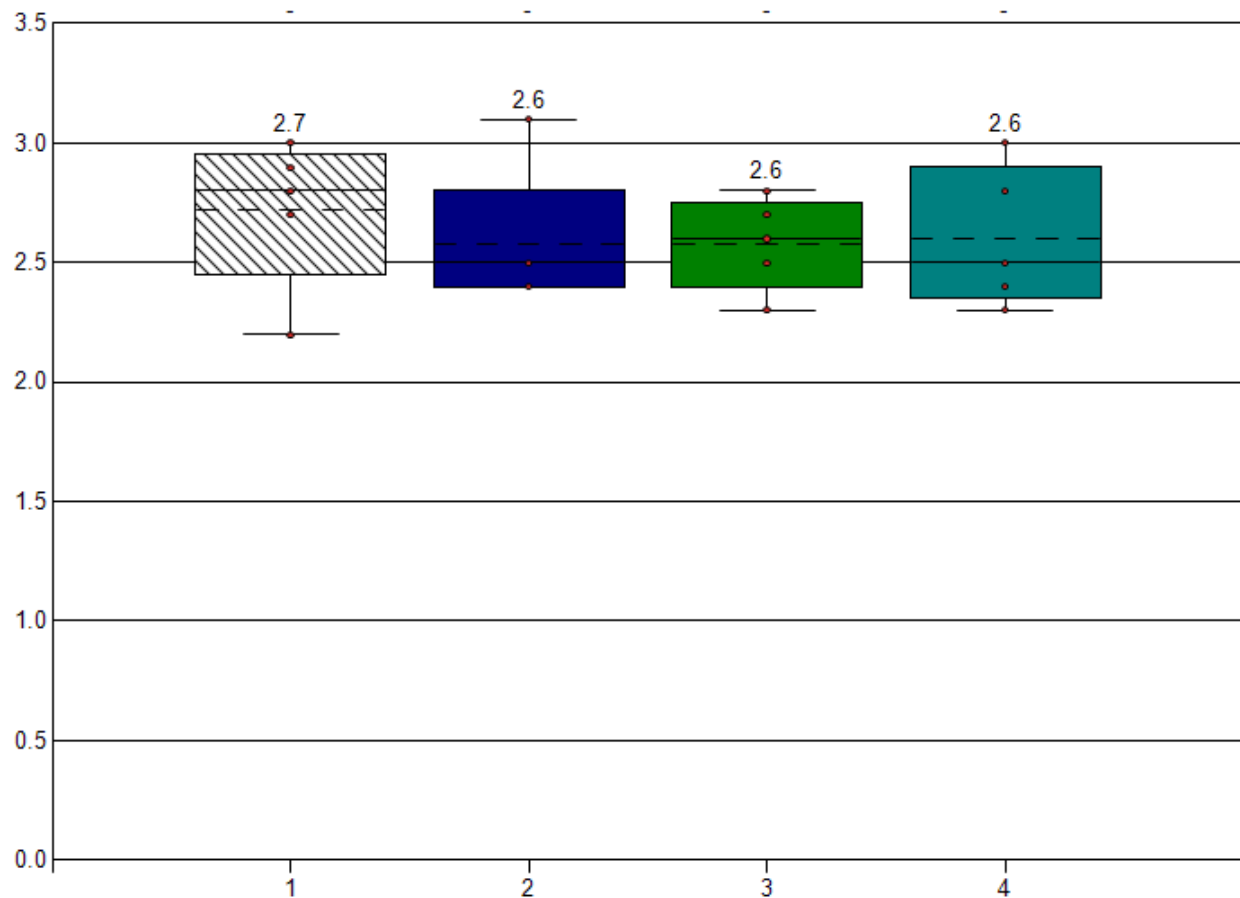


- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

SAR (Saturated Paste Extract)

Yuma Romaine - Stretta Trial - Fall 2025

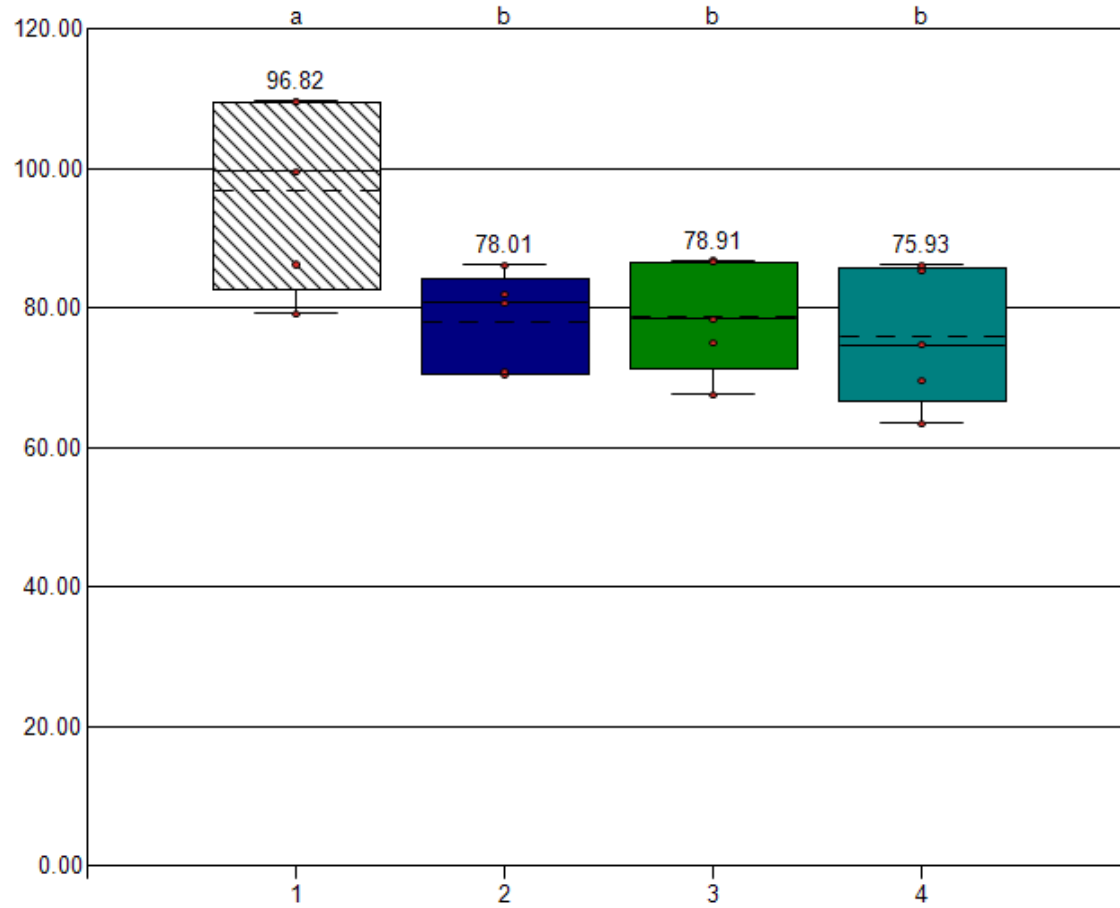
SAR SAR



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

Yuma Romaine - Stretta Trial - Fall 2025

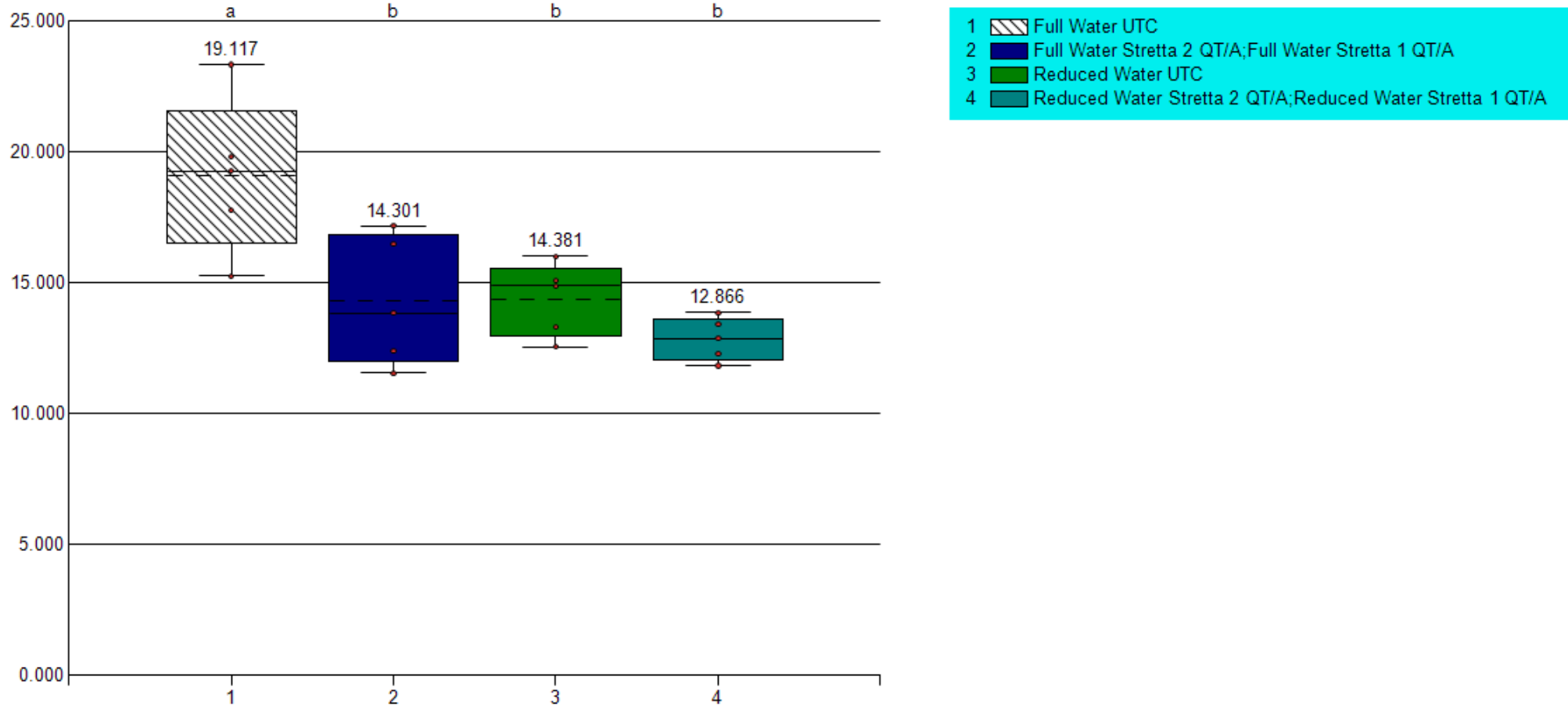
Sol mg/L SAR_NA



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

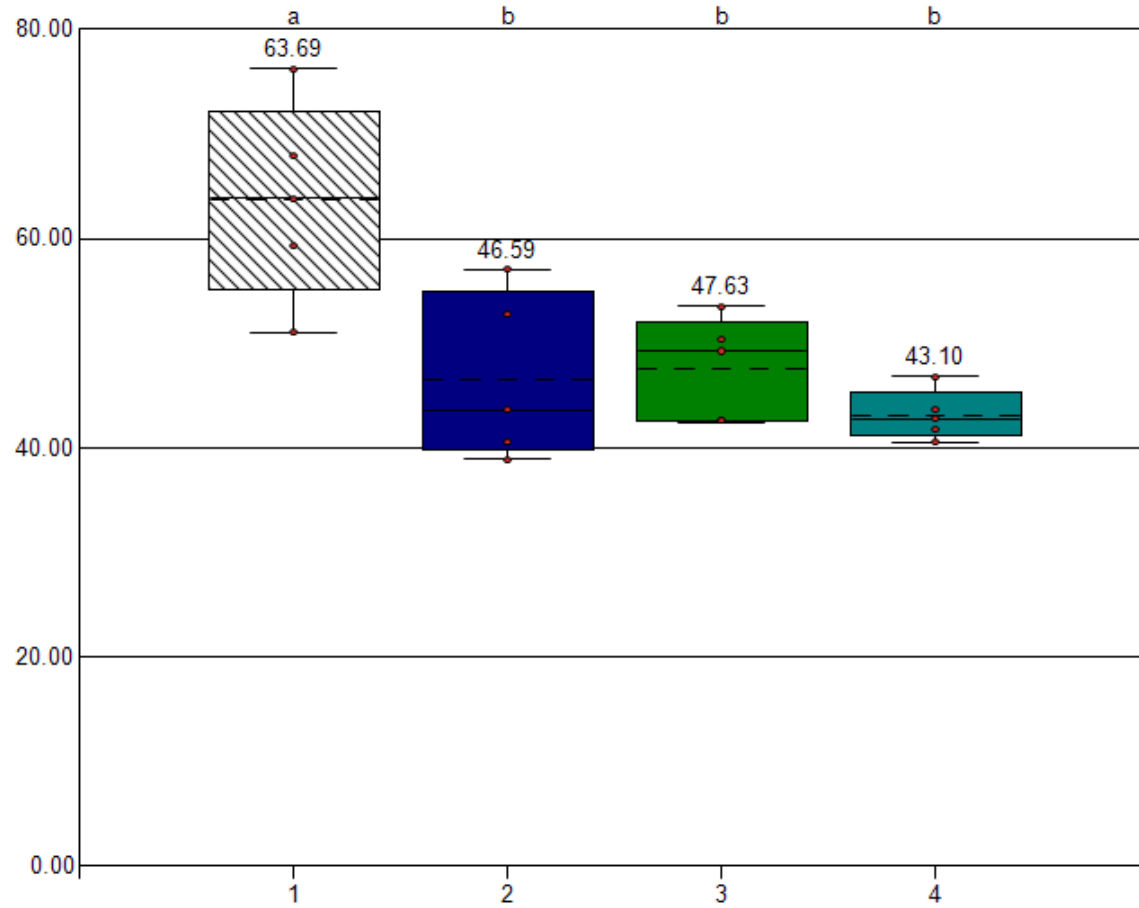
Yuma Romaine - Stretta Trial - Fall 2025

Sol mg/L SAR_MG



Yuma Romaine - Stretta Trial - Fall 2025

Sol mg/L SAR_CA



- 1 Full Water UTC
- 2 Full Water Stretta 2 QT/A; Full Water Stretta 1 QT/A
- 3 Reduced Water UTC
- 4 Reduced Water Stretta 2 QT/A; Reduced Water Stretta 1 QT/A

University of Arizona

T-6 Stretta								
Trial ID: T-6 Stretta Water Reduction Trial Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025 Project ID: T-6 Stretta Water Reduction Trial Study Director: Robert Masson Sponsor Contact: Investigator:								
Rating Date		24	25	38	26	27	28	29
SE Group No.								
Rating Type								
Rating Unit								
Rating Min/Max/Interval								
Number of Subsamples		1	1	1	1	1	1	1
Days After First/Last Appl.								
Treatment Appl. Interval								
Planting Interval								
Description		OM	P1	Olsen	K	MG	CA	NA
ARM Action Codes			AL	AL				
Number of Decimals		1	1		1	1	1	1
Data Entry Date		Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026
Trt Treatment	Rate Appl	28	29	30	31	32	33	34
No. Name	Rate Unit Code		dAL	dAL				
1	Full Water UTC	1.6 -	3.9 -	34.8 -	389.5 -	883.3 -	4237.2 -	323.7 -
2	Full Water Stretta Full Water Stretta	2 qt/a A 1 qt/a B	1.5 - 4.0 -	33.7 -	373.2 -	850.0 -	4140.0 -	307.8 -
3	Reduced Water UTC	1.5 -	3.8 -	24.2 -	388.7 -	863.8 -	4216.2 -	304.2 -
4	Reduced Water Stretta Reduced Water Stretta	2 qt/a A 1 qt/a B	1.6 - 6.3 -	27.4 -	391.2 -	861.0 -	4205.8 -	314.2 -
LSD P= .15		0.16	3.20 - 3.77	10.04 - 10.19	19.37	31.95	106.53	22.25
Standard Deviation		0.19	0.29t	0.17t	22.11	36.47	121.61	25.40
CV		12.2	38.88t	11.18t	5.73	4.22	2.9	8.13
Levene's F^		1.485	1.887	1.478	0.88	0.047	0.386	0.334
Levene's Prob(F)		0.249	0.164	0.251	0.468	0.986	0.764	0.801
Shapiro-Wilk^		0.9697	0.9695	0.9377	0.9444	0.9854	0.9846	0.9678
P(Shapiro-Wilk)^		0.6605	0.6558	0.1446	0.2041	0.9715	0.9636	0.6134
Skewness^		-0.549	0.1605	0.1863	-0.6798	0.0192	-0.1724	0.128
P(Skewness)^		0.257	0.737	0.6969	0.1635	0.968	0.7184	0.7887
Kurtosis^		0.1186	-0.6896	-1.2786	0.3099	-0.1968	0.0772	-0.8356
P(Kurtosis)^		0.8983	0.46	0.1769	0.7387	0.8321	0.9337	0.372
Replicate F		0.135	0.351	0.450	1.459	0.540	0.543	0.950
Replicate Prob(F)		0.9817	0.8738	0.8069	0.2607	0.7435	0.7414	0.4776
Treatment F		0.043	0.564	1.133	0.860	0.868	0.714	0.678
Treatment Prob(F)		0.9875	0.6472	0.3673	0.4833	0.4791	0.5590	0.5789

University of Arizona

T-6 Stretta

Trial ID: T-6 Stretta Water Reduction Trial
 Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025
 Project ID: T-6 Stretta Water Reduction Trial
 Study Director: Robert Masson Sponsor Contact:
 Investigator:

Rating Date	30	31	32	33	34	35
SE Group No.						
Rating Type						
Rating Unit						
Rating Min/Max/Interval						
Number of Subsamples	1	1	1	1	1	1
Days After First/Last Appl.						
Treatment Appl. Interval						
Planting Interval						
Description	PH	BPH	CEC	PERCENT K	PERCENT MG	PERCENT CA
ARM Action Codes						
Number of Decimals	1	1	1	1	1	1
Data Entry Date	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026
Trt Treatment						
No. Name						
Rate Appl	35	36	37	38	39	40
Rate Unit						
Code						
1 Full Water UTC	8.1 -	7.1 na	31.0 -	3.3 -	23.8 -	68.4 -
2 Full Water Stretta	8.1 -	7.1 na	30.1 -	3.2 -	23.6 -	68.8 -
Full Water Stretta						
1 qt/a B						
3 Reduced Water UTC	8.1 -	7.1 na	30.6 -	3.3 -	23.5 -	68.9 -
4 Reduced Water Stretta	8.2 -	7.1 na	30.6 -	3.3 -	23.5 -	68.8 -
Reduced Water Stretta						
1 qt/a B						
LSD P= .15	0.09	.	0.86	0.12	0.27	0.34
Standard Deviation	0.10	0.00	0.99	0.14	0.31	0.39
CV	1.24	0.0	3.23	4.2	1.3	0.57
Levene's F^	1.144	.	0.139	0.723	0.21	0.321
Levene's Prob(F)	0.355	.	0.936	0.55	0.888	0.81
Shapiro-Wilk^	0.9824	.	0.9857	0.9705	0.9687	0.9563
P(Shapiro-Wilk)^	0.9356	.	0.9743	0.6794	0.6343	0.368
Skewness^	-0.1329	.	-0.2077	-0.5255	0.6337	-0.0165
P(Skewness)^	0.781	.	0.6642	0.2773	0.1927	0.9725
Kurtosis^	-0.3289	.	0.0535	0.2832	0.6089	-0.6096
P(Kurtosis)^	0.7233	.	0.954	0.7604	0.5136	0.5132
Replicate F	0.363	NaN	0.511	2.246	1.380	1.094
Replicate Prob(F)	0.8661	NaN	0.7639	0.1032	0.2865	0.4036
Treatment F	0.769	NaN	0.817	0.569	1.350	1.862
Treatment Prob(F)	0.5289	NaN	0.5045	0.6440	0.2960	0.1794

University of Arizona

T-6 Stretta

Trial ID: T-6 Stretta Water Reduction Trial
 Protocol ID: T-6 Stretta Water Reduction Trial Location: Yuma Arizona Trial Year: 2025
 Project ID: T-6 Stretta Water Reduction Trial
 Study Director: Robert Masson Sponsor Contact:
 Investigator:

Rating Date	36	37	39	40	41	42
SE Group No.						
Rating Type			SAR	Sol mg/L	Sol mg/L	Sol mg/L
Rating Unit						
Rating Min/Max/Interval						
Number of Subsamples	1	1	1	1	1	1
Days After First/Last Appl.						
Treatment Appl. Interval						
Planting Interval						
Description	PERCENT NA	BICARB	SAR	SAR_NA	SAR_MG	SAR_CA
ARM Action Codes		AL			AL	AL
Number of Decimals	1	1	1	2	3	2
Data Entry Date	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026	Mar-17-2026
Trt Treatment	41	42	43	44	45	46
No. Name		dAL			dAL	dAL
Rate Appl						
Rate Unit Code						
1 Full Water UTC	4.5 -	34.8 -	2.7 -	96.82 a	18.943 a	63.13 a
2 Full Water Stretta	4.5 -	33.7 -	2.6 -	78.01 b	14.143 b	46.08 b
Full Water Stretta						
1 qt/a A						
1 qt/a B						
3 Reduced Water UTC	4.3 -	24.2 -	2.6 -	78.91 b	14.329 b	47.43 b
4 Reduced Water Stretta	4.5 -	27.4 -	2.6 -	75.93 b	12.847 b	43.05 b
Reduced Water Stretta						
1 qt/a A						
1 qt/a B						
LSD P=.15	0.28	10.04 - 10.19	0.28	9.450	1.3297 - 1.7473	4.527 - 5.976
Standard Deviation	0.32	0.17t	0.29	9.716	0.0409t	0.044t
CV	7.19	11.18t	11.03	11.79	3.41t	2.57t
Levene's F^	0.534	1.478	0.153	0.154	0.458	0.856
Levene's Prob(F)	0.665	0.251	0.926	0.926	0.716	0.484
Shapiro-Wilk^	0.9597	0.9377	0.9582	0.9393	0.9752	0.9592
P(Shapiro-Wilk)^	0.4324	0.1446	0.5085	0.2331	0.8585	0.5287
Skewness^	-0.2362	0.1863	0.0765	-0.3998	-0.0267	-0.088
P(Skewness)^	0.6218	0.6969	0.8828	0.4447	0.959	0.8654
Kurtosis^	0.4817	-1.2786	-0.5695	-0.8834	-0.7653	-1.0009
P(Kurtosis)^	0.6047	0.1769	0.5728	0.3845	0.4501	0.3258
Replicate F	1.087	0.450	0.665	1.245	3.719	3.152
Replicate Prob(F)	0.4069	0.8069	0.6285	0.3437	0.0342	0.0548
Treatment F	0.571	1.133	0.271	4.968	13.908	13.574
Treatment Prob(F)	0.6425	0.3673	0.8448	0.0181	0.0003	0.0004

Plot Photos



Plot-1107
Trt-1

























Plot- 1110
Tnt- 4

















Plot- 11R
Trt-2







Plot- 1412
Trt- 3