Yuma Cantaloupe Trial

Spring 2024

Syngenta Retrosal

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THE UNIVERSITY OF ARIZONA
Cooperative Extension
Yuma County

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Planted: 3/15/24
Harvest 1: 6/11
Harvest 2: 6/14

Fertilization Plan
Phos Acid added through drip at seeding 13.3 GAL/AC

UAN-32:
Application A: 15# N, 3/25/24
Application B: 35# N, 4/9/24
Application C: 50# N, 5/16/24

Stand Count: 4/18
NDVI_1: 4/24
NDVI_2: 5/8
NDVI_3: 5/20

Photos 1: 5/20

Rye grass cover crop grown without nutrition. Mown and biomass removed.
Drip tape cut 3/18 and manifolds installed.

UAN-32 In-season (100% N values below)
App A: 15 #N
App B: 35 #N
App C: 50 #N

Cantaloupe Variety: Harris Moran Deluxe F1

Trial Details

Four Treatments:

1. UTC
2. Retrosal, 1 gal/ac, 1 app
3. Retrosal, 1 gal/ac, 2 apps
4. Retrosal, 1 gal/ac, 3 apps

Replications: 6

App dates:
A: 4/8
B: 4/30
C: 5/20

Drop 1311 for low stand count

Trial Summary

- Early canopy measurements with NDVI showed minimal differences among treatments until the final measurement where differences between treatment groups were observed.
- Abiotic stress measurements inconclusive.
- Harvest weights were similar but circumference followed similar trend as final NDVI
- Higher doses matured a little quicker (higher slip numbers)
- More marketable fruit in high rate of Retrosal

May-21-2024 (T6 Retrosal Cantaloupe 2024)

University of Arizona

Retrosal trial to reduce salt.

Trial ID: Cantaloupe Retrosal Spring2024
Protocol ID: Cantaloupe Retrosal Spring2024 Location: Yuma Arizona Trial Year: 2024
Project ID: Cantaloupe Retrosal Spring2024
Study Director: Robert Masson Sponsor Contact:
Investigator:

Trial Map Treatment Description

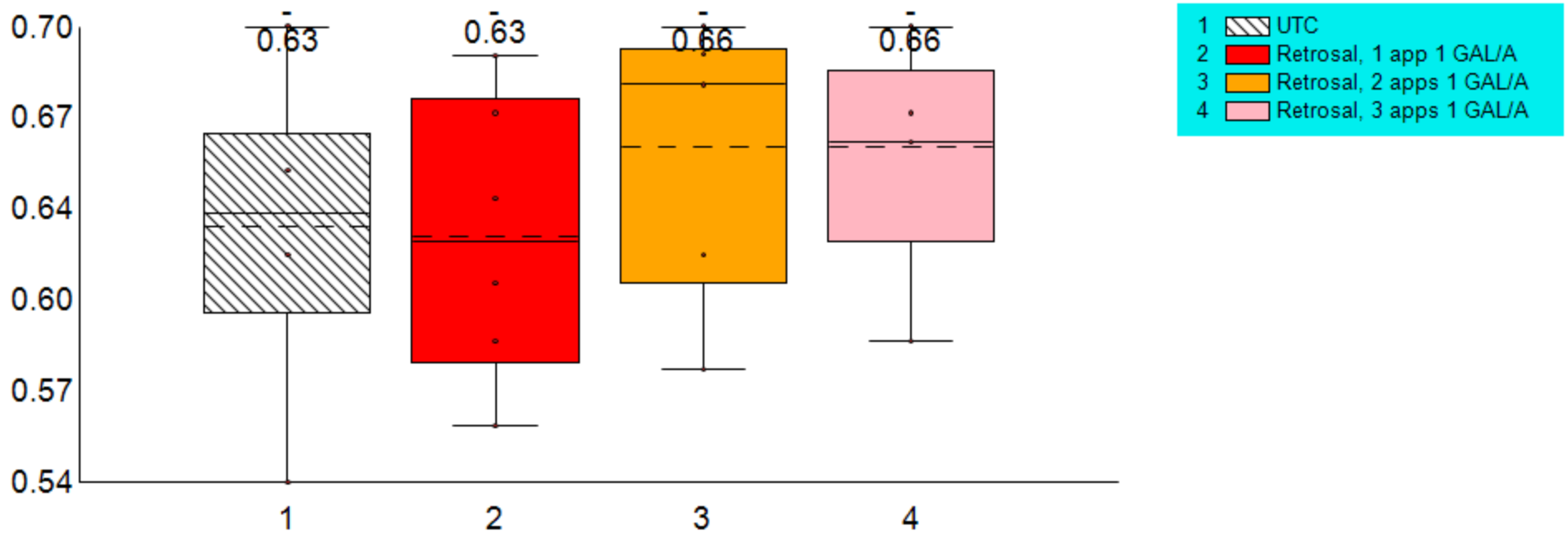
Trt	Code	Description
1	CHK	UTC
2		Retrosal, 1 app 1 GAL/A
3		Retrosal, 2 apps 1 GAL/A
4		Retrosal, 3 apps 1 GAL/A

Irrigation

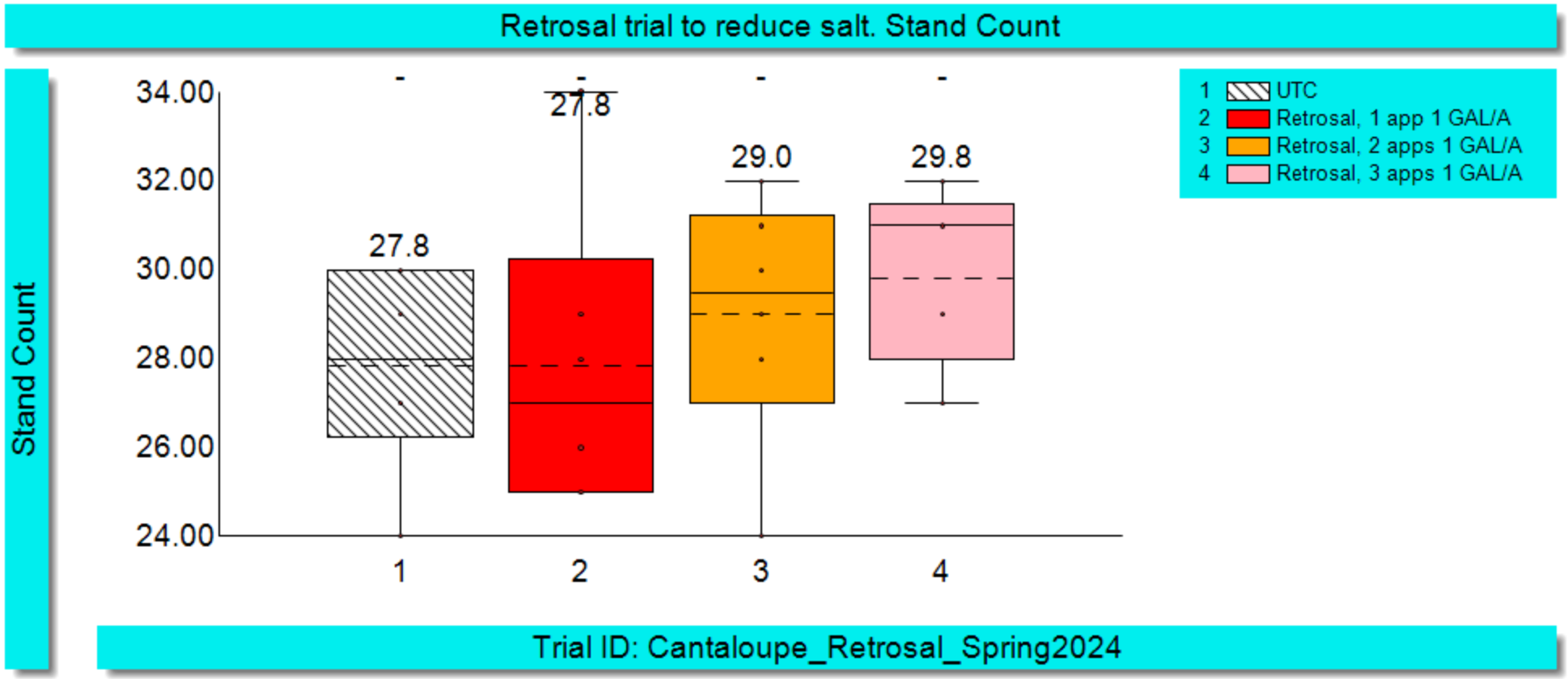
Irrigation Date	Amount	Unit	Method
Mar-15-2024	0.5	IN	Sprinkler (set herbicide)
Mar-18-2024	0.372	IN	Drip irrigation system (phos)
Mar-26-2024	0.465	IN	drip irrigation system
Mar-30-2024	0.18	IN	rain
Mar-31-2024	0.129	IN	rain
Apr-1-2024	0.14	IN	rain
Apr-4-2024	0.186	IN	drip irrigation system
Apr-8-2024	0.186	IN	drip irrigation system
Apr-12-2024	0.186	IN	drip irrigation system
Apr-18-2024	0.186	IN	drip irrigation system
Apr-23-2024	0.186	IN	drip irrigation system
Apr-26-2024	0.186	IN	drip irrigation system
Apr-30-2024	0.186	IN	drip irrigation system
May-7-2024	0.372	IN	drip irrigation system
May-13-2024	0.372	IN	drip irrigation system
May-14-2024	0.372	IN	drip irrigation system
May-20-2024	0.372	IN	drip irrigation system
May-21-2024	0.372	IN	drip irrigation system
May-25-2024	0.744	IN	drip irrigation system
May-28-2024	0.744	IN	drip irrigation system
May-31-2024	0.744	IN	drip irrigation system
June-1-2024	0.744	IN	drip irrigation system
June-4-2024	0.744	IN	drip irrigation system
Total Water Use	**8.66**	**IN**	

Drip tape dug on 31’ increments and cut to form 30’ beds one row wide
Injections made with battery pump and 15 gallon tank filled to 5 gallon mark.

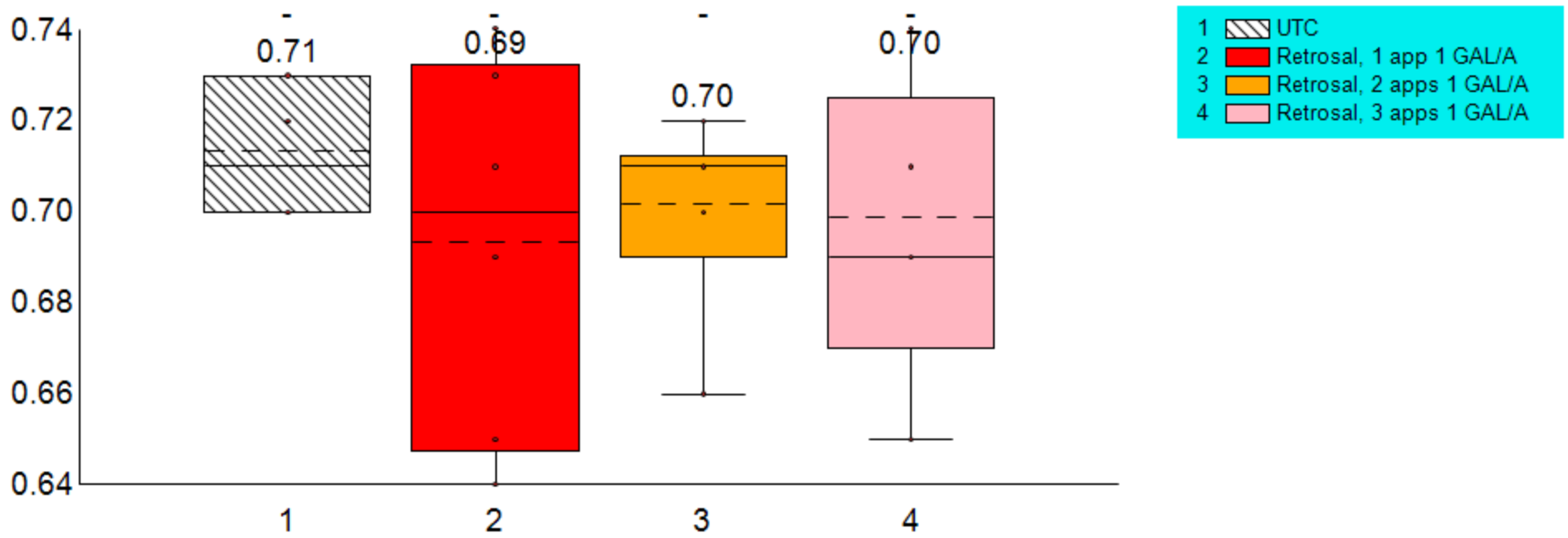
Retrosal trial to reduce salt. NDVI_1



Trial ID: Cantaloupe_Retrosal_Spring2024

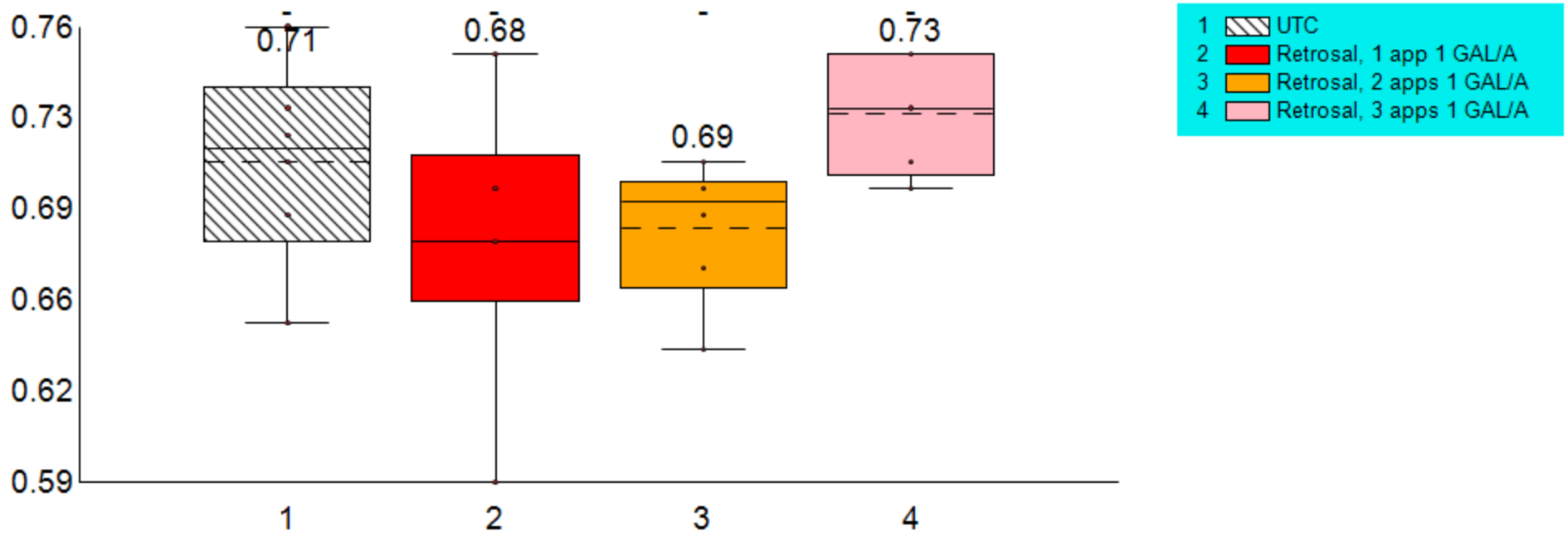

Retrosal trial to reduce salt. Stand Count
Stand Count
34.00
32.00
30.00
28.00
26.00
24.00
27.8
27.8
29.0
29.8
1
2
3
4
1 UTC
2 Retrosal, 1 app 1 GAL/A
3 Retrosal, 2 apps 1 GAL/A
4 Retrosal, 3 apps 1 GAL/A
Trial ID: Cantaloupe_Retrosal_Spring2024

Retrosal trial to reduce salt. NDVI_2

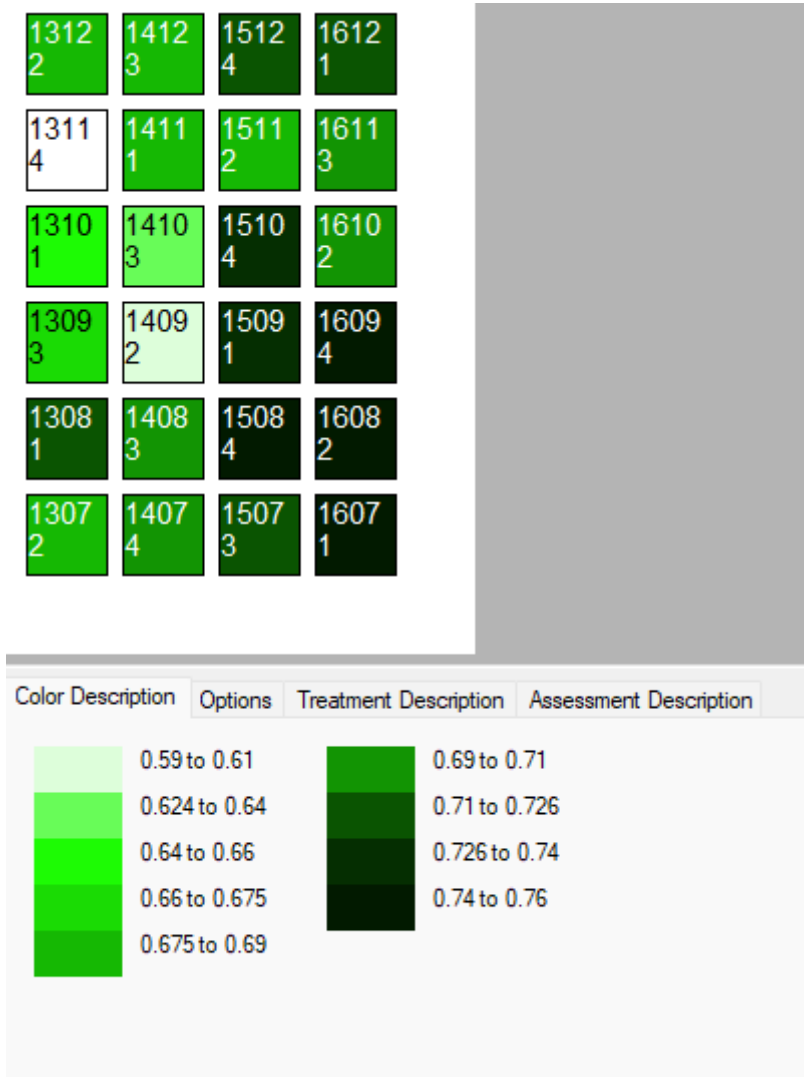


Trial ID: Cantaloupe_Retrosal_Spring2024

Retrosal trial to reduce salt. NDVI_3



Trial ID: Cantaloupe_Retrosal_Spring2024



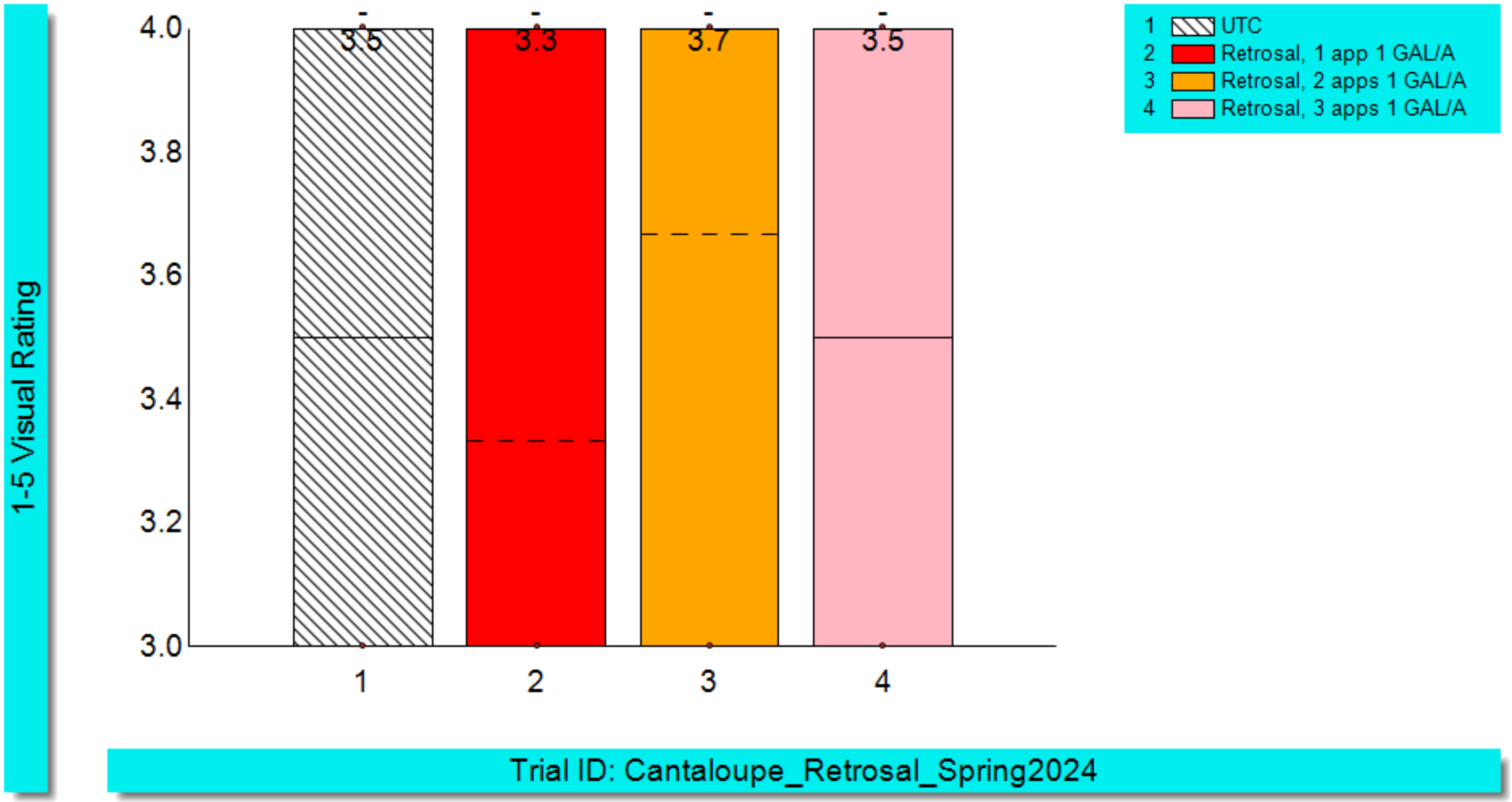
NDVI_3 field distribution

Abiotic Stress Rating

- 1-5
- 1 = No stress
- 5 = High Stress

- 4/8
- 4/22
- 5/9
- 5/22

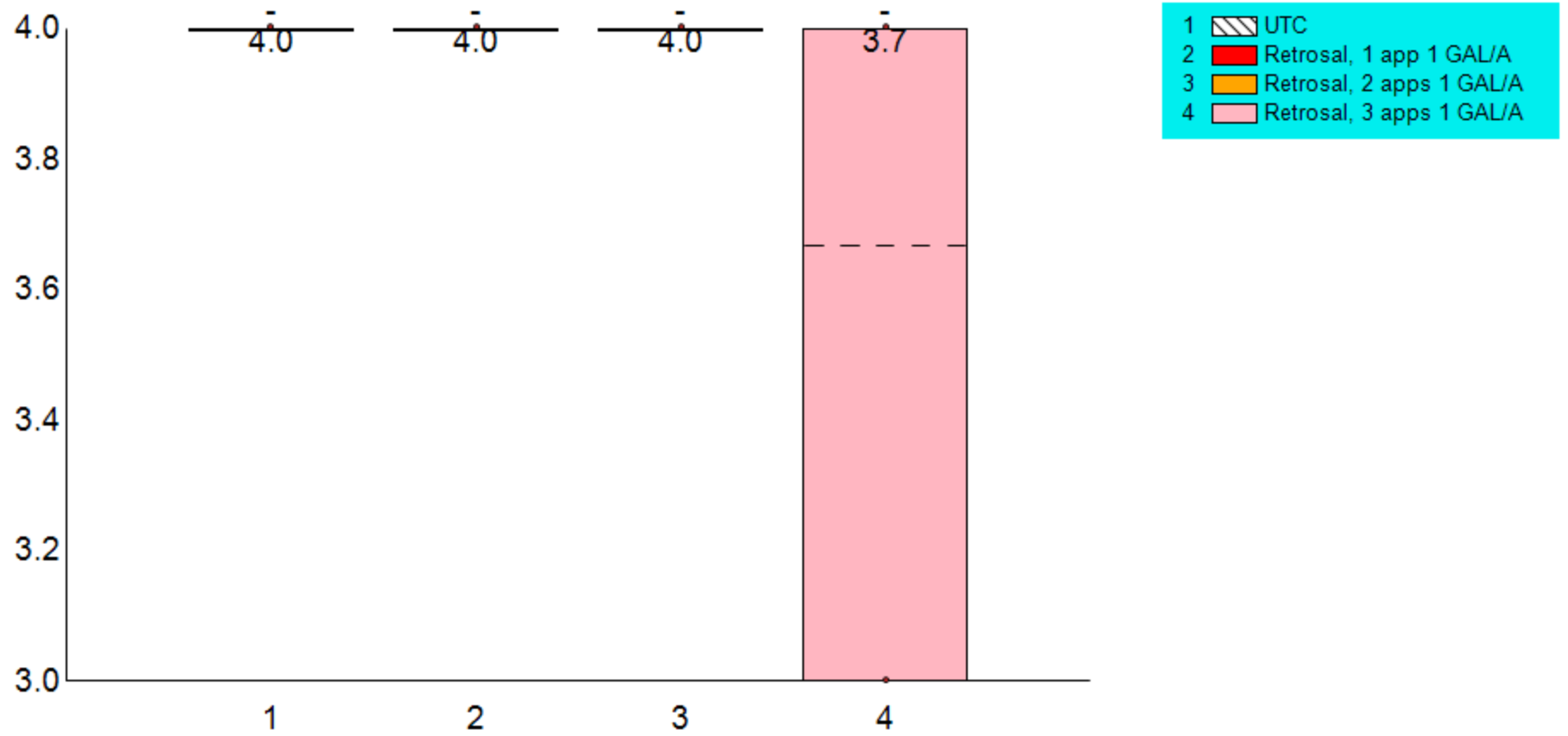
Retrosal Yuma Cantaloupe Trial. Abiotic Stress Measurements



Trial ID: Cantaloupe_Retrosal_Spring2024

Abiotic_Stress_1

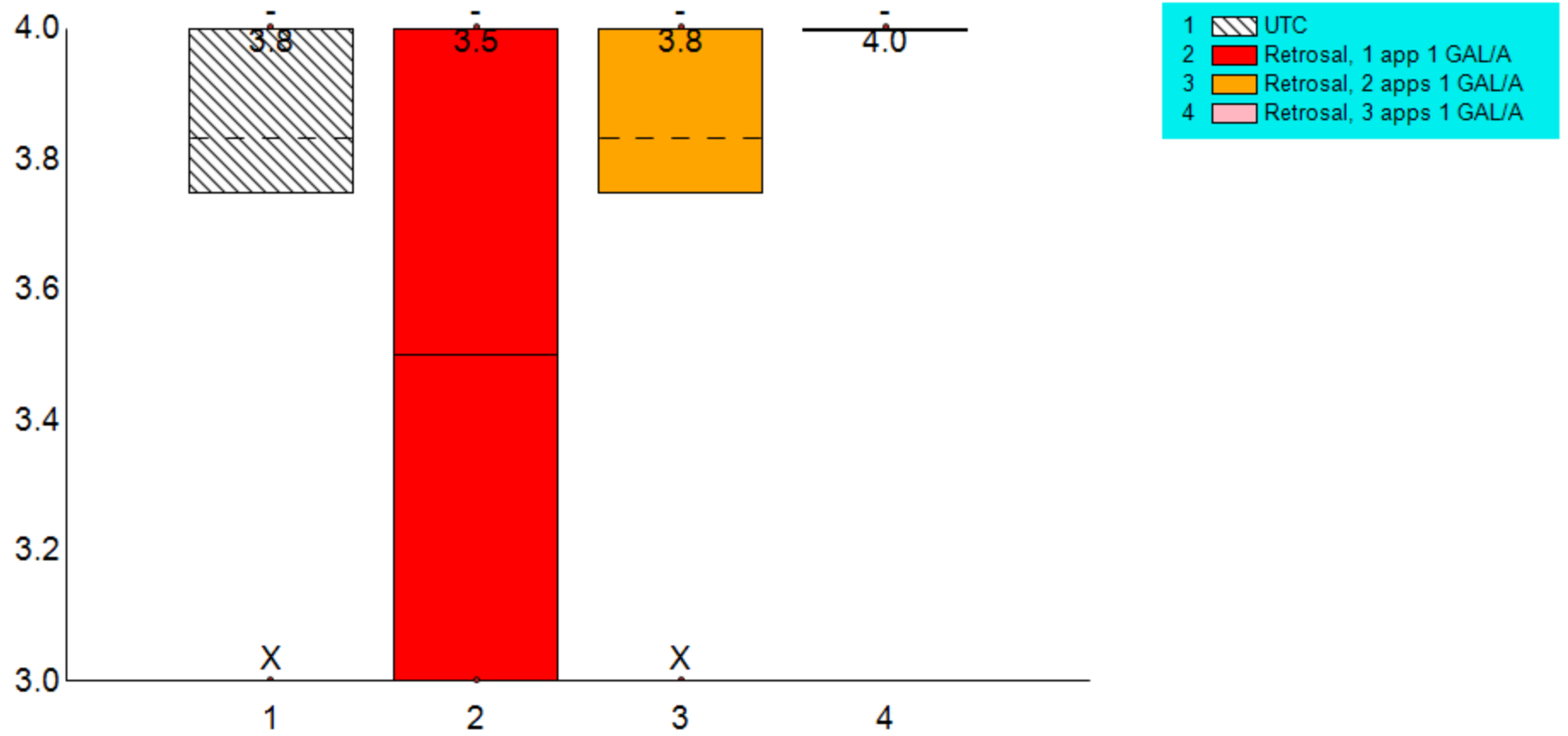
Retrosal Yuma Cantaloupe Trial. Abiotic Stress Measurements



Trial ID: Cantaloupe_Retrosal_Spring2024

Abiotic_Stress_2

Retrosal Yuma Cantaloupe Trial. Abiotic Stress Measurements



Abiotic_Stress_3

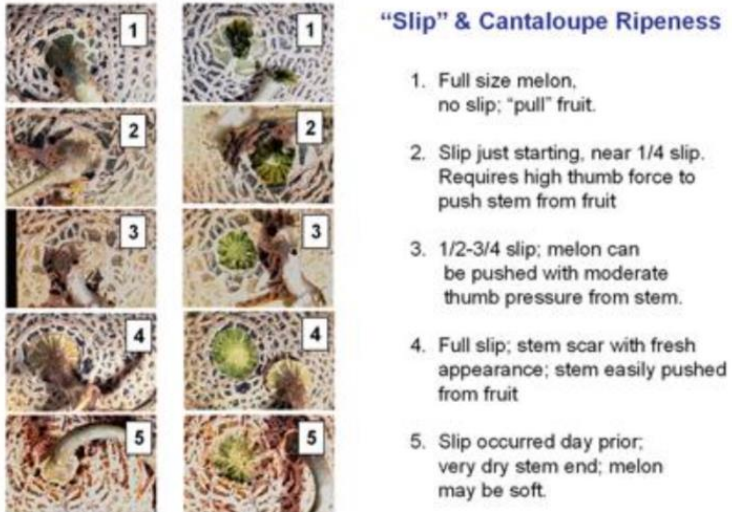
Trial ID: Cantaloupe_Retrosal_Spring2024

Harvest

- Two picking dates
- All ripe fruit was picked in the plot on the first harvest.
- All fruit ripe or unripe was picked on second harvest,
- Each fruit was individually weighed, sized, and rated for maturity
- A subsample of three melons per plot were tested for brix
- Yield reported as cartons per acre of marketable fruit broken into carton size grades.

Harvest (Cont.)

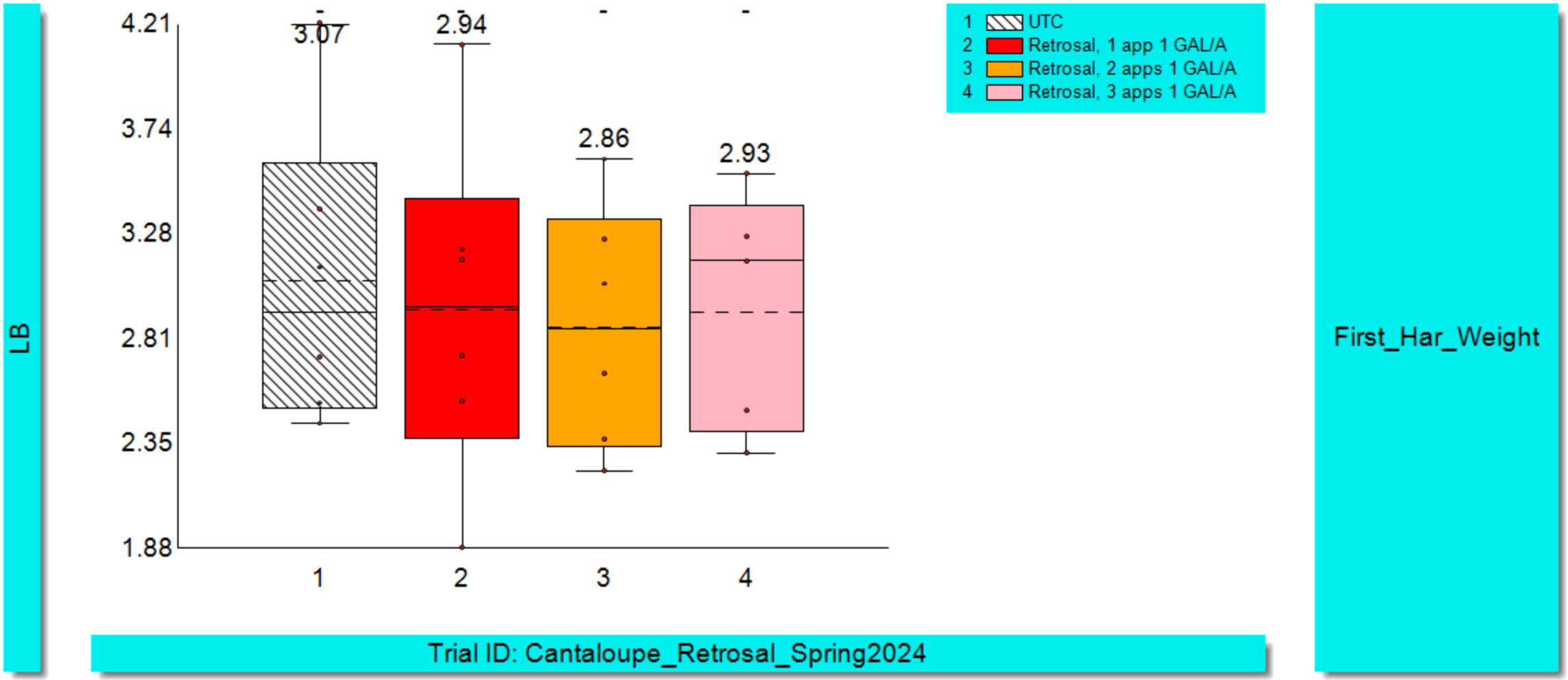
- Slip measures ripeness:
  - 0 = No slip (not ripe)
  - 1 = ¼ slip
  - 2 = ½ slip
  - 3 = ¾ slip
  - 4 = full slip (very ripe)



https://postharvest.ucdavis.edu/produce-facts-sheets/cantaloupe

- The number of fruit with blemishes on them, either ground spots or sunburn, were counted and reported as sunburn
- The number of visually marketable fruit was counted and reported as 'keepers'
- The final carton yield was calculated based on formula that converted melon circumference into carton grade size.

Retrosal Yuma Cantaloupe Trial. Individual Melon Weights



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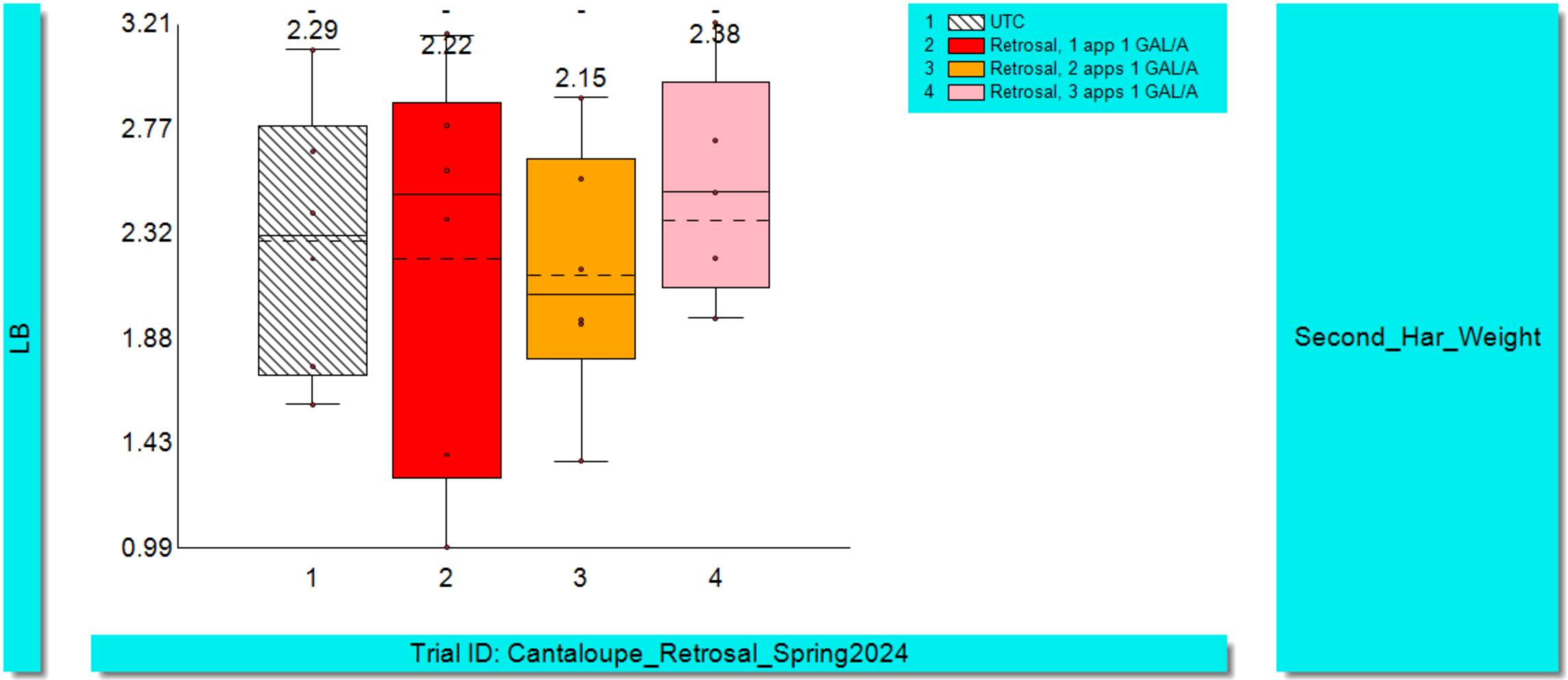
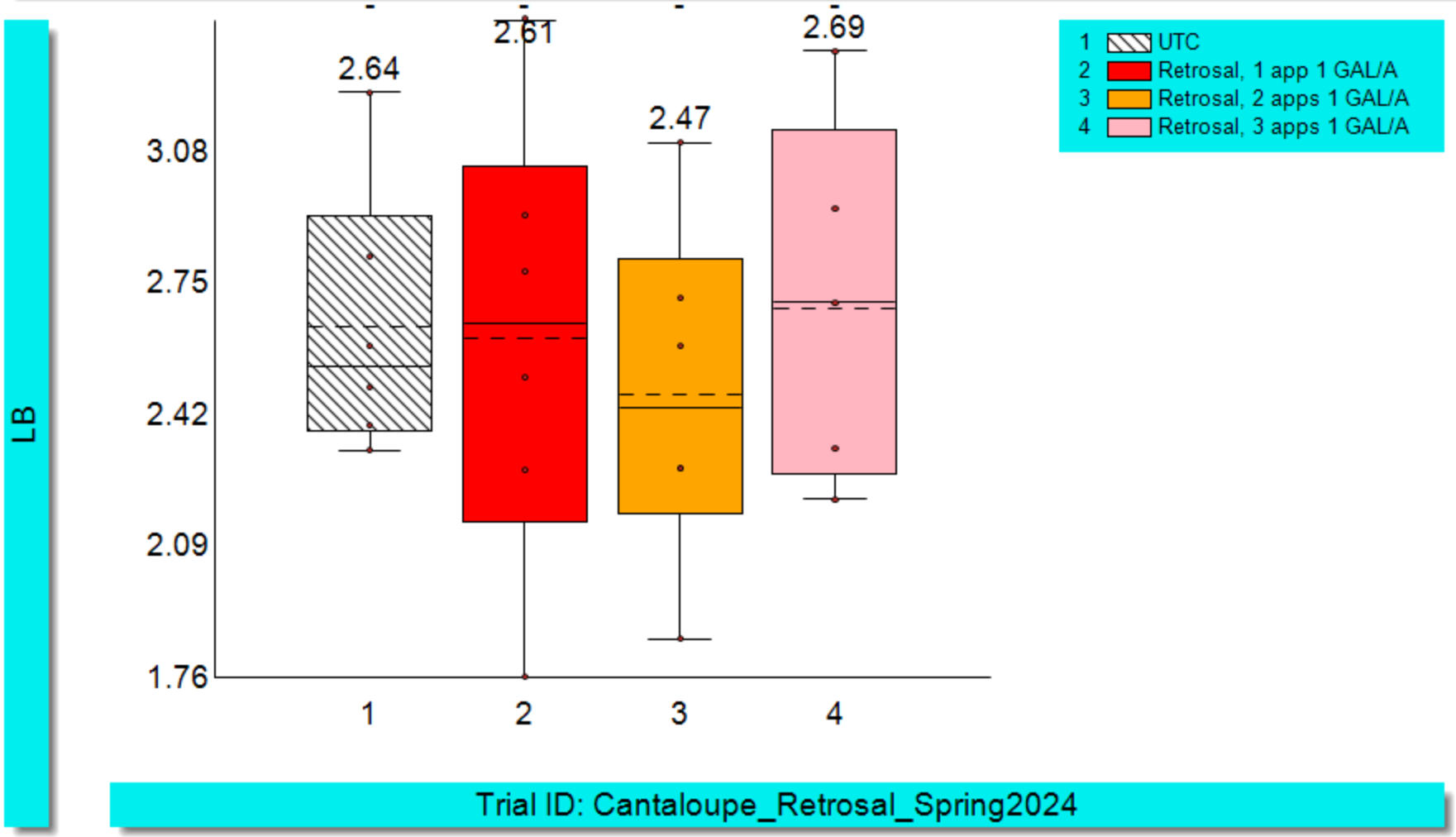
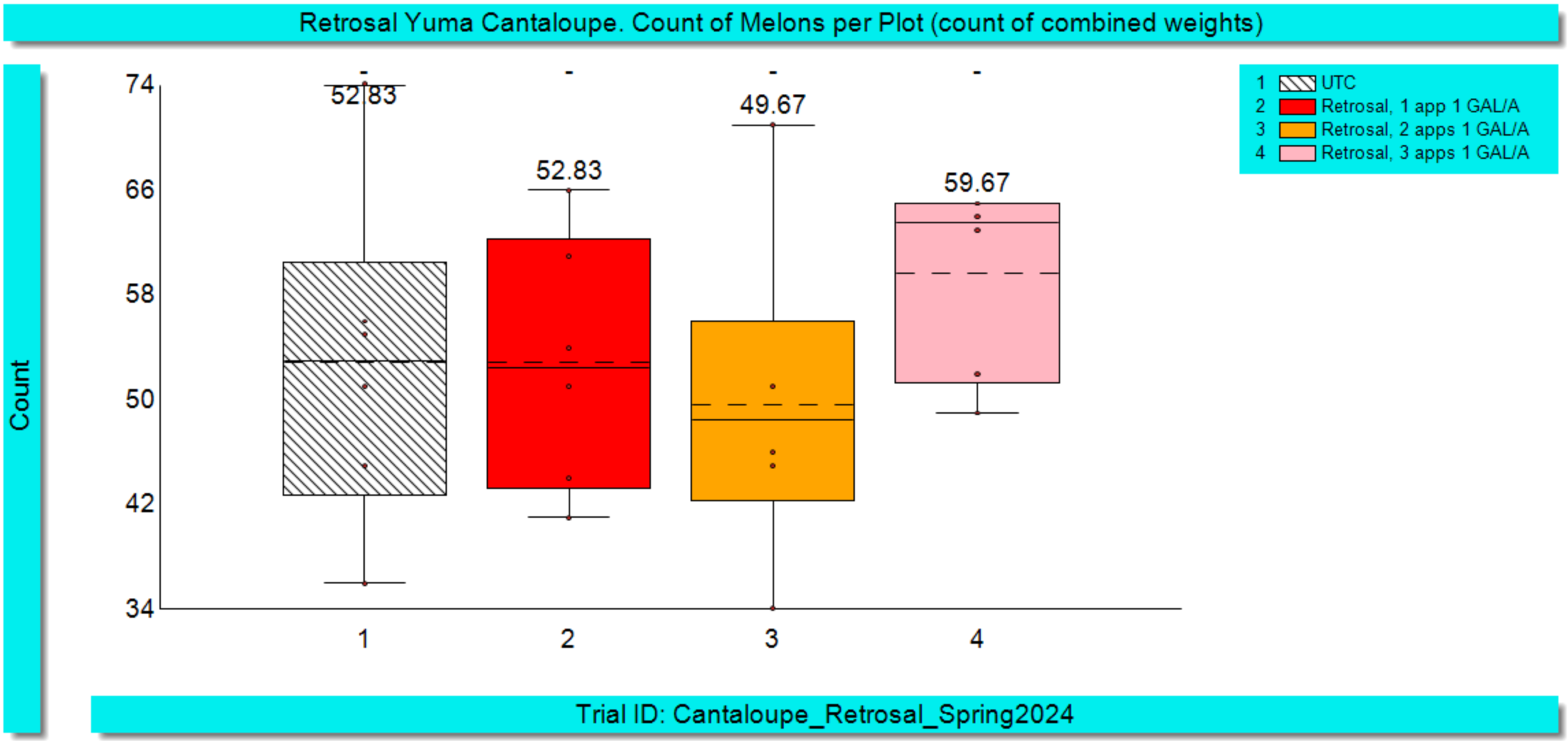
Retrosal Yuma Cantaloupe Trial. Individual Melon Weights

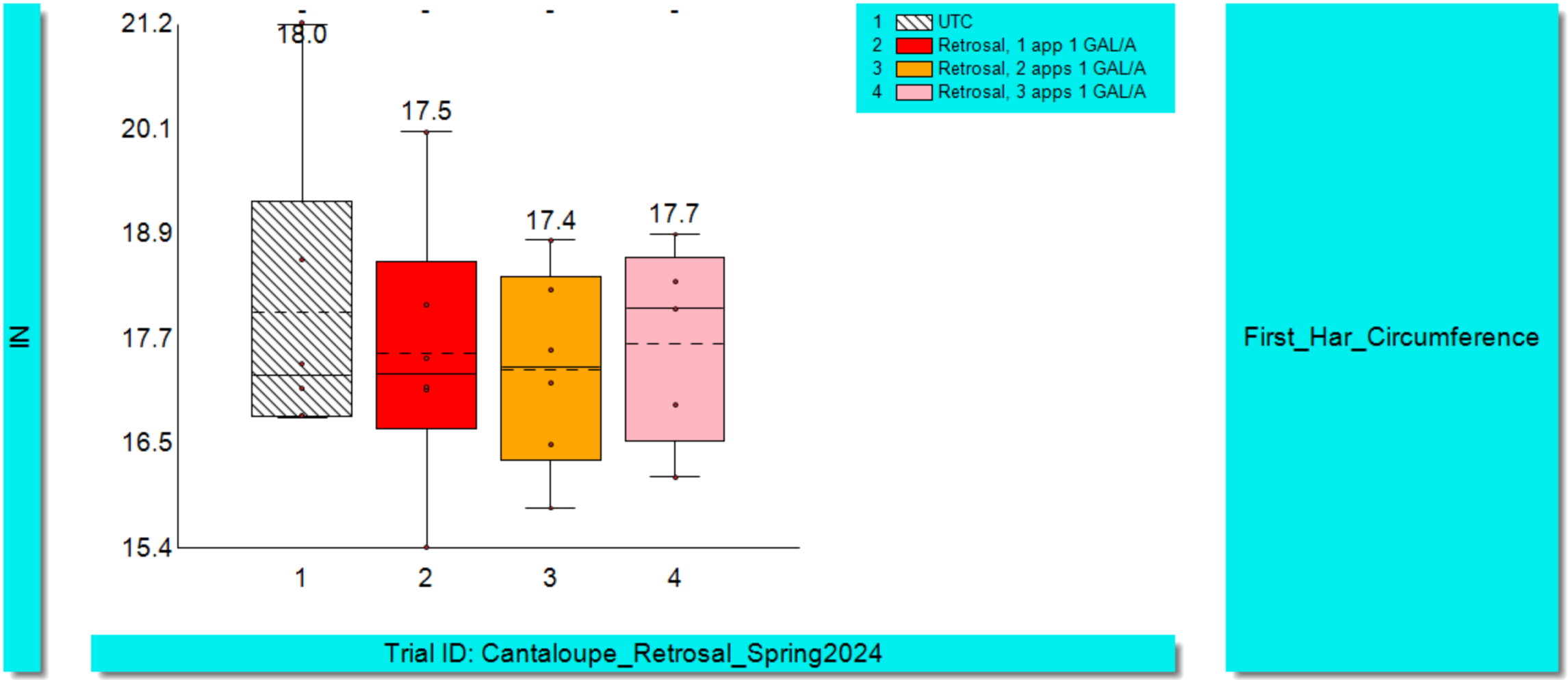


Retrosal Yuma Cantaloupe Trial. Individual Melon Weights

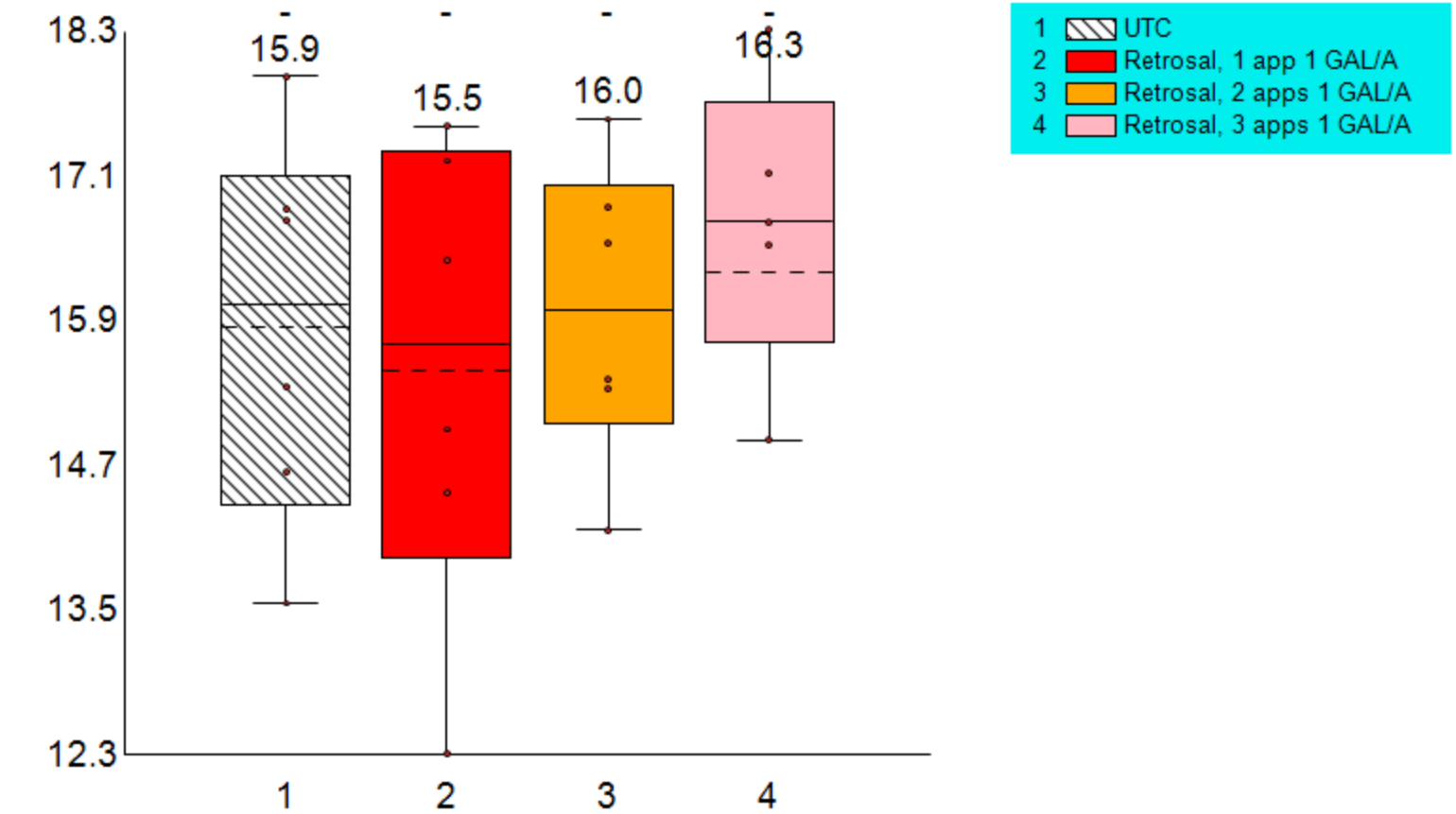



Retrosal Yuma Cantaloupe. Count of Melons per Plot (count of combined weights)
Count
74
66
58
50
42
34
52.83
52.83
49.67
59.67
1
2
3
4
1 UTC
2 Retrosal, 1 app 1 GAL/A
3 Retrosal, 2 apps 1 GAL/A
4 Retrosal, 3 apps 1 GAL/A
Trial ID: Cantaloupe_Retrosal_Spring2024

Retrosal Yuma Cantaloupe Trial. Individual Melon Size



Retrosal Yuma Cantaloupe Trial. Individual Melon Size

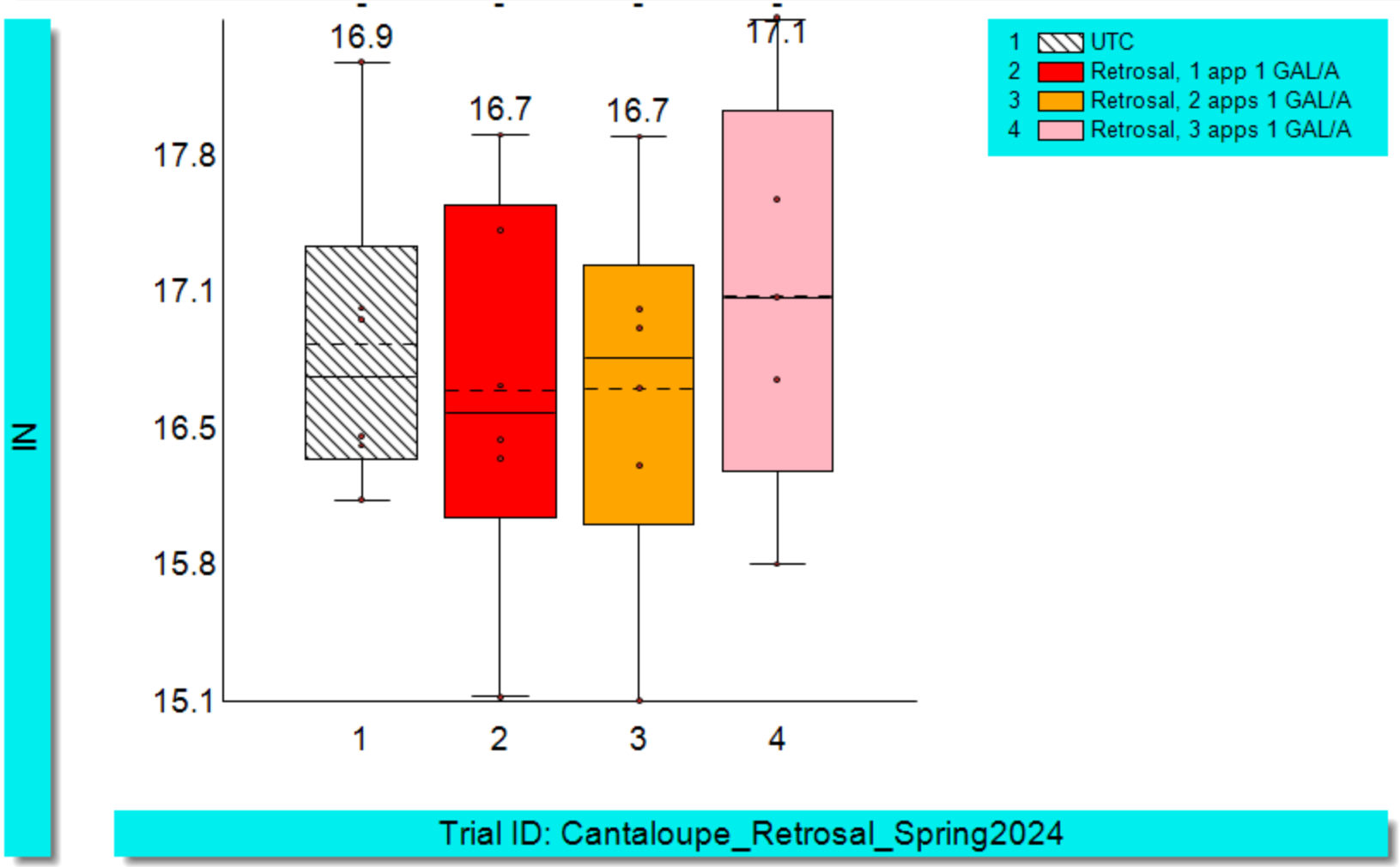


N

Second_Har_Circumference

Trial ID: Cantaloupe_Retrosal_Spring2024

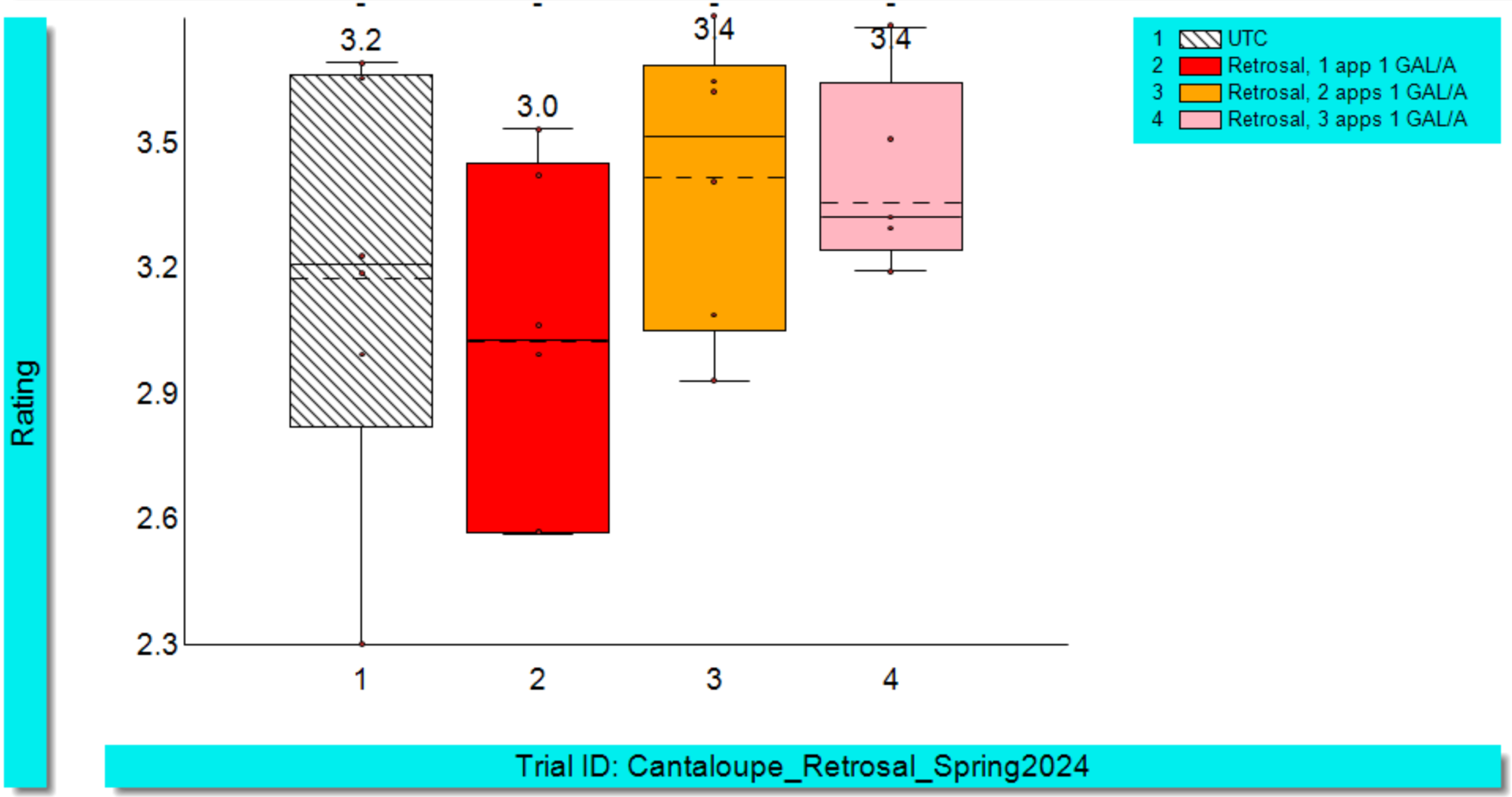
Retrosal Yuma Cantaloupe Trial. Individual Melon Size



Trial ID: Cantaloupe_Retrosal_Spring2024

Combined_Har_Circumference

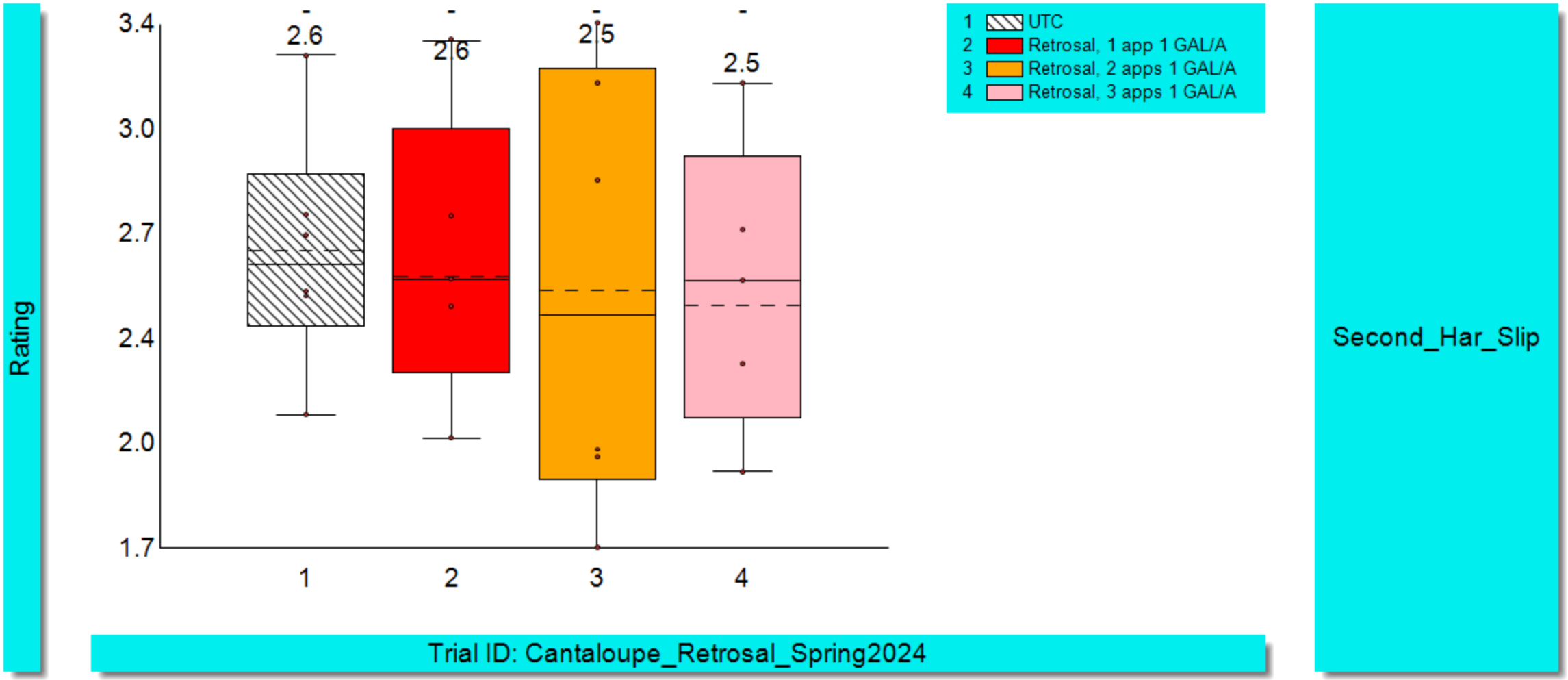
Retrosal Yuma Cantaloupe Trial. Individual Melon Maturity



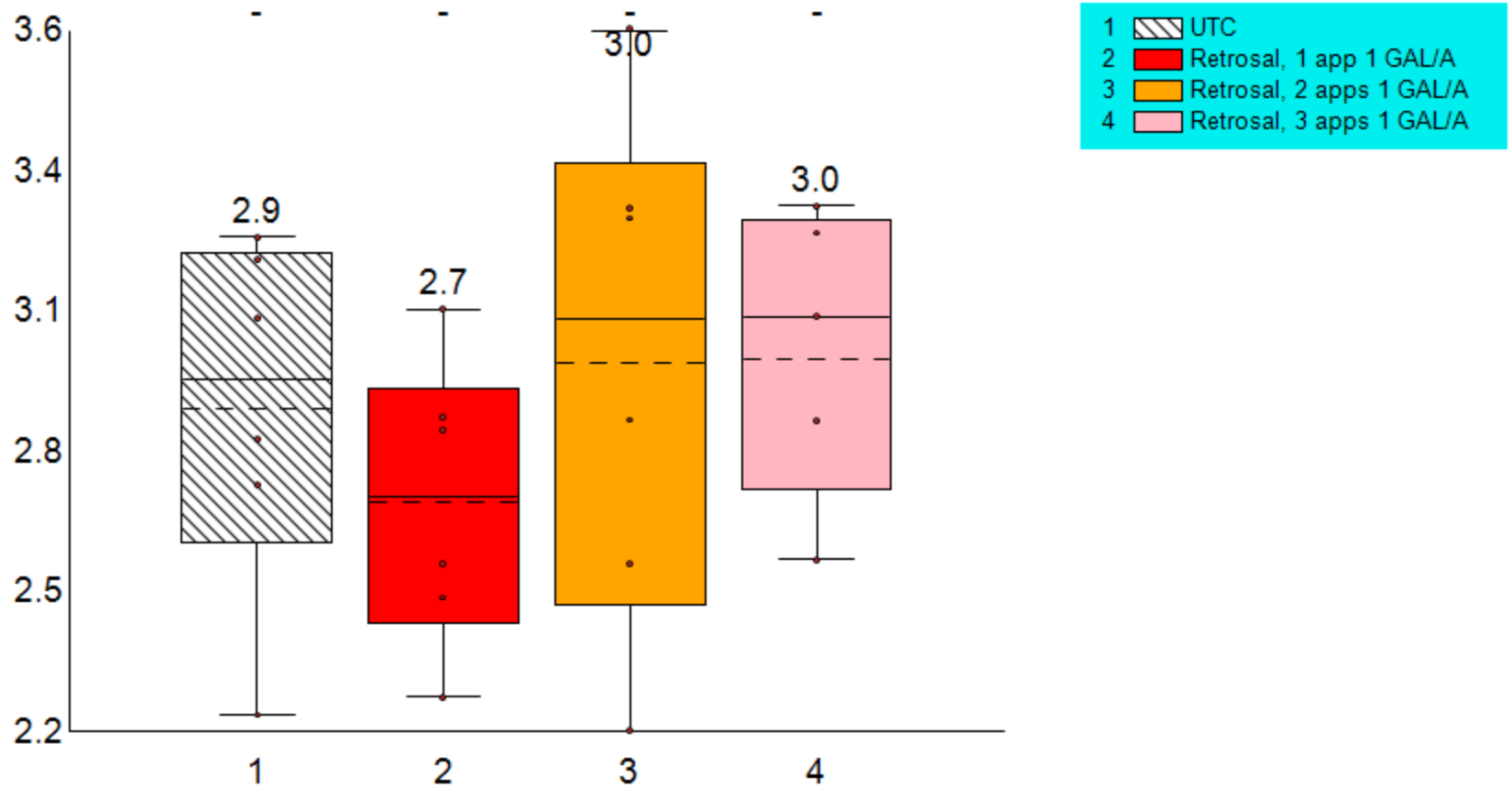
First_Har_Slip

Trial ID: Cantaloupe_Retrosal_Spring2024

Retrosal Yuma Cantaloupe Trial. Individual Melon Maturity



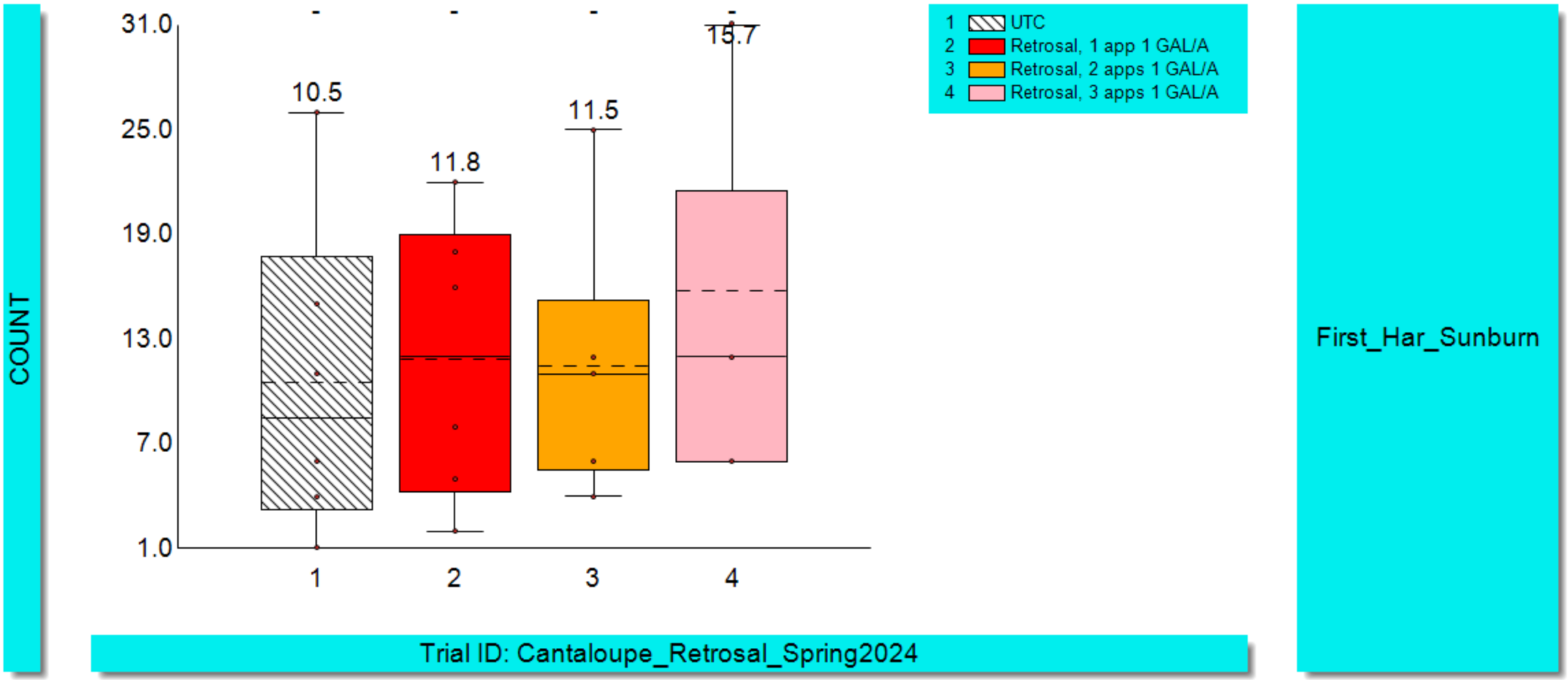
Retrosal Yuma Cantaloupe Trial. Individual Melon Maturity



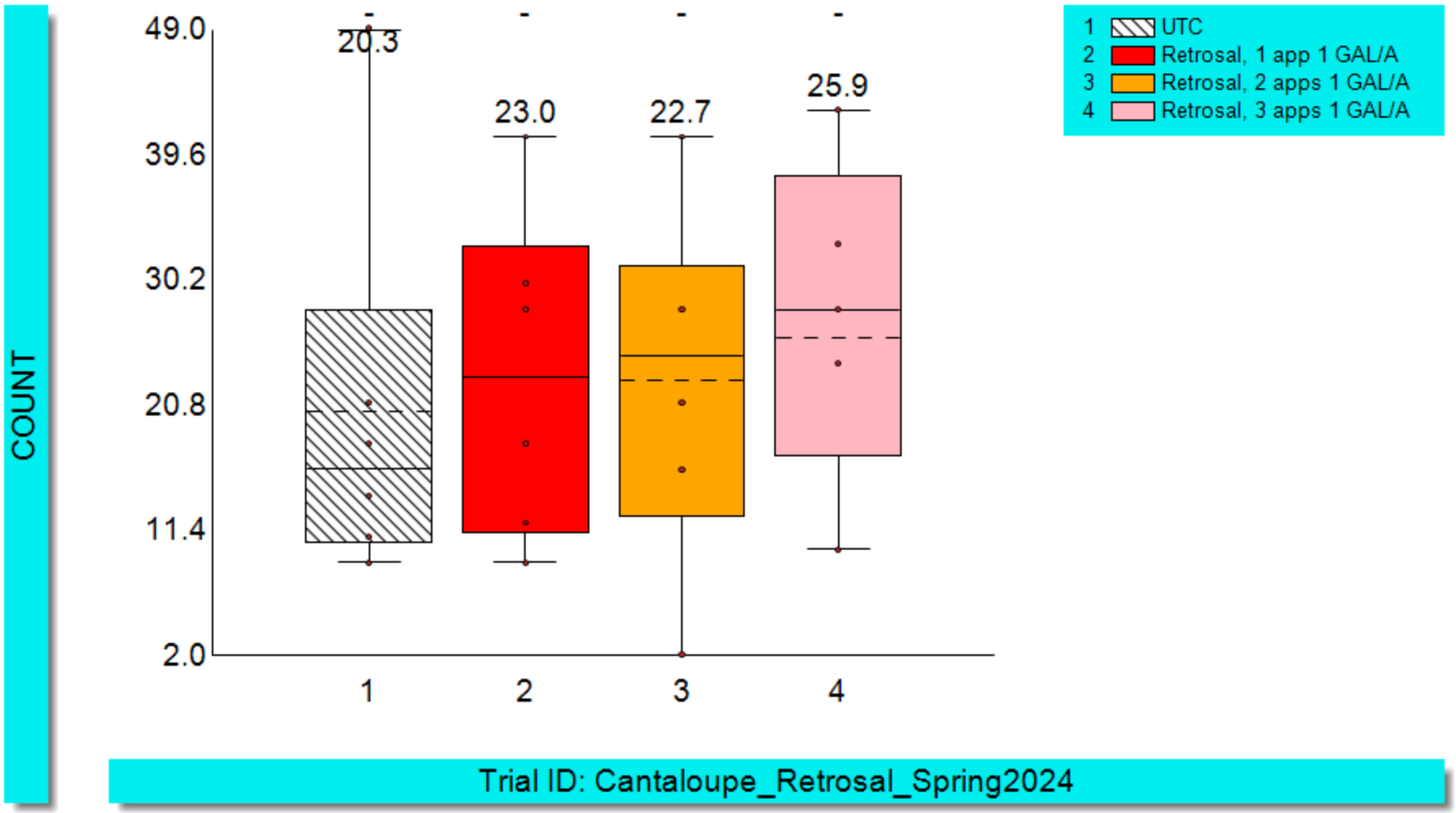
Trial ID: Cantaloupe_Retrosal_Spring2024

Combined_Har_Slip

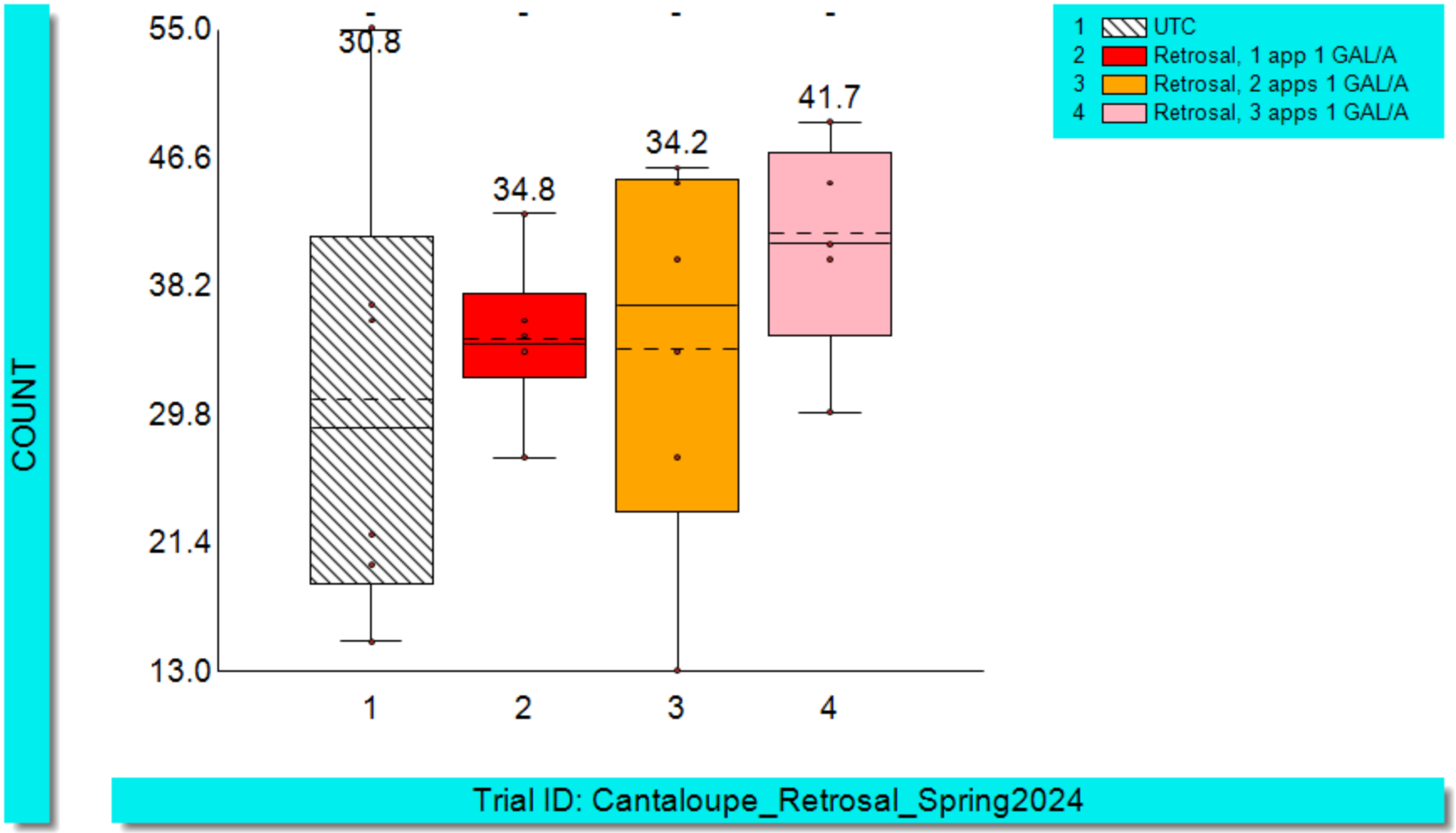
Retrosal Yuma Cantaloupe Trial. Number of Sunburned per Plot



Retrosal Yuma Cantaloupe Trial. Number of Sunburned per Plot



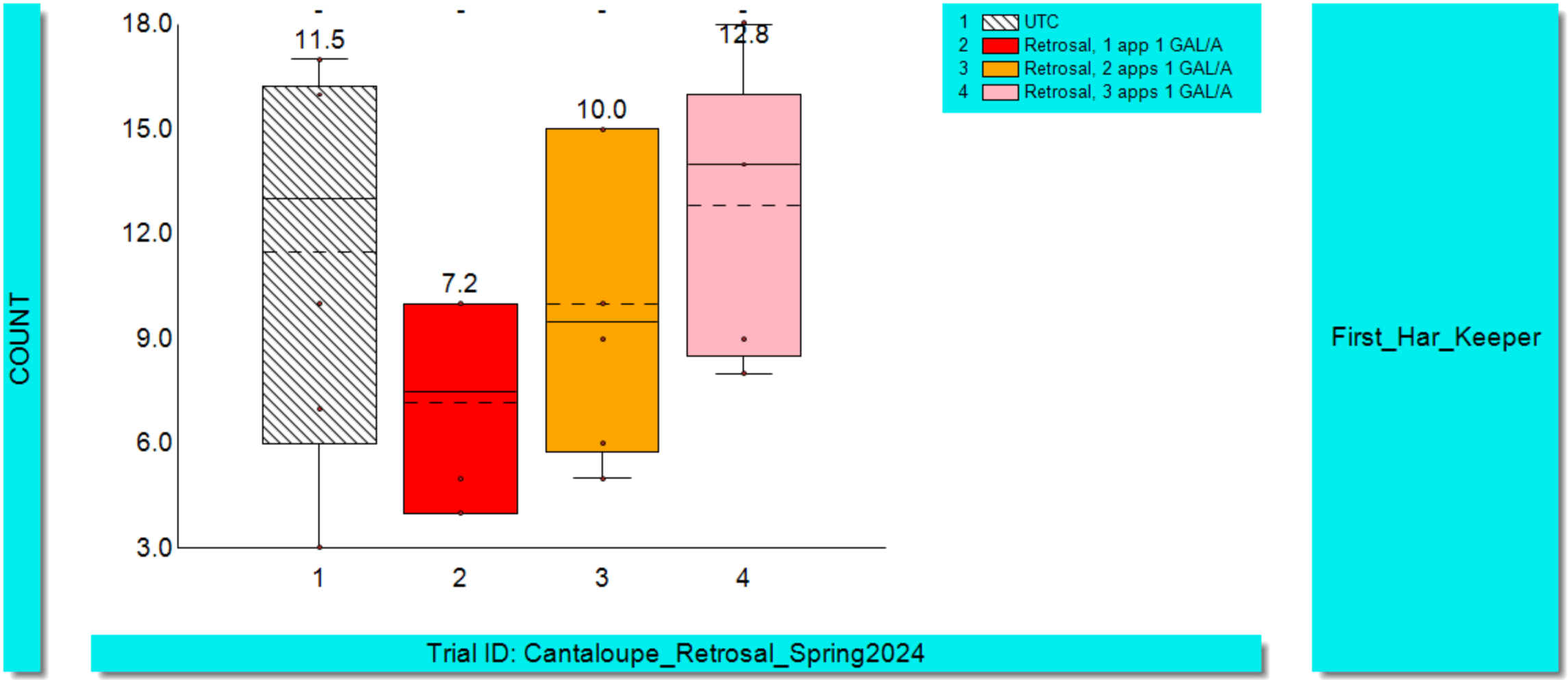
Retrosal Yuma Cantaloupe Trial. Number of Sunburned per Plot



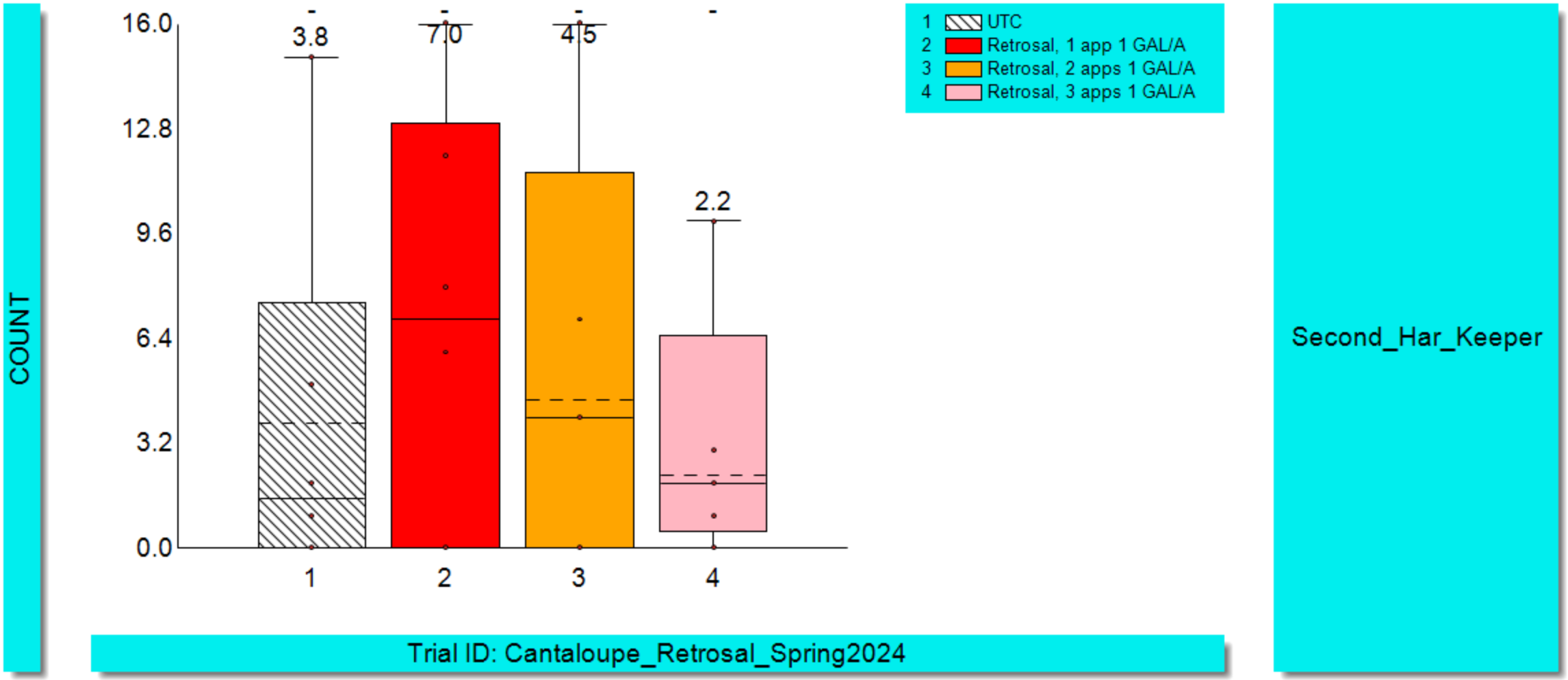
Trial ID: Cantaloupe_Retrosal_Spring2024

Combined_Har_Sunburn

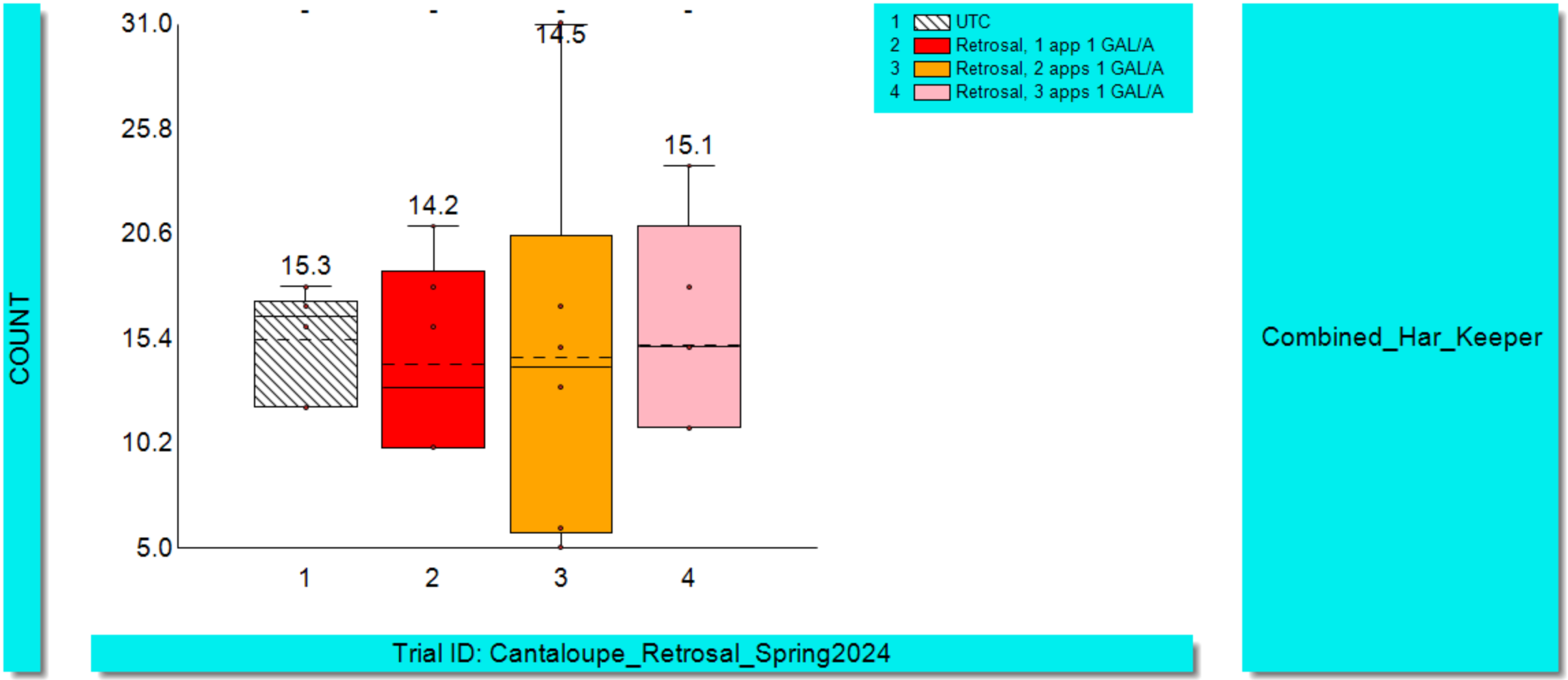
Retrosal Yuma Cantaloupe Trial. Number of 'Keepers' per Plot

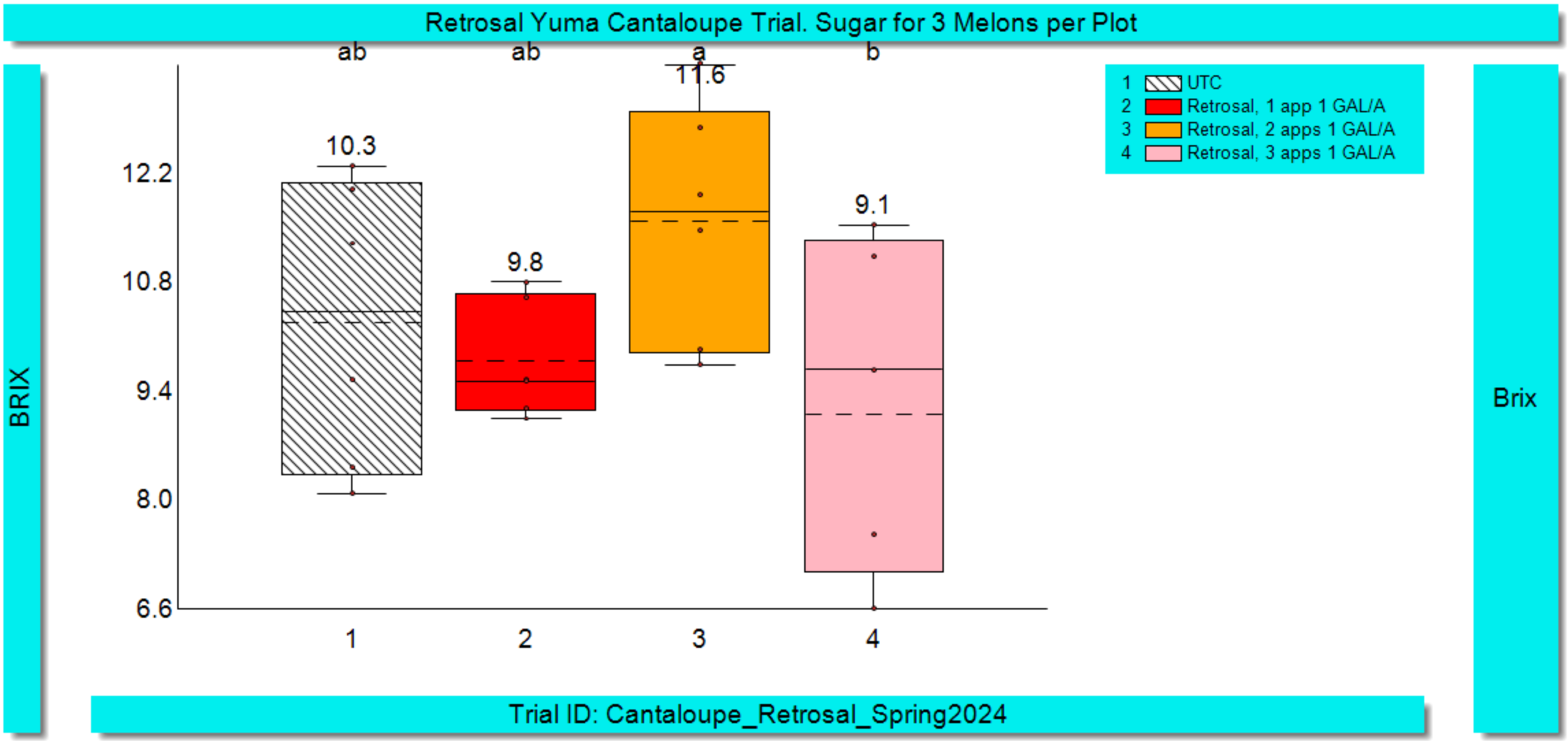


Retrosal Yuma Cantaloupe Trial. Number of 'Keepers' per Plot



Retrosal Yuma Cantaloupe Trial. Number of 'Keepers' per Plot




Retrosal Yuma Cantaloupe Trial. Sugar for 3 Melons per Plot
BRIX
ab
ab
a
b
10.3
9.8
11.6
9.1
12.2
10.8
9.4
8.0
6.6
1
2
3
4
1 UTC
2 Retrosal, 1 app 1 GAL/A
3 Retrosal, 2 apps 1 GAL/A
4 Retrosal, 3 apps 1 GAL/A
Brix
Trial ID: Cantaloupe_Retrosal_Spring2024

Carton Size Grade Yield

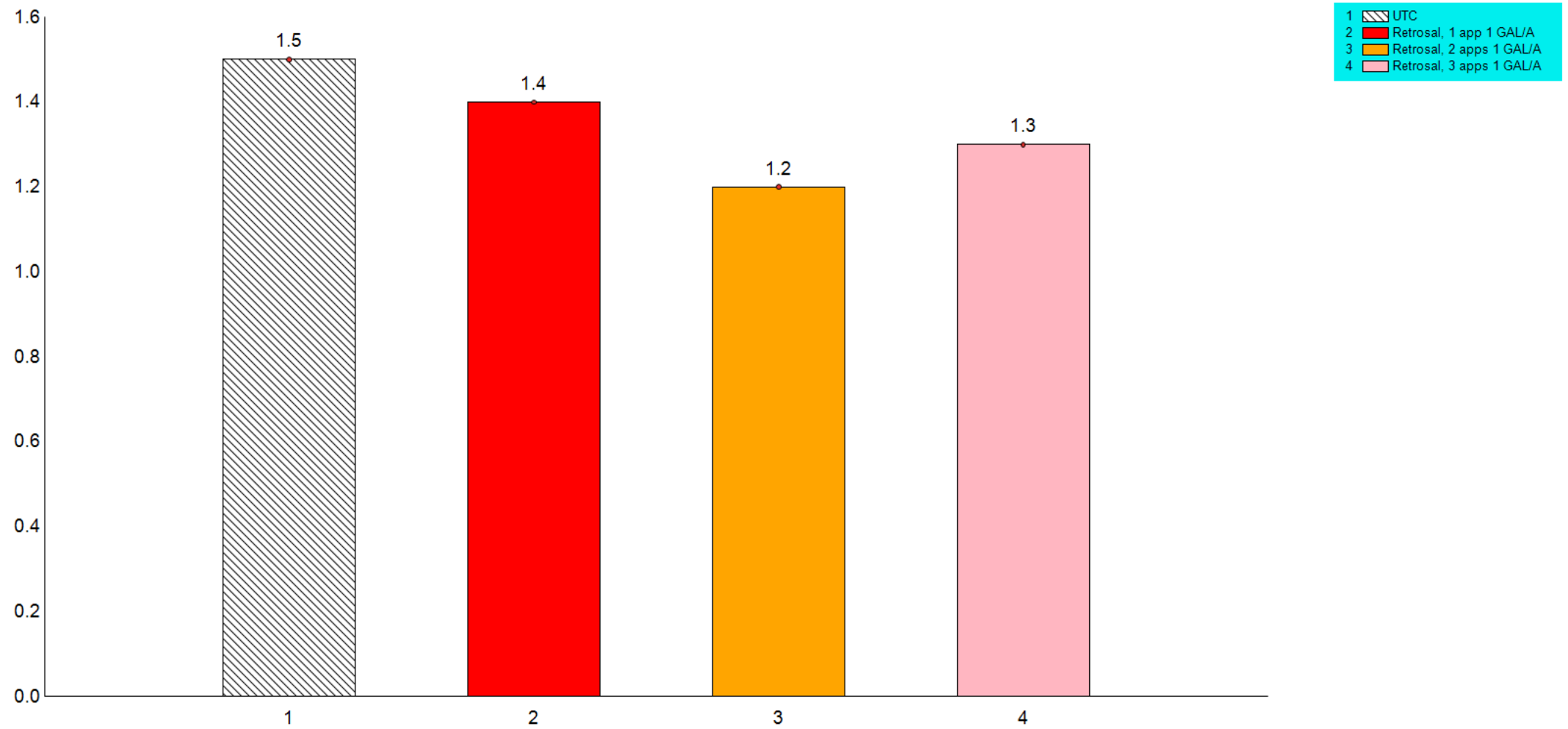
Carton Size Grades	Circumference (IN)	
	min	max
above std	24.38	.
5	22.81	24.35
6	20.45	22.78
9	18.47	20.42
12	16.9	18.44
15	15.74	16.87
18	14.95	15.71
22	14.17	14.92
under std		14.137

T1-UTC	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	2	1	15	68	91	51	35	6	48	317	Total number per trt
Cartons per Trt	NA	0.2	2.5	7.6	7.6	3.4	1.9	0.3	NA	23.5	Marketable Cartons per trt
Cartons per AC	NA	7	86	261	262	118	67	9	NA	**811**	**T1: Marketable Cartons per ac**
T2-Low Rate Retrosal	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	0	0	22	71	90	38	24	6	65	316	Total number per trt
Cartons per Trt	NA	0.0	3.7	7.9	7.5	2.5	1.3	0.3	NA	23.2	Marketable Cartons per trt
Cartons per AC	NA	0	127	273	259	88	46	9	NA	**802**	**T2: Marketable Cartons per ac**
T3-Mid Rate Retrosal	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	0	0	12	67	95	42	29	5	48	298	Total number per trt
Cartons per Trt	NA	0.0	2.0	7.4	7.9	2.8	1.6	0.2	NA	22.0	Marketable Cartons per trt
Cartons per AC	NA	0	69	257	274	97	56	8	NA	**761**	**T3: Marketable Cartons per ac**
T4- High Rate Retrosal	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	0	0	24	96	122	33	40	5	39	359	Total number per trt
Cartons per Trt	NA	0.0	4.0	10.7	10.2	2.2	2.2	0.2	NA	29.5	Marketable Cartons per trt
Cartons per AC	NA	0	138	369	351	76	77	8	NA	**1019**	**T4: Marketable Cartons per ac**

Soil Test Results

- Single composite sample per treatment
- First Set “Early” as in early season
- Second set is the post harvest values minus the early.

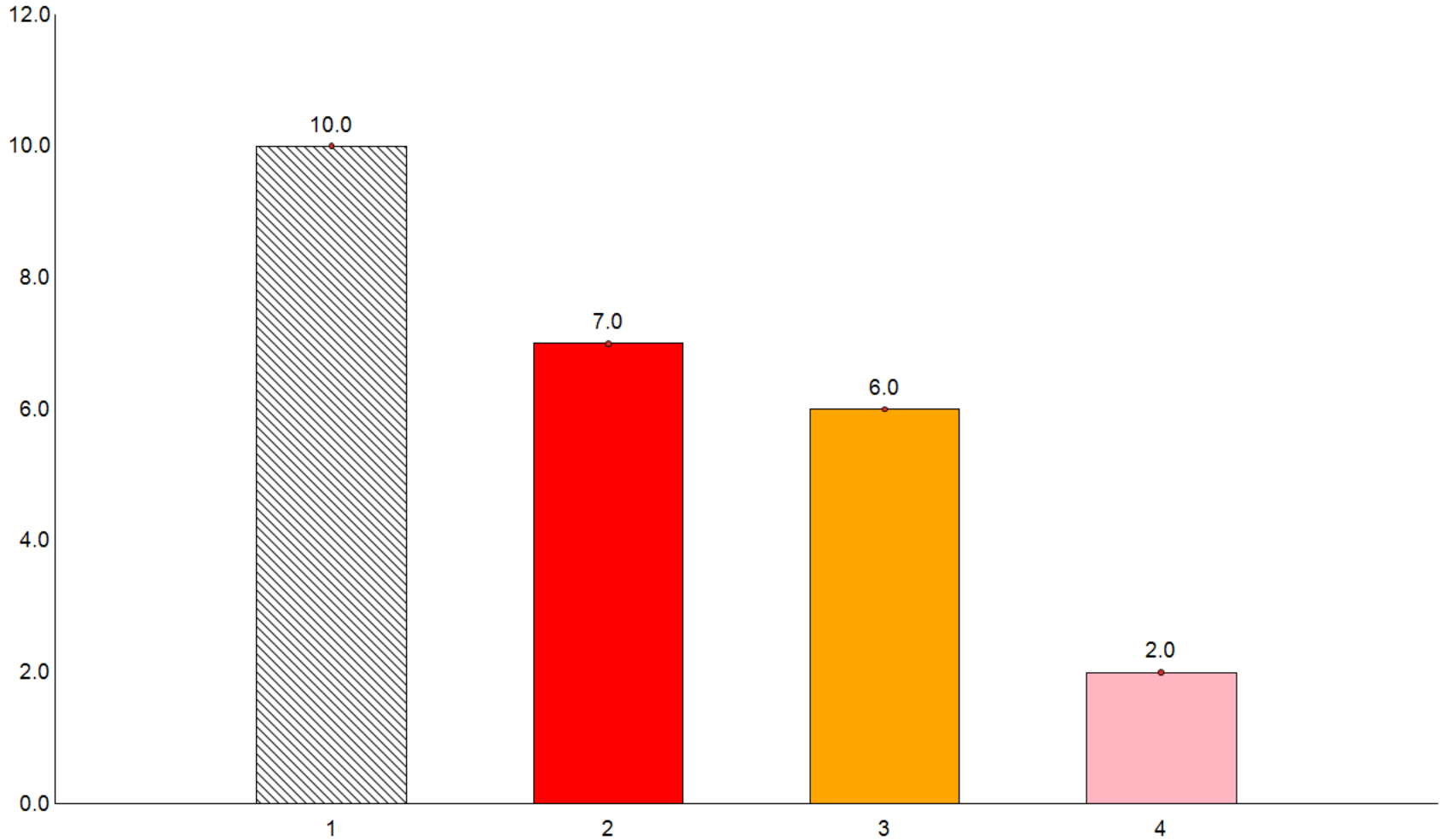
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



% Early_OM

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_P1

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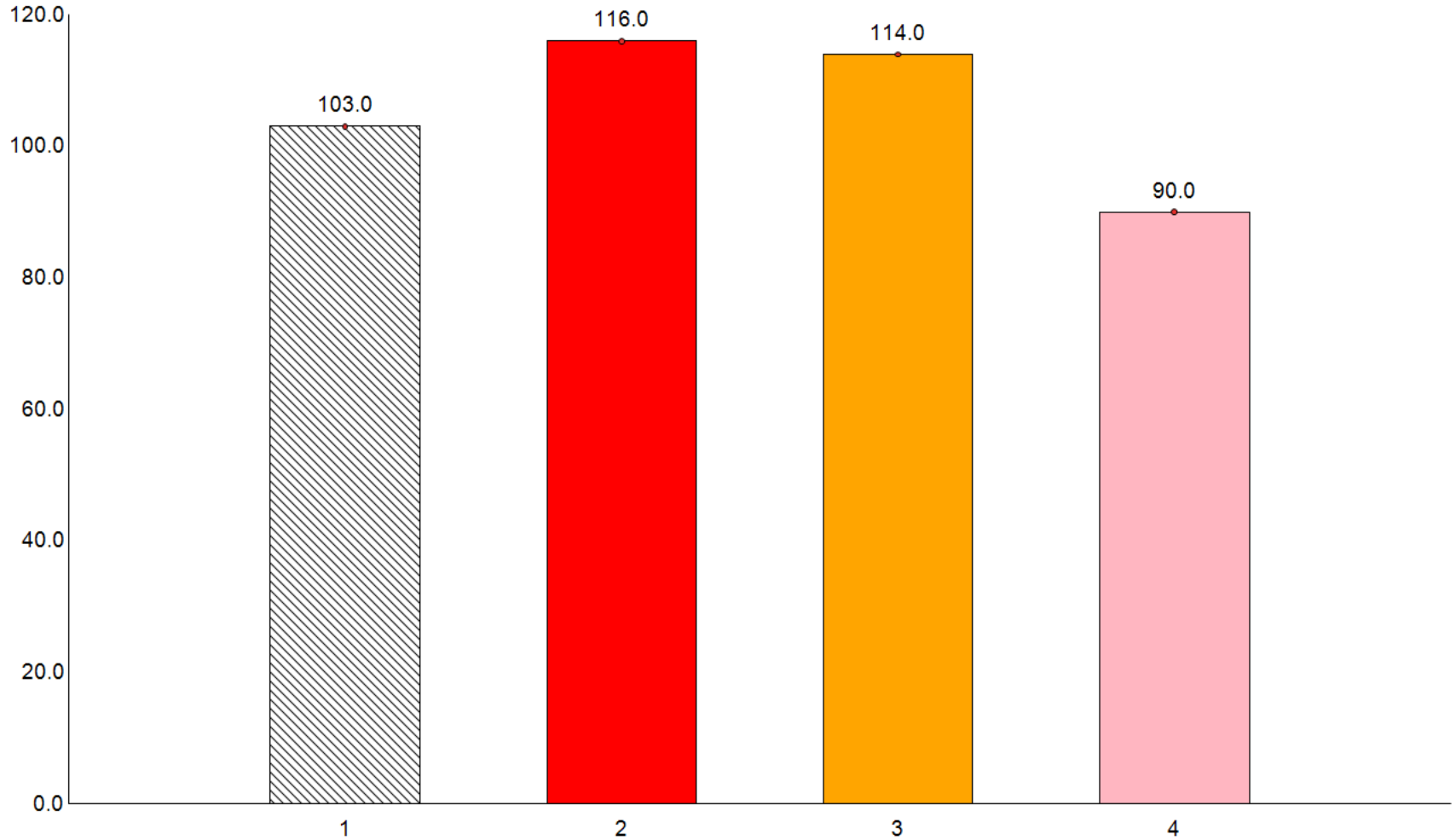
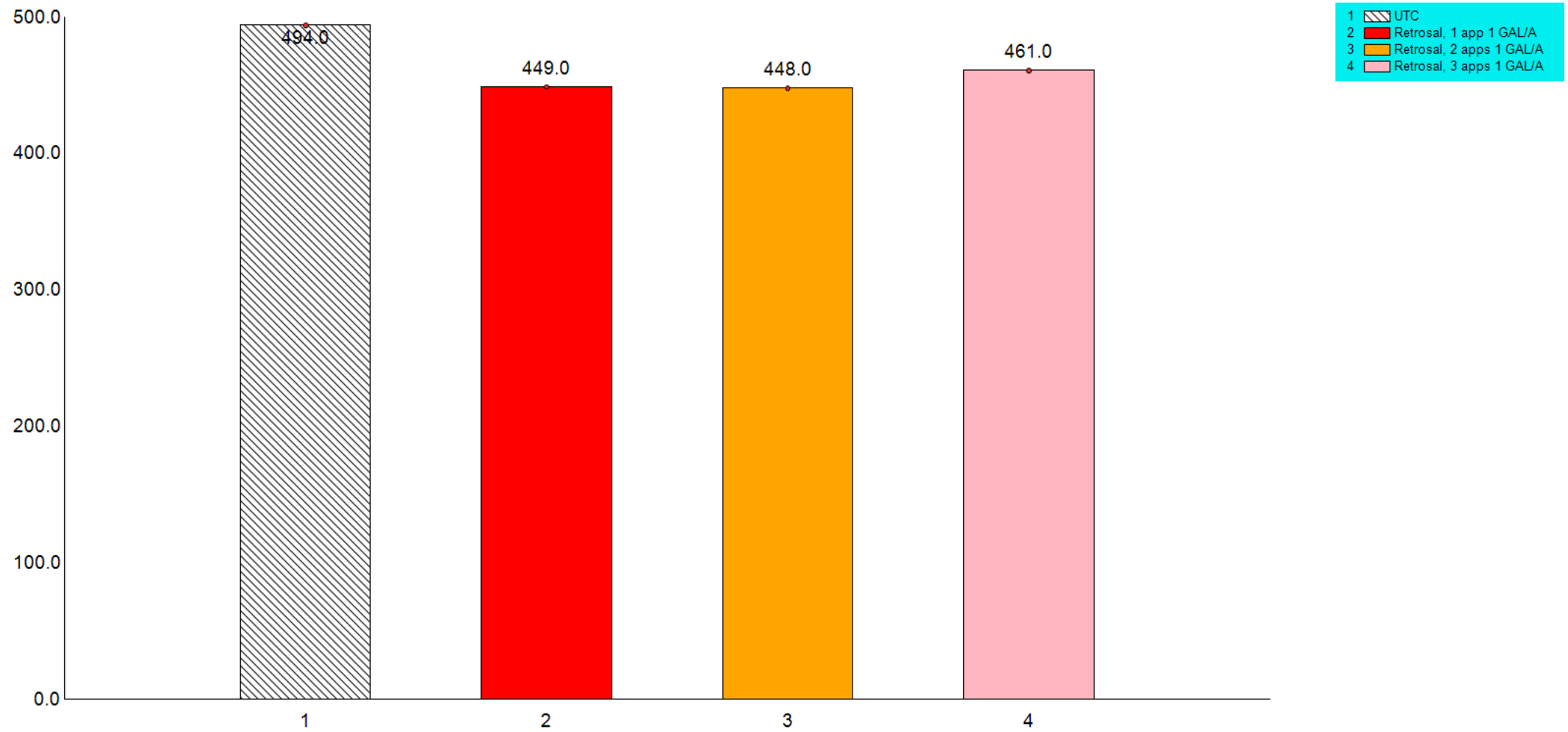
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_P2

Trial ID: Cantaloupe_Retrosal_Spring2024

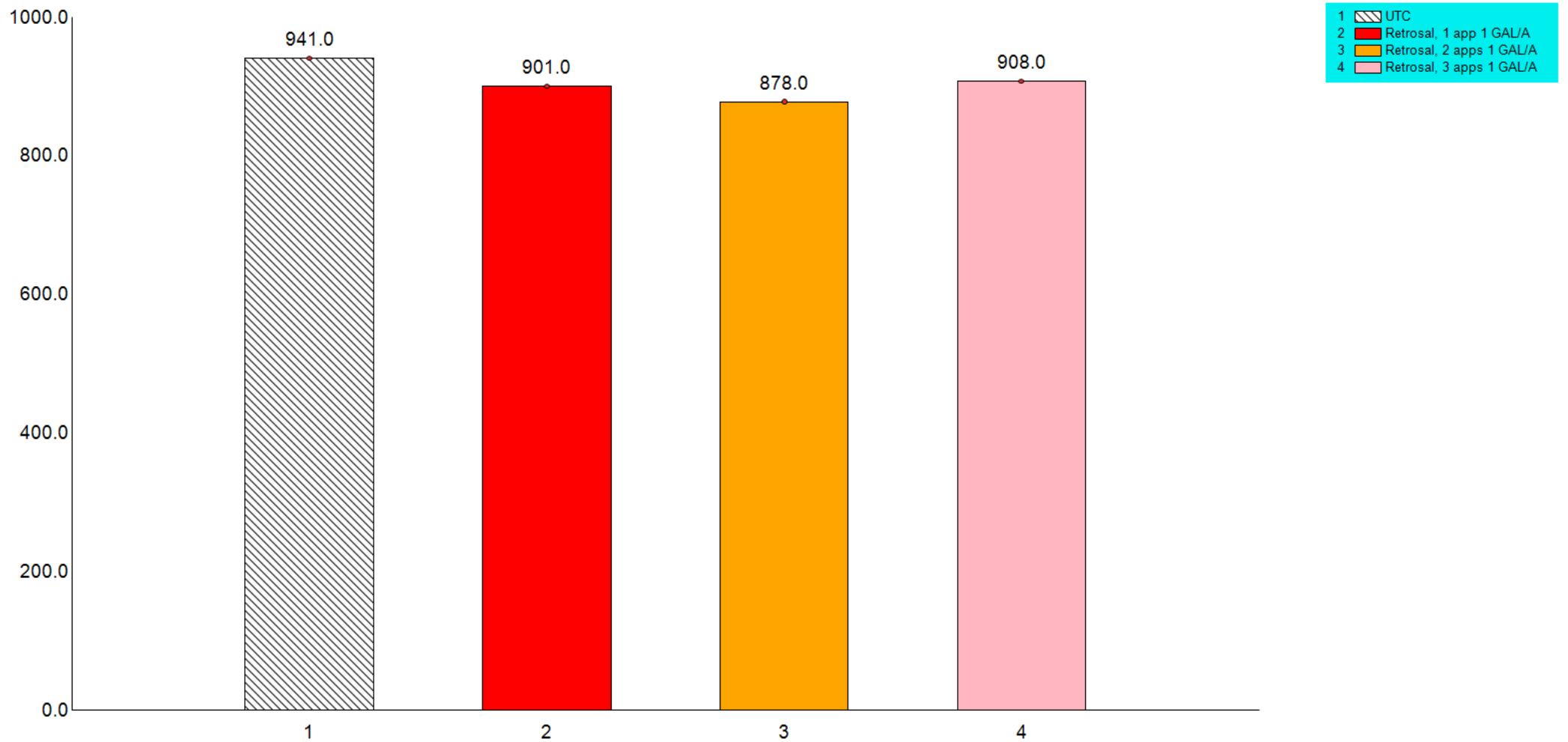
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_K

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_MG

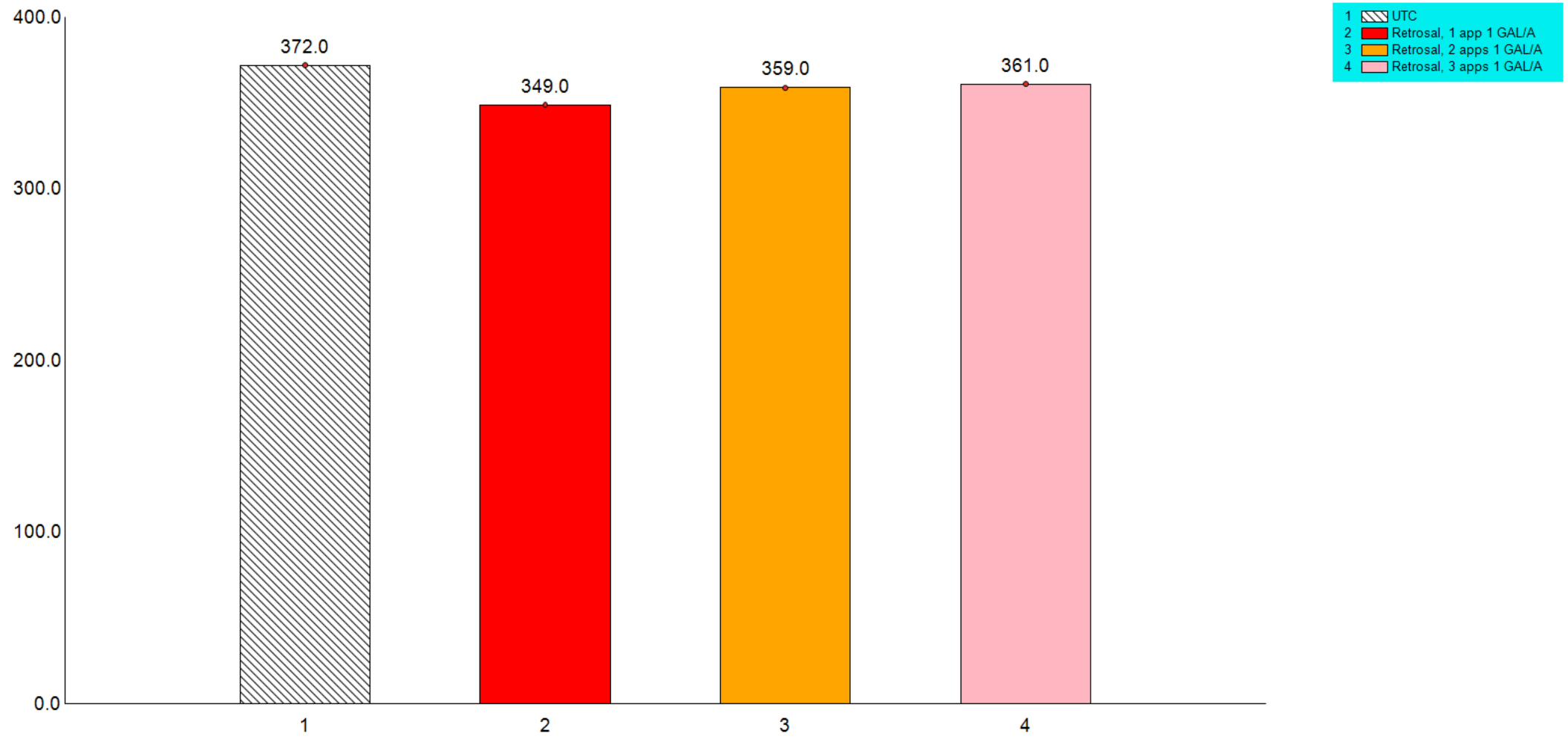
Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results

ppm Early_CA

Trial ID: Cantaloupe_Retrosal_Spring2024

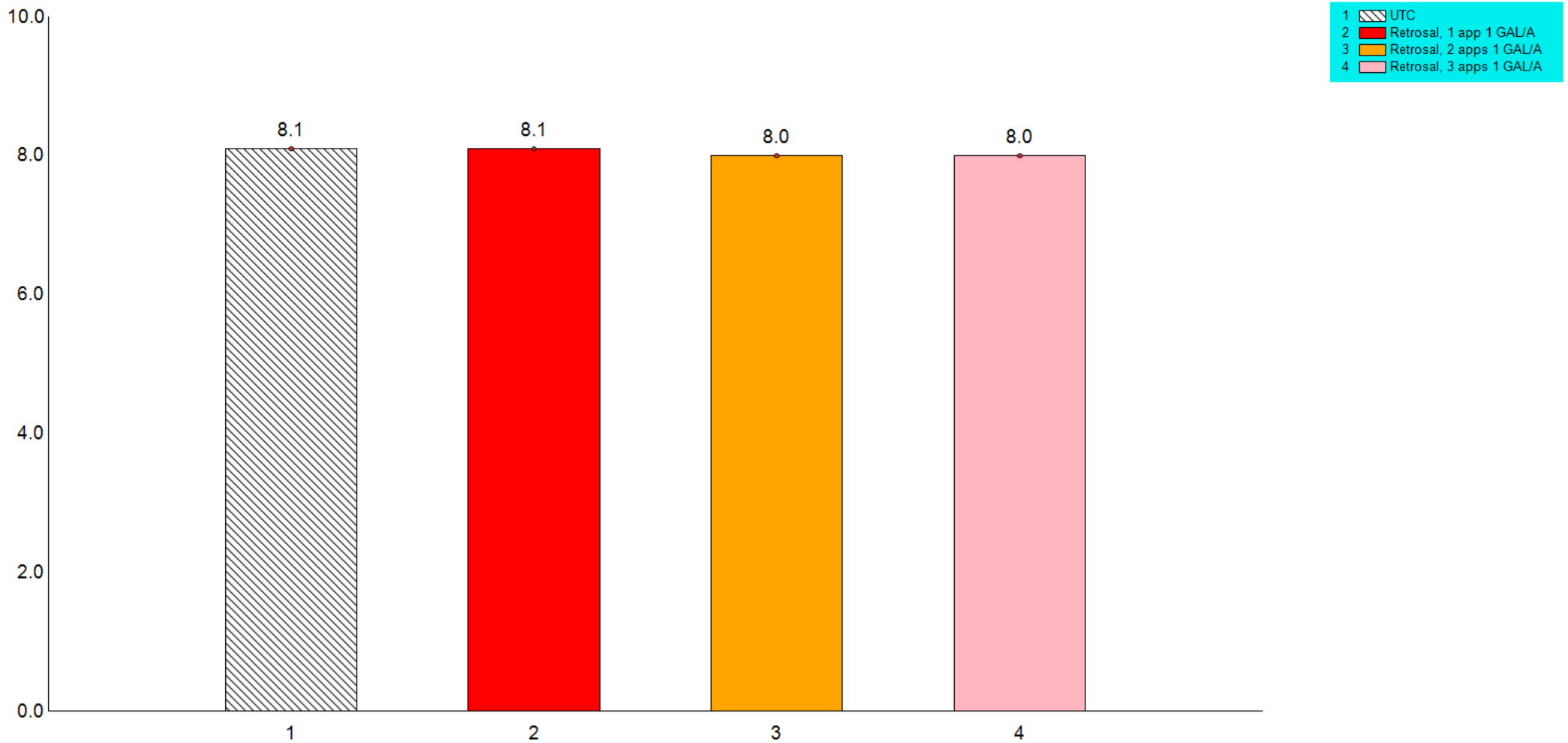
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_NA

Trial ID: Cantaloupe_Retrosal_Spring2024

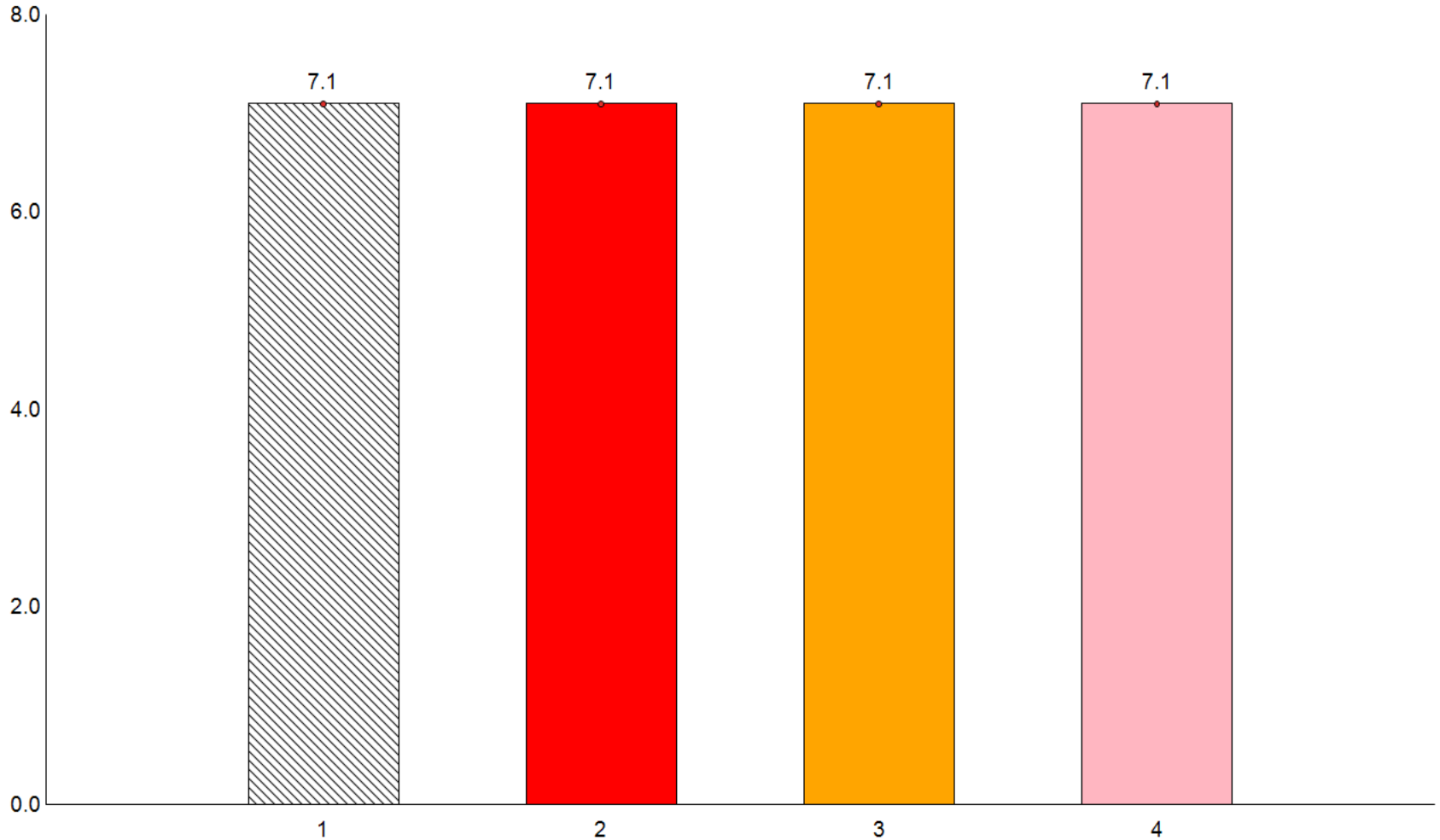
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_PH

Trial ID: Cantaloupe_Retrosal_Spring2024

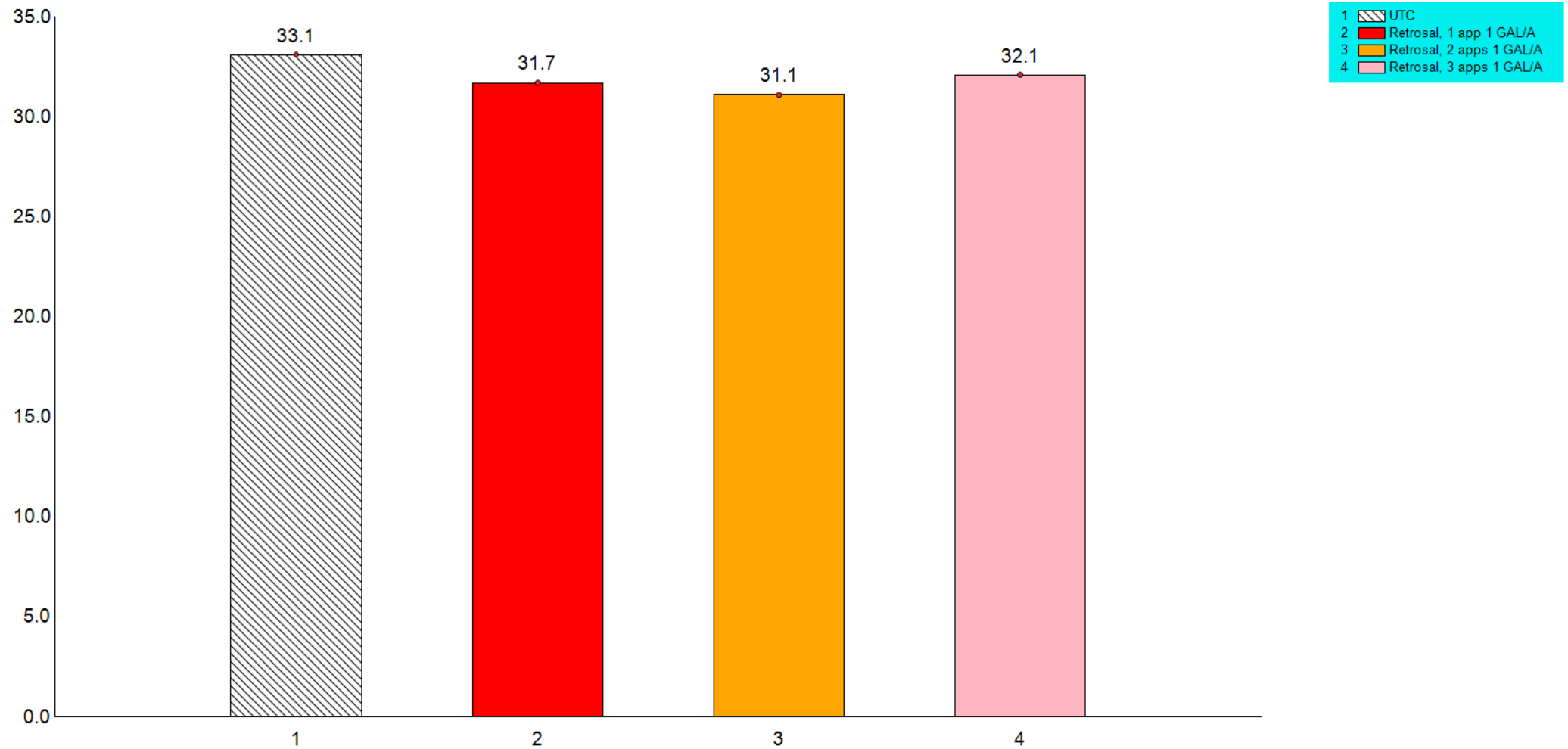
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Early_BPH

Trial ID: Cantaloupe_Retrosal_Spring2024

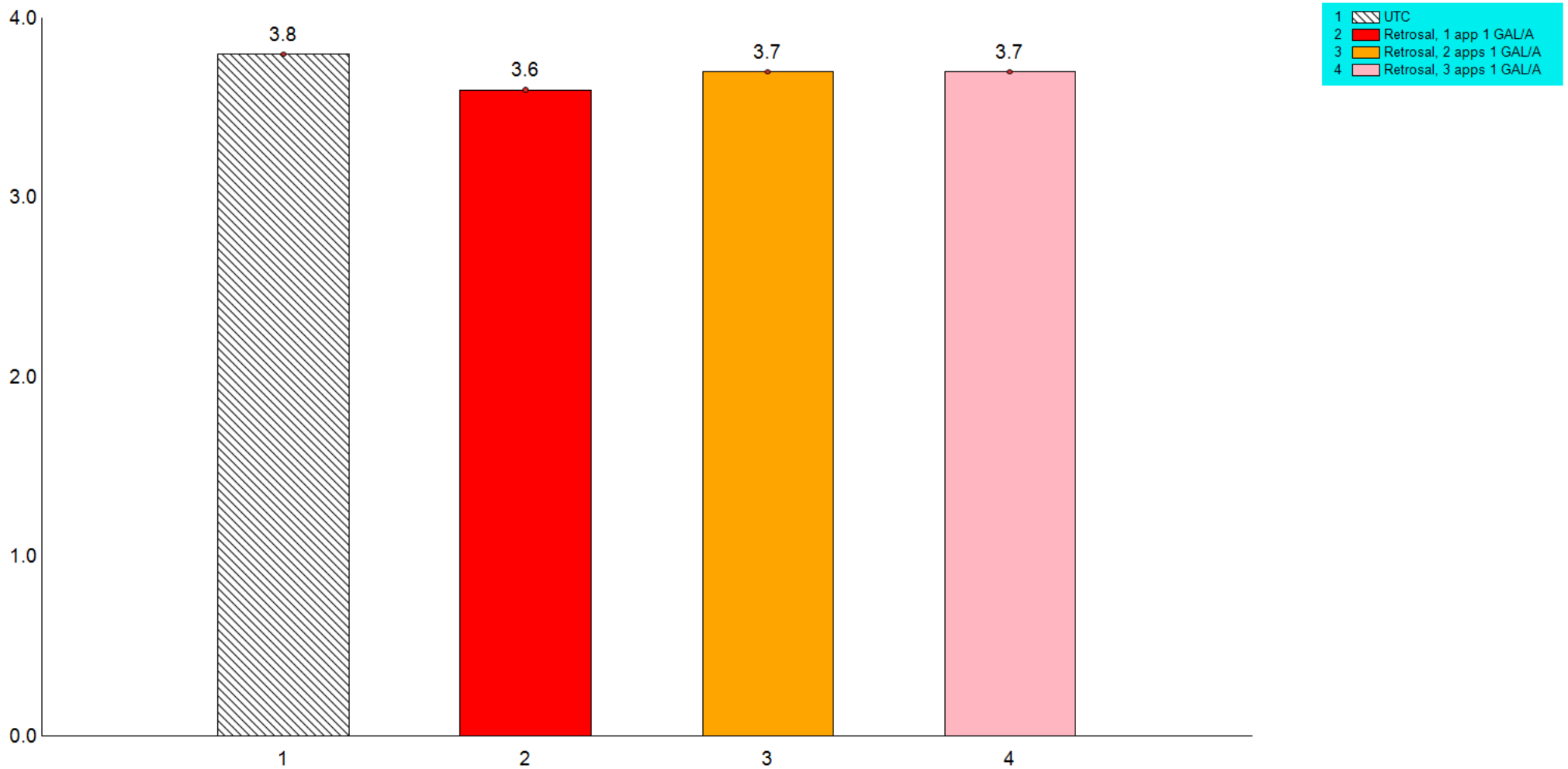
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



CEC Early_CEC

Trial ID: Cantaloupe_Retrosal_Spring2024

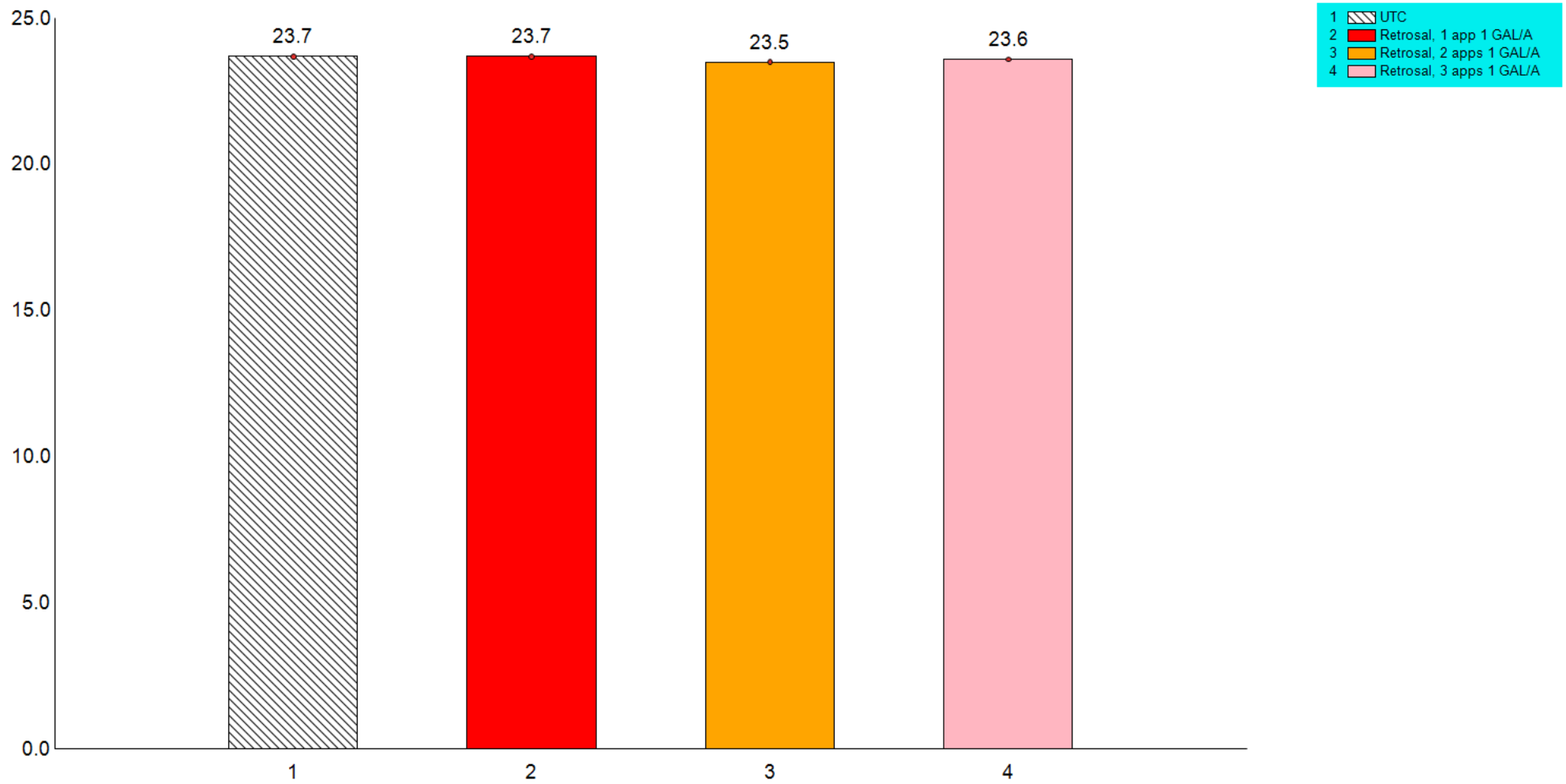
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



% Early_PERCENT K

Trial ID: Cantaloupe_Retrosal_Spring2024

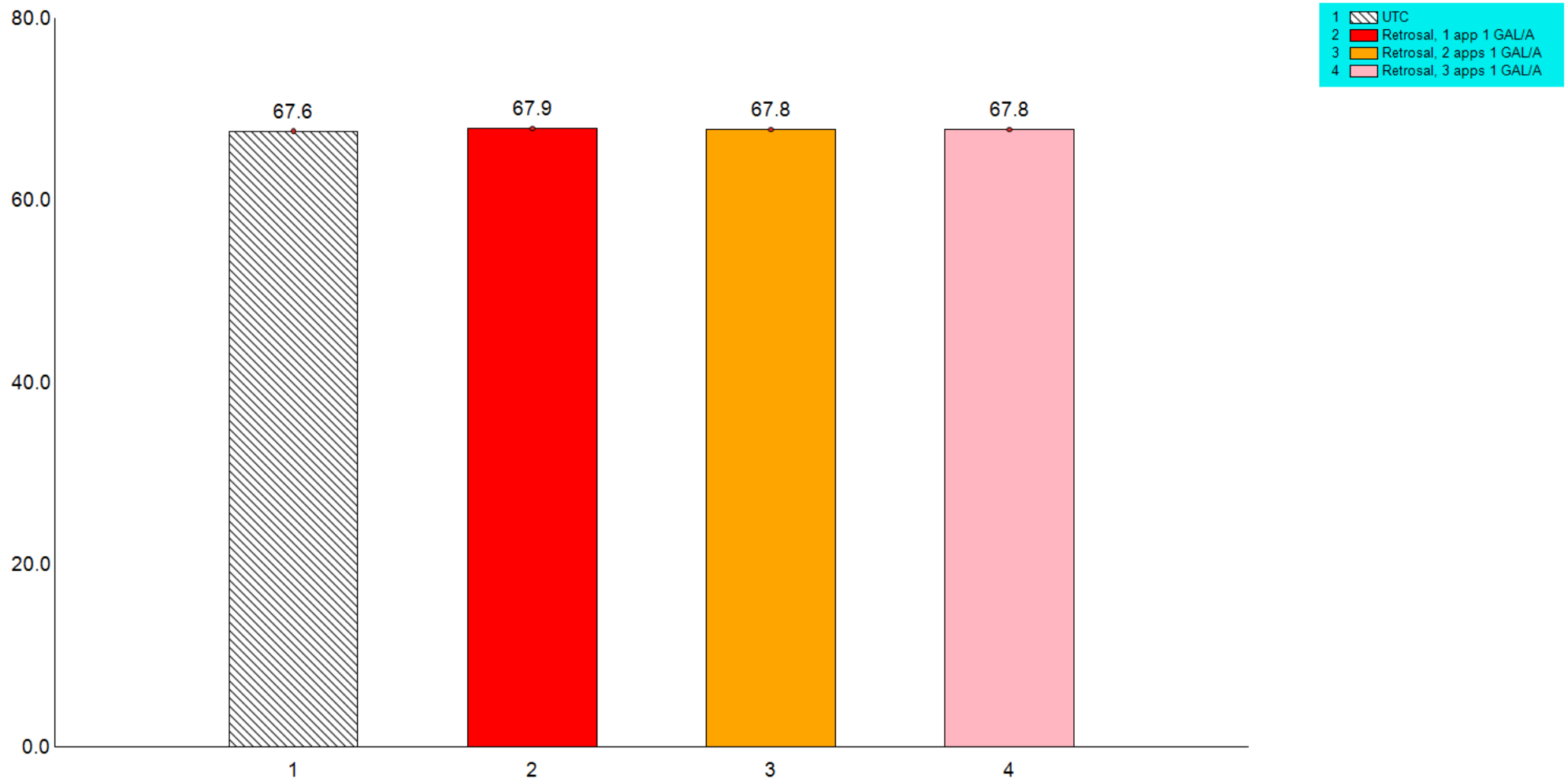
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



% Early_PERCENT MG

Trial ID: Cantaloupe_Retrosal_Spring2024

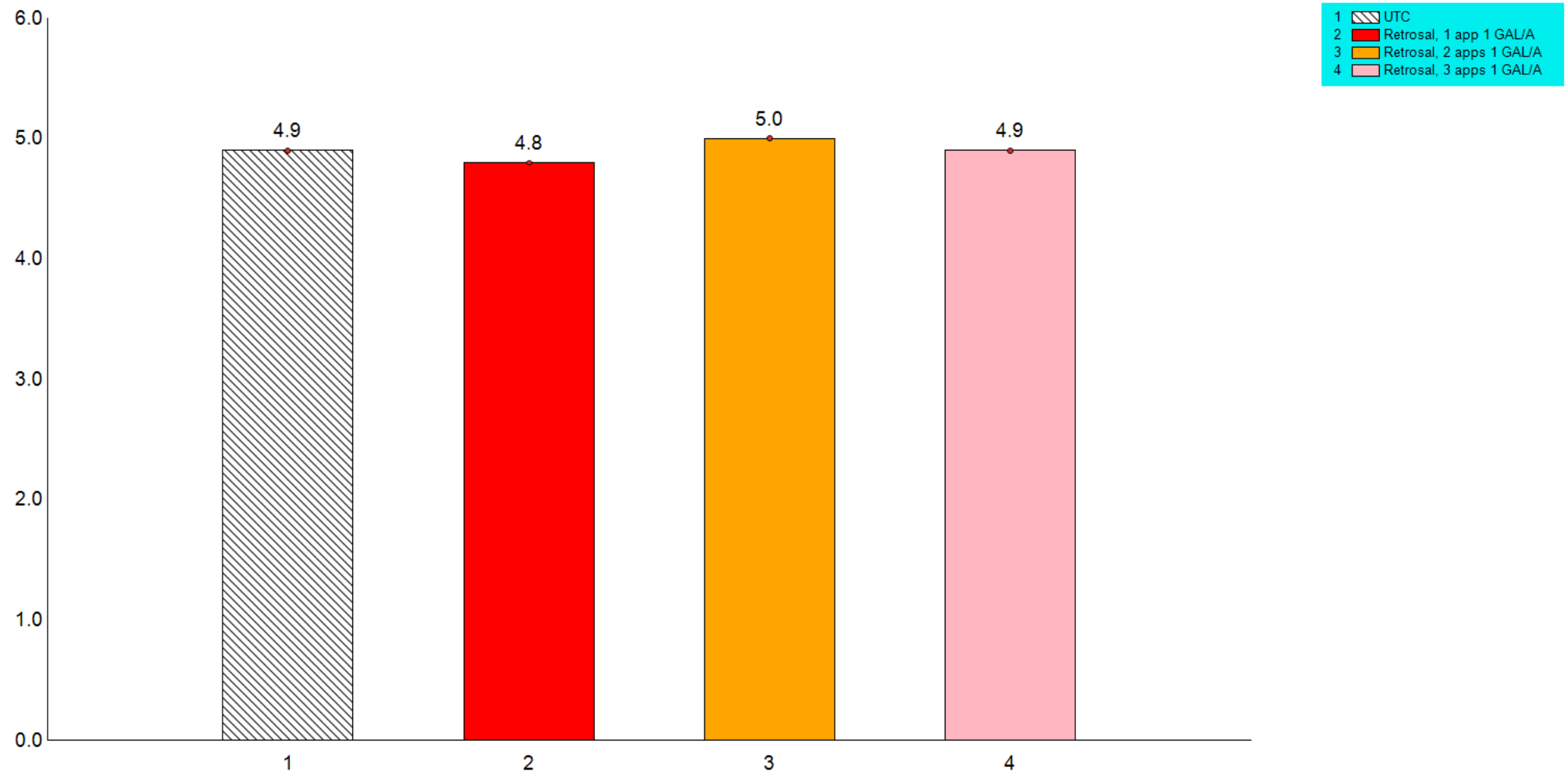
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



% Early_PERCENT CA

Trial ID: Cantaloupe_Retrosal_Spring2024

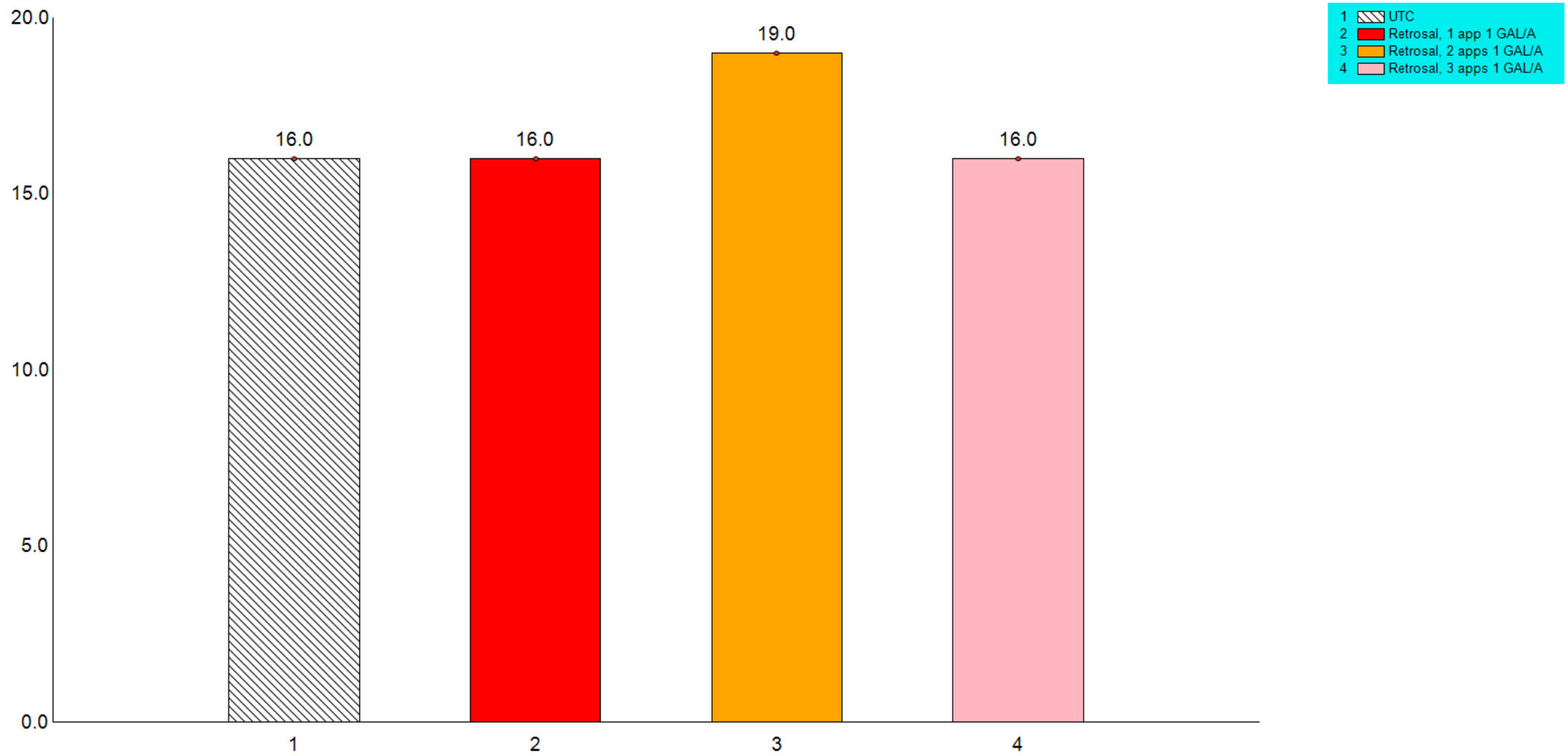
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



% Early_PERCENT NA

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



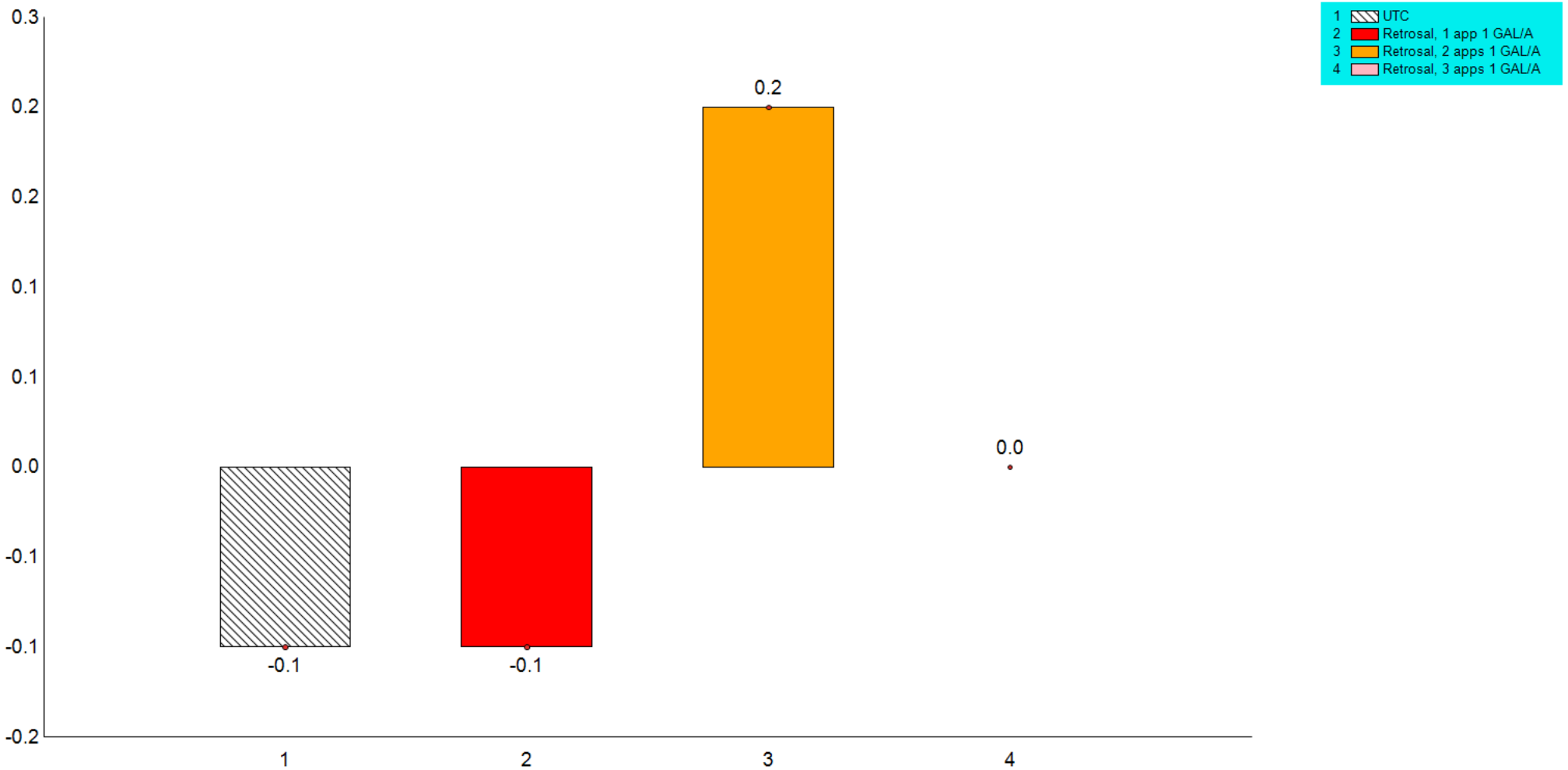
% Early_BICARB

Trial ID: Cantaloupe_Retrosal_Spring2024

Soil

- Post - Early

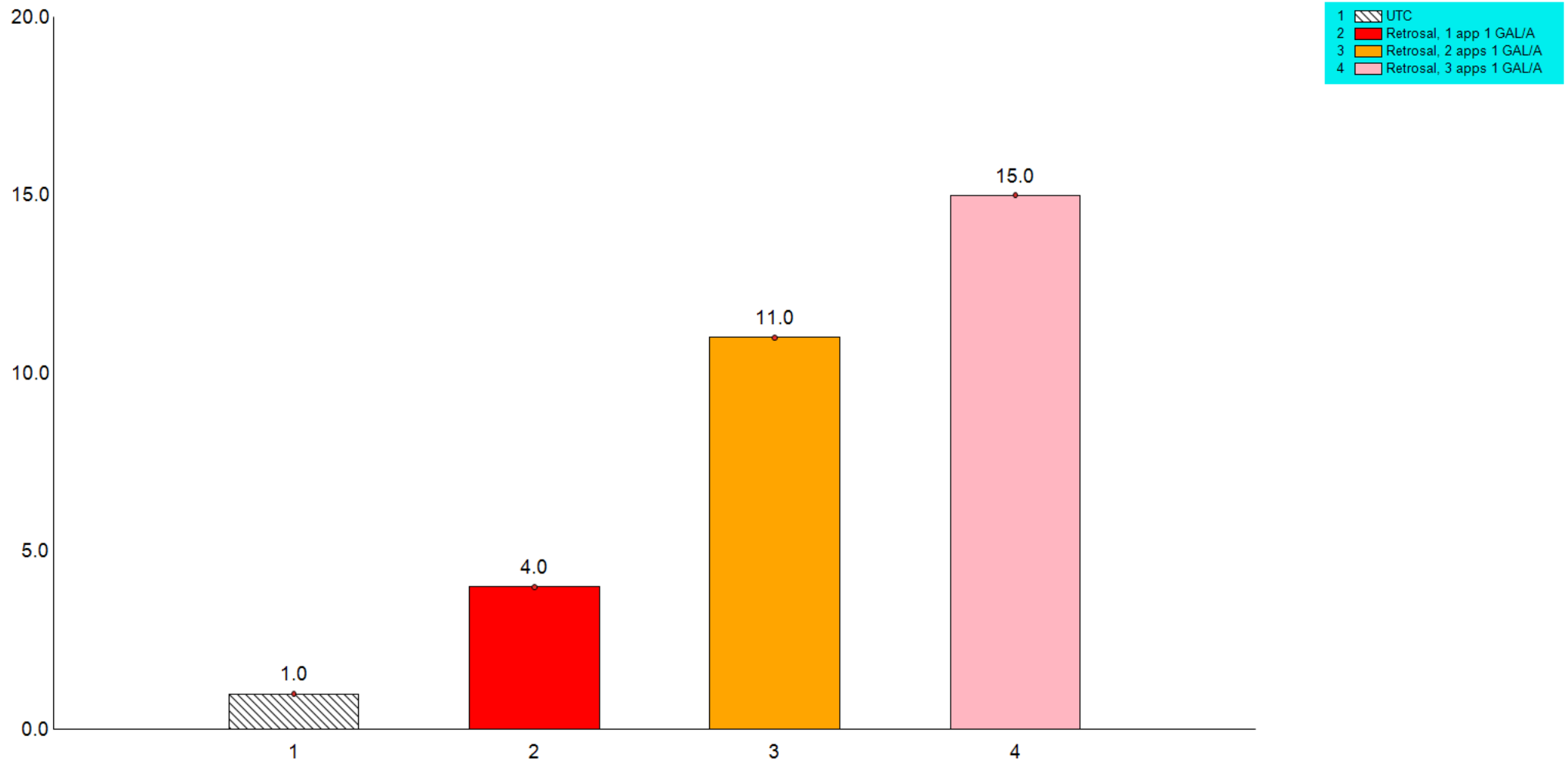
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_OM

Trial ID: Cantaloupe_Retrosal_Spring2024

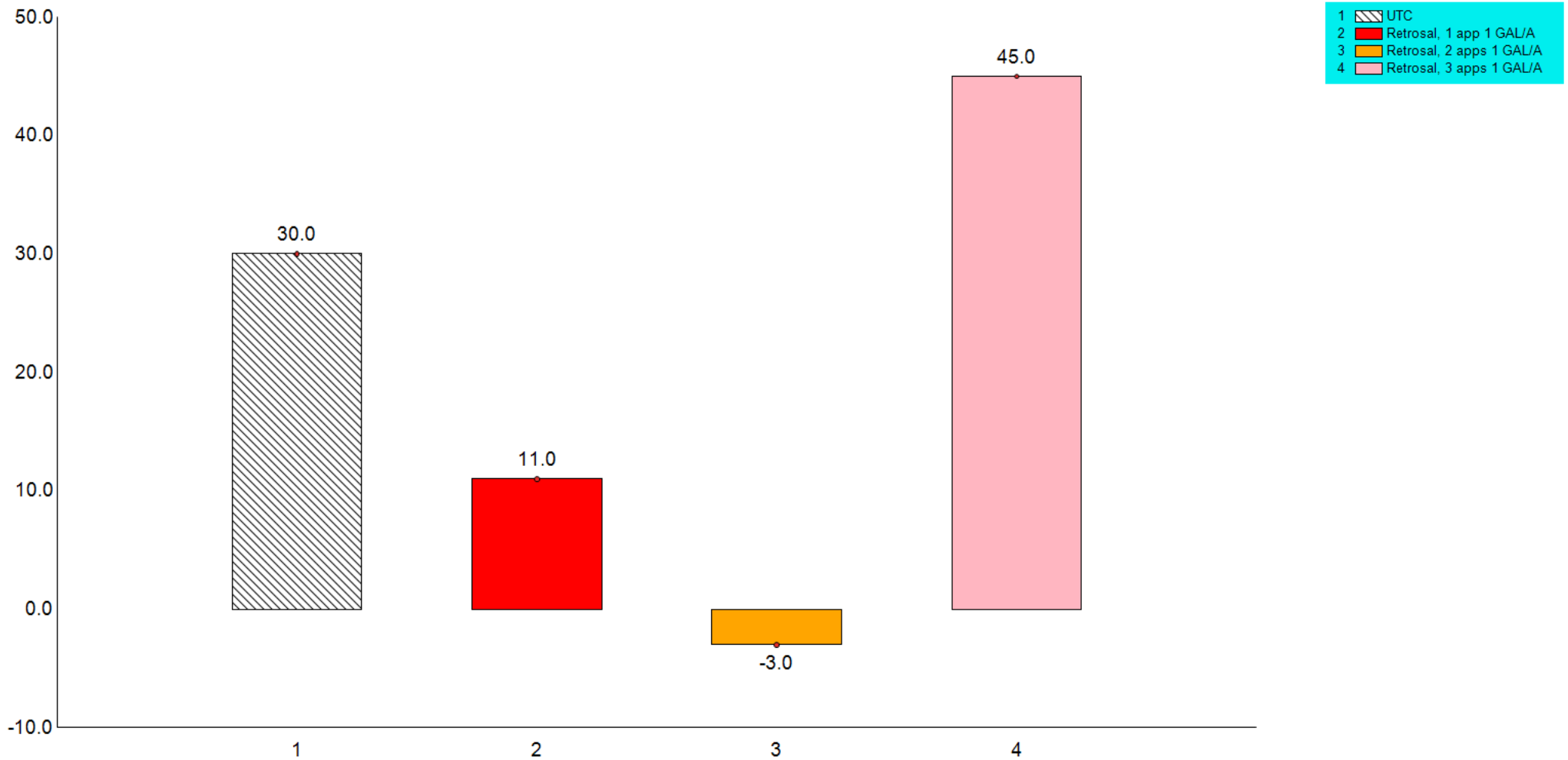
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_P1

Trial ID: Cantaloupe_Retrosal_Spring2024

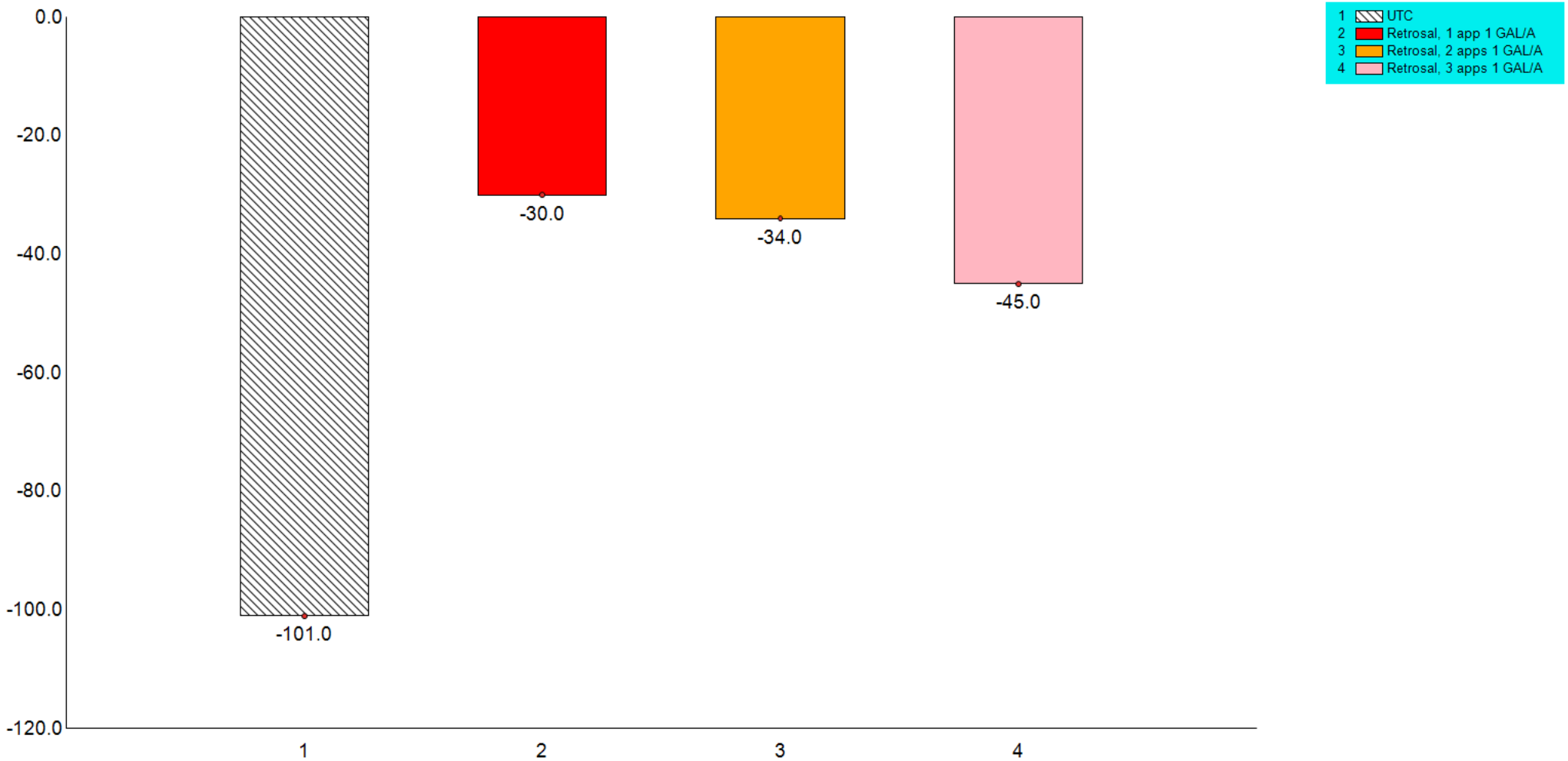
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_P2

Trial ID: Cantaloupe_Retrosal_Spring2024

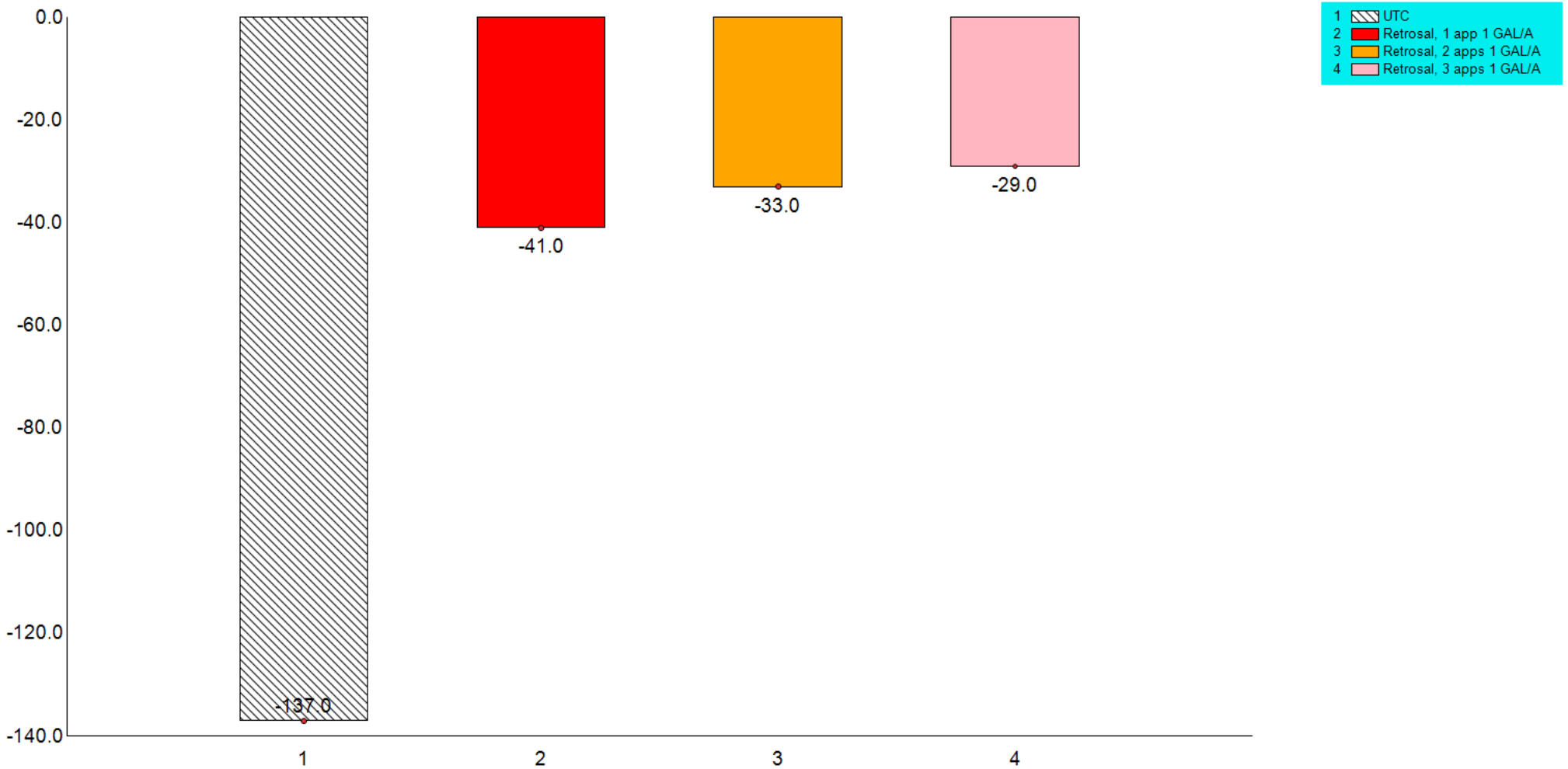
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_K

Trial ID: Cantaloupe_Retrosal_Spring2024

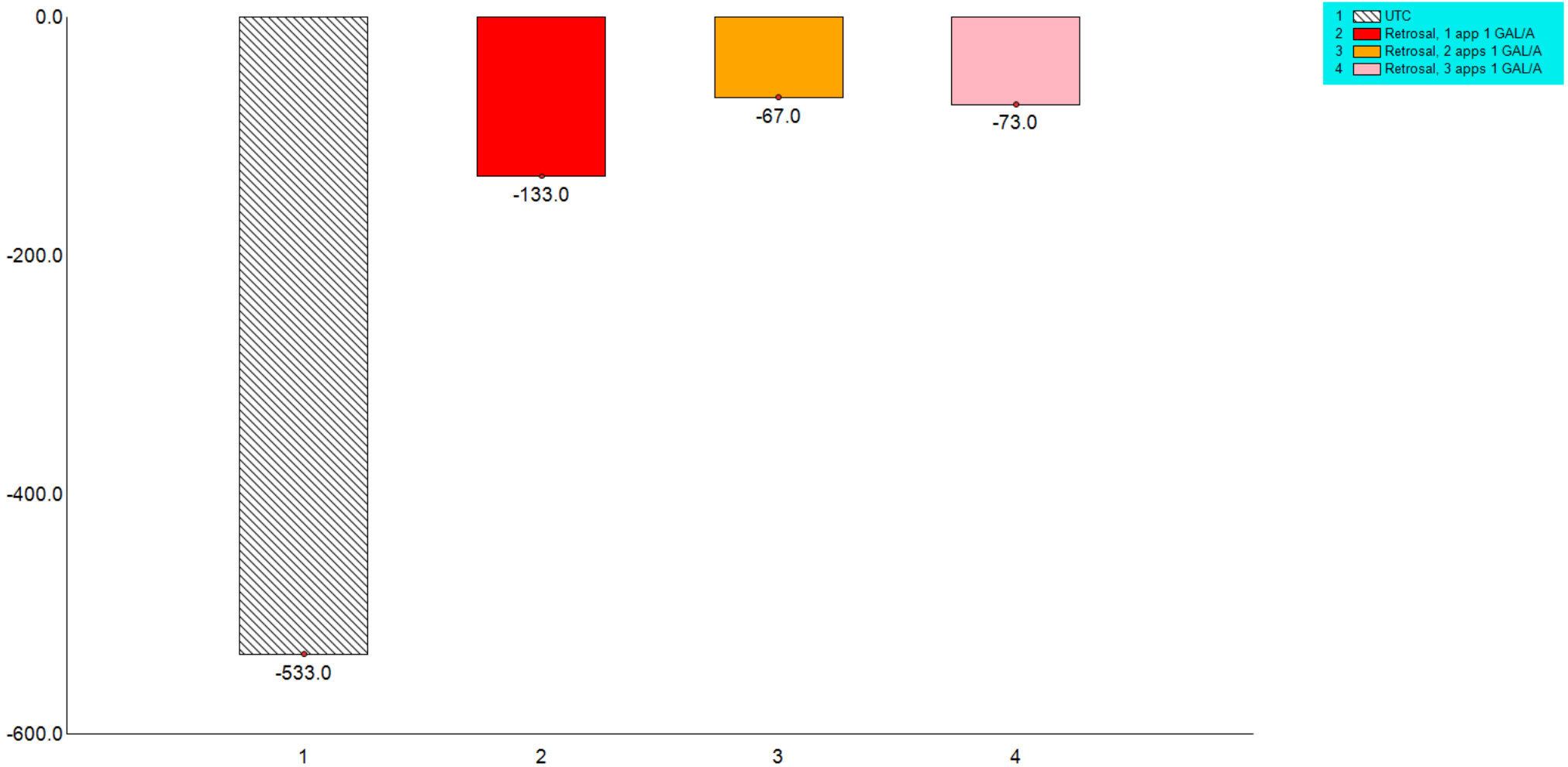
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_MG

Trial ID: Cantaloupe_Retrosal_Spring2024

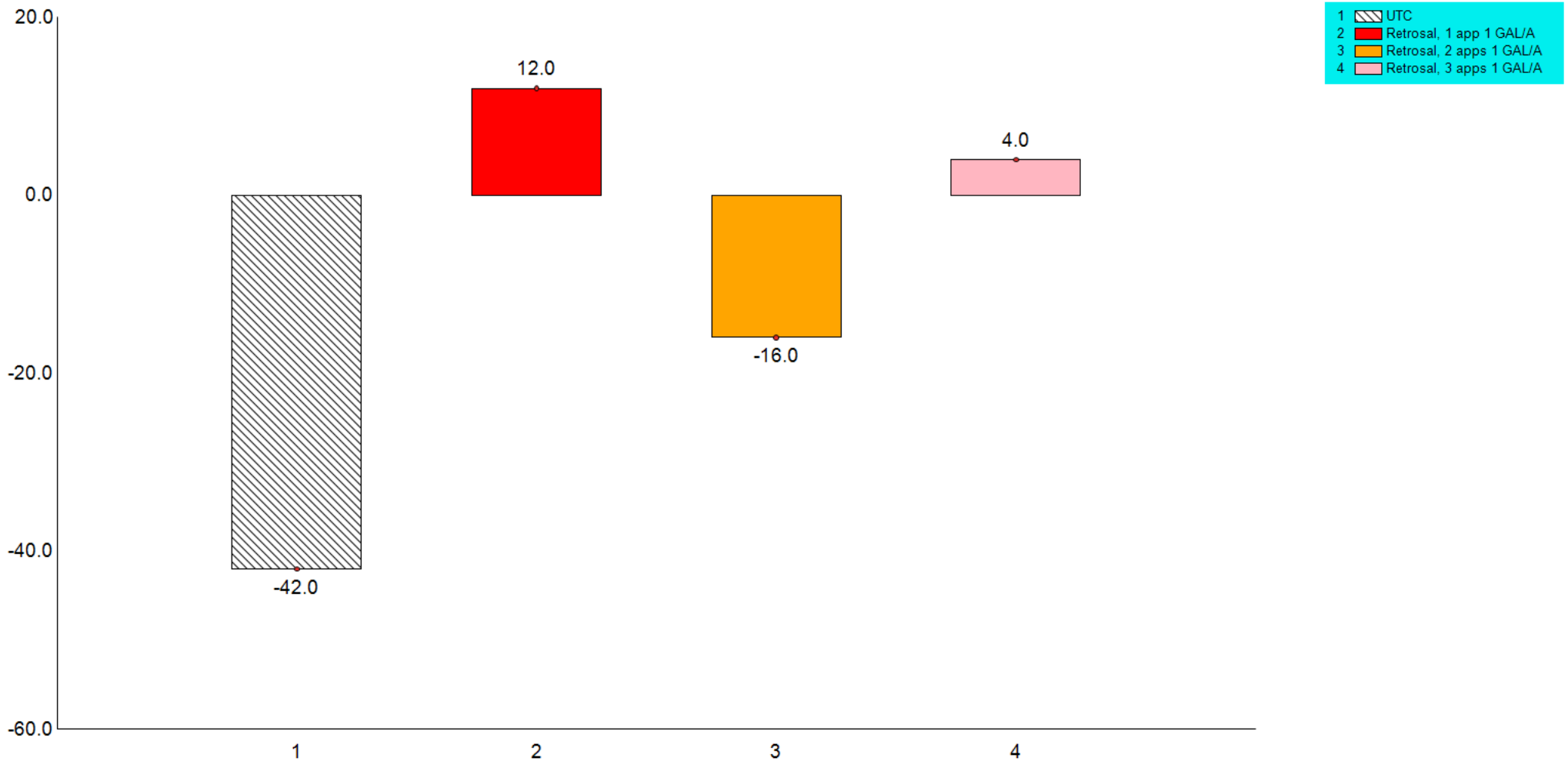
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_CA

Trial ID: Cantaloupe_Retrosal_Spring2024

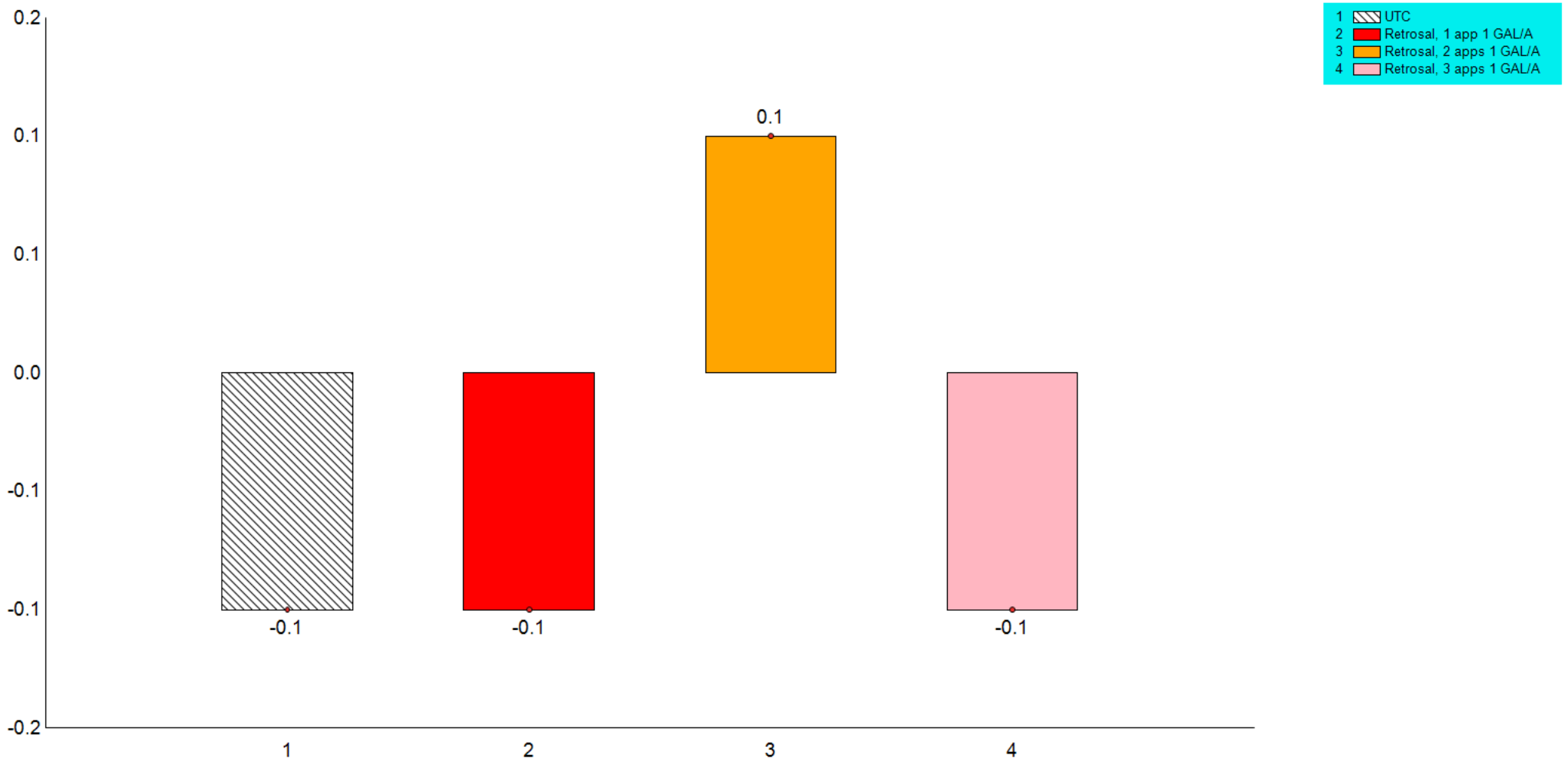
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



ppm Post-Early_NA

Trial ID: Cantaloupe_Retrosal_Spring2024

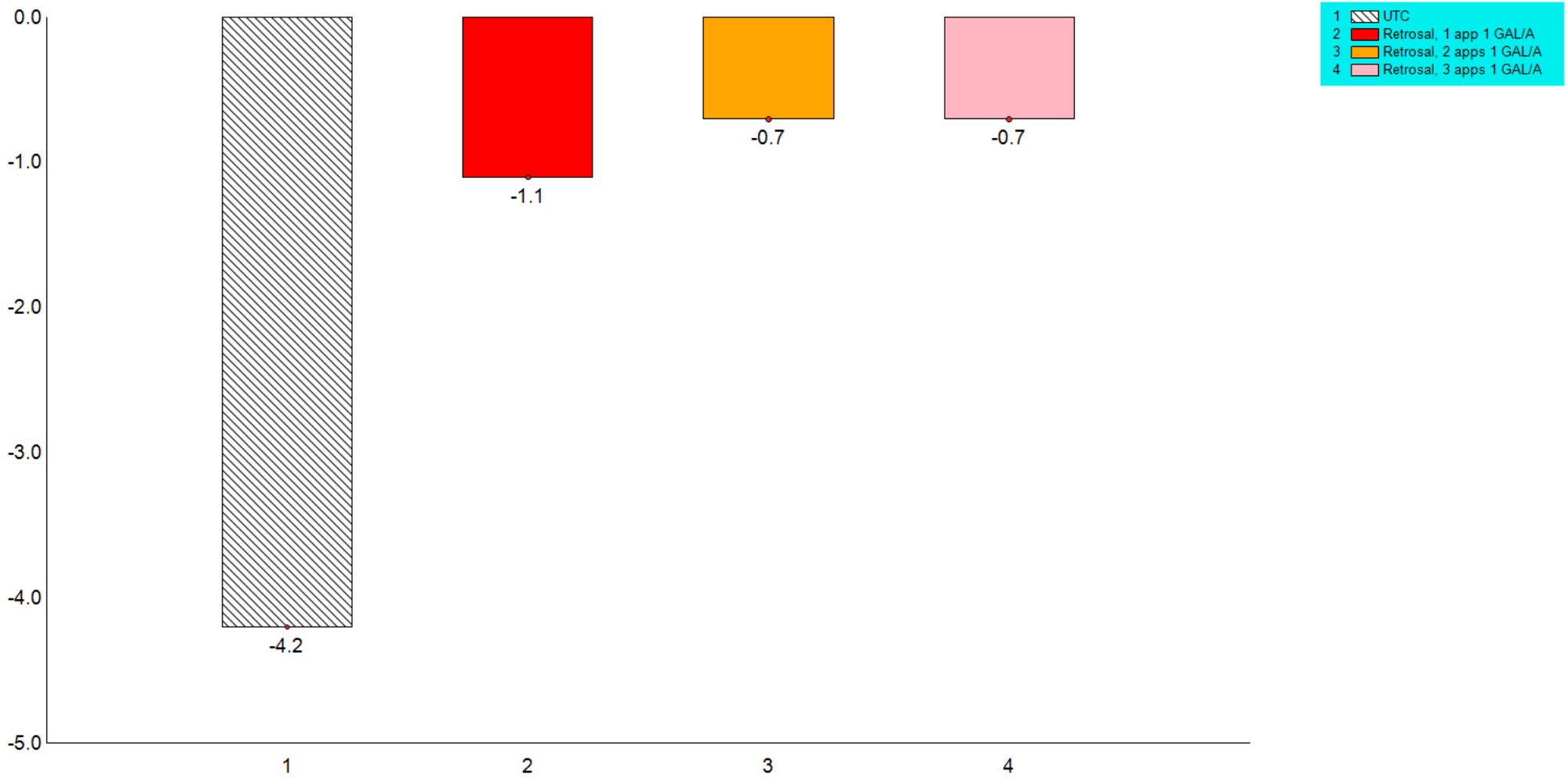
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



pH Post-Early_PH

Trial ID: Cantaloupe_Retrosal_Spring2024

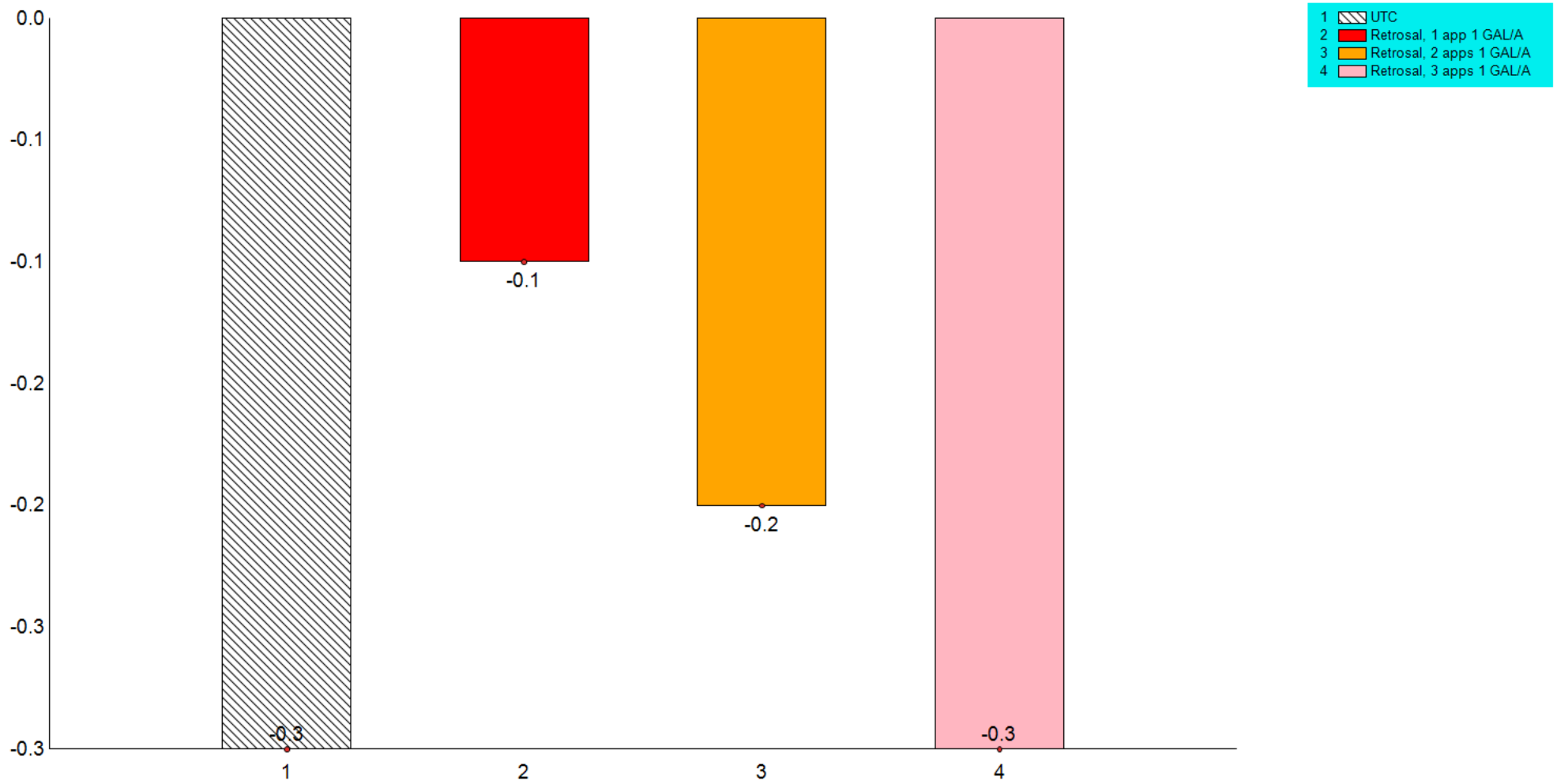
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



CEC Post-Early_CEC

Trial ID: Cantaloupe_Retrosal_Spring2024

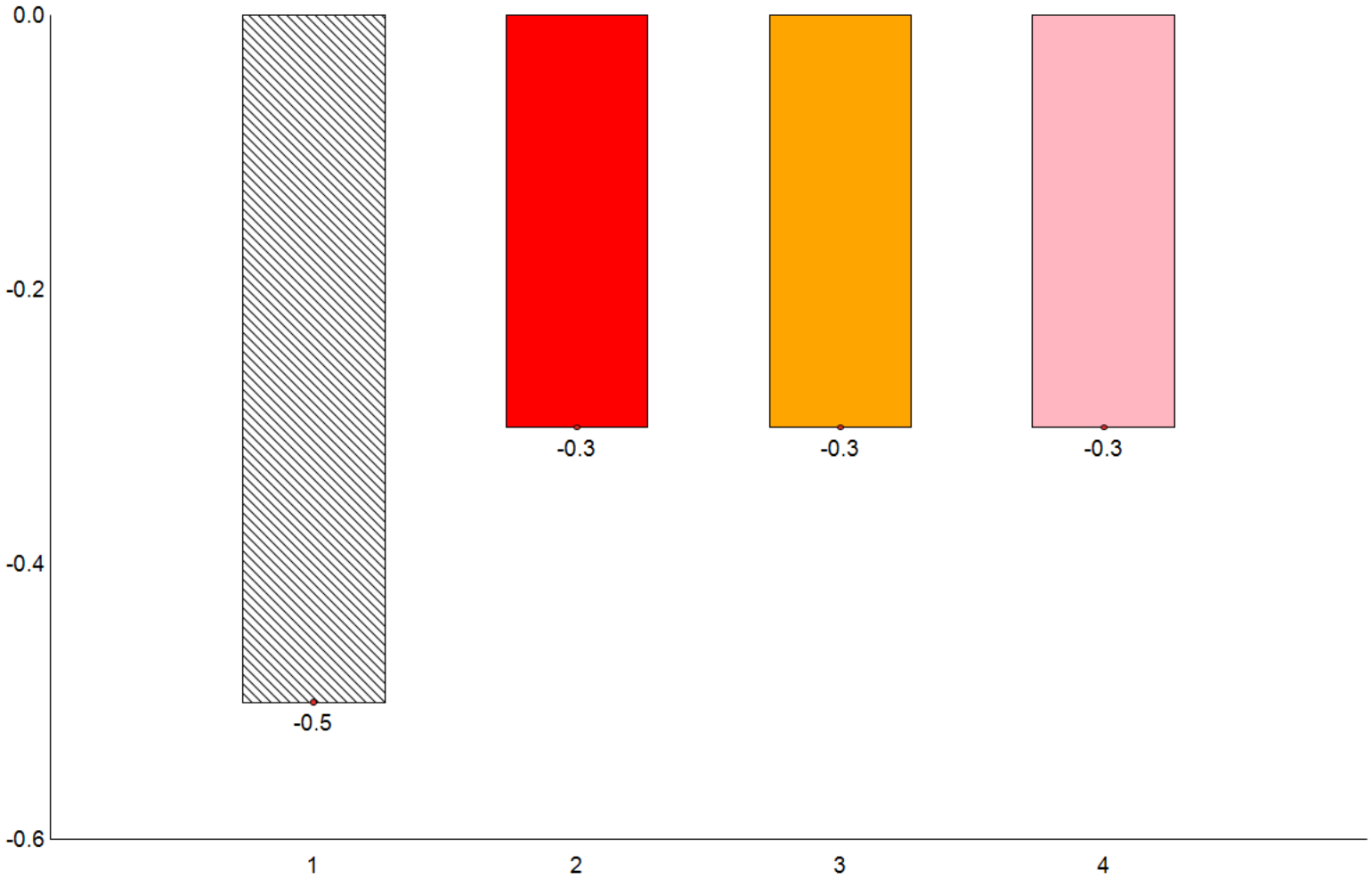
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_PERCENT K

Trial ID: Cantaloupe_Retrosal_Spring2024

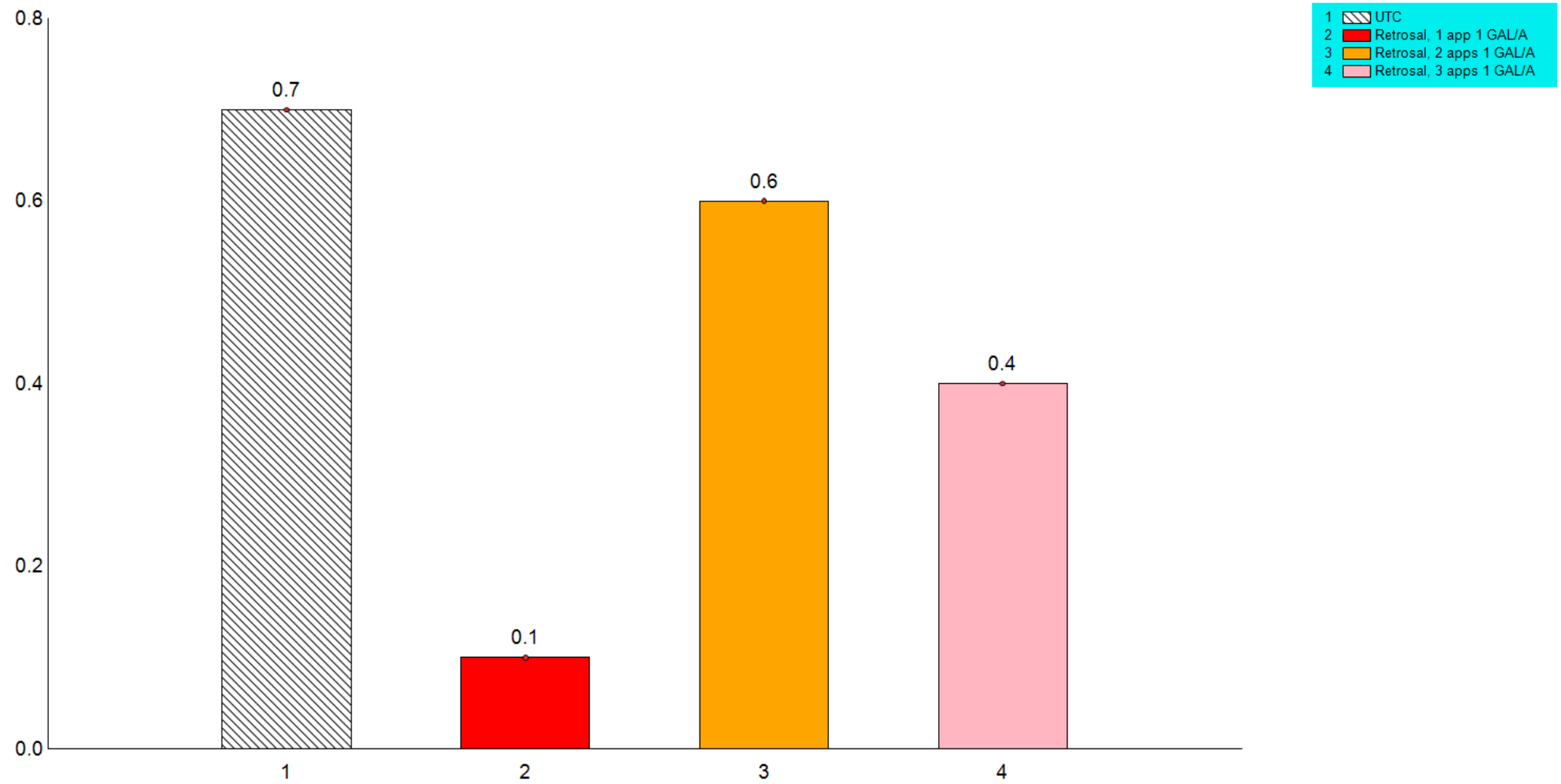
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_PERCENT MG

Trial ID: Cantaloupe_Retrosal_Spring2024

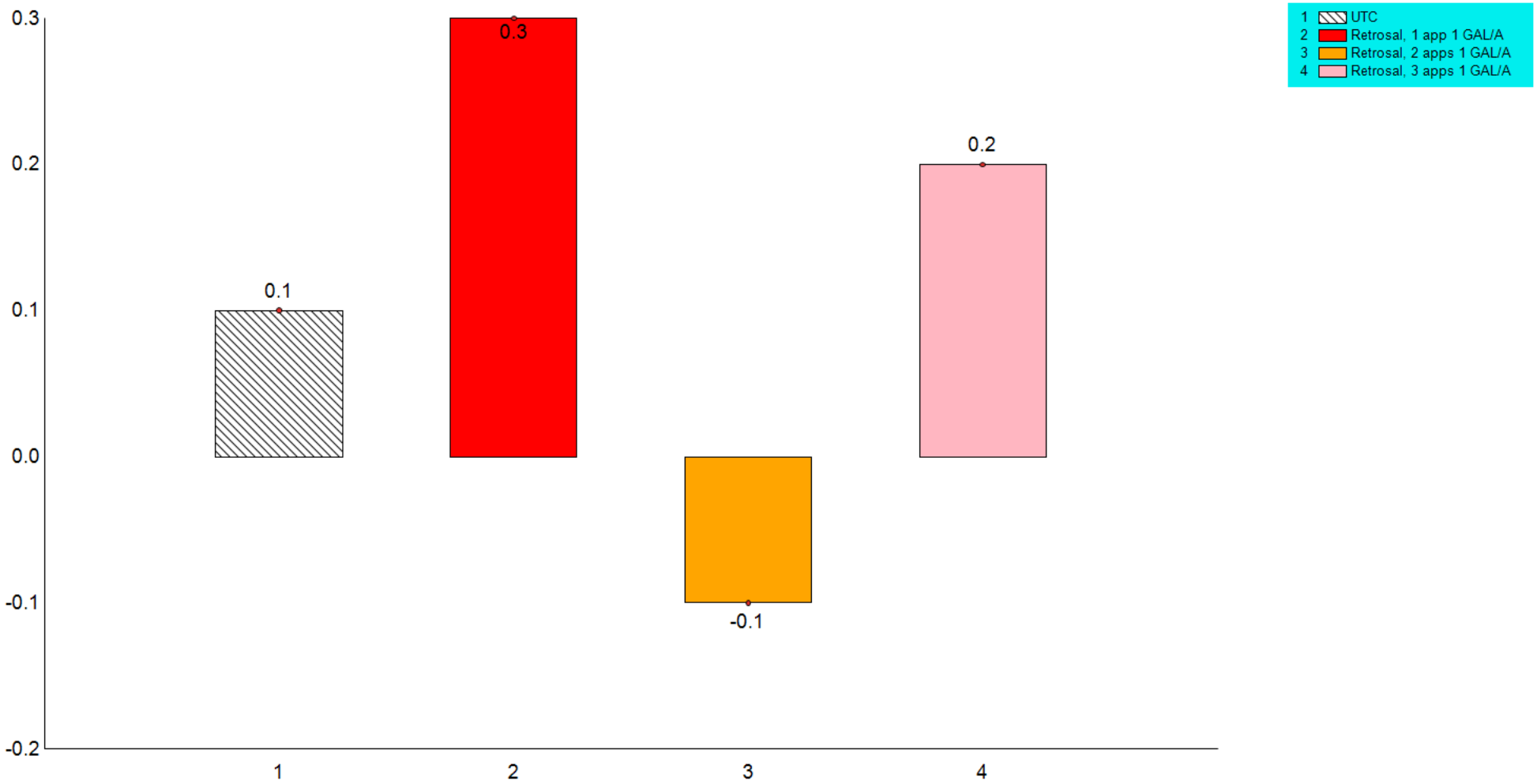
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_PERCENT CA

Trial ID: Cantaloupe_Retrosal_Spring2024

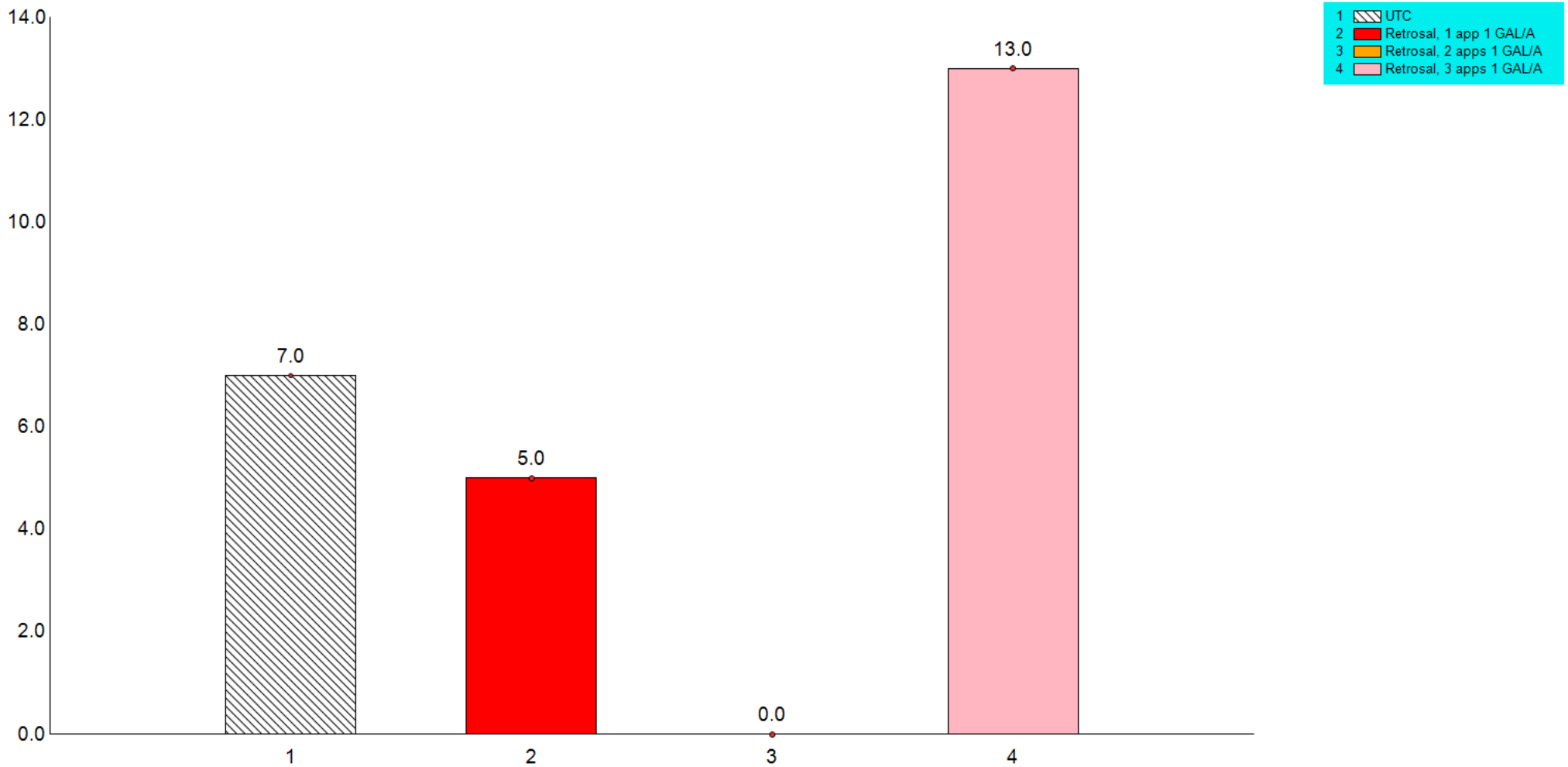
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_PERCENT NA

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



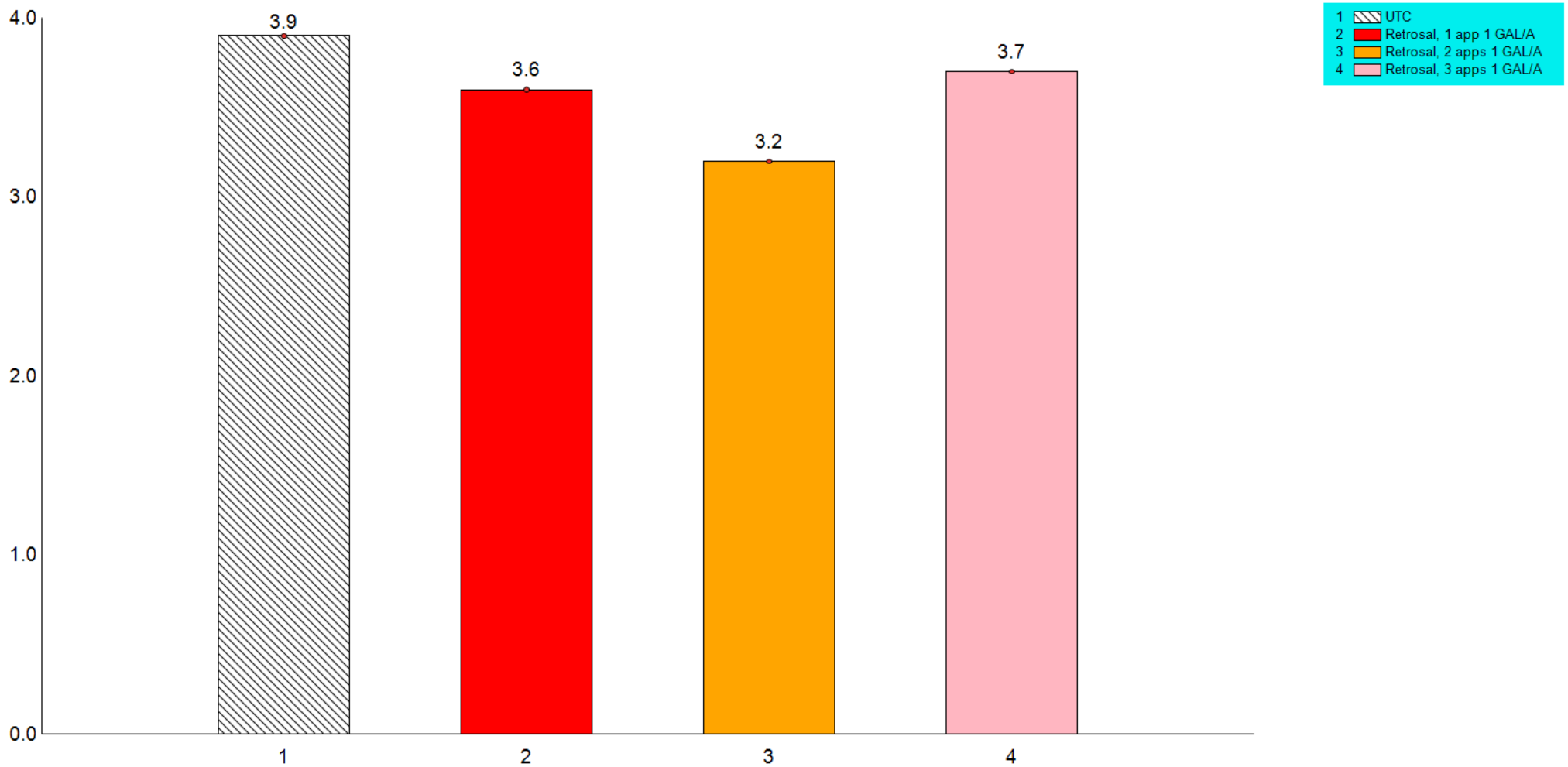
Post-Early_BICARB

Trial ID: Cantaloupe_Retrosal_Spring2024

Salt Paste Extract Testing

- Early
- Post - Early

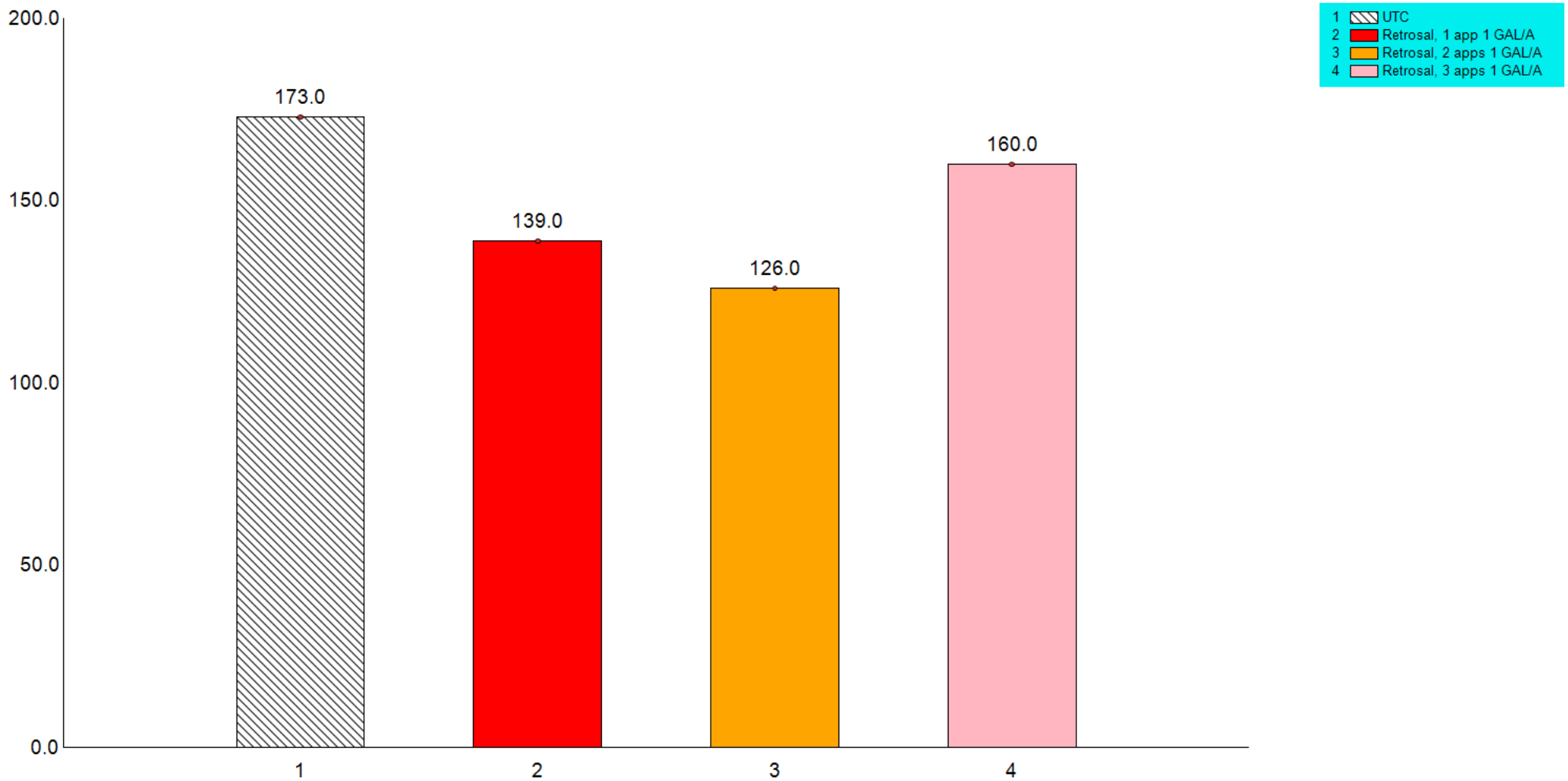
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



SatPaste_Early_SAR

Trial ID: Cantaloupe_Retrosal_Spring2024

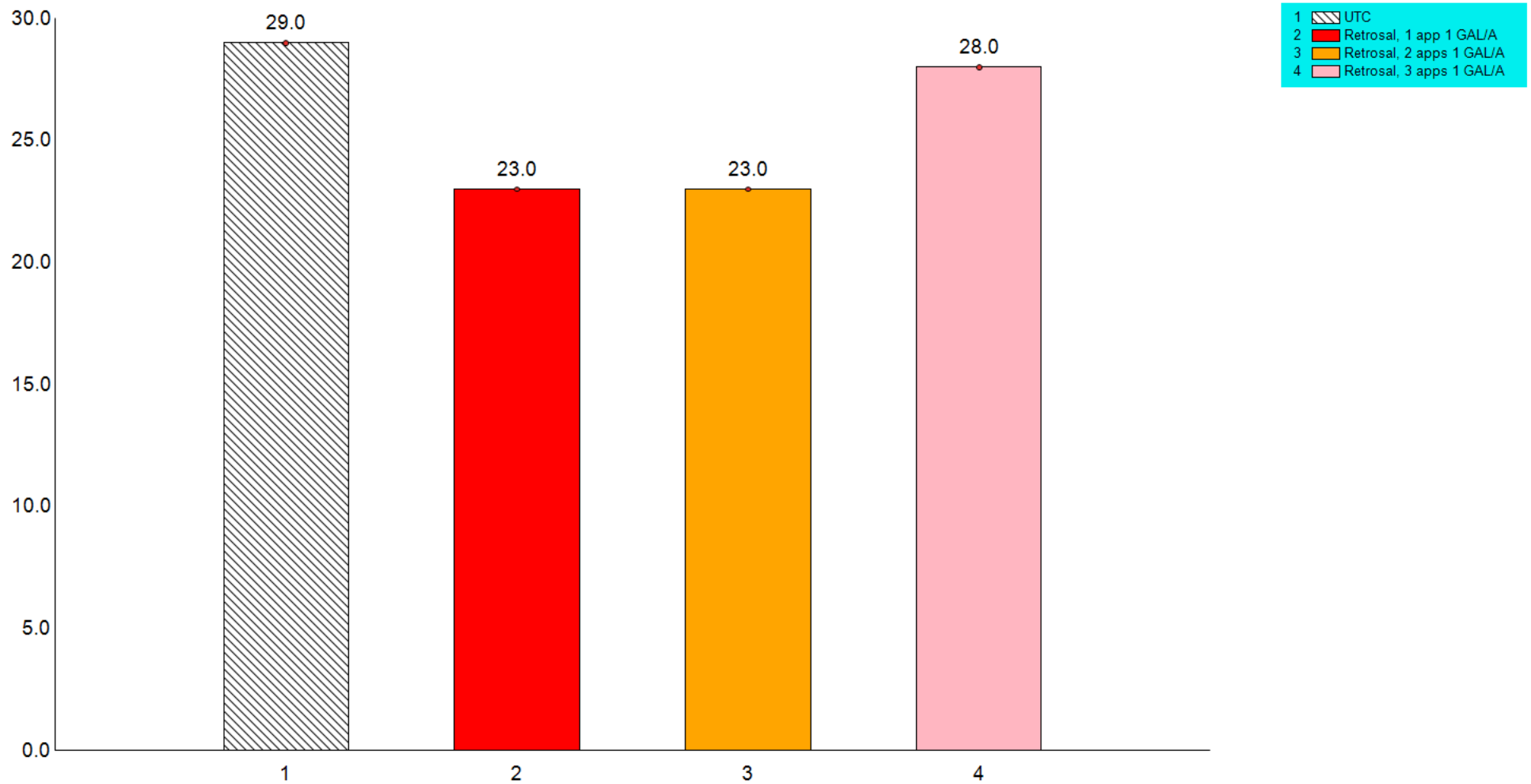
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



SatPaste_Early_Sodium

Trial ID: Cantaloupe_Retrosal_Spring2024

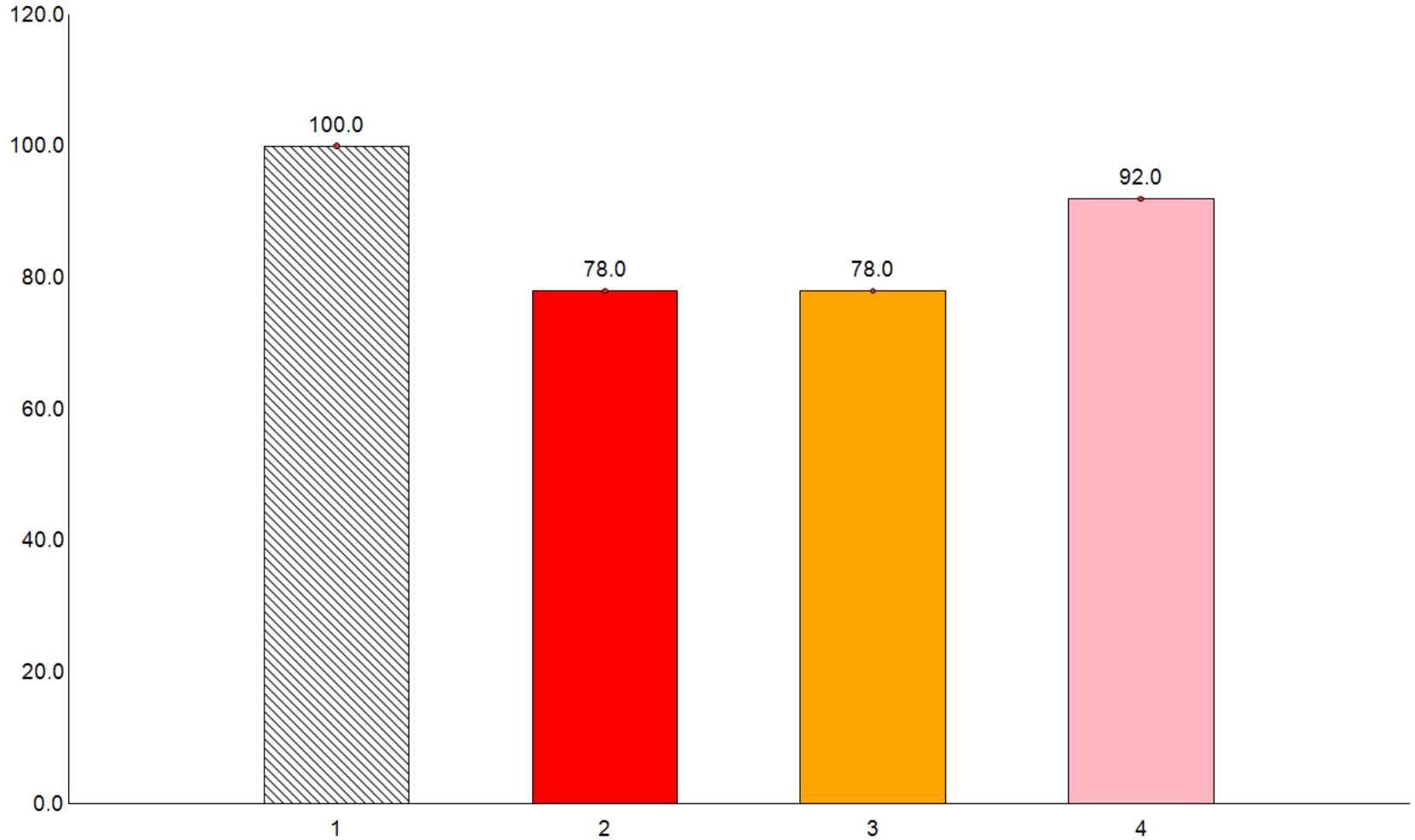
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



SatPaste_Early_Magnesium

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



SatPaste_Calcium

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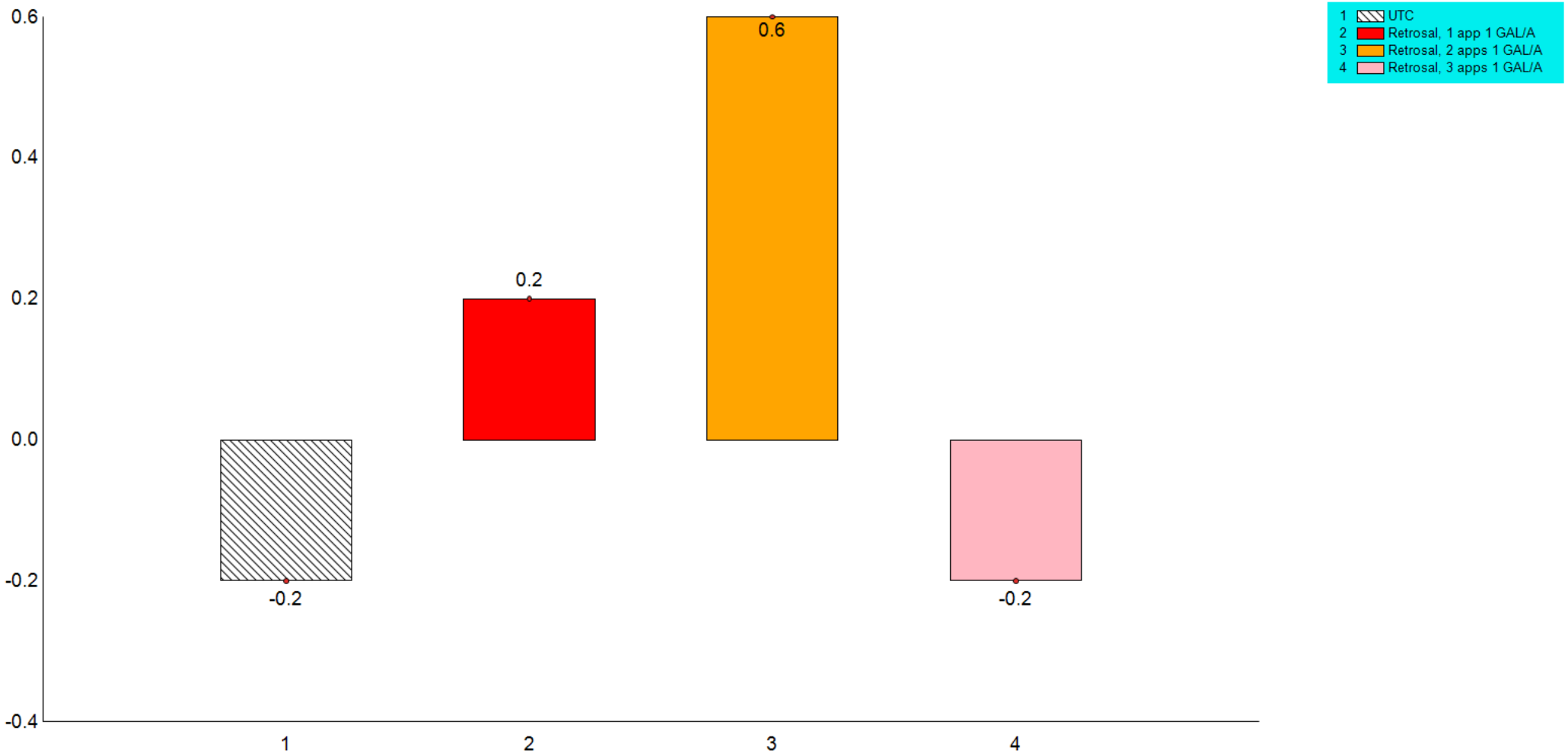
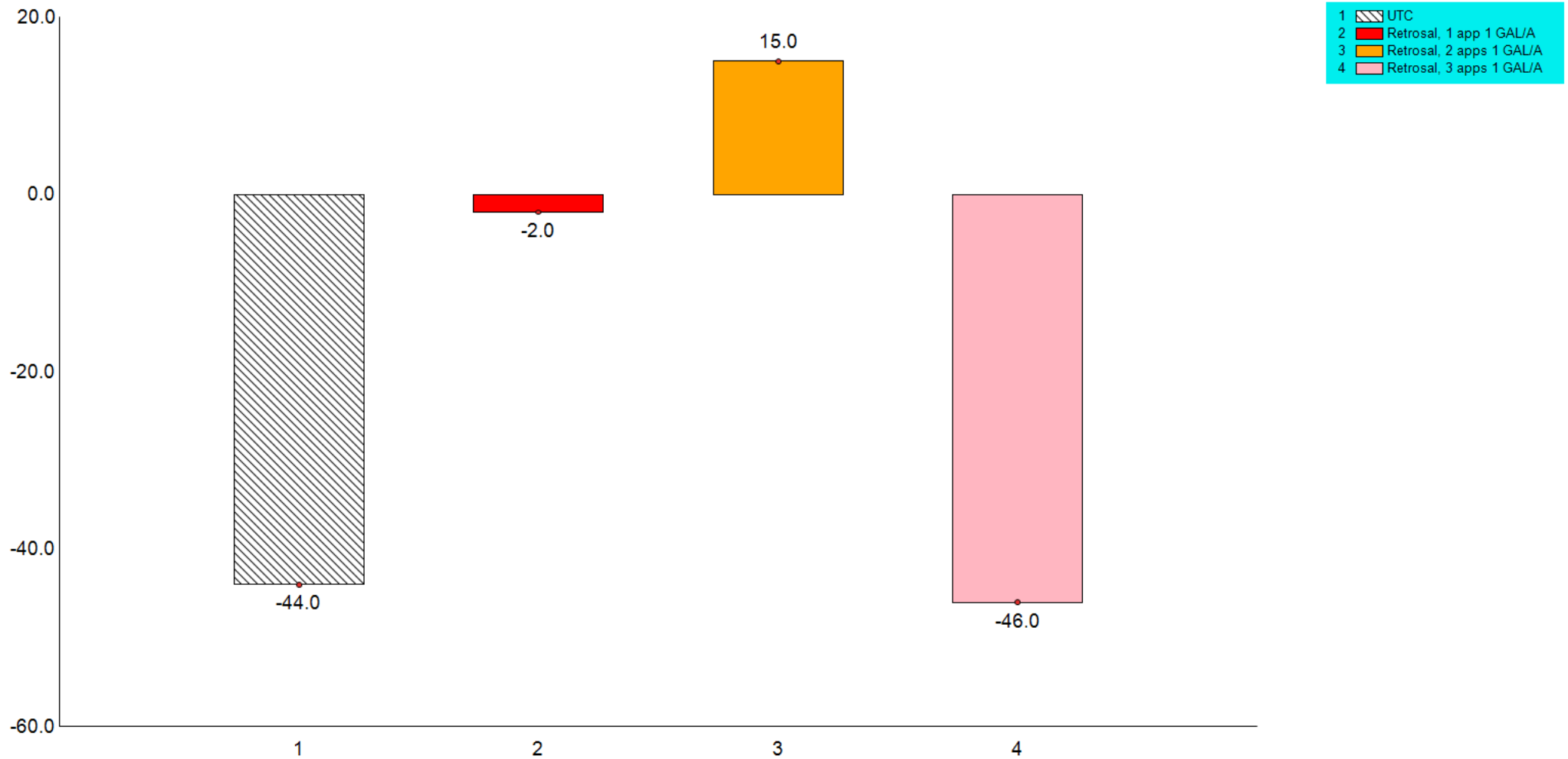
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_SAR

Trial ID: Cantaloupe_Retrosal_Spring2024

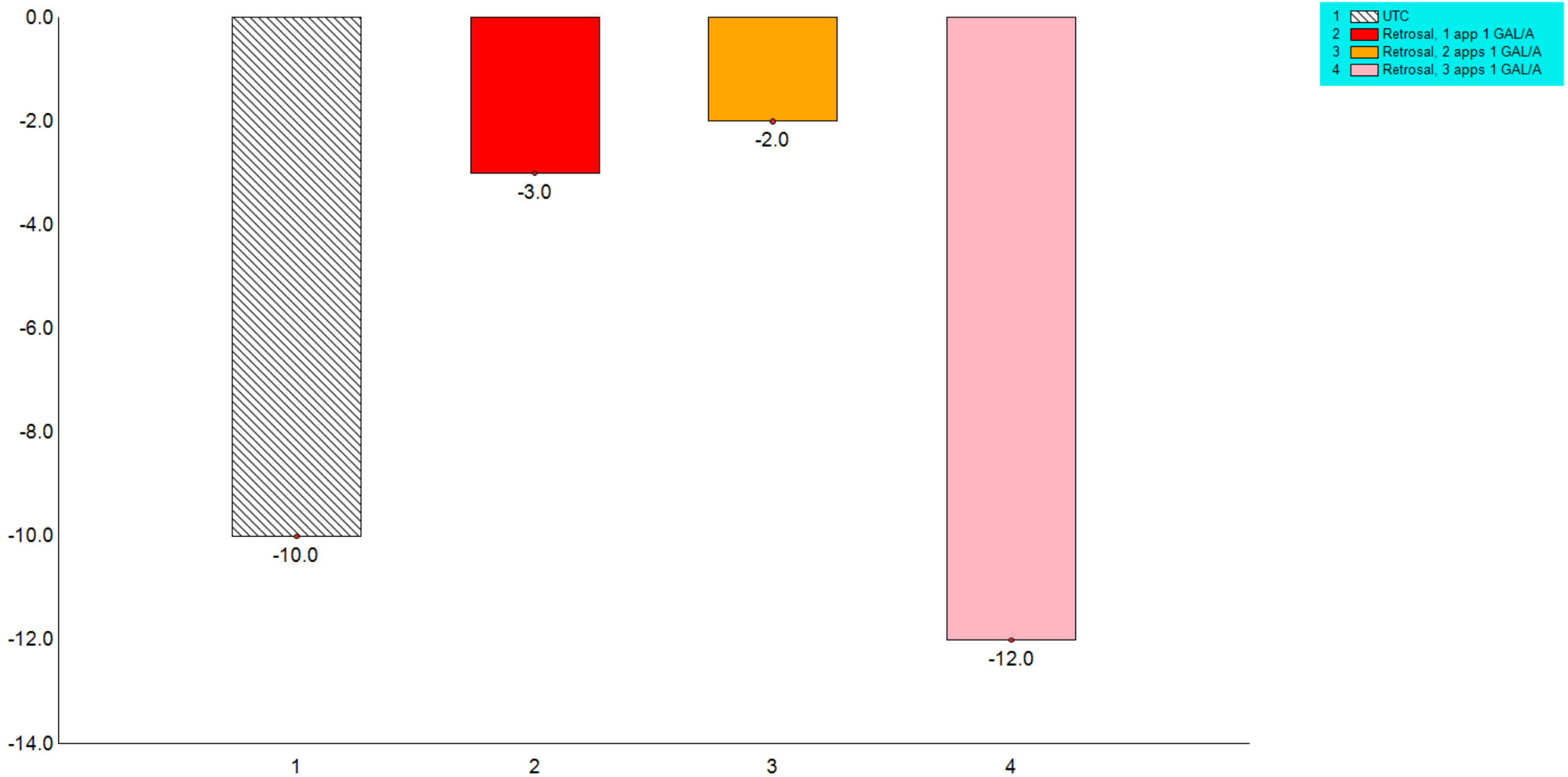
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_Sodium

Trial ID: Cantaloupe_Retrosal_Spring2024

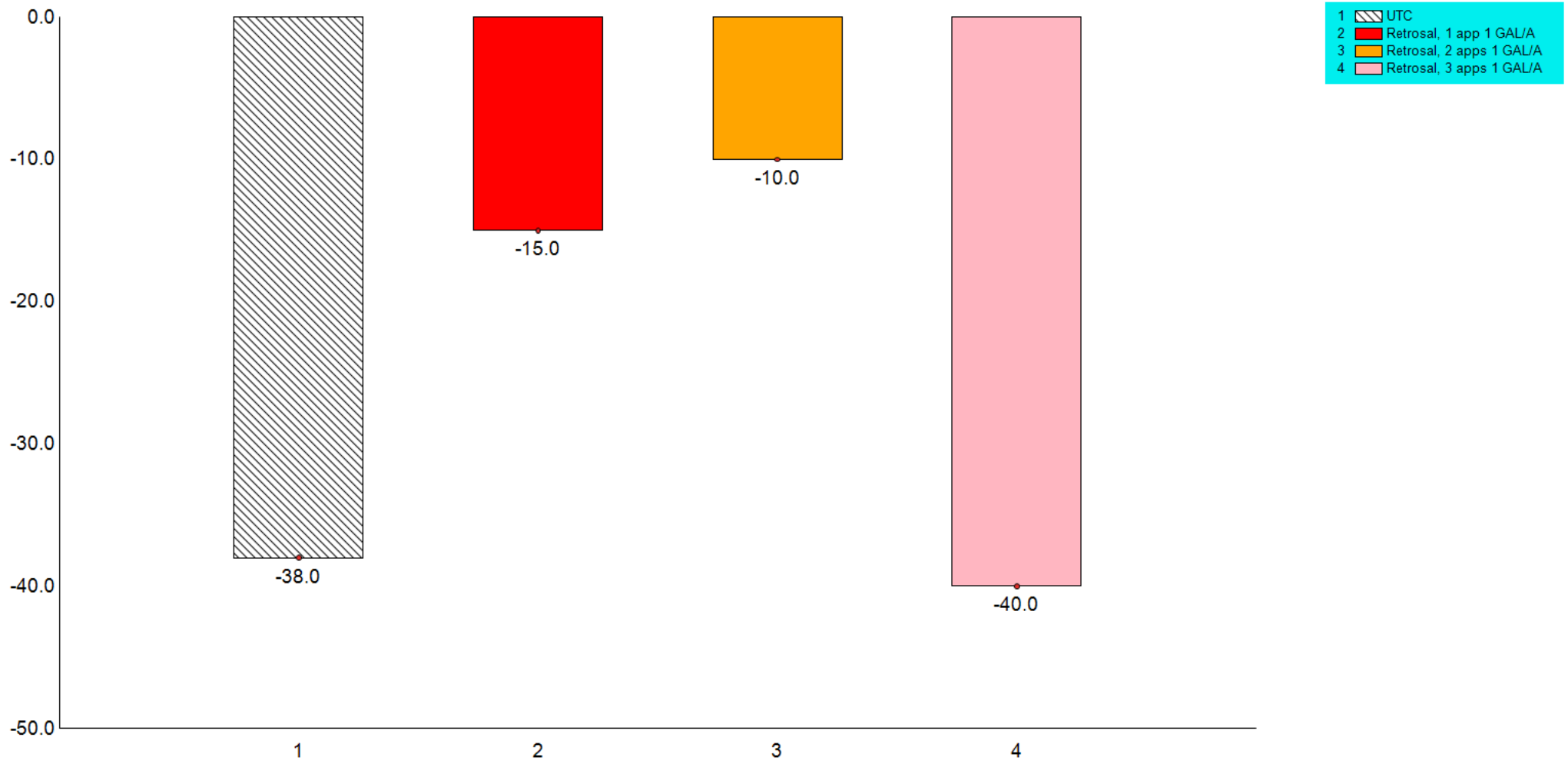
Yuma Cantaloupe Trial. Retrosal trial to reduce salt. Soil Test Results



Post-Early_Magnesium

Trial ID: Cantaloupe_Retrosal_Spring2024

Yuma Cantaloupe 2024. Retrosal trial to reduce salt.



Post-Early_Calcium

Trial ID: Cantaloupe_Retrosal_Spring2024

Plot Photos


Plot 1607
Trt 1


Plot 1507
Trt 3


Plot 1407
Trt 4
U BRANDS


Plot 1307
Trt 2


Plot 1308
Trt 1


Plot 1408
Trt 3.


Plot 1508
Trt 4


Plot 1608
Trt 2


Plot 1609
Trt 4


Plot 1509
Trt 1


Plot 1409
Trt 2


Plot 1309
Trt 3


Plot 1310
Trt 1


Plot 1410
Trt 3.


Plot 1510
Trt 4


Plot 1610
Trt 2


Plot 1611
Trt 3


Plot 1511
Trt 2


Plot 1411
Trt 1


Plot 1311
Trt 4


Plot 1312
Trt 2


Plot 1412
Trt 3


Plot 1512
Trt 4


Plot 1612
Trt 1