Yuma Cantaloupe Trial

Spring 2024

TerraAg

Organic Plant and Soil Pro

Robert Masson
Assistant Ag Extension Agent

THE UNIVERSITY OF ARIZONA
Cooperative Extension
Yuma County

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Planted: 3/15/24
First Harvest: 6/13/24
Second Harvest: 6/18/24

Fert Apps:
Phos Acid added through drip at seeding 13.3 GAL/AC
UAN 32
Application A: 3/25/24 : 15 #N
Application B: 4/9/24 : 35 #N
Application C: 5/16/24 : C: 50 #N

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 on 3/18 and manifolds installed.

Cantaloupe Variety: Harris Moran Deluxe F1

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-23-2024	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**	

Trial Details

Two Treatments:

1. Full Fertility UTC
2. Full Fertility TerraAg Organic Soil and Plant Pro

Replications: 6

Trial area shared with Kelpak which also did not need a complete 4 treatment trial. Only data from Treatment 1 and 2 shared in this report.

Drop plots: 707, 708, 709, 710 due to excessively high stand counts brought about by a poor job thinning.

Trial Summary

- Trial product plots showed an average increase of
  - 0.1 lb per melon
  - 0.2 IN per melon
  - ‘keeper’ visual quality
- Trial product plots showed slightly less
  - physical blemishes (sunburn)
- Marketable yield by Carton grade
  - Trt 1 – UTC = 539 cartons per ac
  - Trt 2 – TerrAg =708 cartons per ac

University of Arizona

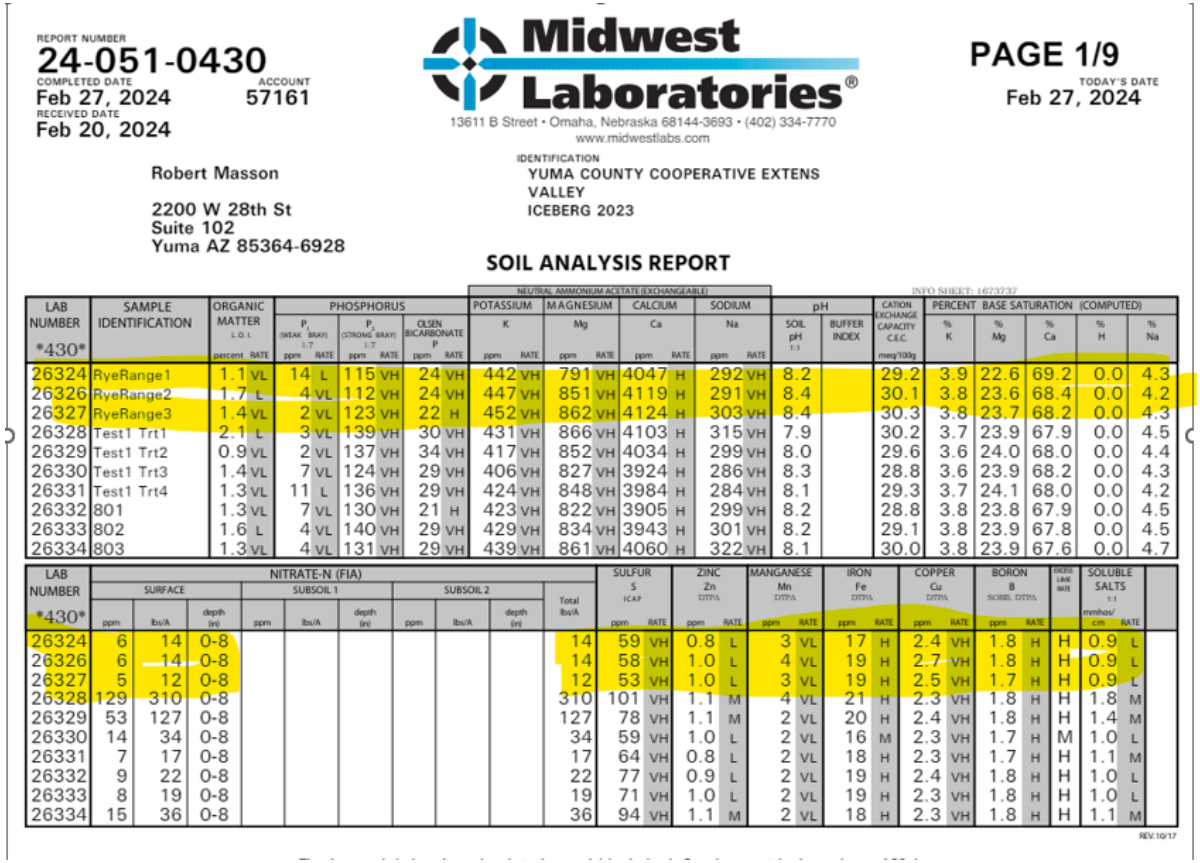
Two trials combined together Terra Ag Solutions and Kelpak. 100% nitrogen for all treatments. Terr
Trial ID: Cantaloupe Terra Kelpak Spring2024
Protocol ID: Location: Yuma Arizona Trial Year: 2024
Study Director: Robert Masson Sponsor Contact:
Investigator:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	UAN-32 (100%N) GSP 4.26 GAL/A;UAN-32 (100%N) GSP 9.9 GAL/A;UAN-32 (100%N) GSP 14
2		TerraAg Organic 2 10 GAL/A;UAN-32 (100%N) 4.26 GAL/A;TerraAg Organic 2 10 GAL/A;
3		UAN-32 (100%N) 4.26 GAL/A;UAN-32 (100%N) 9.9 GAL/A;Kelpak low rate (foliar) 2 PT
4		UAN-32 (100%N) 4.26 GAL/A;UAN-32 (100%N) 9.9 GAL/A;Kelpak low rate (foliar) 2 PT

Initial Soil Test

- Ryegrass transition
- Soil Nitrate 2-14 lb/a
- High phosphorous levels
- Naturally occurring high potassium and calcium levels



REPORT NUMBER
24-051-0430
COMPLETED DATE
Feb 27, 2024
ACCOUNT
57161
RECEIVED DATE
Feb 20, 2024

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www.midwestlabs.com

PAGE 1/9
TODAY'S DATE
Feb 27, 2024

Robert Masson

2200 W 28th St
Suite 102
Yuma AZ 85364-6928

IDENTIFICATION
YUMA COUNTY COOPERATIVE EXTENS
VALLEY
ICEBERG 2023

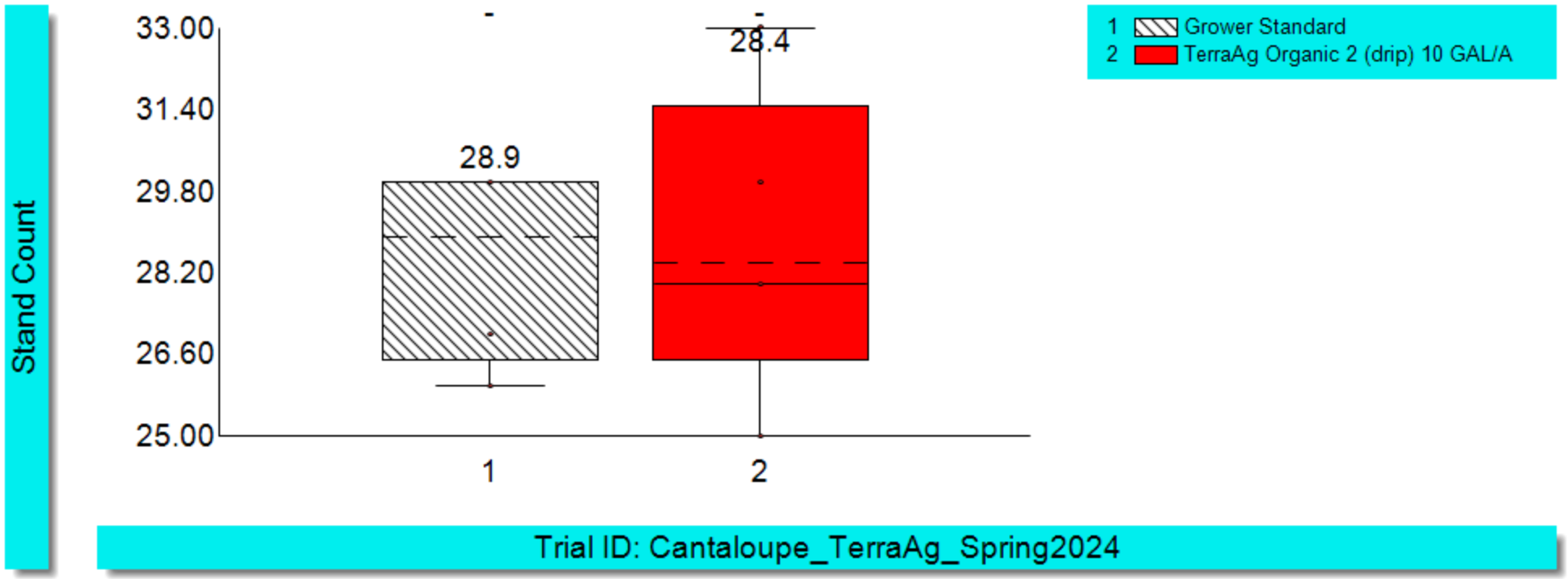
SOIL ANALYSIS REPORT

LAB NUMBER *430*	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I. percent	RATE	PHOSPHORUS P_1 (WEAK BRAY) 1:7 ppm	RATE	PHOSPHORUS P_2 (STRONG BRAY) 1:7 ppm	RATE	OLSEN BICARBONATE P ppm	RATE	POTASSIUM (NEUTRAL AMMONIUM ACETATE EXCHANGEABLE) K ppm	RATE	MAGNESIUM Mg ppm	RATE	CALCIUM Ca ppm	RATE	SODIUM Na ppm	RATE	pH SOIL pH 1:1	BUFFER INDEX	CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED) % K	% Mg	% Ca	% H	% Na
26324	RyeRange1	1.1	VL	14	L	115	VH	24	VH	442	VH	791	VH	4047	H	292	VH	8.2		29.2	3.9	22.6	69.2	0.0	4.3
26326	RyeRange2	1.7	L	4	VL	112	VH	24	VH	447	VH	851	VH	4119	H	291	VH	8.4		30.1	3.8	23.6	68.4	0.0	4.2
26327	RyeRange3	1.4	VL	2	VL	123	VH	22	H	452	VH	862	VH	4124	H	303	VH	8.4		30.3	3.8	23.7	68.2	0.0	4.3
26328	Test1 Trt1	2.1	L	3	VL	139	VH	30	VH	431	VH	866	VH	4103	H	315	VH	7.9		30.2	3.7	23.9	67.9	0.0	4.5
26329	Test1 Trt2	0.9	VL	2	VL	137	VH	34	VH	417	VH	852	VH	4034	H	299	VH	8.0		29.6	3.6	24.0	68.0	0.0	4.4
26330	Test1 Trt3	1.4	VL	7	VL	124	VH	29	VH	406	VH	827	VH	3924	H	286	VH	8.3		28.8	3.6	23.9	68.2	0.0	4.3
26331	Test1 Trt4	1.3	VL	11	L	136	VH	29	VH	424	VH	848	VH	3984	H	284	VH	8.1		29.3	3.7	24.1	68.0	0.0	4.2
26332	801	1.3	VL	7	VL	130	VH	21	H	423	VH	822	VH	3905	H	299	VH	8.2		28.8	3.8	23.8	67.9	0.0	4.5
26333	802	1.6	L	4	VL	140	VH	29	VH	429	VH	834	VH	3943	H	301	VH	8.2		29.1	3.8	23.9	67.8	0.0	4.5
26334	803	1.3	VL	4	VL	131	VH	29	VH	439	VH	861	VH	4060	H	322	VH	8.1		30.0	3.8	23.9	67.6	0.0	4.7

LAB NUMBER *430*	NITRATE-N (FIA) SURFACE ppm	SURFACE lbs/A	SURFACE depth (in)	SUBSOIL 1 ppm	SUBSOIL 1 lbs/A	SUBSOIL 1 depth (in)	SUBSOIL 2 ppm	SUBSOIL 2 lbs/A	SUBSOIL 2 depth (in)	Total lbs/A	SULFUR S ICAP ppm	RATE	ZINC Zn DTPA ppm	RATE	MANGANESE Mn DTPA ppm	RATE	IRON Fe DTPA ppm	RATE	COPPER Cu DTPA ppm	RATE	BORON B SORBS. DTPA ppm	RATE	SOLUBLE SALTS 1:1 mmhos/cm	RATE
26324	6	14	0-8							14	59	VH	0.8	L	3	VL	17	H	2.4	VH	1.8	H	0.9	L
26326	6	14	0-8							14	58	VH	1.0	L	4	VL	19	H	2.7	VH	1.8	H	0.9	L
26327	5	12	0-8							12	53	VH	1.0	L	3	VL	19	H	2.5	VH	1.7	H	0.9	L
26328	129	310	0-8							310	101	VH	1.1	M	4	VL	21	H	2.3	VH	1.8	H	1.8	M
26329	53	127	0-8							127	78	VH	1.1	M	2	VL	20	H	2.4	VH	1.8	H	1.4	M
26330	14	34	0-8							34	59	VH	1.0	L	2	VL	16	M	2.3	VH	1.7	H	1.0	L
26331	7	17	0-8							17	64	VH	0.8	L	2	VL	18	H	2.3	VH	1.7	H	1.1	M
26332	9	22	0-8							22	77	VH	0.9	L	2	VL	19	H	2.4	VH	1.8	H	1.0	L
26333	8	19	0-8							19	71	VH	1.0	L	2	VL	19	H	2.3	VH	1.8	H	1.0	L
26334	15	36	0-8							36	94	VH	1.1	M	2	VL	18	H	2.3	VH	1.8	H	1.1	M

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.

Two trials combined together Terra Ag Solutions and Kelpak. 100% nitrogen for all treatments. Terra Ag inject. Kelpak foliar



Trial ID: Cantaloupe_TerraAg_Spring2024

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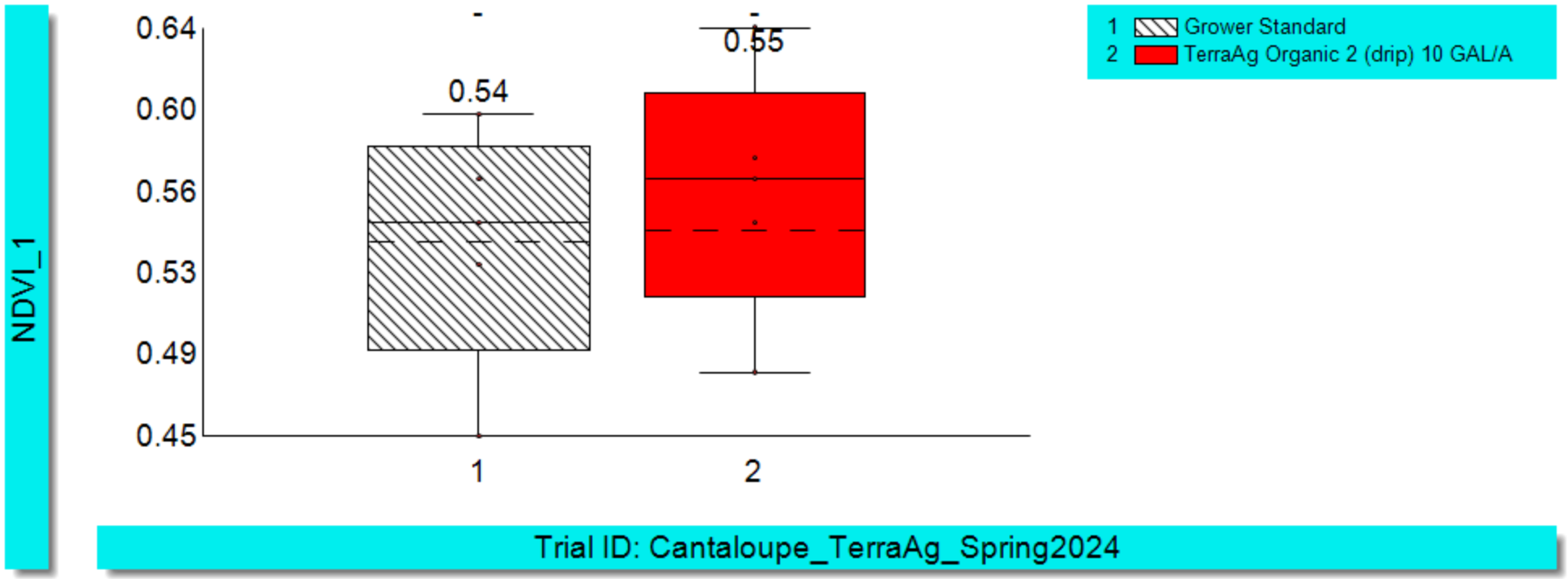

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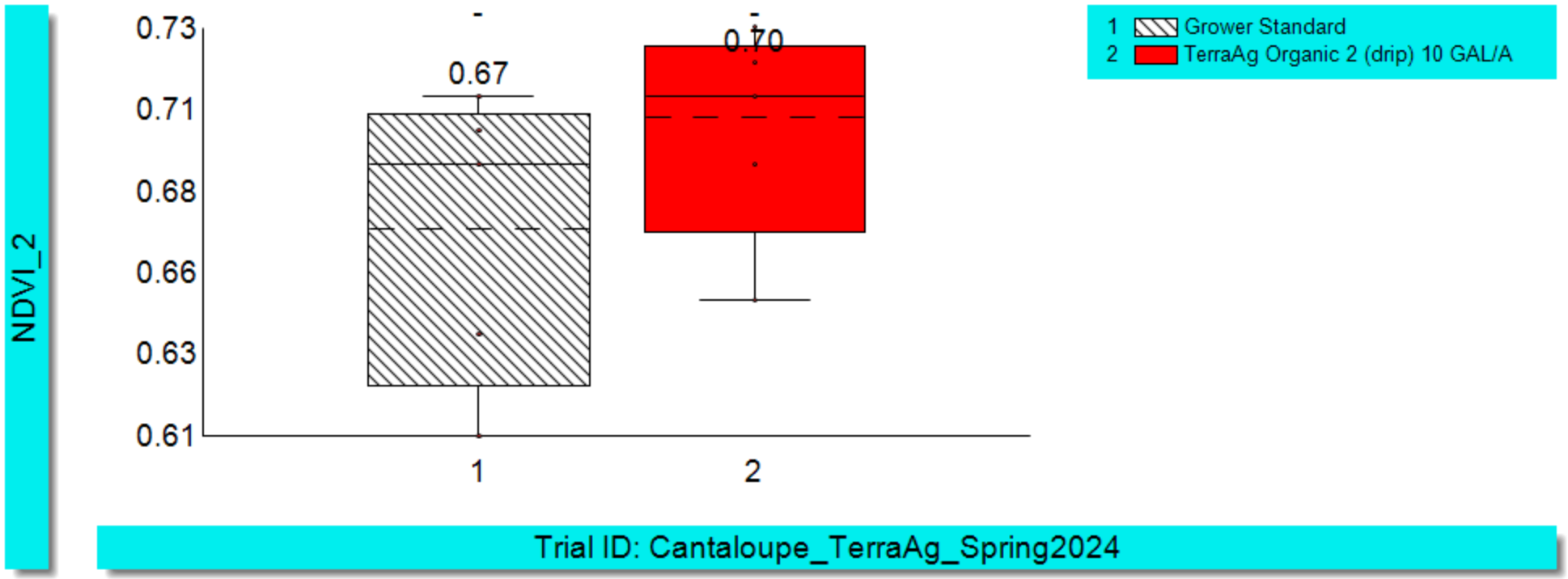

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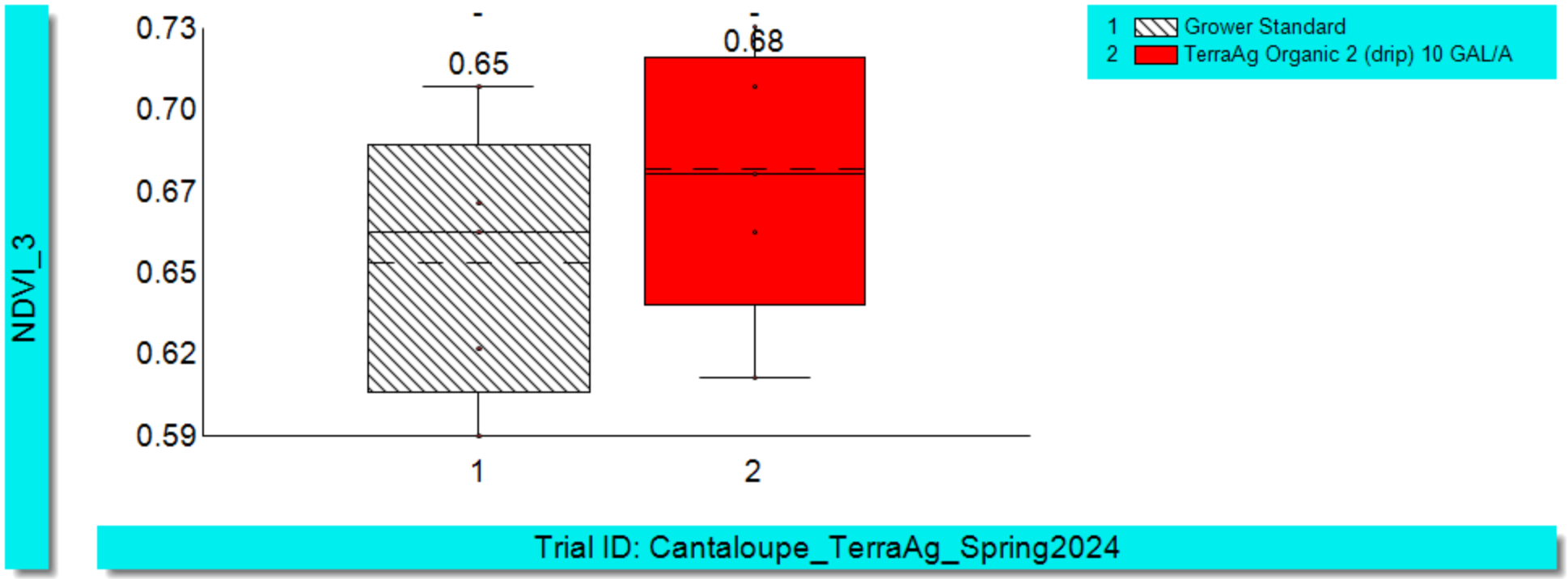

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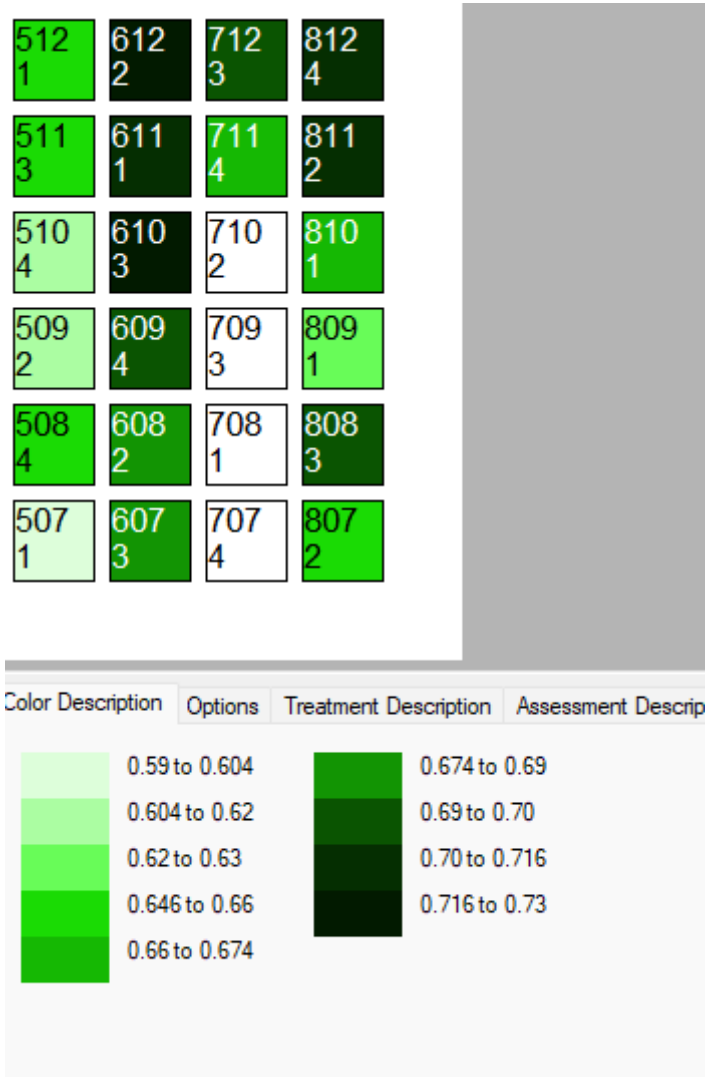


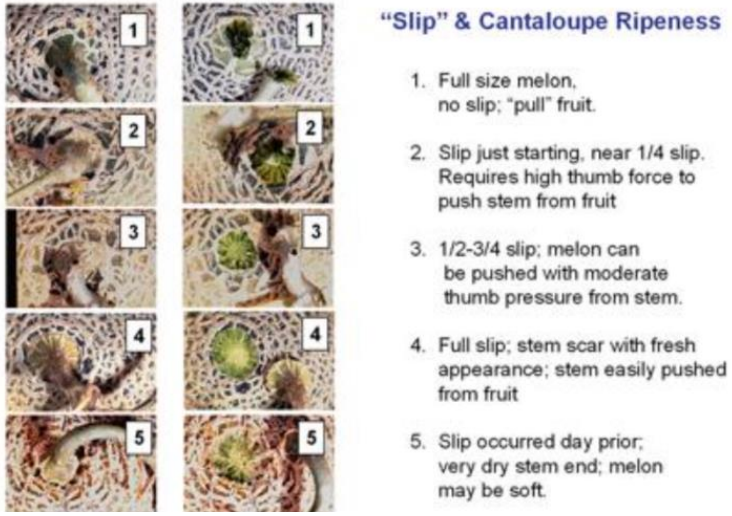
Assessment distribution map NDVI_3

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.)

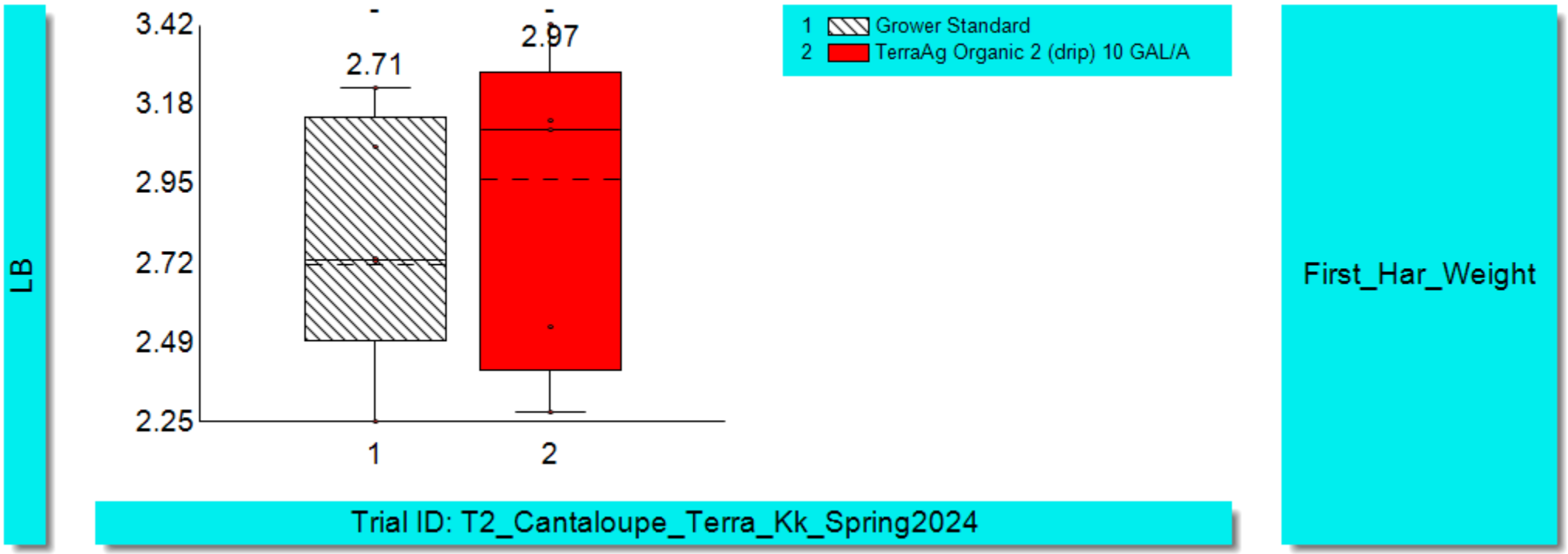
- Slip measures ripeness:
  - 0 = No slip (not ripe)
  - 1 = ¼ slip
  - 2 = ½ slip
  - 3 = ¾ slip
  - 4 = full slip (very ripe)



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.

TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Weight



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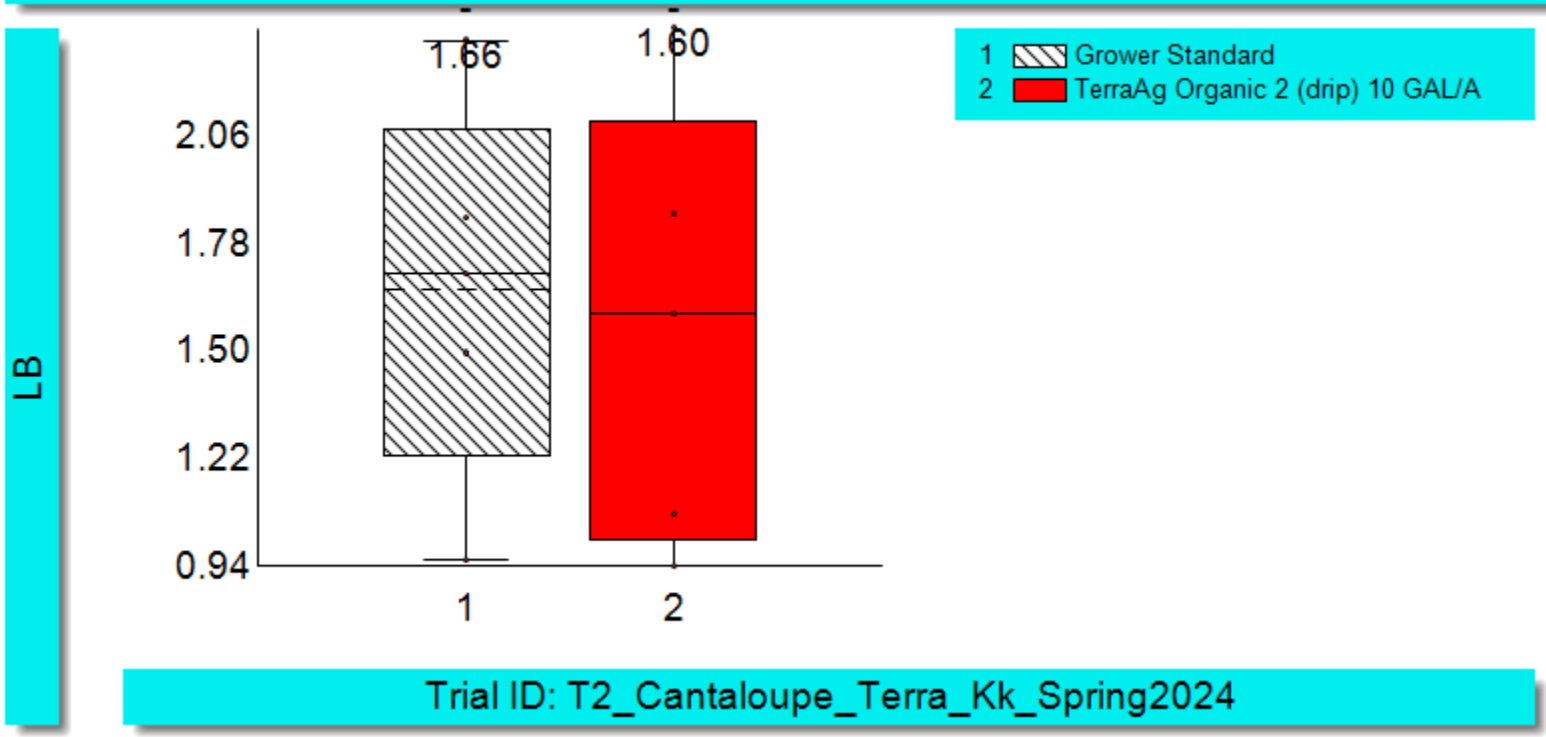
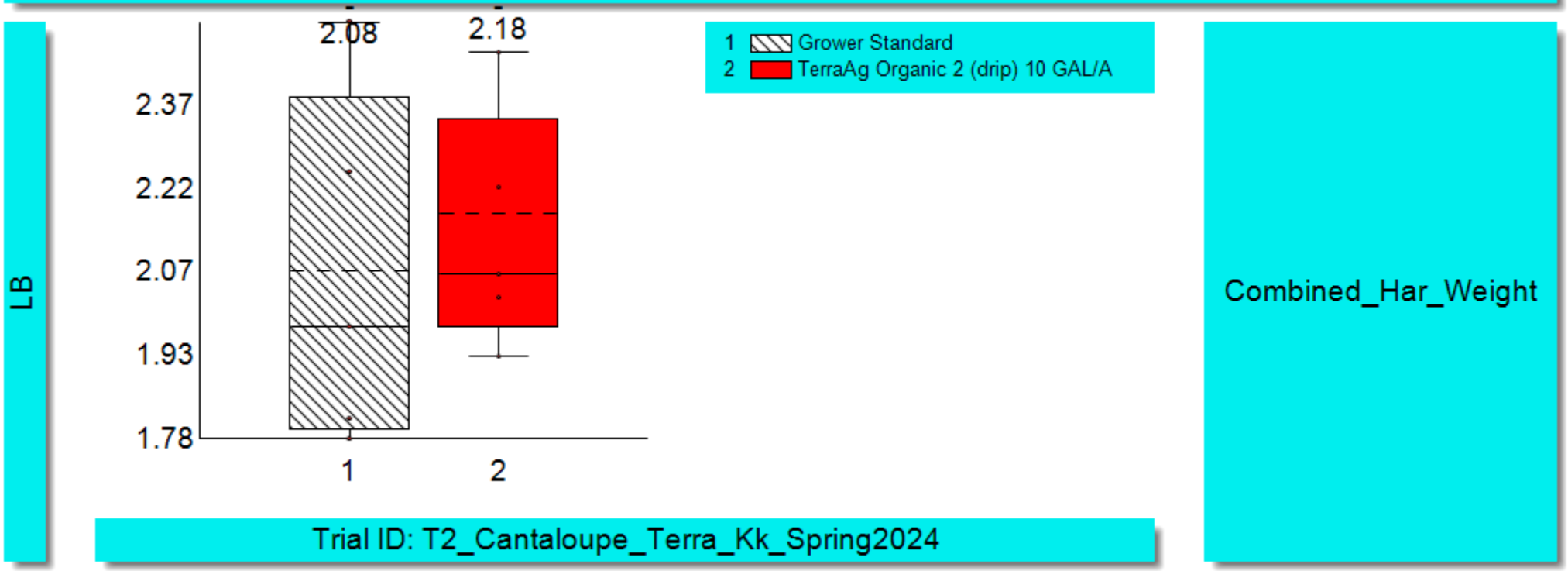


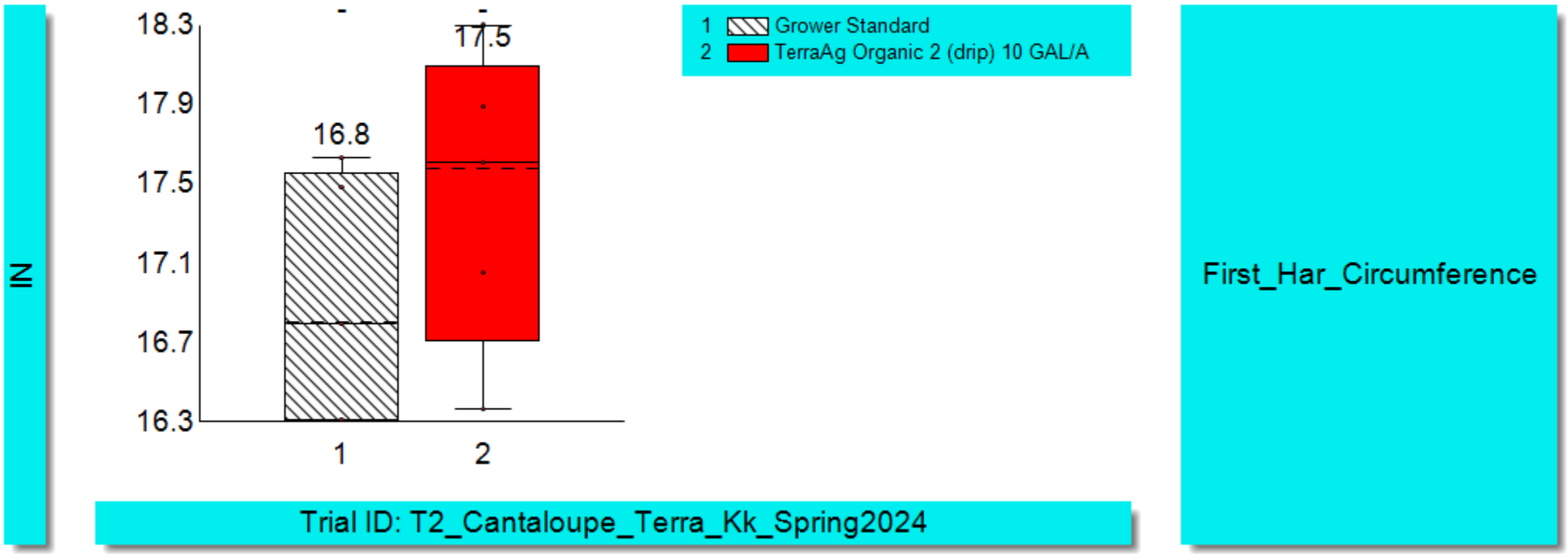
Second_Har_Weight

Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

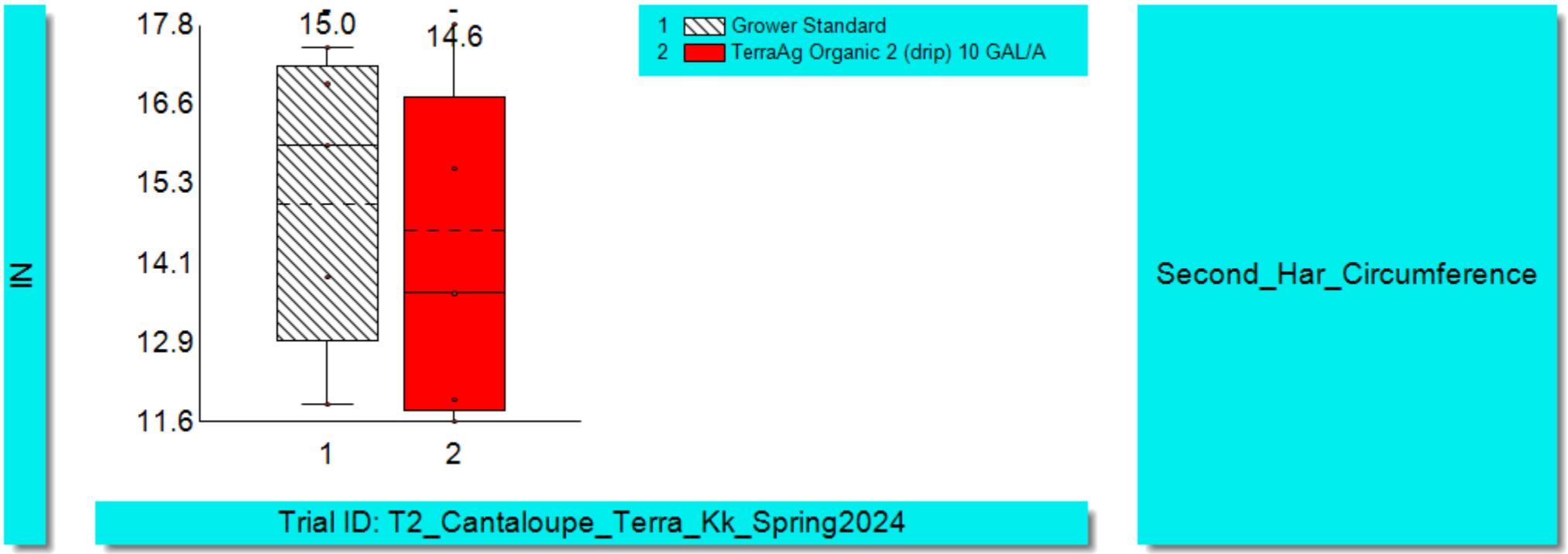
TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Weight



TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Size



TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Size



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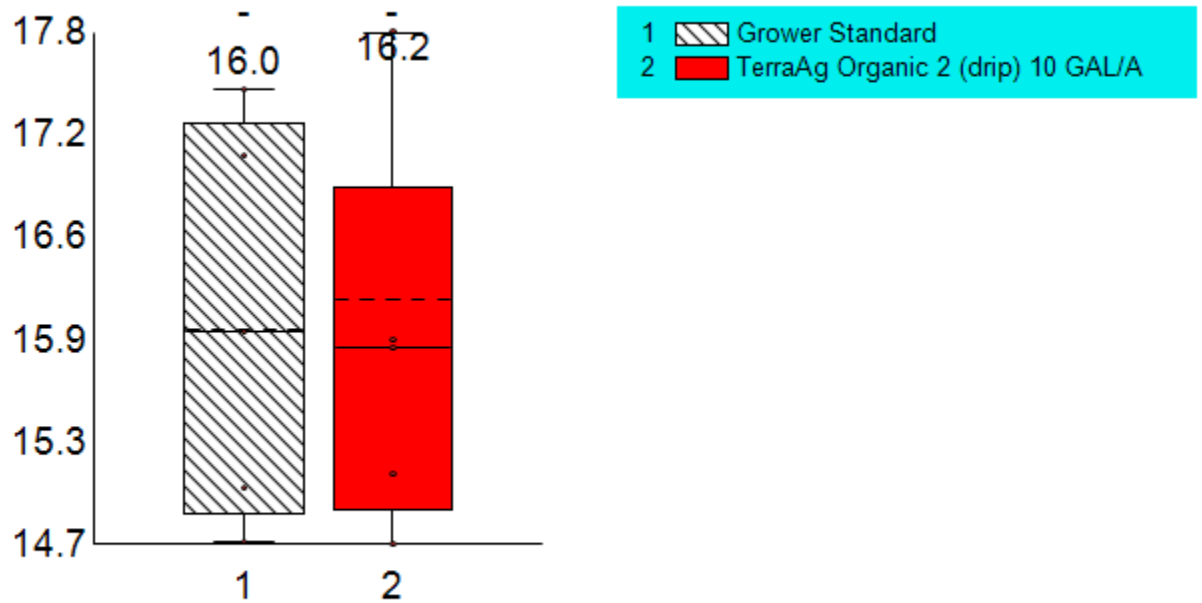
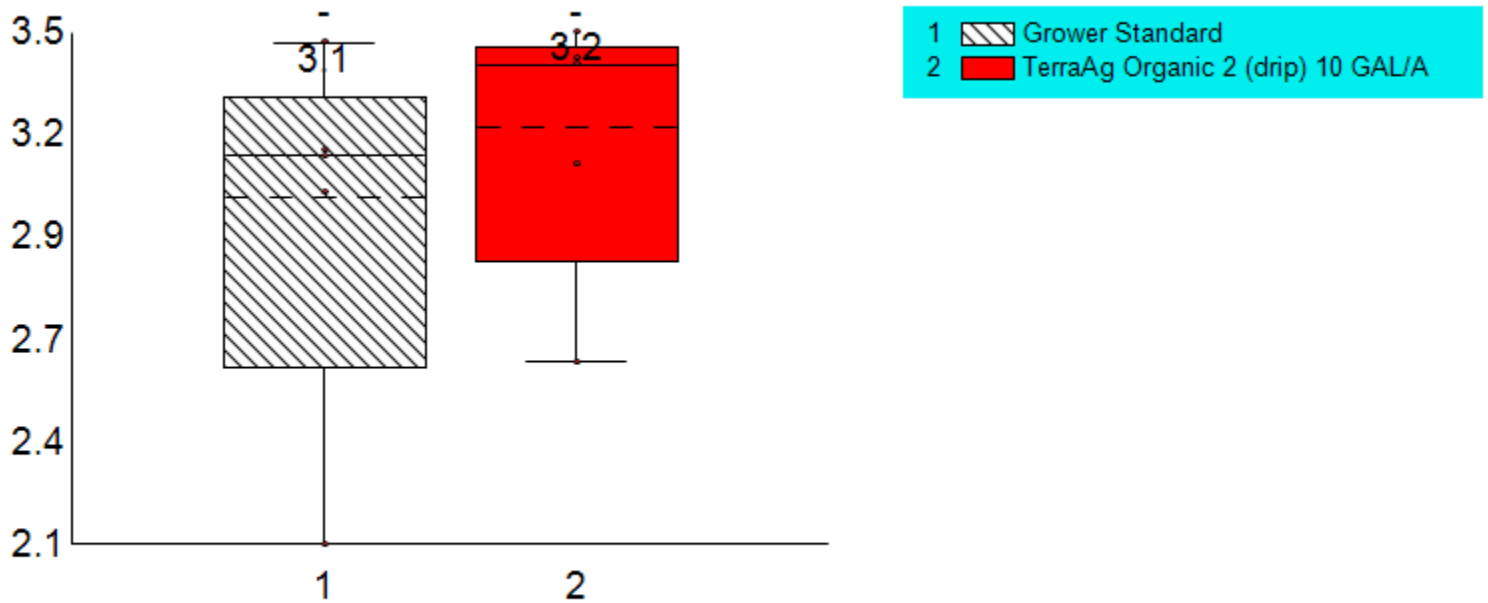


Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

Combined_Har_Circumference

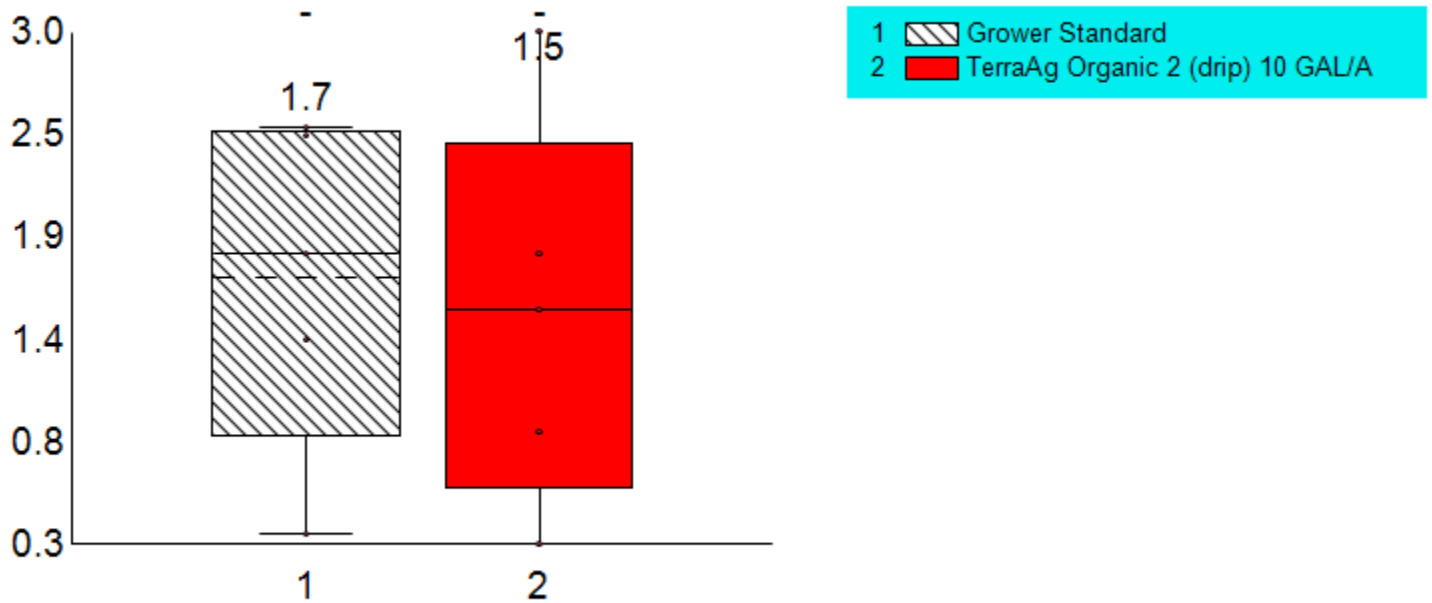
TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Maturity



First_Har_Slip

Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

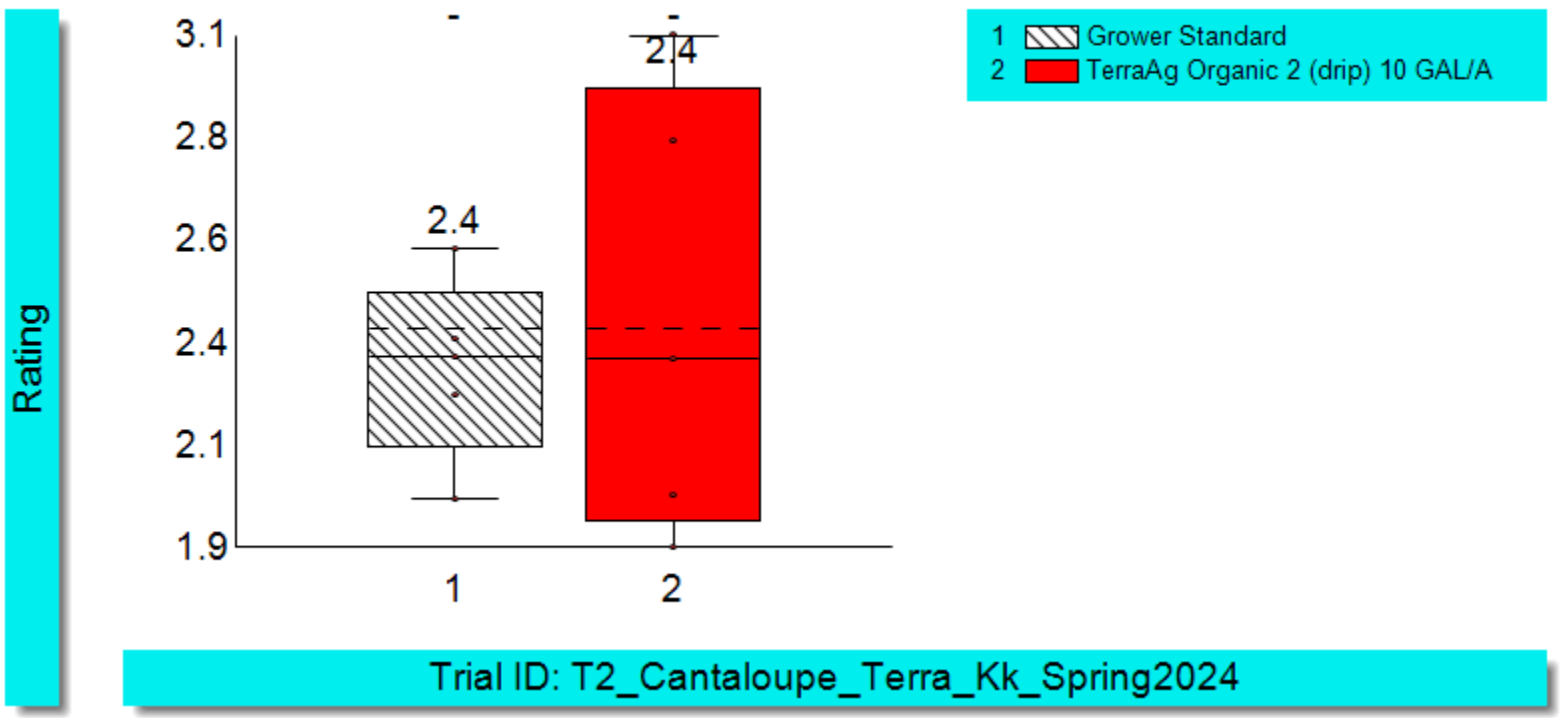
TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Maturity



Second_Har_Slip

Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

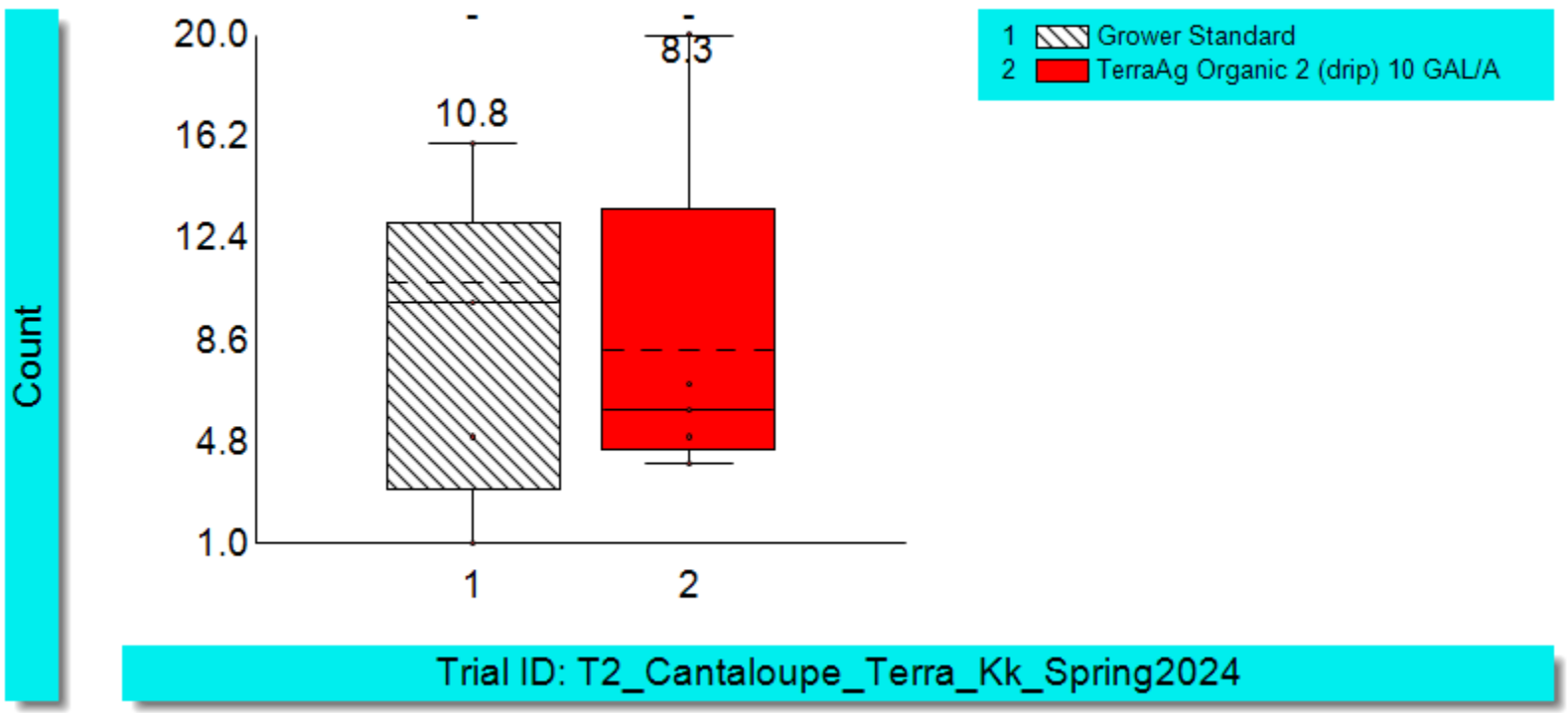
TerraAg Tech, Organic Plant and Soil Pro. Individual Melon Maturity



Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

Combined_Har_Slip

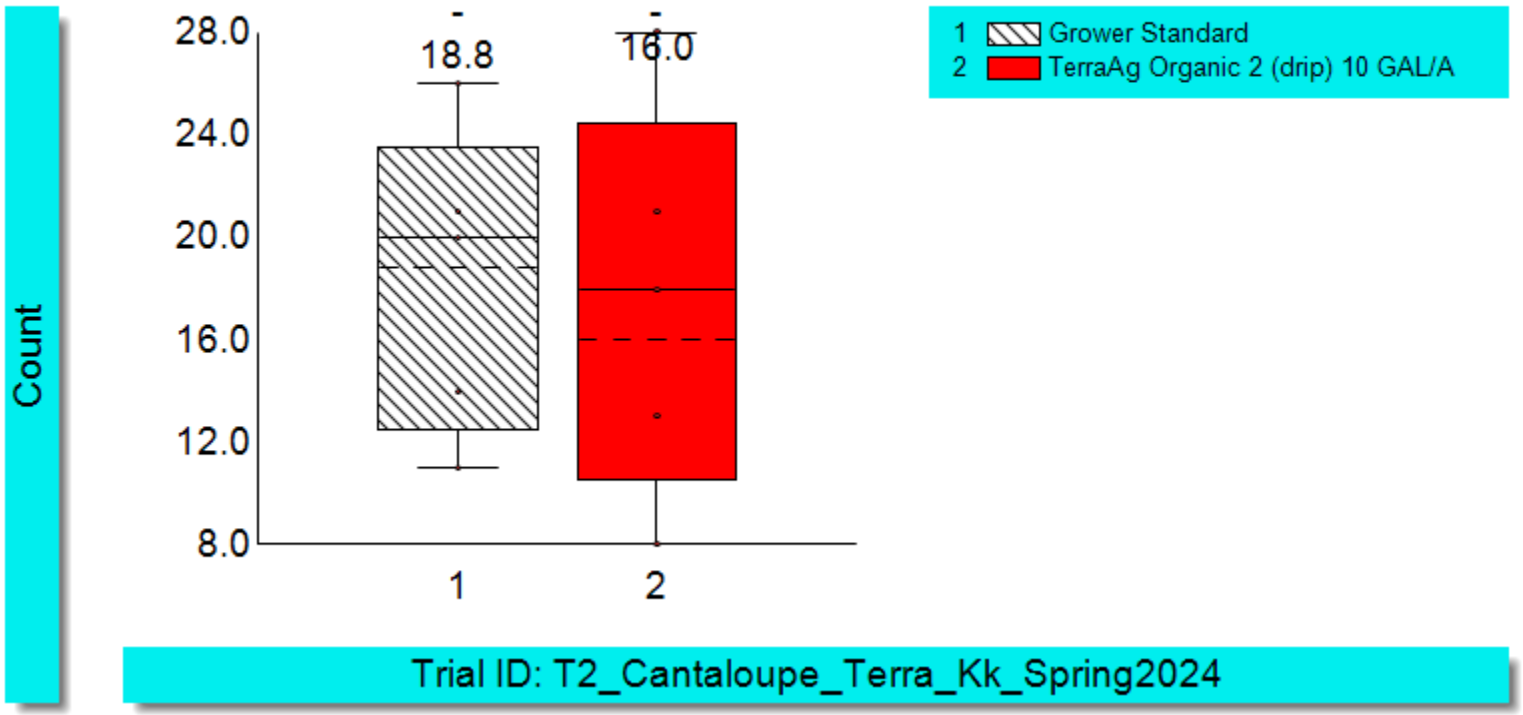
TerraAg Tech, Organic Plant and Soil Pro. Number of Sunburned in Plot



First_Har_Sunburn

Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

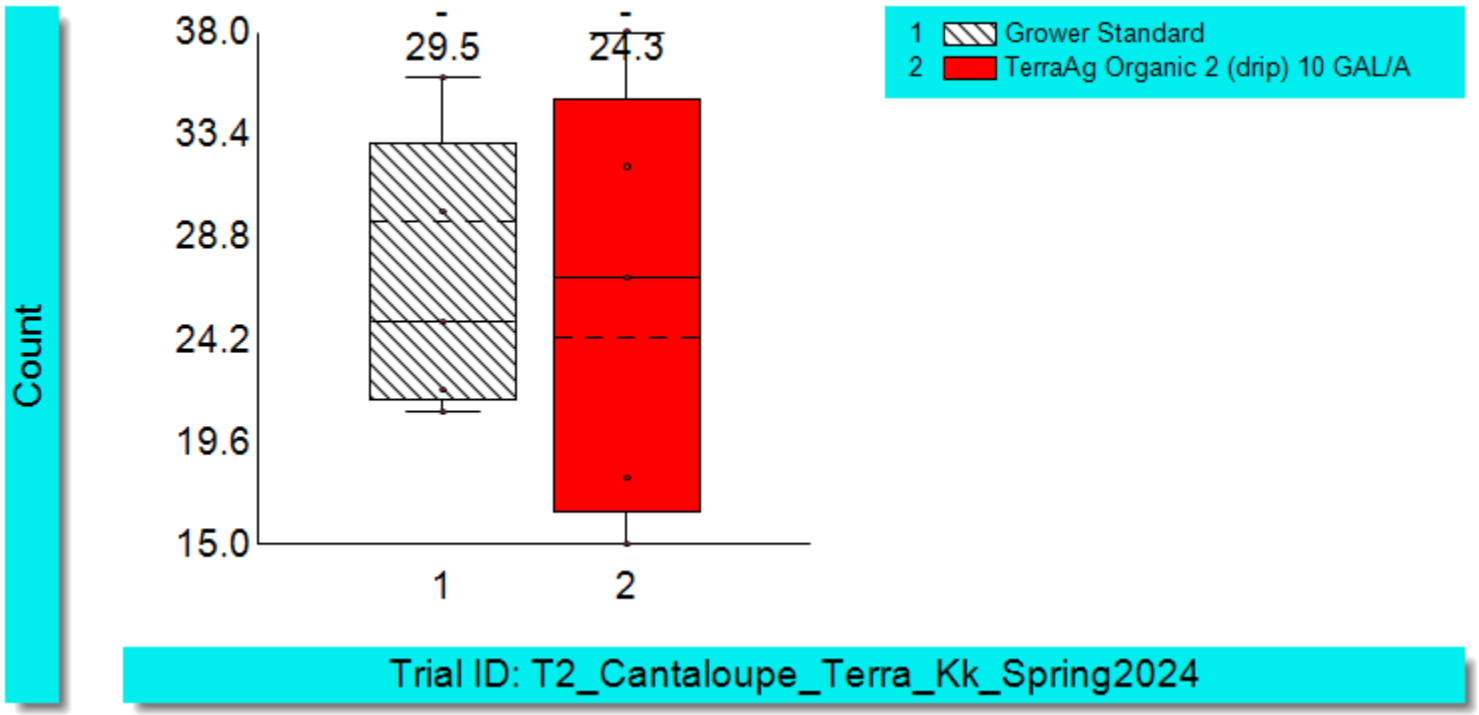
TerraAg Tech, Organic Plant and Soil Pro. Number of Sunburned in Plot



Second_Har_Sunburn

Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

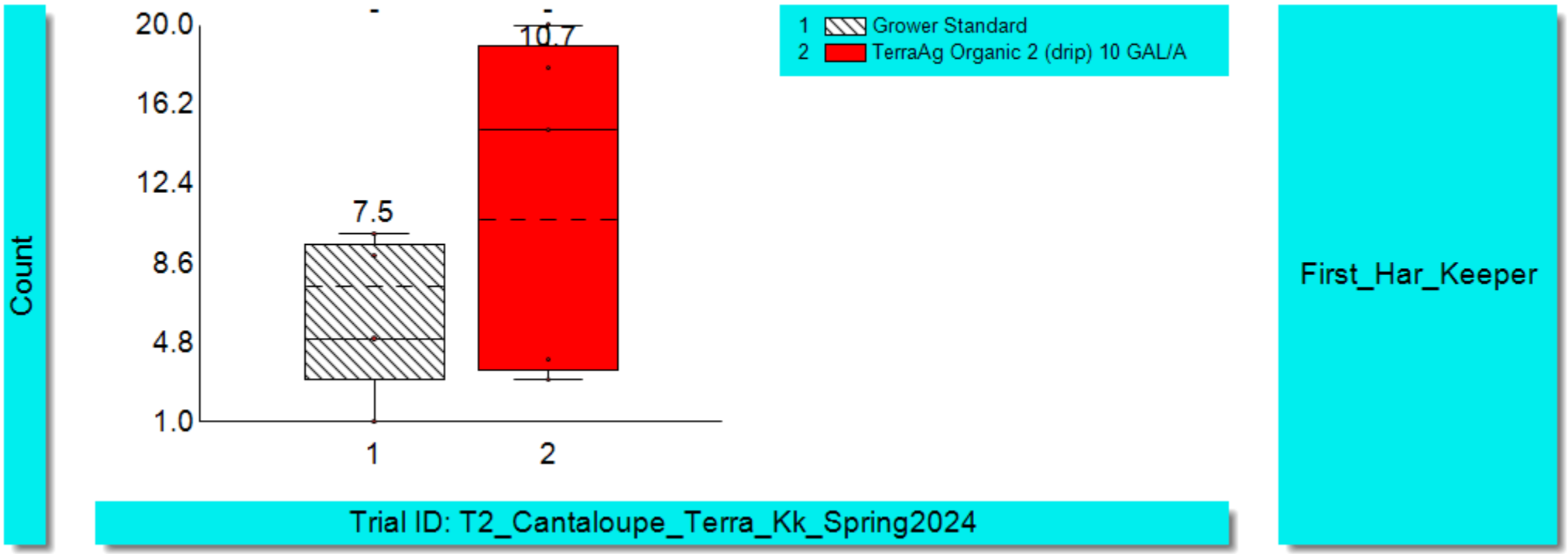
TerraAg Tech, Organic Plant and Soil Pro. Number of Sunburned in Plot



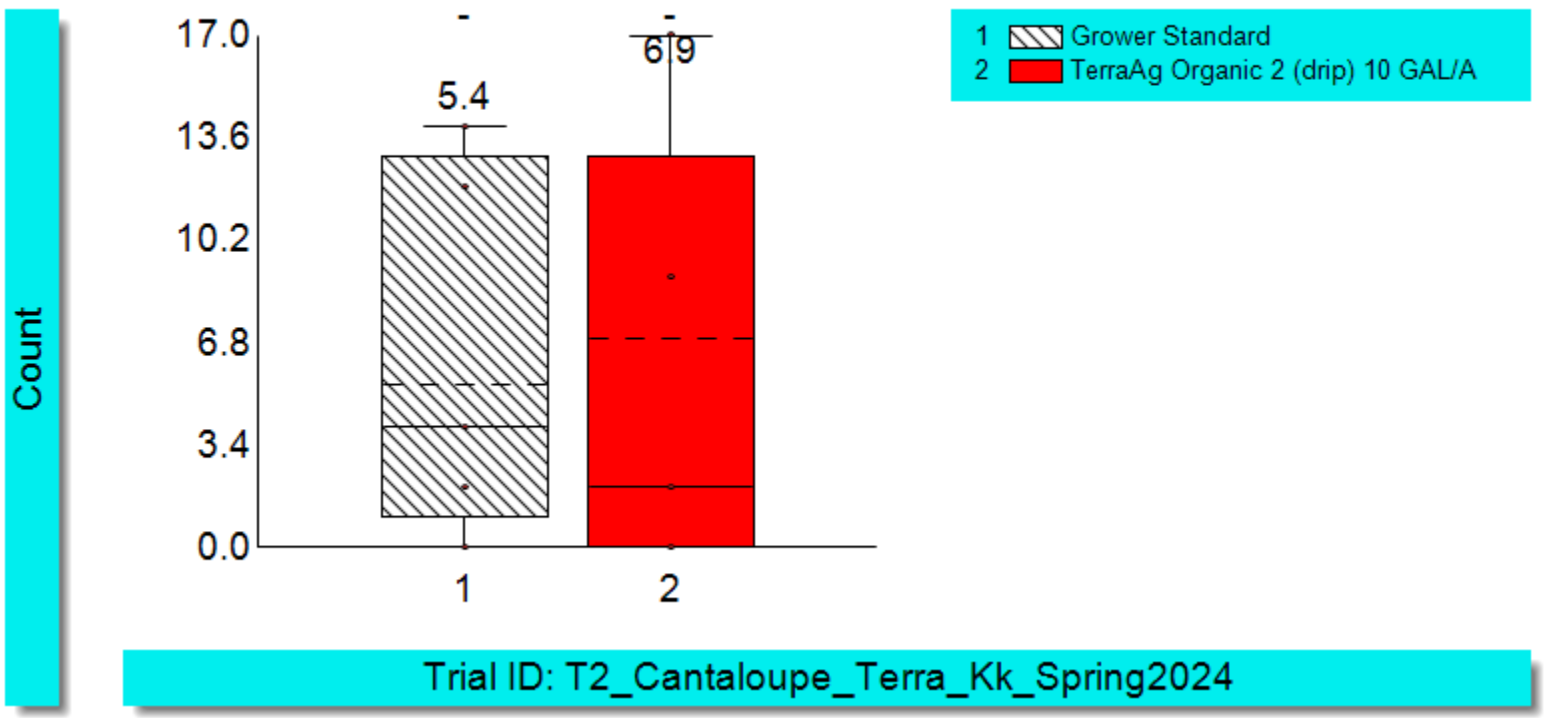
Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

Combined_Har_Sunburn

TerraAg Tech, Organic Plant and Soil Pro. Number of 'Keepers' in Plot



TerraAg Tech, Organic Plant and Soil Pro. Number of 'Keepers' in Plot



Second_Har_Keeper

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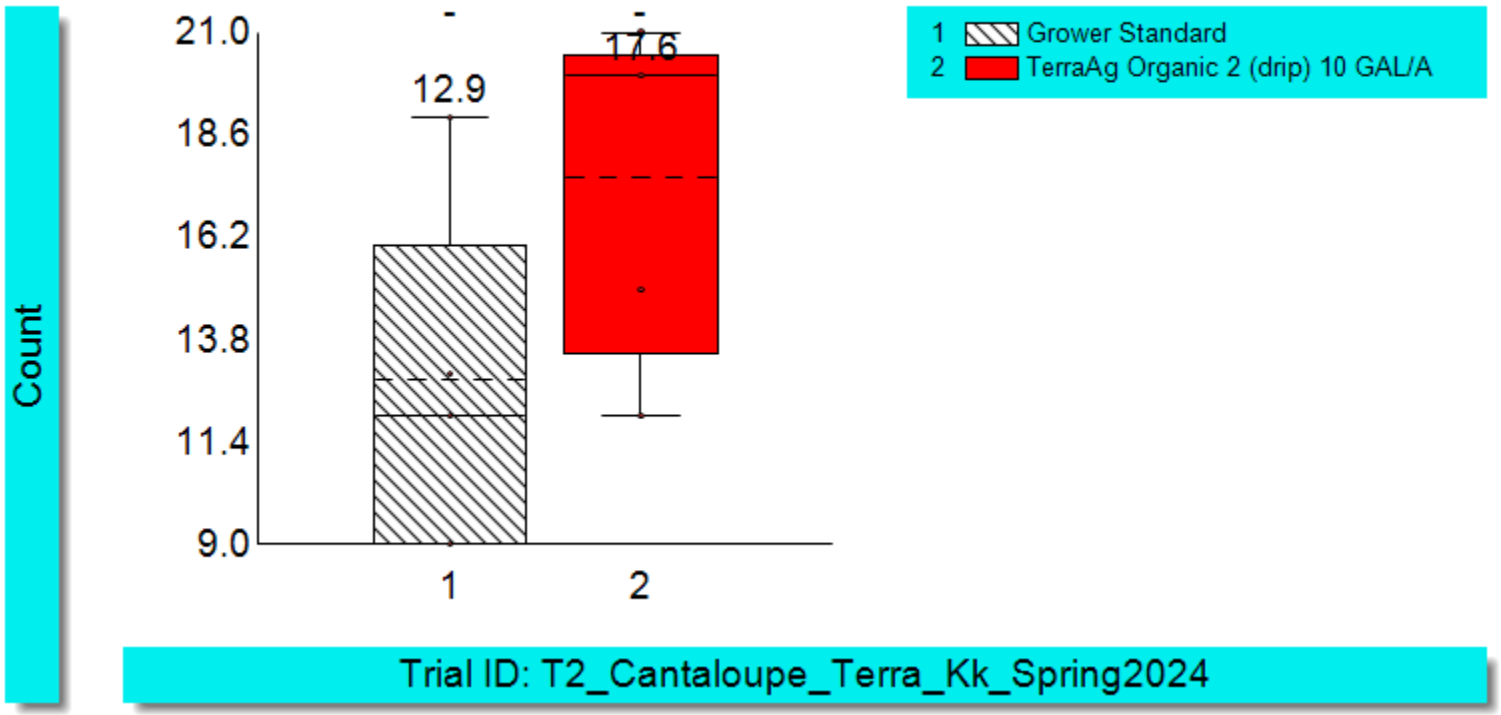
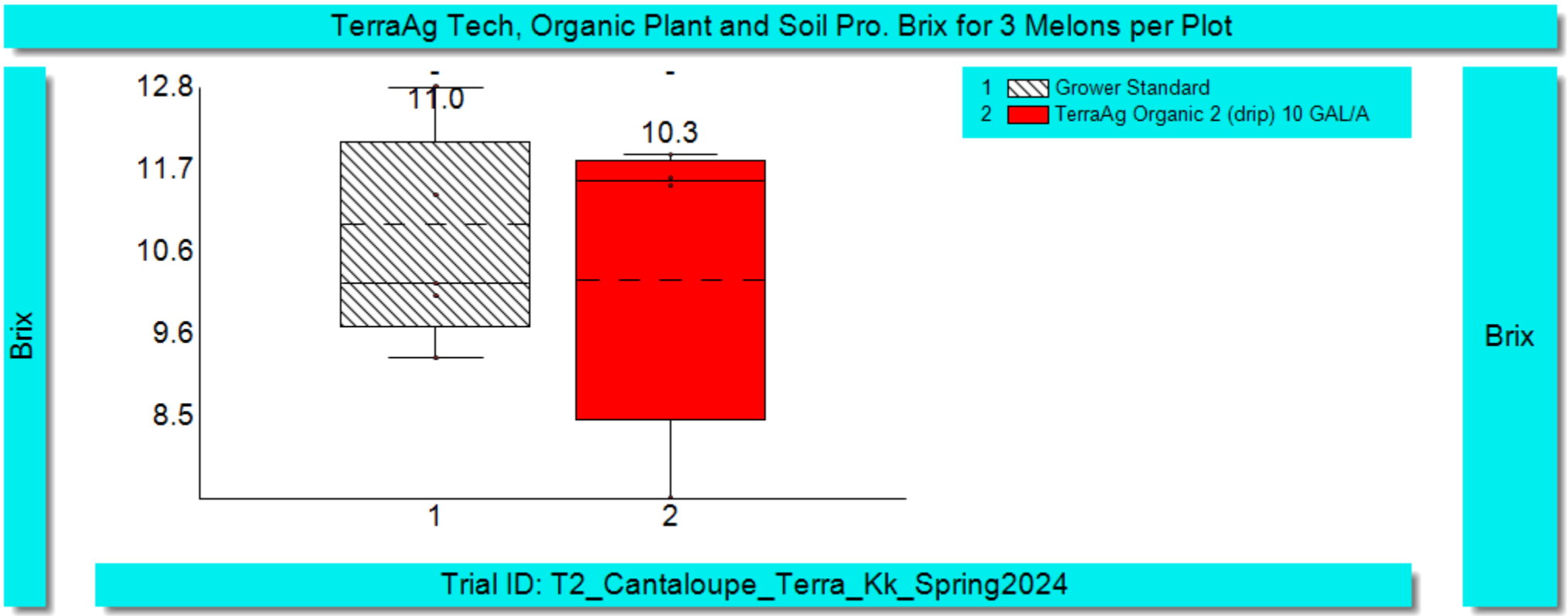
TerraAg Tech, Organic Plant and Soil Pro. Number of 'Keepers' in Plot



Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

Combined_Har_Keeper


TerraAg Tech, Organic Plant and Soil Pro. Brix for 3 Melons per Plot
Brix
12.8
11.7
10.6
9.6
8.5
11.0
10.3
1
2
1 Grower Standard
2 TerraAg Organic 2 (drip) 10 GAL/A
Brix
Trial ID: T2_Cantaloupe_Terra_Kk_Spring2024

Carton Grade Yield

Trt 1: UTC	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	0	1	7	30	82	35	23	10	79	267	Total number per trt
Cartons per Trt	NA	0.2	1.2	3.3	6.8	2.3	1.3	0.5	NA	15.6	Marketable Cartons per trt
Cartons per AC	NA	7	40	115	236	81	44	16	NA	**539**	**T1: Marketable Cartons per ac**
Trt 2: TerraAg	**abv_std**	**5**	**6**	**9**	**12**	**15**	**18**	**22**	**under_std**	0.028926	Acres per trt
Number per Trt	0	0	17	57	65	53	32	13	111	348	Total number per trt
Cartons per Trt	NA	0.0	2.8	6.3	5.4	3.5	1.8	0.6	NA	20.5	Marketable Cartons per trt
Cartons per AC	NA	0	98	219	187	122	61	20	NA	**708**	**T2: Marketable Cartons per ac**

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

Plot photos


Plot 507
Trt 1


Plot 607
Trt 3


Plot 707
Trt 4


Plot 807
Trt 2


Plot 803
Trt 3


Plot 708
Trt 1


Plot 608
Trt 2


Plot 508
Trt 4


Plot 509
Trt 2


Plot 709
Trt 3.


Plot 609
Trt 9.


Plot 809
Trt 2


Plots 8 10
Trt 2


Plot 710
Trt 2


Plot 610
Trt 3


Plot 510
Trt 4


Plot 511
Trt 3


Plot 611
Trt 2


Plot 711
Trt 4


Plot 811
Trt 2


Plot 812
Trt 4


Plot 712
Trt 3


Plot 612
Trt 2


Plot 512
Trt 1