

Yuma Cantaloupe Trial Spring 2024

REDOX

RDX-N



THE UNIVERSITY OF ARIZONA

Cooperative Extension

Yuma County



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Cooperative Extension

Yuma County

Planted: 3/15/24

Harvest 1: 6/13/24

Harvest 2: 6/18/24

Phos acid 13.3 GAL/AC added at seeding

UAN 32 Fert Applications

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 3/18 and manifolds installed.

Trial Details

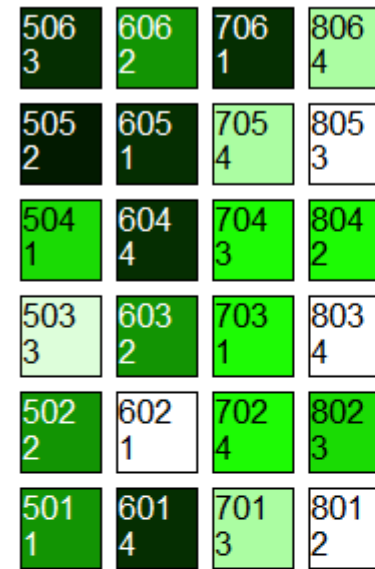
Cantaloupe Variety: Harris Moran Delux F1

Four Treatments (full N / half N):

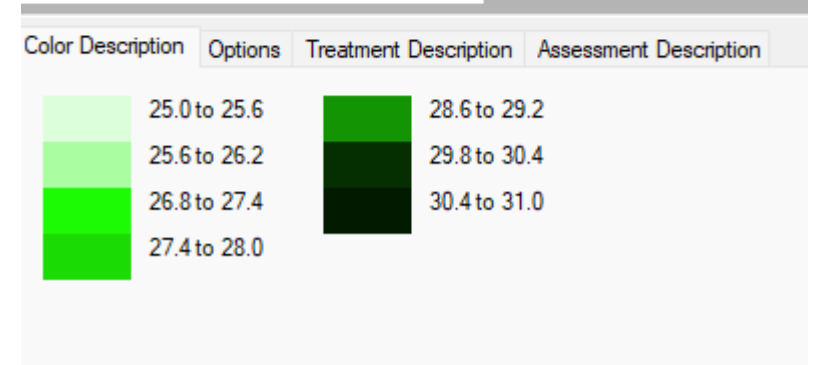
1. Full Fert UTC
2. Full Fert with RDX-N
3. Half fert UTC
4. Half fert with RDX-N

Plot size: 7.0' wide by 30' long

Replications: 6



Stand Count



Dropped due to low stand count: 602, 801, 803, 805

Trial Summary

- Differences observed between high and low fertility plots
- Melon sizes were similar in full fertility plots, but in reduced fertility area a yield increase was observed in experimental product treatment
- Marketable Carton Yield:
 - Trt 1: Full fertility UTC = 550 cartons per ac
 - Trt 2: Full fertility + product = 558 cartons per ac
 - Trt 3: Half fertility UTC = 439 cartons per ac
 - Trt 4: Half fertility + product = 655 cartons per ac

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.



Irrigation

Soil moisture monitored
with tensiometers.
Irrigation triggered when
dry.

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	

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		ACCOUNT 57161		Midwest Laboratories®		PAGE 1/9													
COMPLETED DATE Feb 27, 2024		RECEIVED DATE Feb 20, 2024		13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 www.midwestlabs.com		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	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I. percent RATE	PHOSPHORUS			NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)				pH		CATION EXCHANGE CAPACITY		PERCENT BASE SATURATION (COMPUTED)					
			P (WEAK BRAY) ppm RATE	P (STRONG BRAY) ppm RATE	OLSEN BICARBONATE P ppm RATE	POTASSIUM K ppm RATE	MAGNESIUM Mg ppm RATE	CALCIUM Ca ppm RATE	SODIUM Na ppm RATE	SOIL pH 1-1	BUFFER INDEX	meq/100g	% K	% Mg	% Ca	% H	% Na		
430																			
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	NITRATE-N (FIA)												SULFUR S ICAP	ZINC Zn DTPA	MANGANESE Mn DTPA	IRON Fe DTPA	COPPER Cu DTPA	BORON B NOBEL DTPA	SOLUBLE SALTS L1
	SURFACE		SUBSOIL 1			SUBSOIL 2			Total lb/A	ppm RATE	ppm RATE	ppm RATE							
430																			
26324	6	14	0-8						14	59 VH	0.8 L	3 VL	17 H	2.4 VH	1.8 H	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	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	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	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	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	M	1.0 L		
26331	7	17	0-8						17	64 VH	0.8 L	2 VL	18 H	2.3 VH	1.7 H	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	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	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	H	1.1 M		

University of Arizona

RDX-N Trial on cantaloupe, Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.

Trial ID: T1 Yuma Cantaloupe RDX-N Spring2024
 Protocol ID: T1 Yuma Cantaloupe RDX-N Spring2024 Location: Yuma Arizona Trial Year: 2024
 Project ID: Yuma Cantaloupe RDX-N Spring2024
 Study Director: Robert Masson Sponsor Contact:
 Investigator:

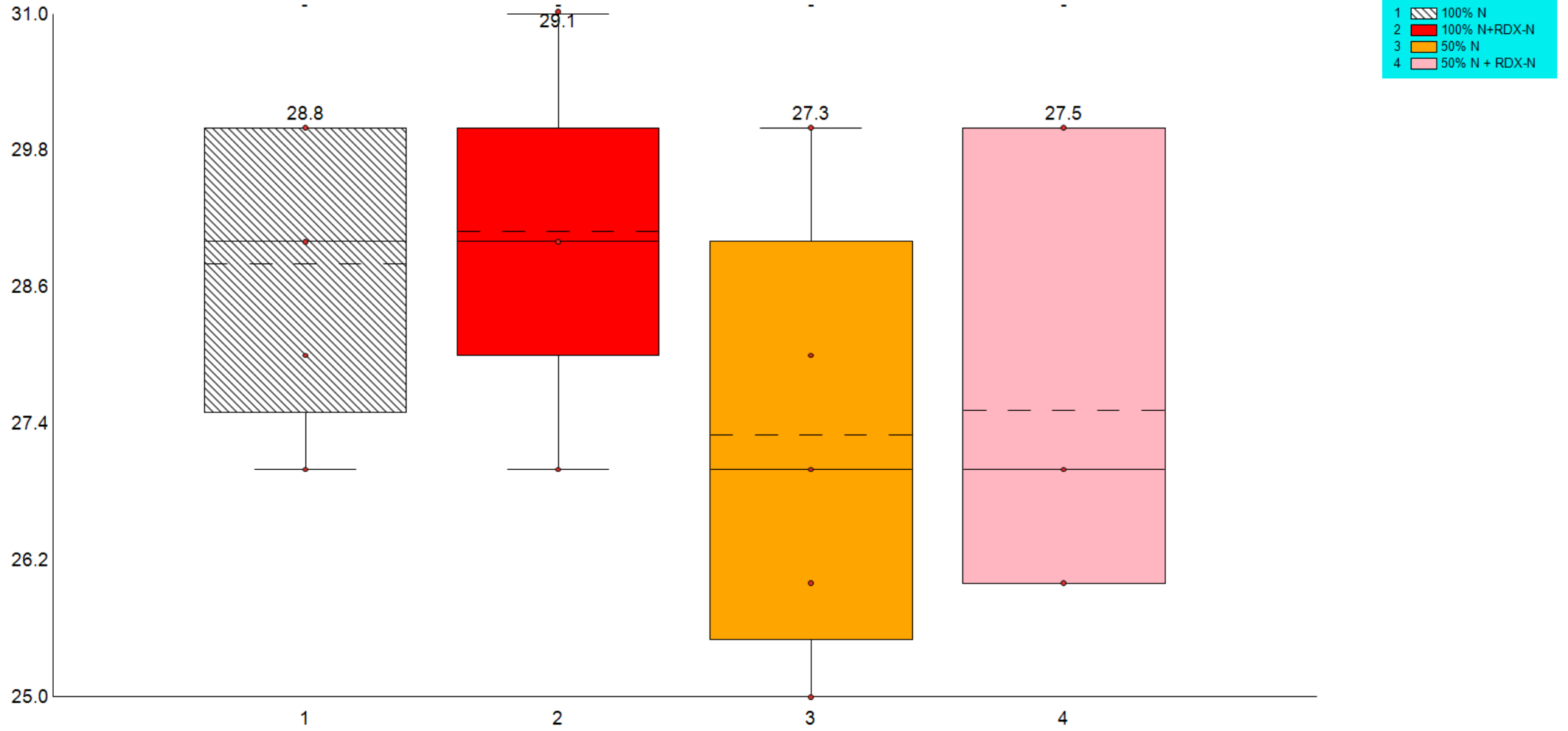
Trial Map Treatment Description

Trt	Code	Description
1	CHK	100% N
2		100% N+RDX-N
3		50% N
4		50% N + RDX-N

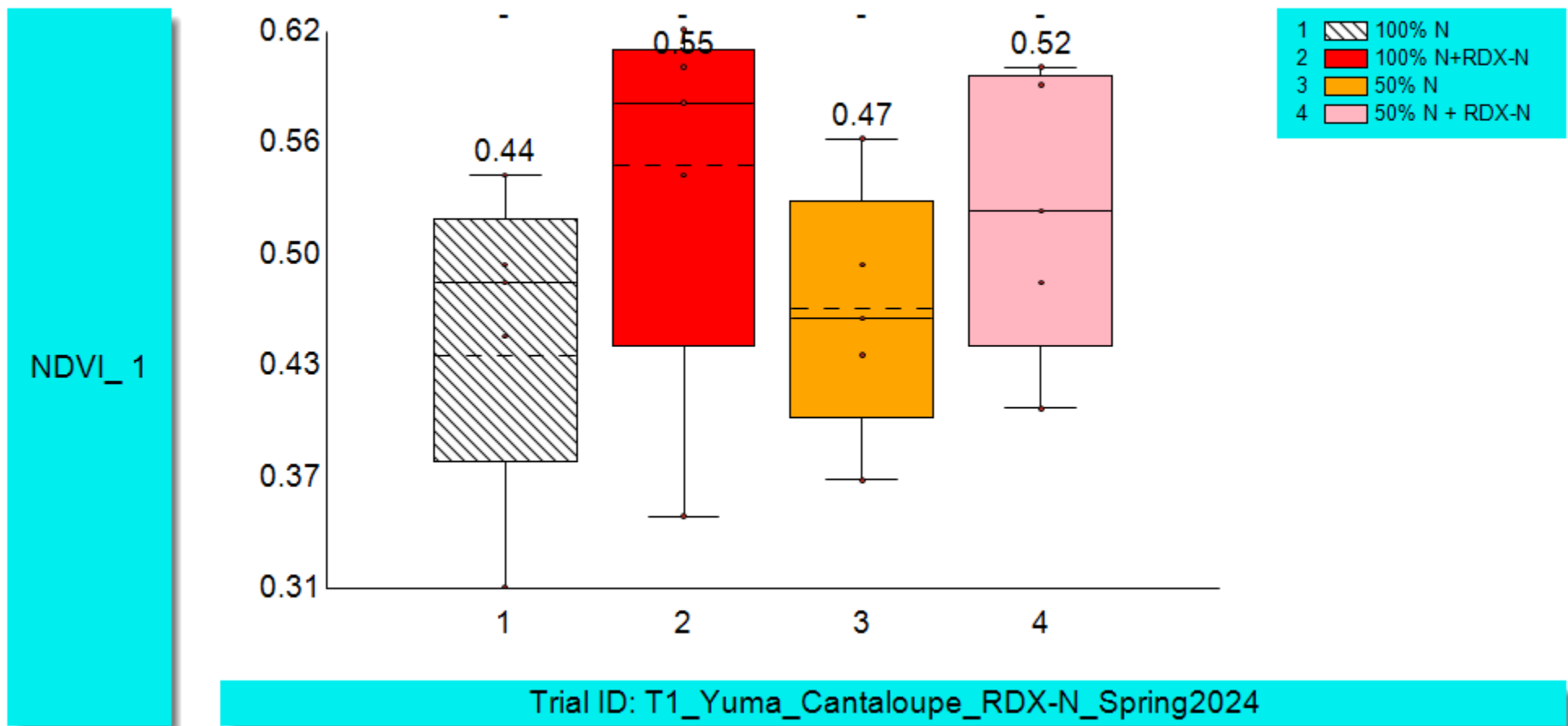


RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.

Stand Count

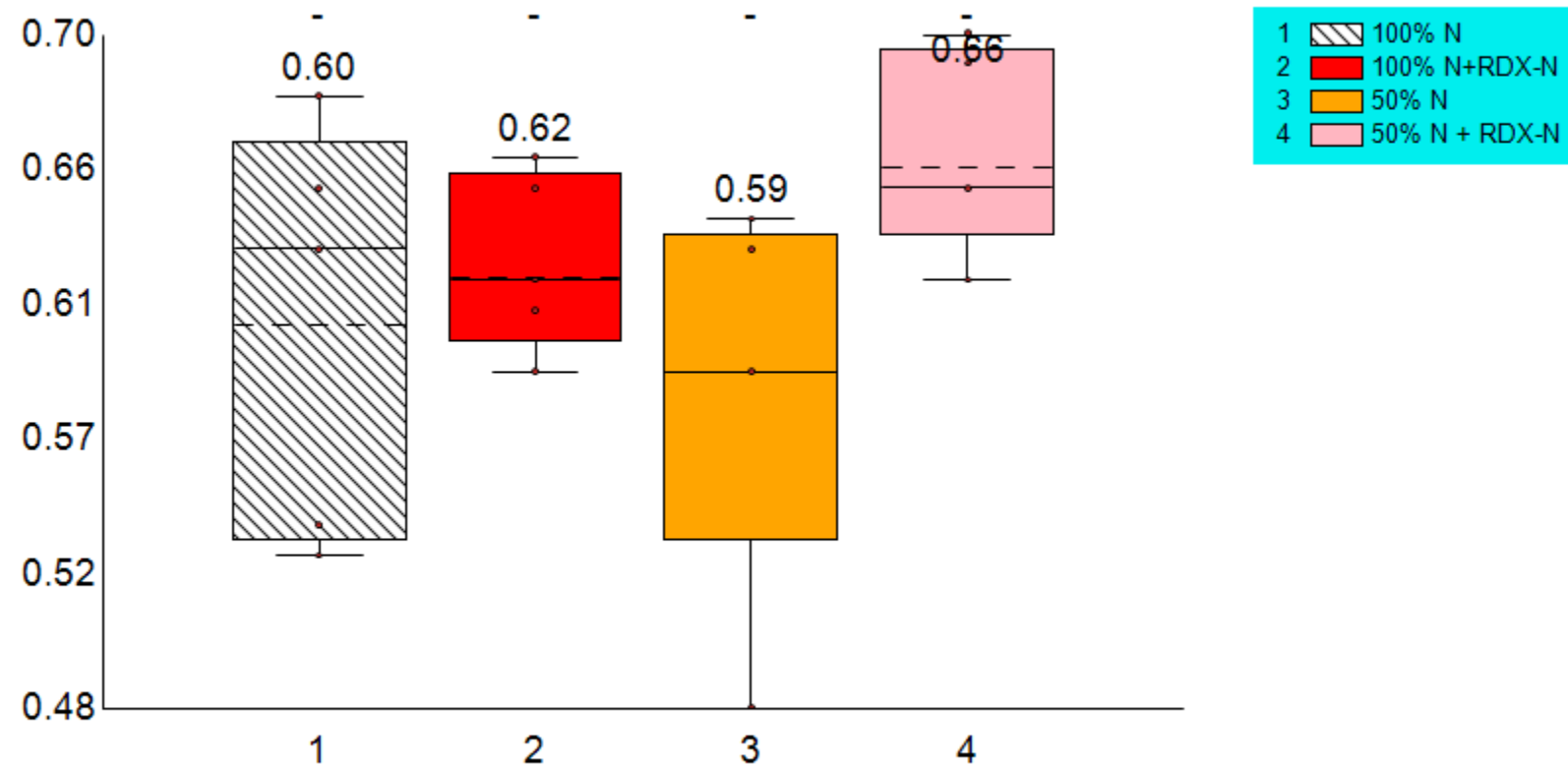


RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.

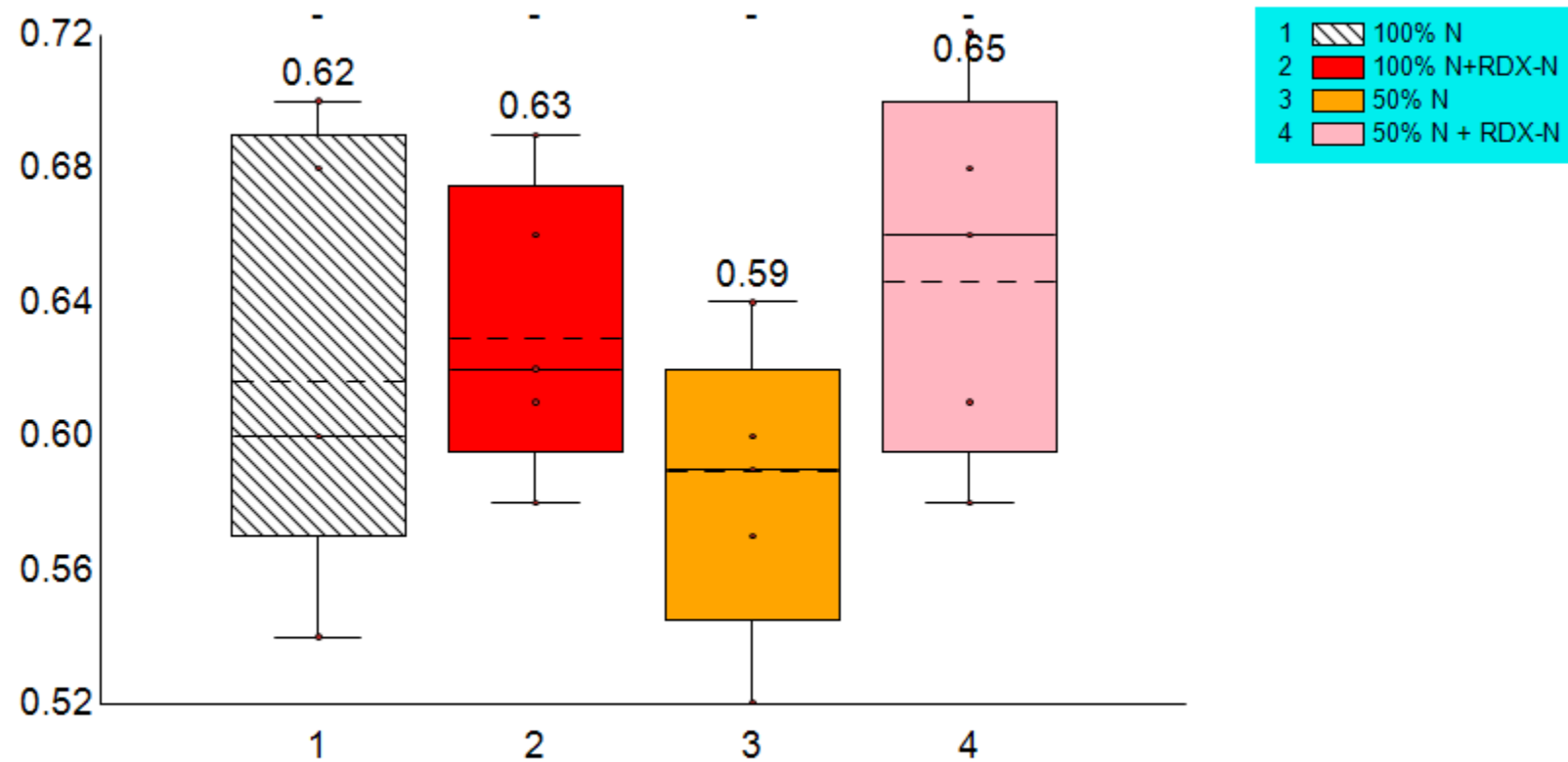
NDVI_2



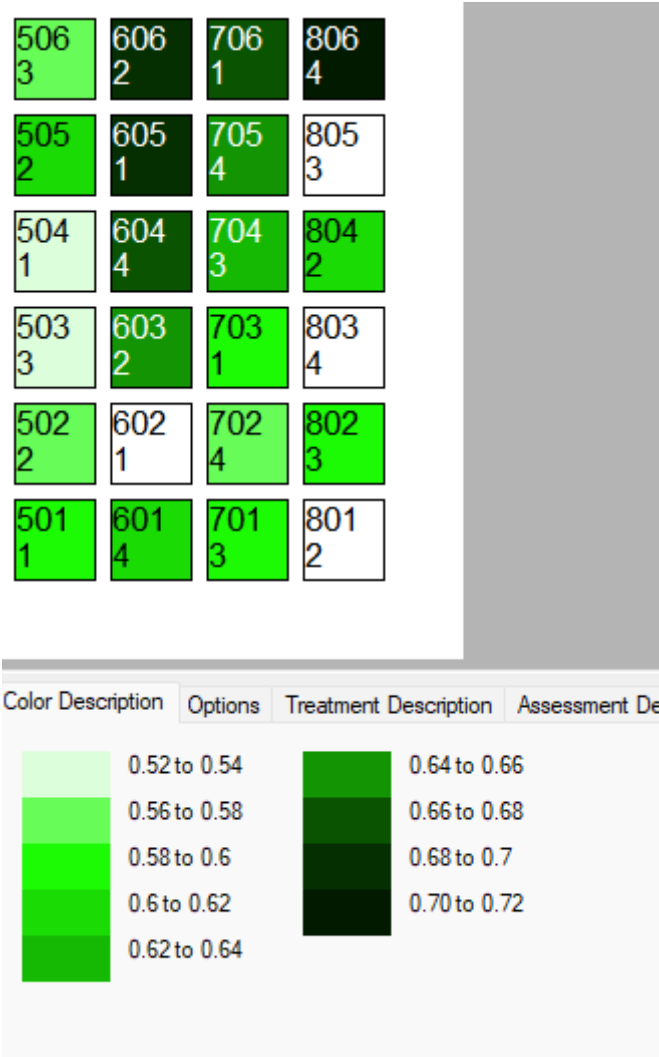
Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.

NDVI_3



Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024



Assessment distribution map NDVI_3

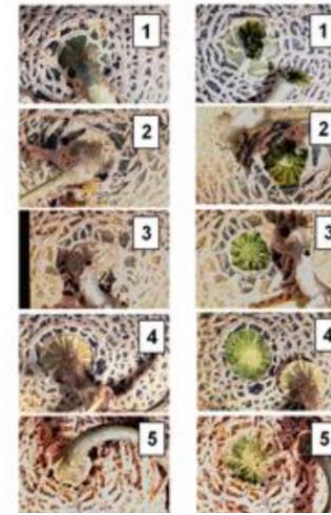
Harvest

- 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 = $\frac{1}{4}$ slip
 - 2 = $\frac{1}{2}$ slip
 - 3 = $\frac{3}{4}$ slip
 - 4 = full slip (very ripe)



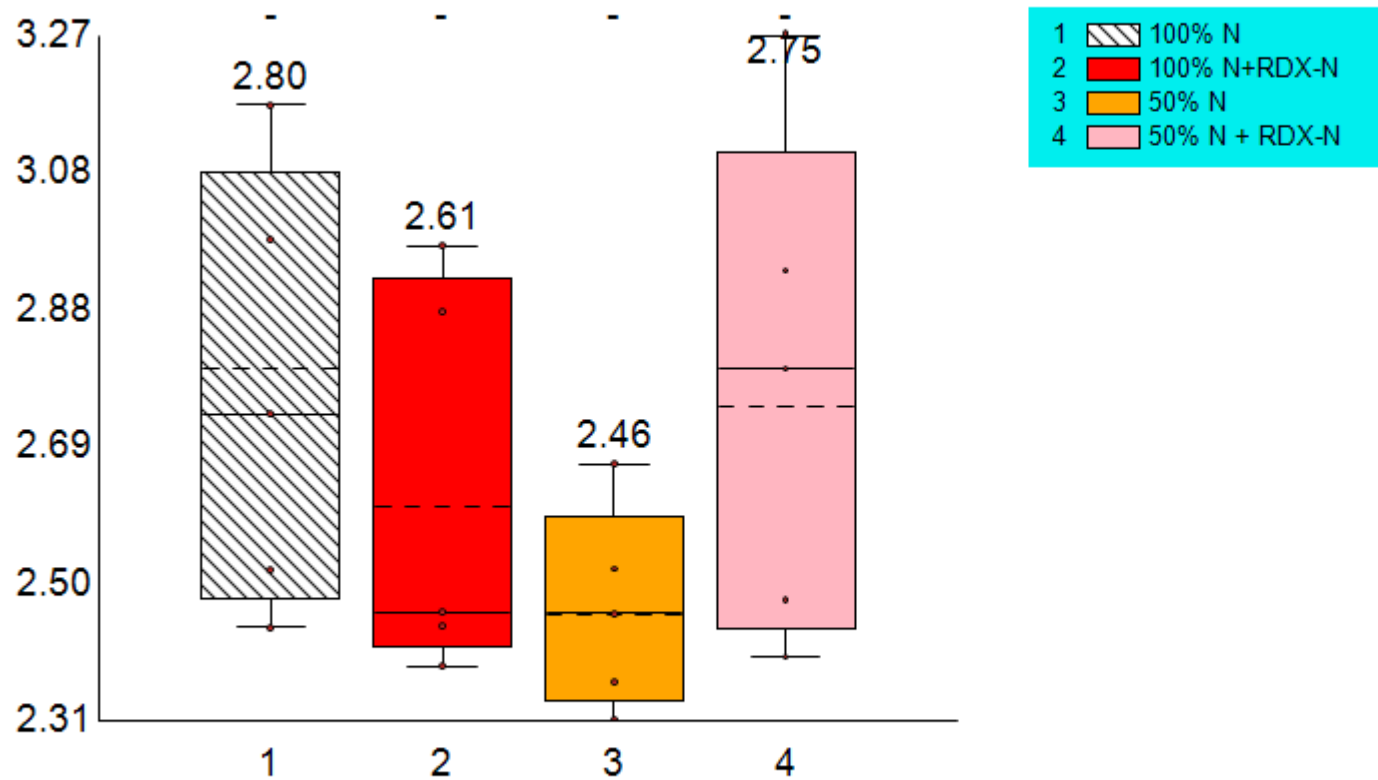
“Slip” & Cantaloupe Ripeness

1. Full size melon, no slip; “pull” fruit.
2. Slip just starting, near $\frac{1}{4}$ slip. Requires high thumb force to push stem from fruit
3. $\frac{1}{2}$ - $\frac{3}{4}$ slip; melon can be pushed with moderate thumb pressure from stem.
4. Full slip; stem scar with fresh appearance; stem easily pushed from fruit
5. Slip occurred day prior; very dry stem end; melon may be soft.

<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.

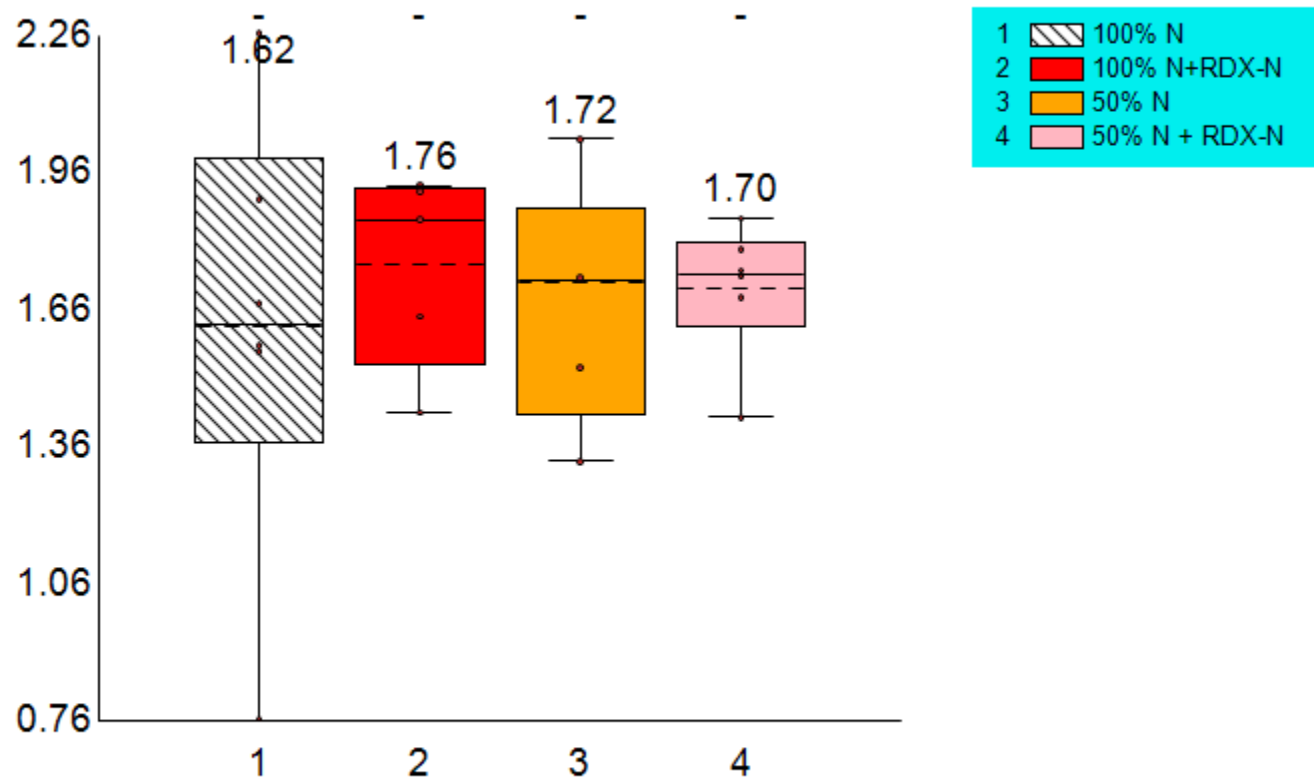
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



First Harvest Lb/melon

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

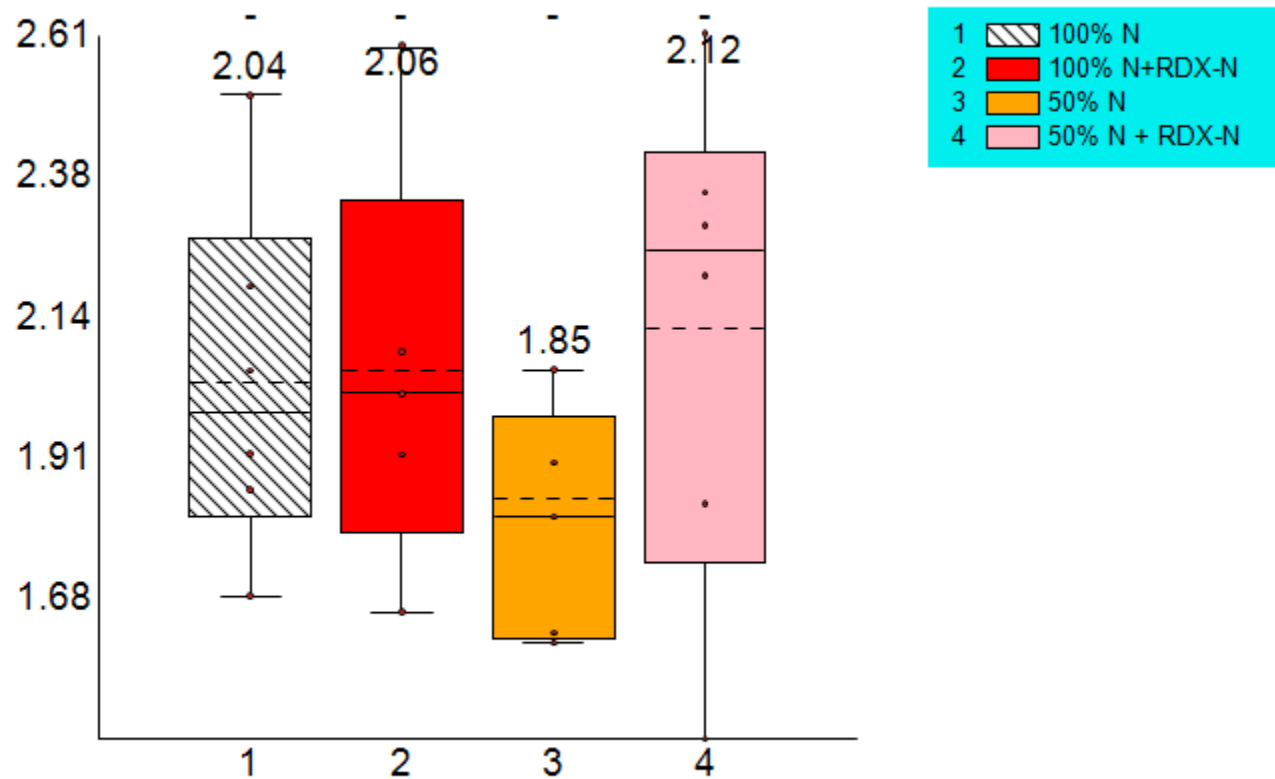
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Second Harvest Lb/melon

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

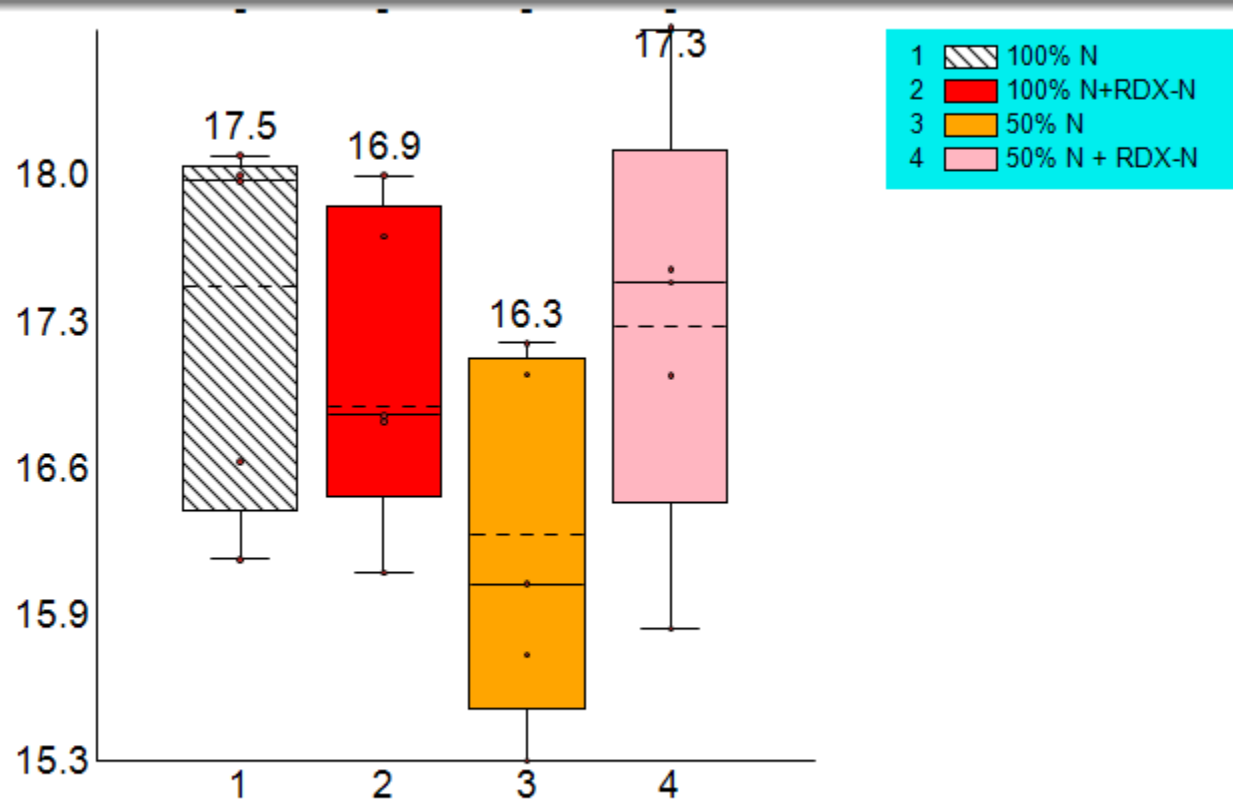
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Combined Harvest Lb/melon

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

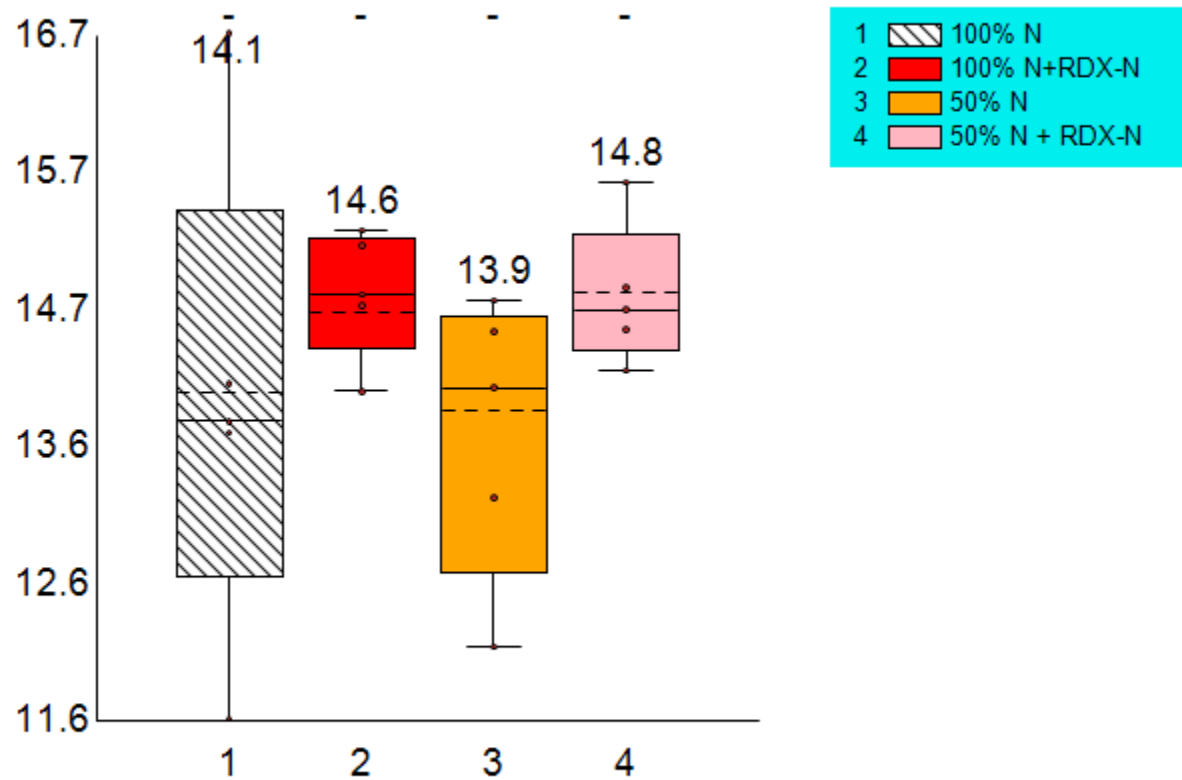
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First Harvest Circumference IN

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

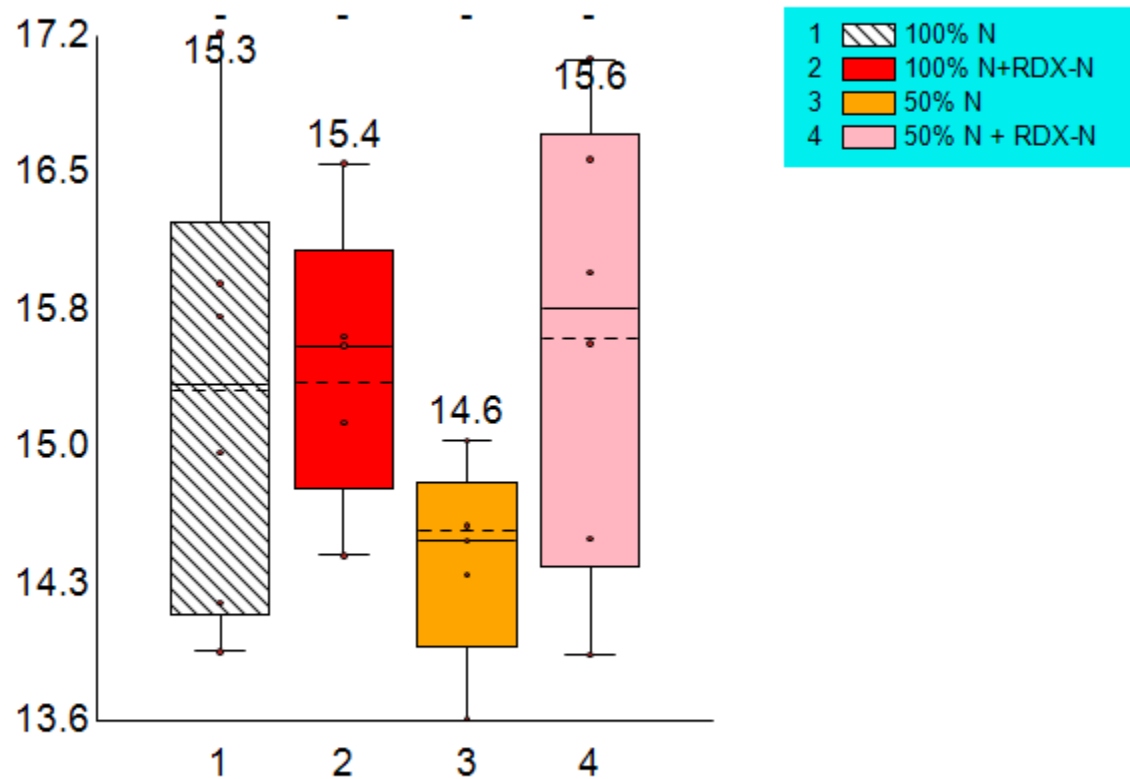
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Second Harvest Circumference IN

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

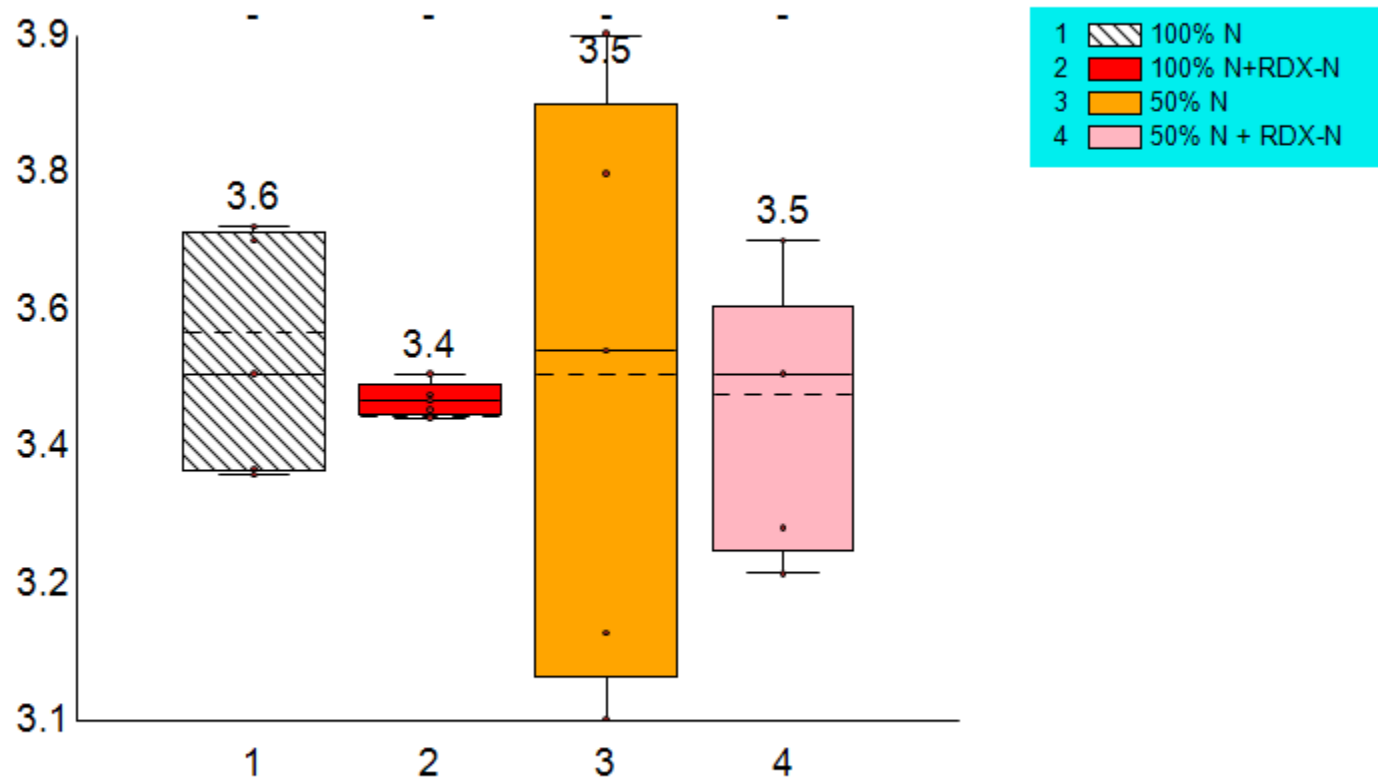
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Combined Harvest Circumference IN

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

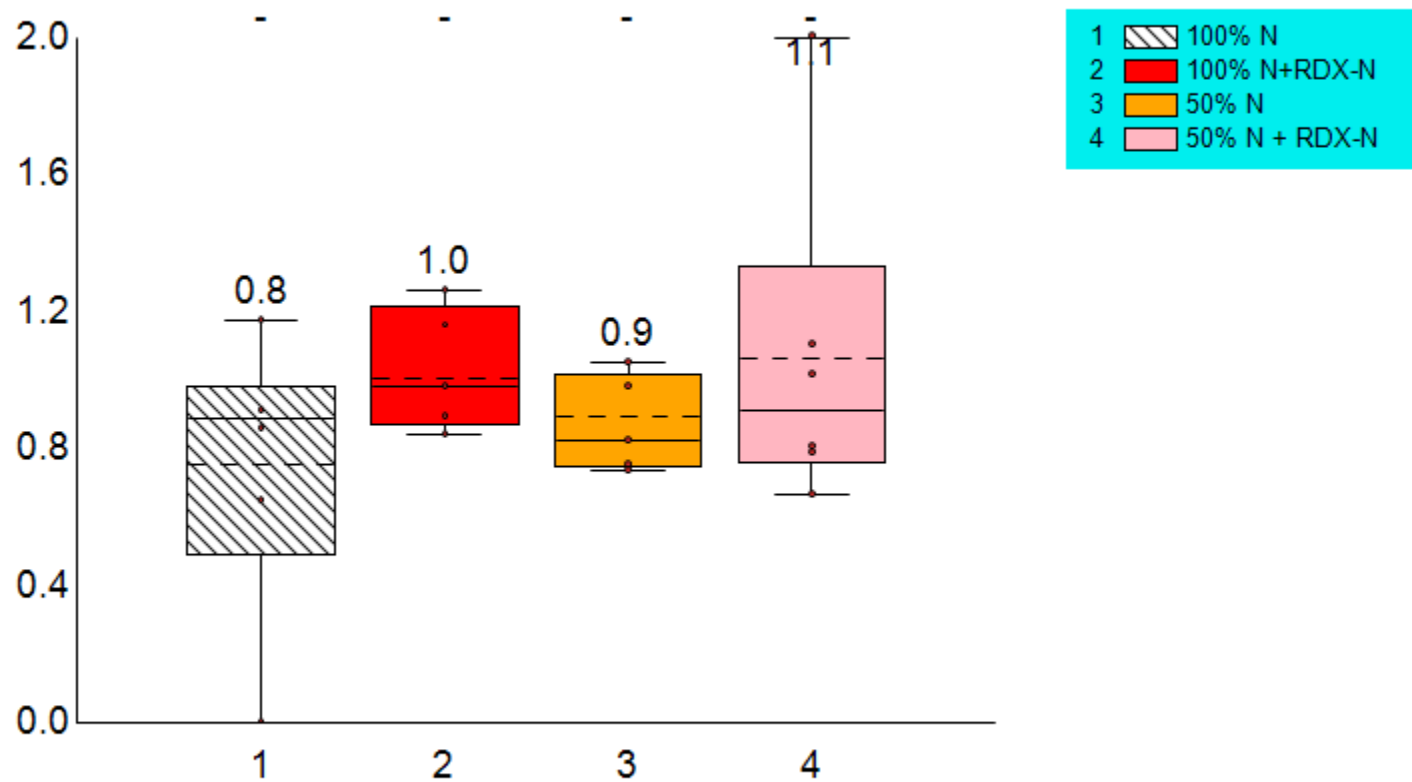
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



First Harvest Slip (0-4)

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

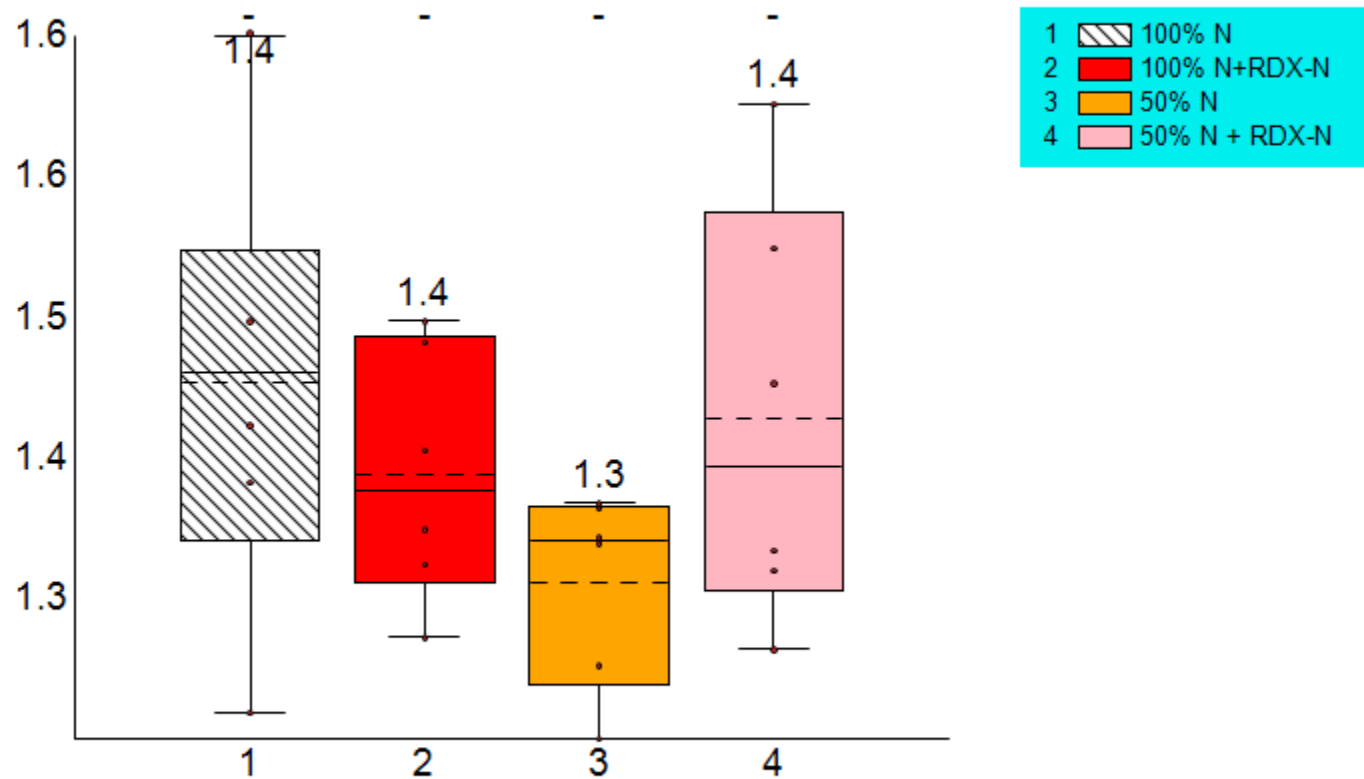
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Second Harvest Slip

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

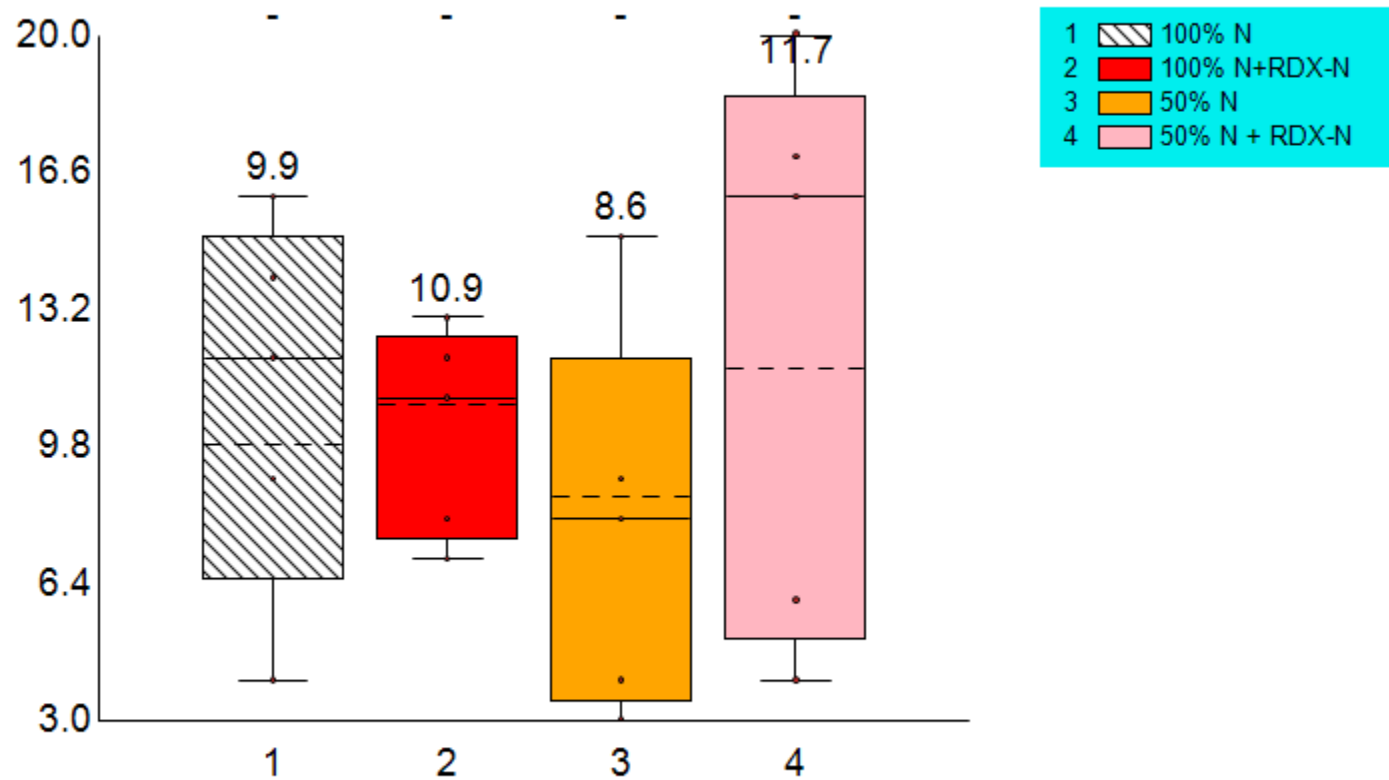
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Combined Harvest Slip

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

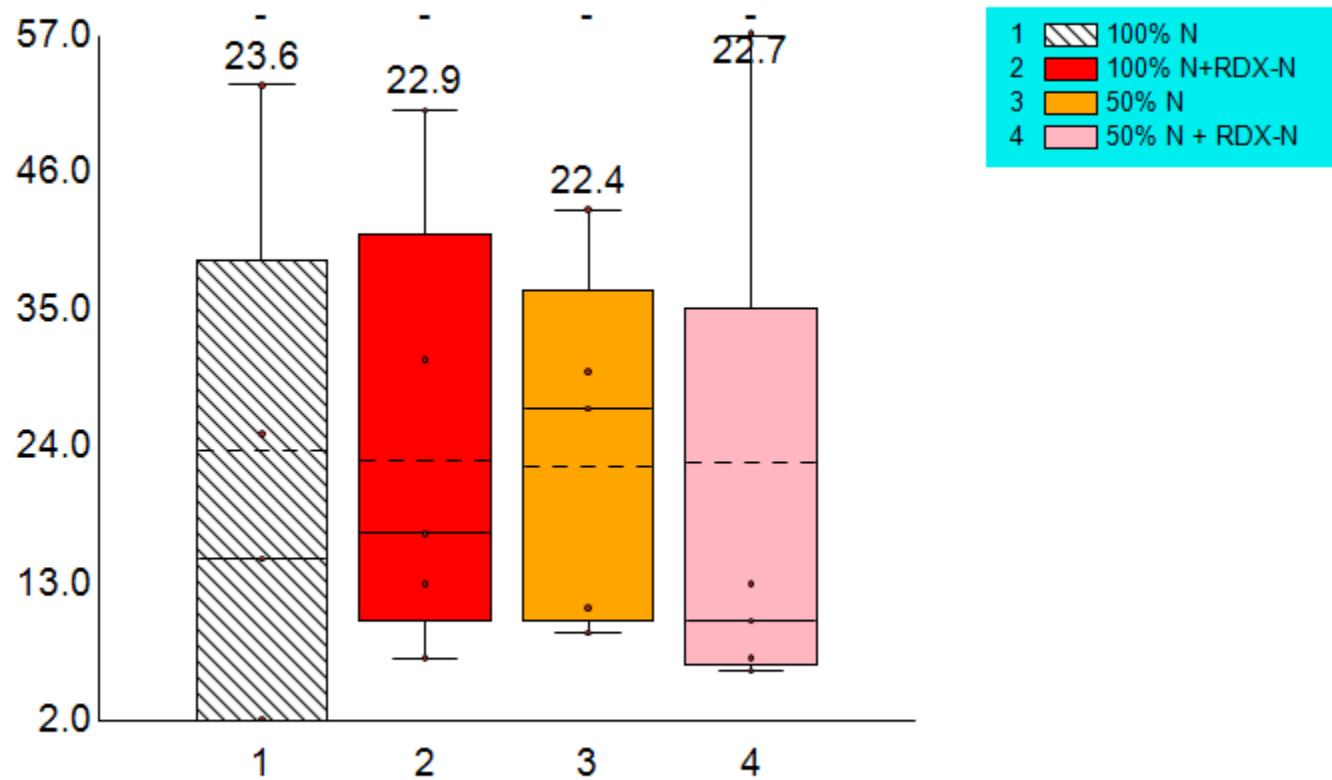
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



First Harvest Sunburn

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

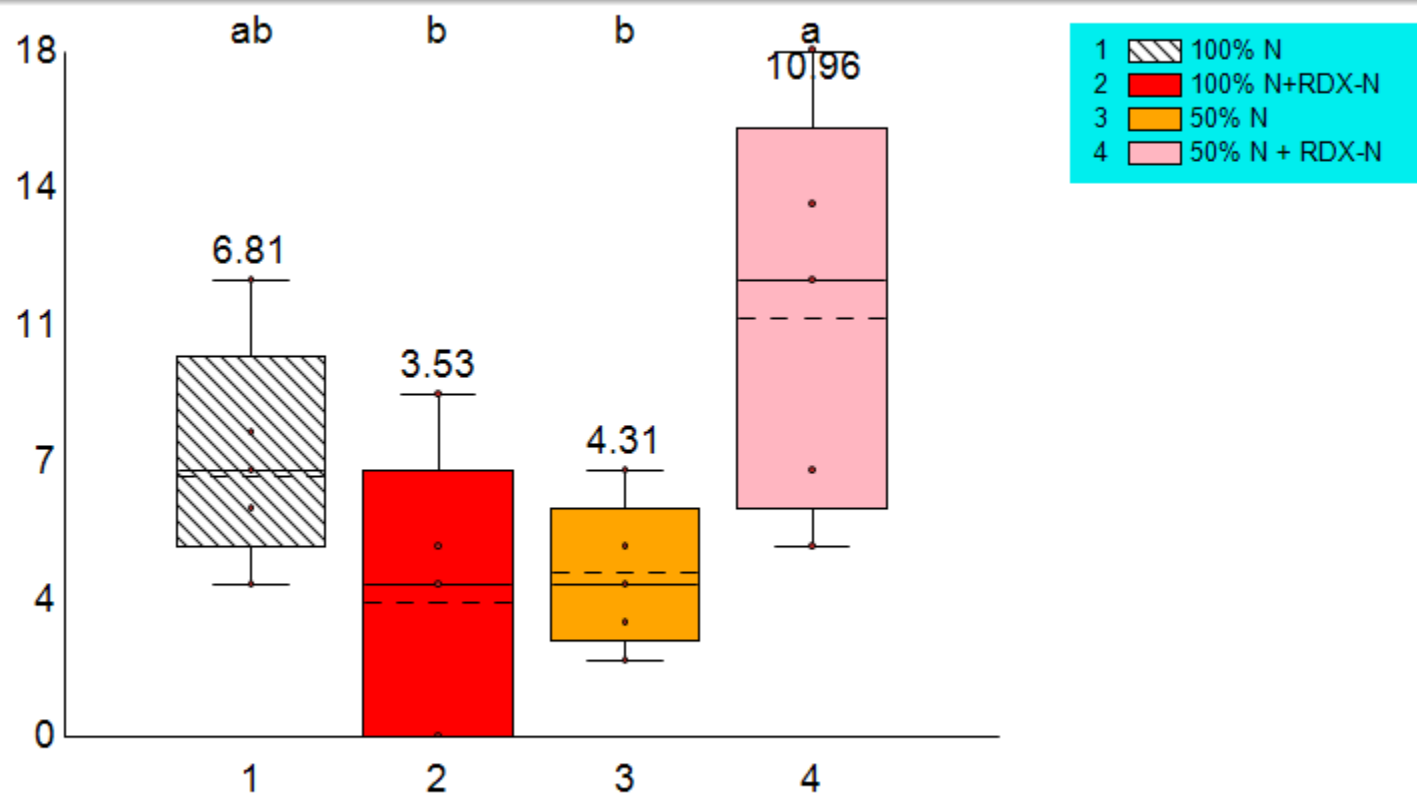
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Second Harvest Sunburn

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

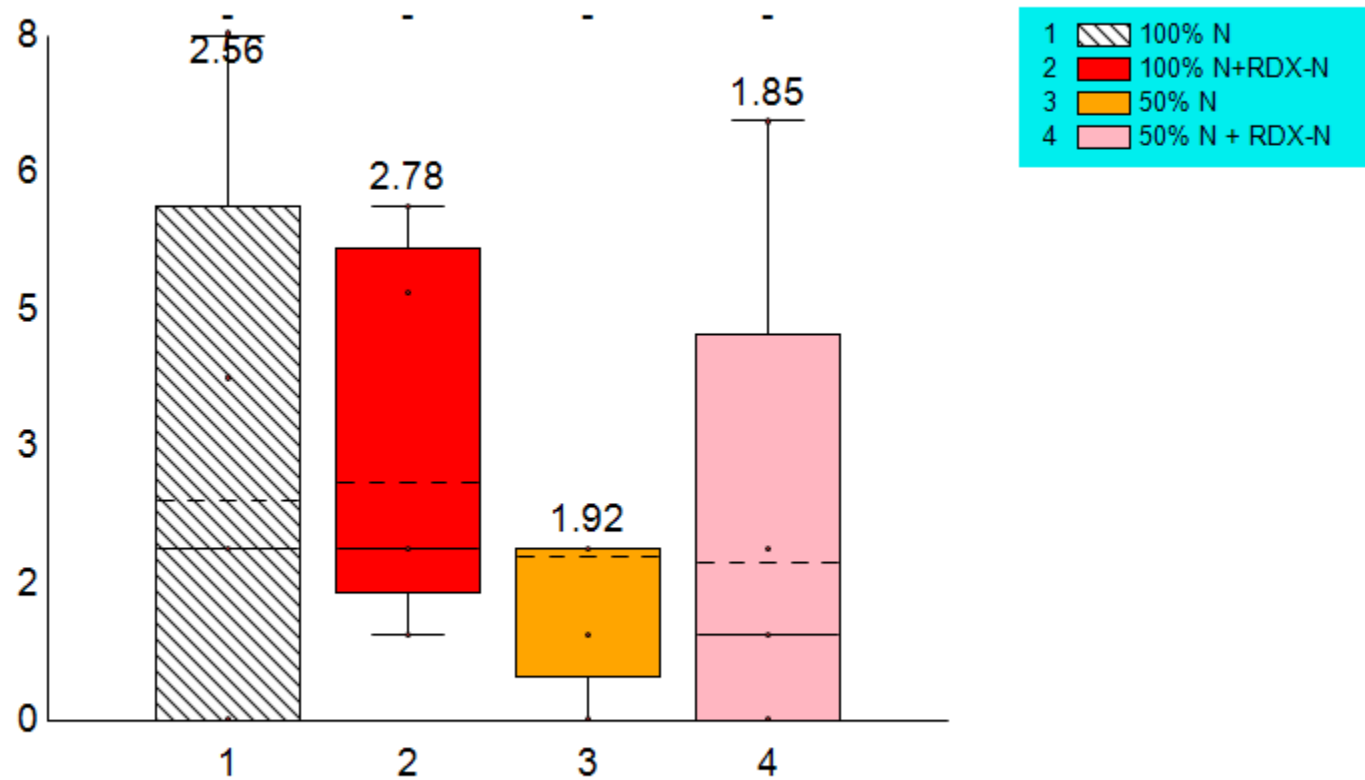
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



First Harvest Keeper

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

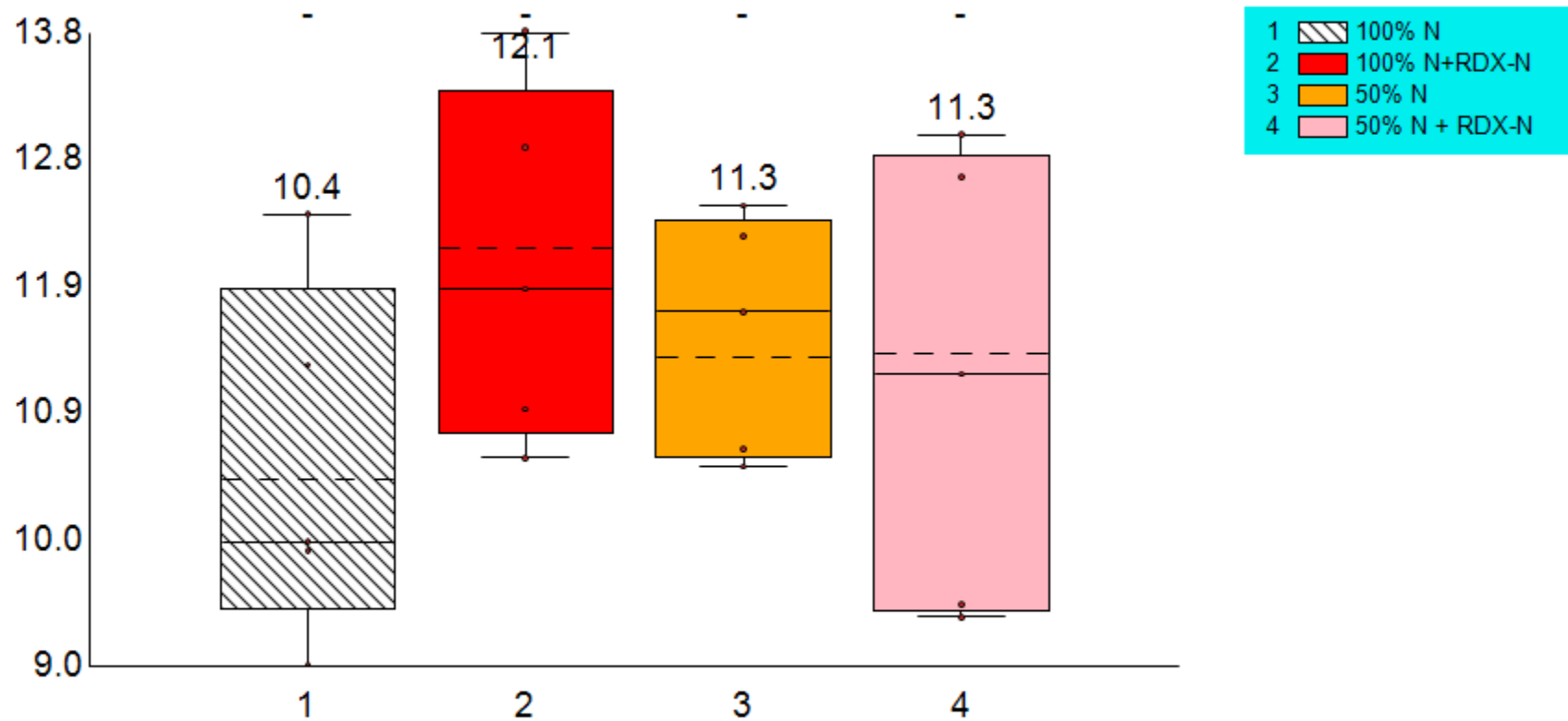
RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Second Harvest Keeper

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

RDX-N Trial on cantaloupe. Tank mix N with RDX-N. 3 applications. Comparing high and low fertility.



Brix

Trial ID: T1_Yuma_Cantaloupe_RDX-N_Spring2024

Carton Grade Yield

Treatment 1	Grade	abv_std	5	6	9	12	15	18	22	under_std	
Full Fert UTC	Number per Trt	0	0	5	37	80	41	21	9	93	184 Number per trt
	Boxes per trt	NA	0	0.83	4.11	6.67	2.73	1.17	0.41	NA	15.9 Cartons per trt
	Boxes per acre	.	0	28.8	142.1	230.5	94.5	40.3	14.1	.	0.028926 Ac per trt
											550 Crtn per acre
Treatment 2	Grade	abv_std	5	6	9	12	15	18	22	under_std	
Full Fert + Product	Number per Trt	0	0	3	55	68	38	18	7	109	182 Number per trt
	Boxes per trt	NA	0	0.50	6.11	5.67	2.53	1.00	0.32	NA	16.1 Cartons per trt
	Boxes per acre	.	0	17.3	211.3	195.9	87.6	34.6	11.0	.	0.028926 Ac per trt
											558 Crtns per acre
Treatment 3	Grade	abv_std	5	6	9	12	15	18	22	under_std	
Half Fert UTC	Number per Trt	0	0	1	24	54	35	44	13	116	158 Number per trt
	Boxes per trt	NA	0	0.17	2.67	4.50	2.33	2.44	0.59	NA	12.7 Cartons per trt
	Boxes per acre	.	0	5.8	92.2	155.6	80.7	84.5	20.4	.	0.028926 Ac per trt
											439 Crtns per acre
Treatment 4	Grade	abv_std	5	6	9	12	15	18	22	under_std	
Half Fert + Product	Number per Trt	0	0	10	64	65	48	22	7	114	209 Number per trt
	Boxes per trt	NA	0	1.67	7.11	5.42	3.20	1.22	0.32	NA	18.9 Cartons per trt
	Boxes per acre	.	0	57.6	245.8	187.3	110.6	42.3	11.0	.	0.028926 Ac per trt
											655 Crtns per acre

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 501
T+1



Plot 601
Tt 4



Plot 701
Tt 3

U BRANDS



Plot 801
Trt 2

U BRANDS





Plot 602

Trt 1



Plot 702
Tt 4

U BRANDS



Plot 802
Tt 3





Plot 603
Tt 2



Plot 703.
Tt 1



Plot 803
Tt 4

U BRANDS



Plot 804.

Tt 2

Plot 704
Tt 3





Plot 604
Tt 4





Plot 505
Tt 2

U BRANDS





Plot 705

Tt 4

U BRANDS



Plot 205

Tt 3

U BRANDS



Plot 806
Tt 4



Plot 706

Tt 1



Plot 606
Tt 2

U BRANDS



Plot 506

Trt 3