

2018 Watermelon and Melon Variety Trials

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Outline:

- 1. Typical-size triploid watermelon varieties*
- 2. Effects of irrigation management on watermelon yield and quality*
- 3. Seeded watermelon, personal-size watermelon, yellow/orange flesh watermelon varieties*
- 4. Cantaloupe and specialty melon varieties*

Weather condition in the production season

Month	Precipitation	High Temperature (F)	Low Temperature (F)
May	2.17	87	62
June	7.14	89	67
July	2.05	89	66
Aug.	3.07	87	66

Planting and harvest dates

Watermelons	Seedling Dates	Transplanting Dates	Harvest Dates
Typical size triploid watermelon	April 19	May 15	July 19 to Aug. 9
Personal size watermelon	April 20	May 16	July 25 to Aug. 13
Diploid watermelon	April 17	May 16	July 16 to Aug. 13
Cantaloupe and specialty melons	April 18	May 14	July 5 to July 27
Pollenizer	April 16		

Fertilizers

Fertilizer	Rate (lb/acre)
Urea (46-0-0)	250
Potash (0-0-60)	100
Diammonium phosphate (18-46-0)	100
Boron 14.3%	7
Pelletized lime	200
K-Mag granular (0-0-22)	100
Zinc 10% LS	10

Pest Management

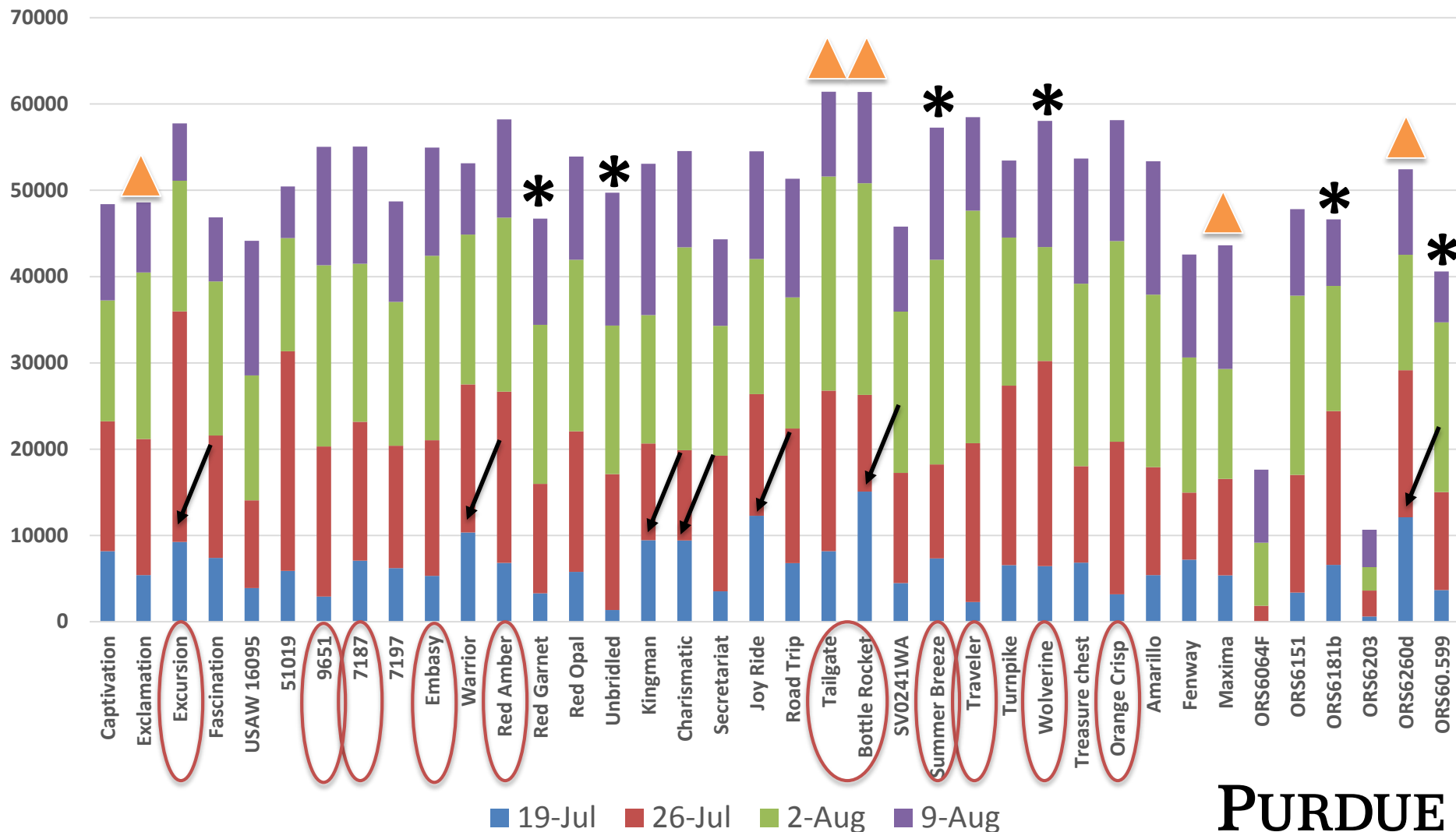
- ✓ Fumigation: 85.5% chloropicrin (Pic Plus Fumigant[®], TriEst Ag Group, Inc.) with the rate of 150 lbs/acre at 12-inch depth
- ✓ Melcast and the *Midwest Vegetable Production Guide for Commercial Growers*
- ✓ Bravo[®], Luna Experience[®] and Cabrio[®] were rotationally sprayed for disease control
- ✓ Admire Pro[®] was applied through transplant water. Permethrin[®] and Warrior[®] was sprayed on melon trials for insect control

Spacing

- Typical-size triploid and diploid watermelon: 4' in-row spacing; 8' bed spacing; pollenizer 1:2 ratio. SP7
- Personal-size watermelon: 2' in-row spacing, 6' bed spacing, pollenizers in one row of every three rows of personal-size triploid watermelons. SP7
- Cantaloupe and specialty melon: 2.5' in-row spacing, 6' bed spacing

1. Typical-size triploid watermelon varieties

Marketable Yield (lb/acre)



Hollow heart of watermelon



- ❖ Poor pollination is the primary reason causing hollow heart

Hollow heart fruit tends to be triangular shaped

- ❖ **Firmer fleshed-watermelons** had lower ratings of hollow heart.
- ❖ **Seedless watermelons** had more hollow heart than the seeded and personal size watermelon.
- ❖ **Yellow** and **orange-fleshed** watermelon varieties had the most severe hollow heart symptoms.

Tailgate



- First time in our evaluation
- Top yield variety in 2018
- Large fruit, average fruit weight 18.5 lb

< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
0	6	37	37	20

- Sugar content 11.3 °Brix, moderately high
- Firmness 3.6 lbs-force, high
- No Hollowheart

Bottle Rocket



- Evaluated in 2017 and 2018
- High yield in 2017 and 2018
- Average fruit weight 17.4 (2018), 15.8 (2017)

	< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
2018	0	12	40	32	15
2017	0	29	37	24	9

- Sugar content 11.2 °Brix, moderately high
- Firmness 3.2 lbs-force, high
- No Hollowheart

Excursion



- Evaluated in 2016, 2017, 2018
- High yield variety in three years
- Large fruit, average fruit weight 17.4-17.7 lb

	< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
2018	0	14	32	30	24
2017	0	18	31	37	14
2016	6	12	24	38	20

- Early ripening variety, consistent in three years
- Sugar content was in the lower range

Red Amber



- Evaluated in 2017 and 2018
- High yields in 2018, top yield in 2017
- Average fruit size 16.6 lb and 16.1 lb.

	< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
2018	0	20	43	22	13
2017	2	23	41	23	11

- Sugar content was moderately low

Traveler



- Evaluated in 2013, 2014, 2015, 2016, 2018
- High yields in 2015, 2016, 2018
- Average fruit weight ranged from 12.9 – 15.1 lb, most in 60 and 45 count

< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
0	34	42	18	5

- Sugar content was moderately low

Embassy



- Evaluated in 2016, 2017, 2018
- Consistent high yield
- Average fruit weight 14.6 – 16.7, majority in 45 count

< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
0	11	43	32	13

- Medium sugar content

9651



- Sugar baby type
- Evaluated in 2017 and 2018
- Consistent high yield
- Average fruit weight 17 (2018) and 15.7 (2017)
- Medium sugar content

< 9 lb	9-13.5 lb (60 count)	13.6-17.5 lb (45 count)	17.6-21.4 lb (36 count)	> 21.5 lb (30 count)
0	22	34	36	7

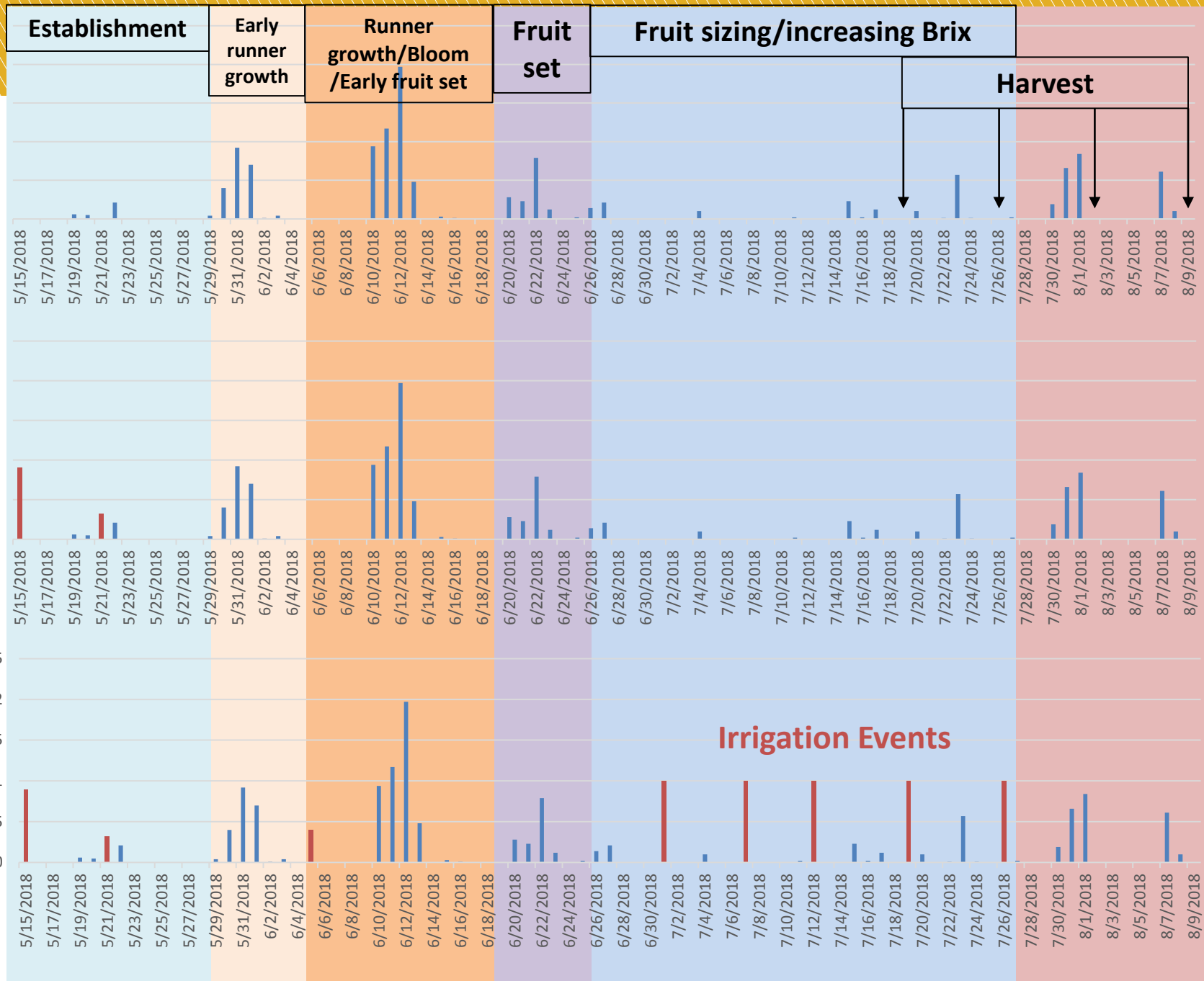
2. Effects of irrigation management on watermelon yield and quality

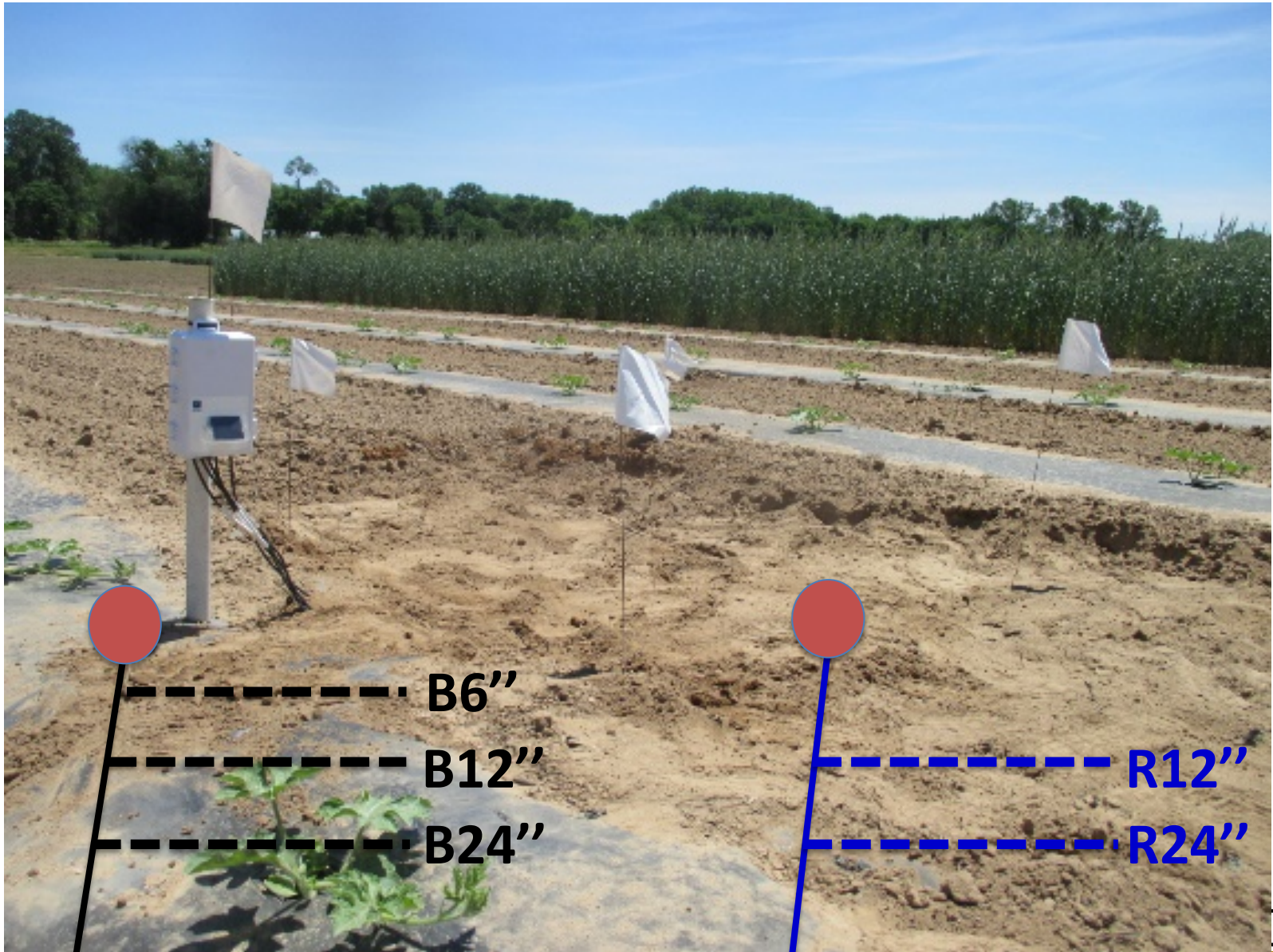


Precipitation (inch)

Dry land

Irrigated land





B6''

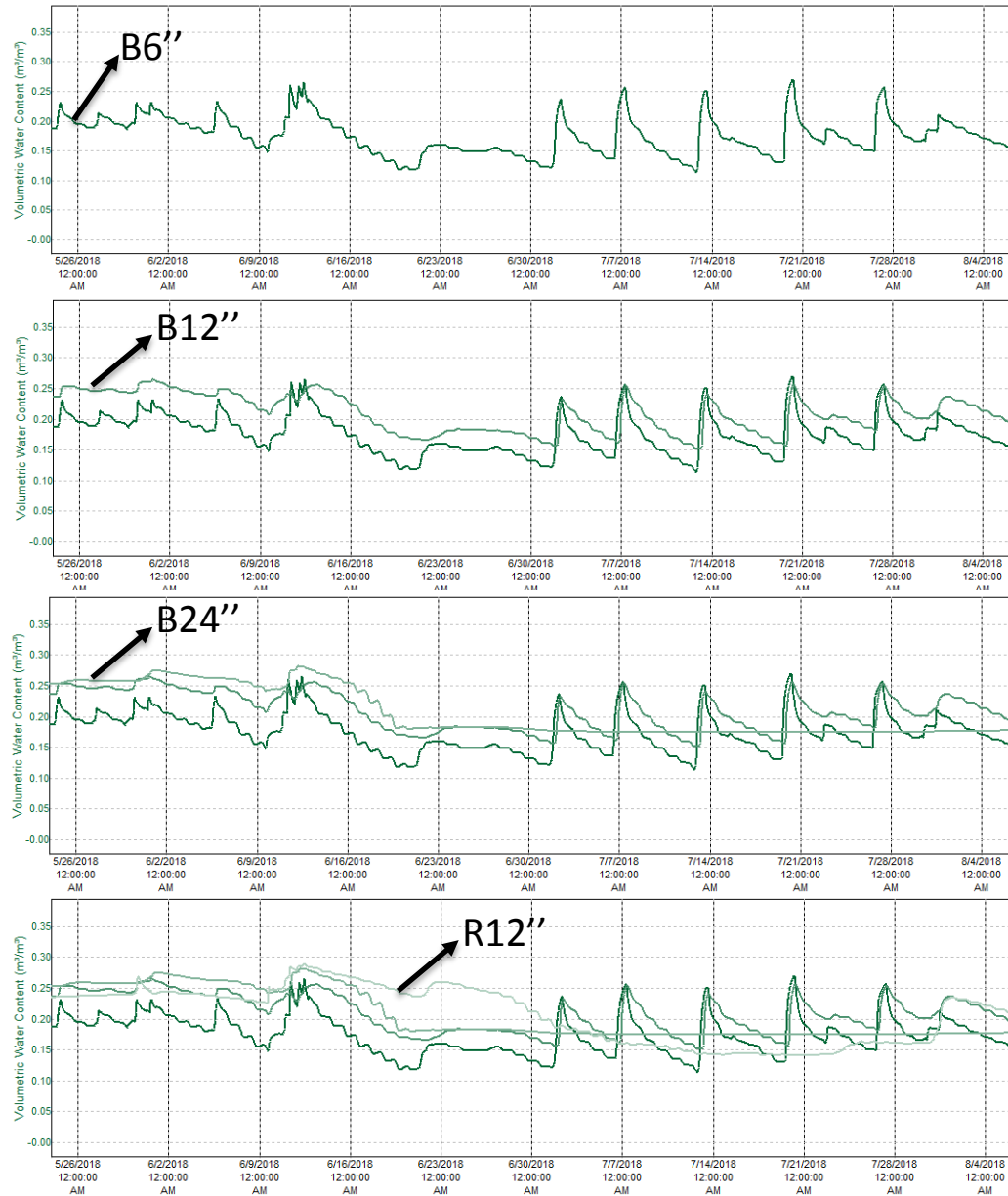
B12''

B24''

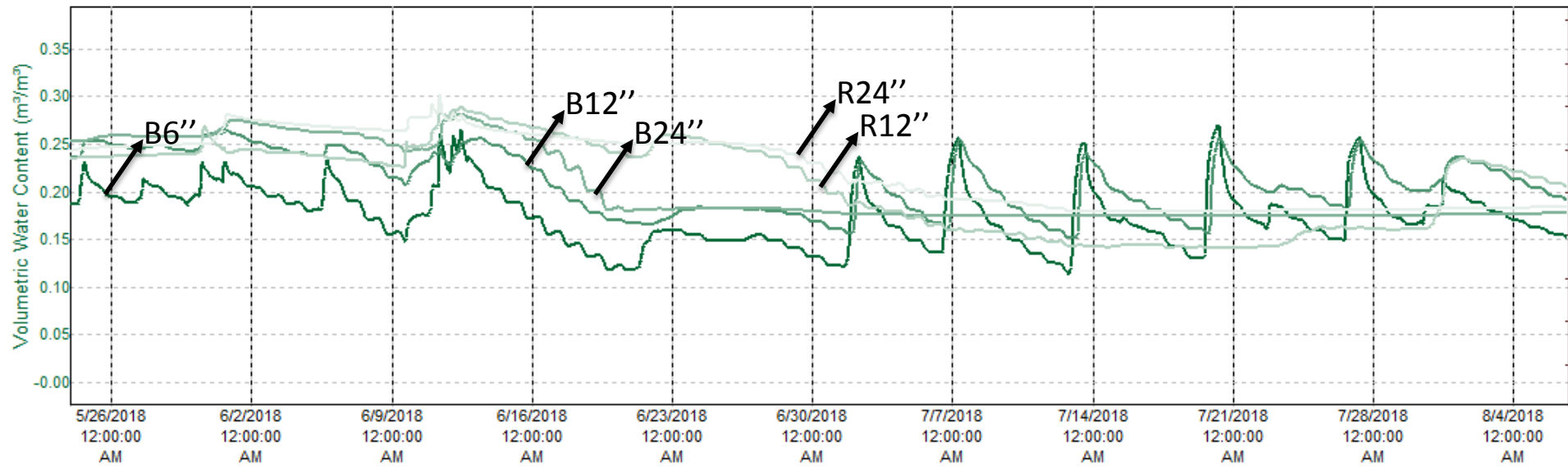
R12''

R24''

Irrigated land

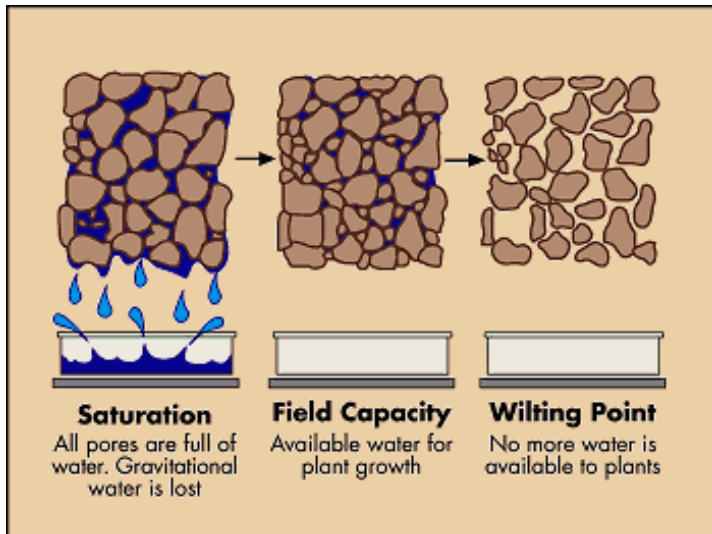
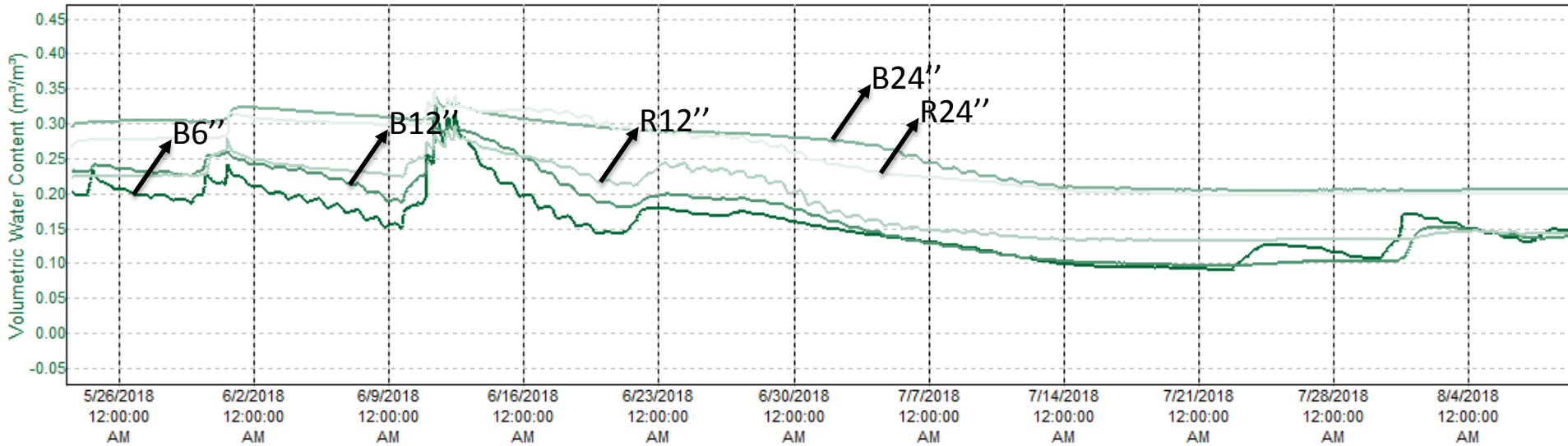


Irrigated land



- ❖ Irrigation increased water content of soils at 6'' and 12'' depth, not at 24'' depth in the beds, not in the row middles
- ❖ Even though the irrigation events, plants were taking up water in row middles at the fruit expanding stage.

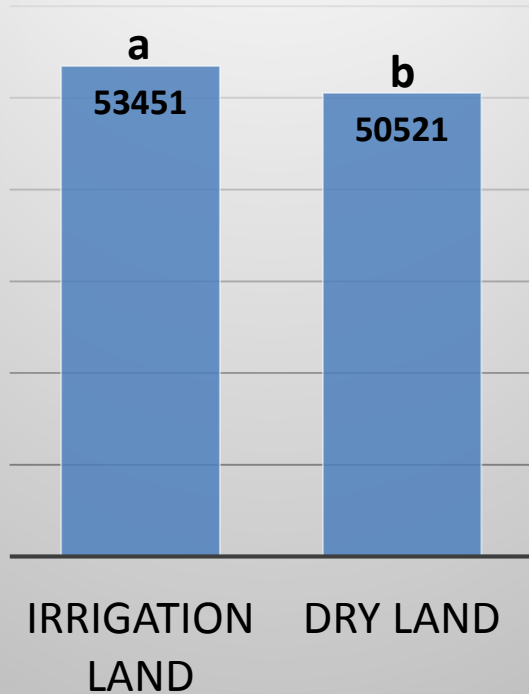
Dry land



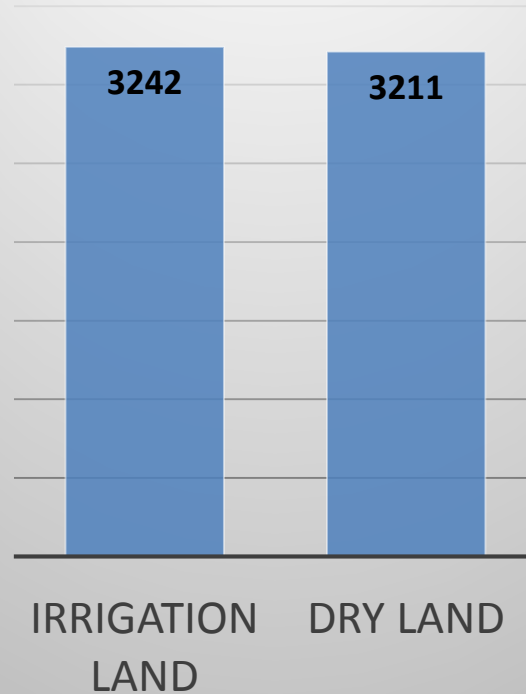
Water holding capacity

Texture	Field capacity	Wilting point	Available water
Sandy Loam	0.2	0.08	0.12

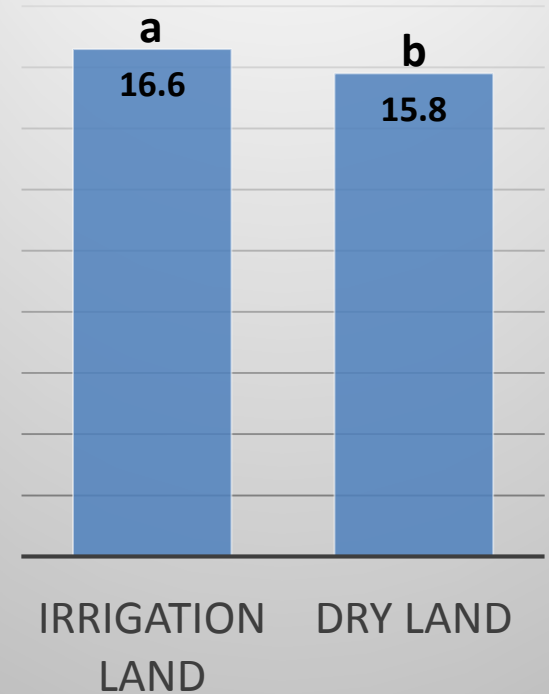
Marketable yield (lb/acre)



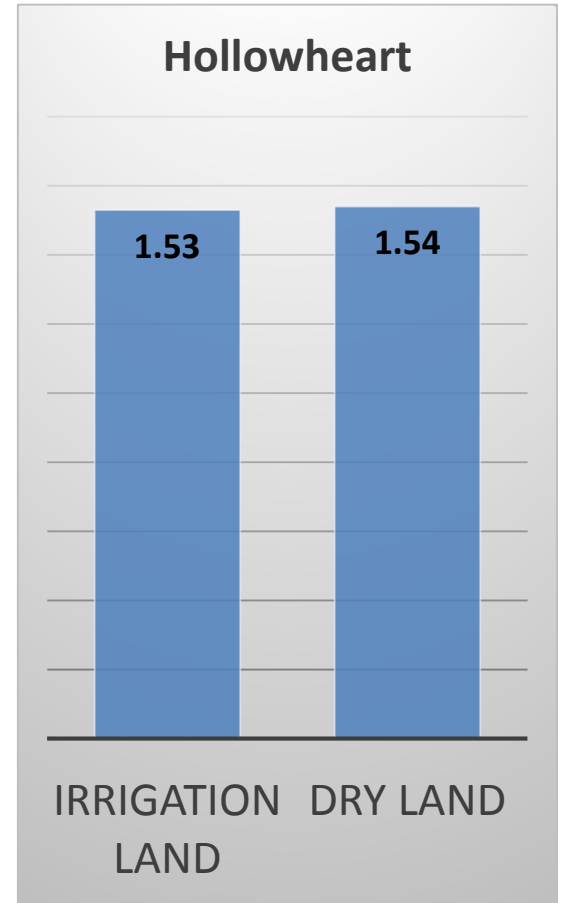
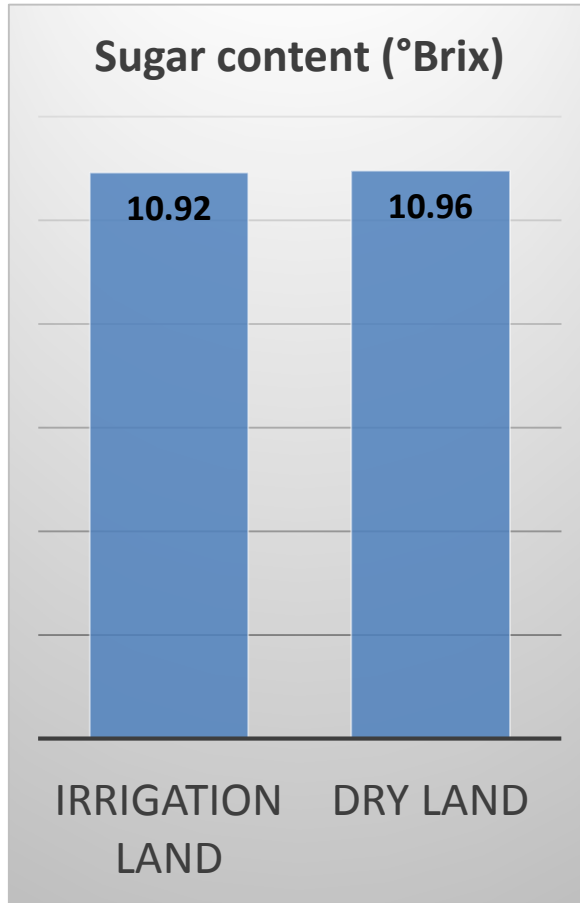
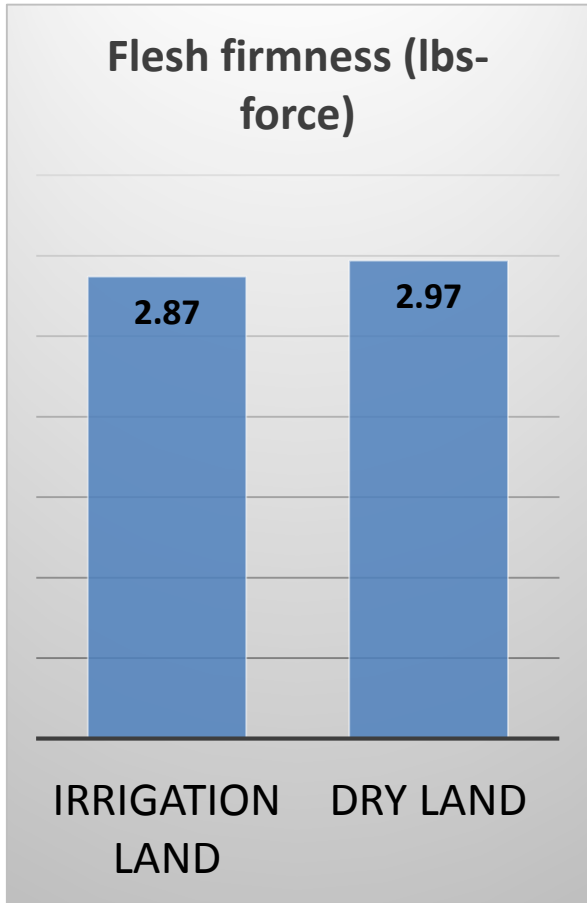
Marketable fruit number per acre



Average fruit weight (lb)



Dry land had smaller fruit, less yield by weight, but similar fruit number compared to the irrigated land.

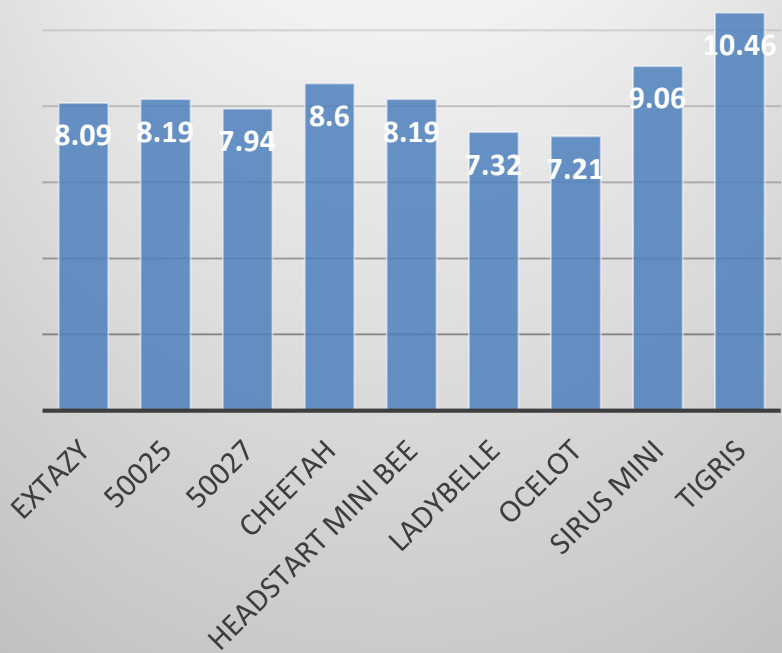


No significant differences in flesh firmness, sugar content and hollow heart severity were observed between irrigated and dry land.

3. Personal-size watermelon, seeded watermelon, yellow/orange flesh watermelon

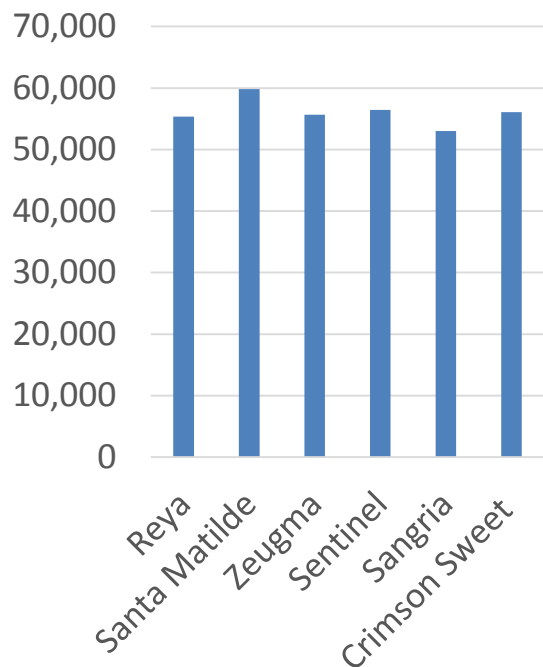


Average fruit size (lb)

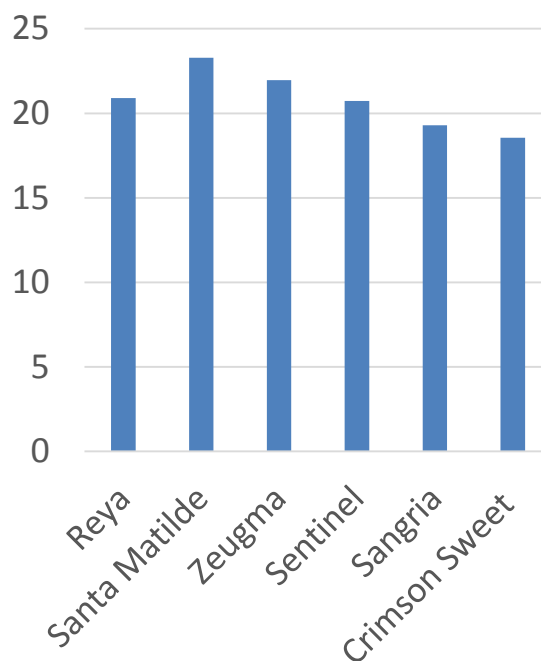











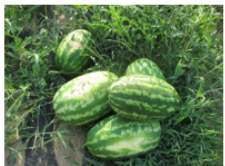


Seeded watermelon

Marketable yield
(lbs/acre)



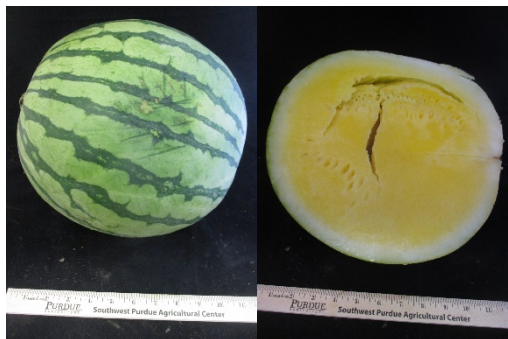
Average fruit weight
(lb)



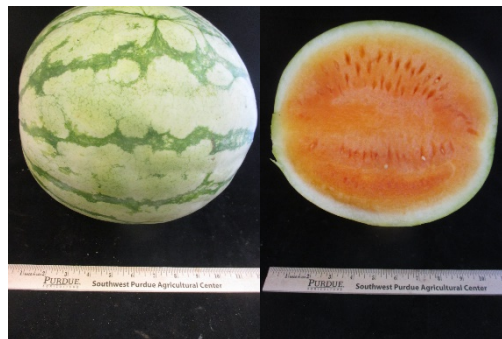
Reya			
Santa Matilde			
Zeugma			
Sentinel			

Yellow/Orange flesh watermelon

Treasure Chest



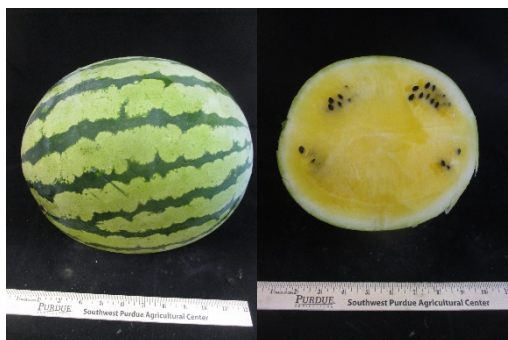
Orange Crisp



Amarillo



Baby Doll



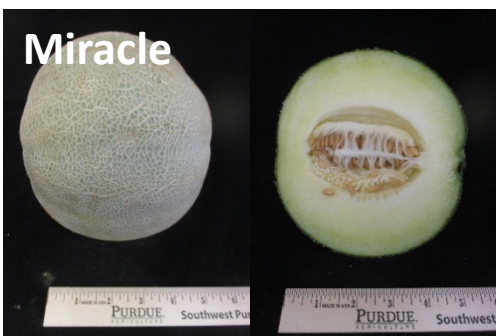
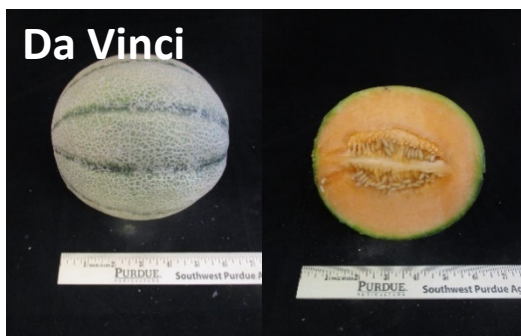
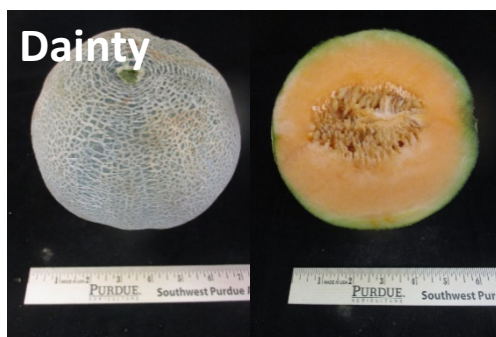
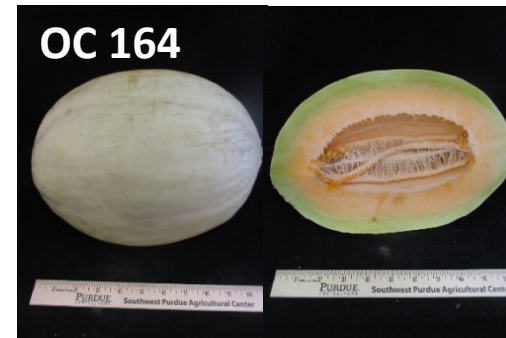
Orangeglo



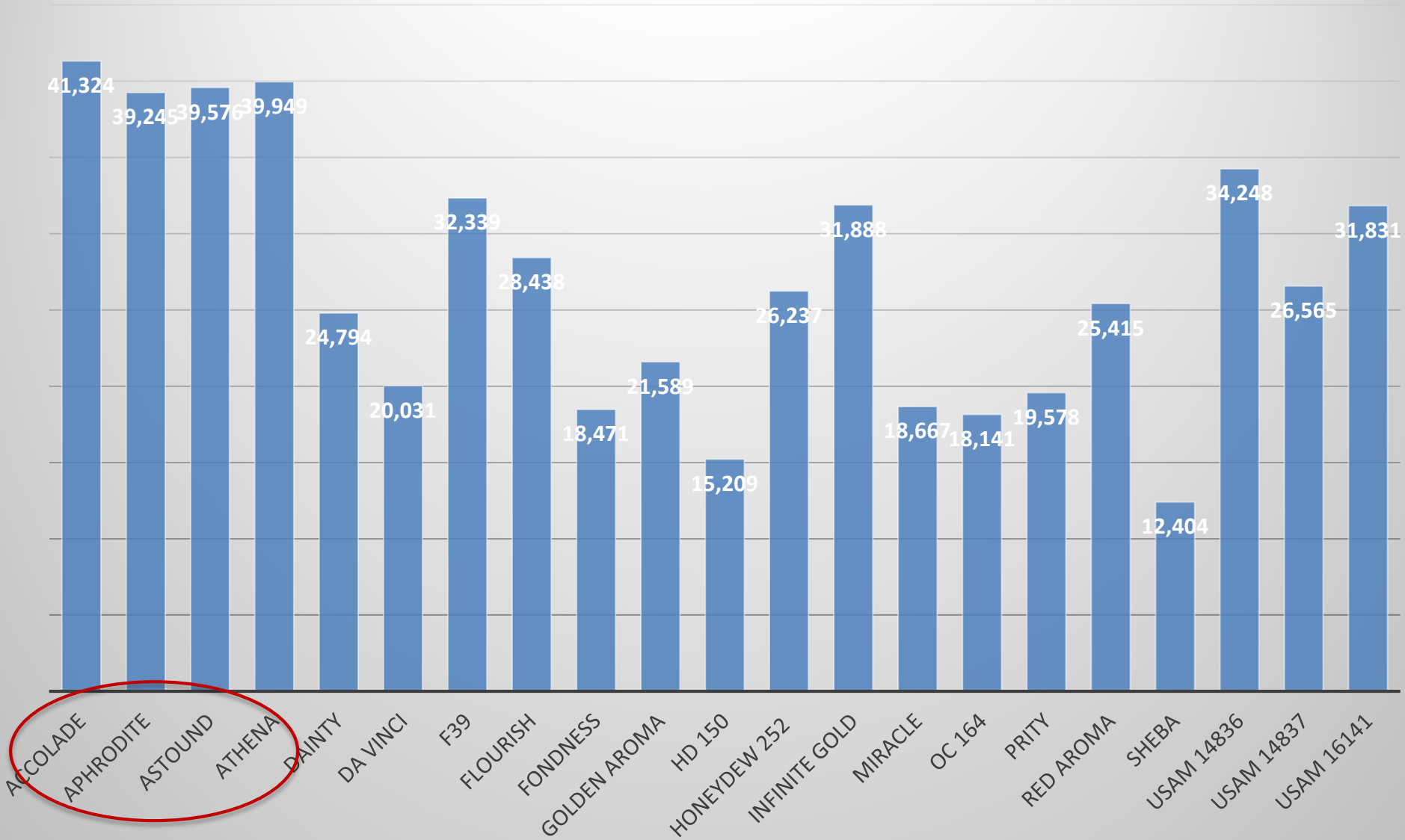
Sorbet Swirl



4. Melon (*Cucumis melo*) Variety Trial

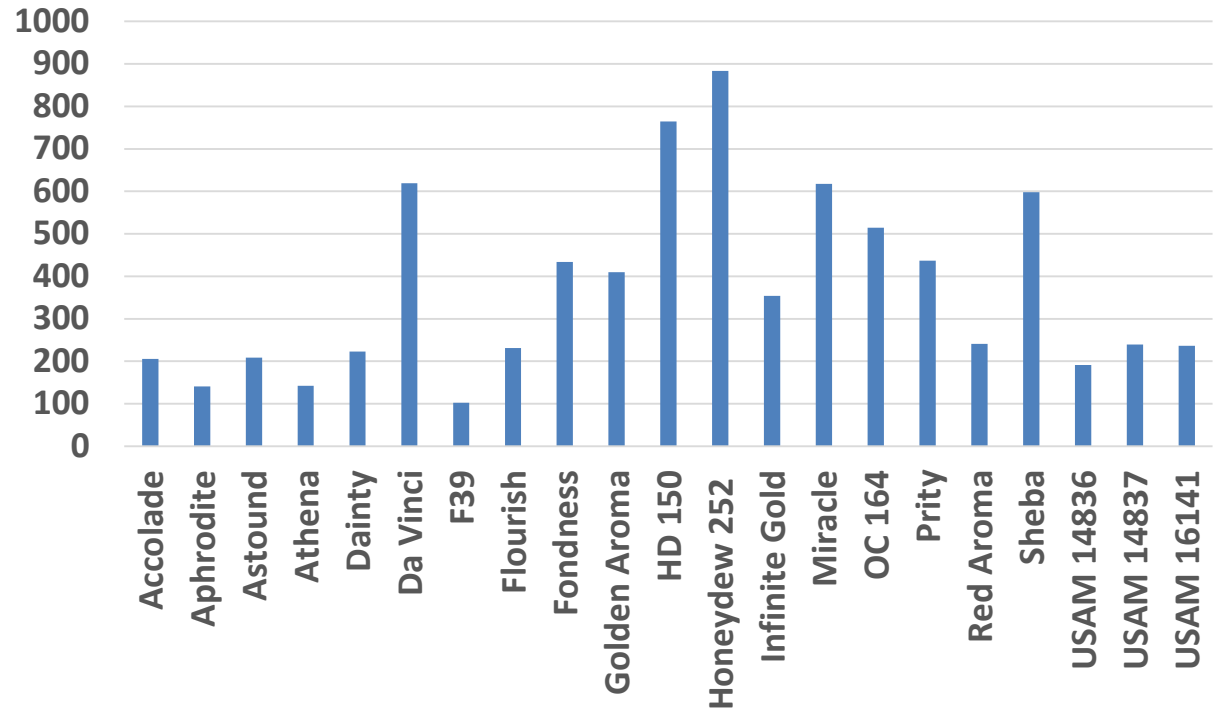


Marketable Yield (lbs/acre)

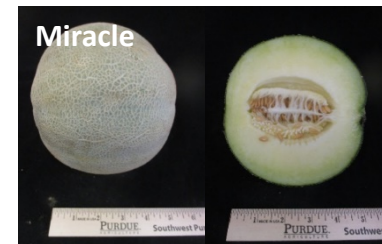
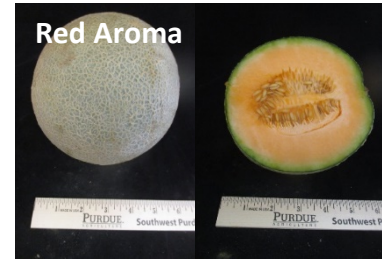
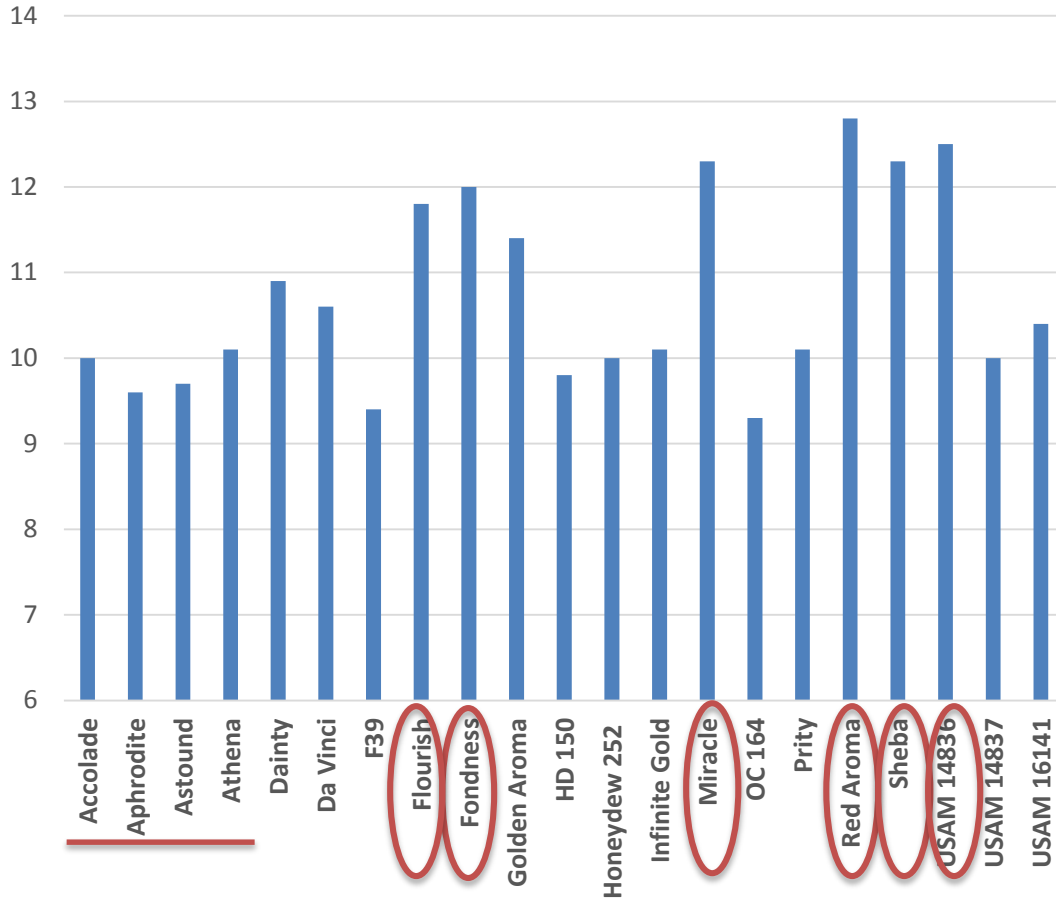




Bacterial wilt severity (AUDPC)



Sugar content (Brix)



Eastern cantaloupe varieties from 2016-2018

Athena



Aphrodite



Astound

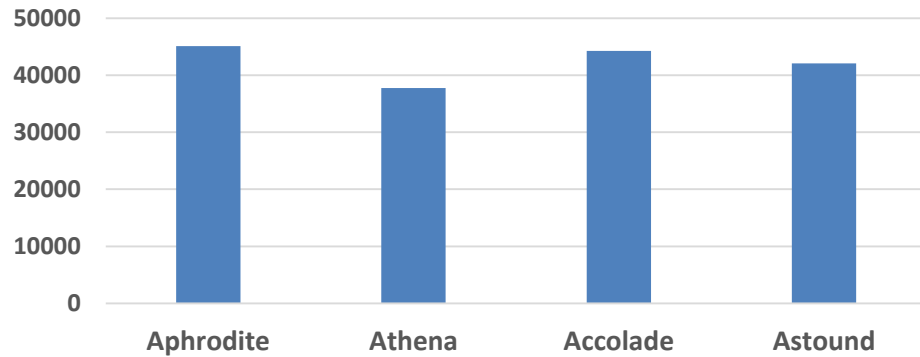


Accolade

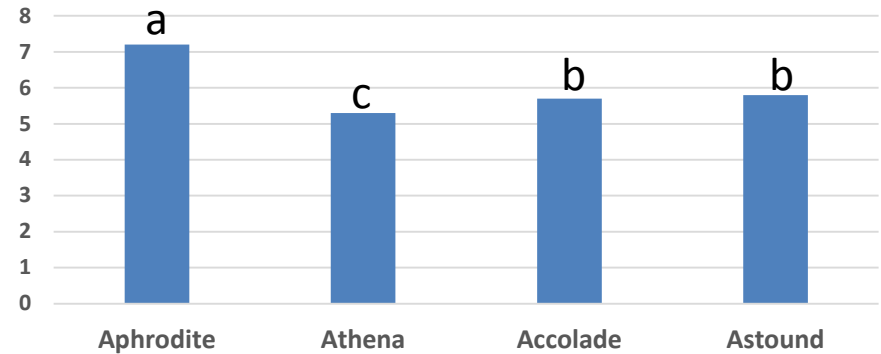


Eastern cantaloupe varieties from 2016-2018

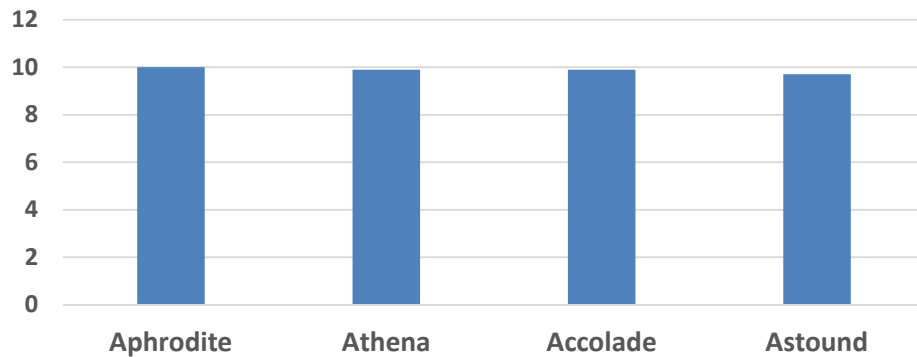
Marketable yield (lb/acre)



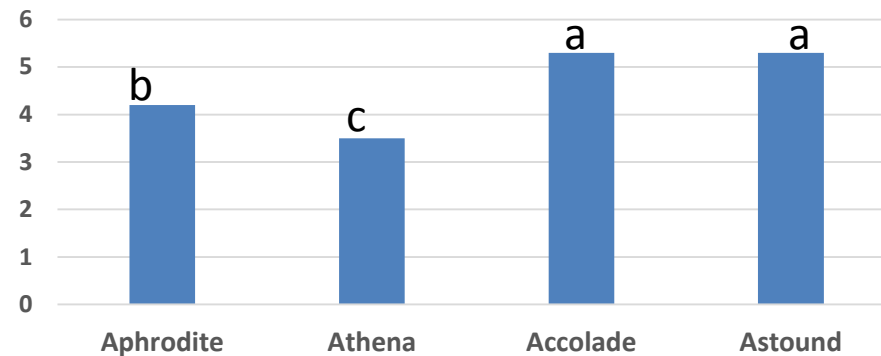
Average fruit weight (lb)



Sugar content



Firmness (lbs-force)



Acknowledgements

Seed Companies:

Harris Moran

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HighMark

Enza Zaden

Known-You Seed

Nunhems/Bayer

Sakata

Seedway

Seminis

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Summer helpers



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