2019 Triploid Standard and Mini Watermelon Cultigen Evaluation Studies

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Horticulture Series No. 233

NC STATE EXTENSION

CucCAP
Cucurbit Coordinated Agricultural Project
Disease Resistance via Applied Genomics

USDA
United States Department of Agriculture
National Institute of Food and Agriculture

2019 North Carolina
Triploid Standard & Mini-Size Watermelon
Cultigen Evaluation Studies

Hort. Series # 233

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General Cultural Practices

These watermelon studies were grown on black plastic mulch and fertigated with drip tube. Pesticides used on all plots were chemicals labeled for that crop, (2019 North Carolina Agricultural Chemicals Manual, (http://ipm.ncsu.edu/Agchem/agchem.html).

Acknowledgments

We gratefully acknowledge the assistance of Rodney Mozingo (Superintendent) and Wesley Hairre (Horticulture Supervisor), Horticultural Crops Research Station, Clinton, NC, as well as, the personnel at the research station for their help in establishing, maintaining, and harvesting the cultigen evaluation studies. We want to acknowledge the following summer employees for their assistance with the studies: Maxton Collins, Benjamin Indermaur, Ryan Jarrett, Kimberly McAllister, Tanner Seay and Emma Westbrook. The cooperation and support of Bayer Crop Science; Enza Zaden; Hazera; HM Clause; Origene Seeds; Sakata Seed Company; Seedway; Seminis; Syngenta; United Genetics and VoloAgri were also appreciated. This research was also supported by a grant from USDA National Institute of Food and Agriculture Specialty Crop Research Initiative (2015-51181-24285).

Disclaimer

This publication presents data from the triploid standard size and mini watermelon cultigen evaluation studies conducted during 2019. Information in this report is believed to be reliable but should **not** be relied upon as a sole source of information. Limited accompanying detail is included but excludes some pertinent information, which may aid interpretation.

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Introduction

Growing conditions for the 2019 watermelon crop were generally very favorable throughout the season. North Carolina showed a modest increase in watermelon production from 2017 to 2018. In 2017 acreage was reported at 6,300 acres and in 2018 acreage was reported at 6,700. North Carolina ranks 7th among watermelon producing states and represents 6 % of the U.S. acreage which totaled 115,800 acres in 2018. This translates into an economic value of $21 million to North Carolina. The average fruit sizes for the 2019 watermelon crop were not as large as they were in 2018; however, overall fruit sizes were still slightly above average throughout the 2019 growing season (P. Westerbeek, personal communication). Recent reports indicate that standard size watermelon (wholes) still account for 80 % of the US market followed by mini-watermelon (10 %) and cut watermelon (10 %).

Materials and Methods

Once all seeds were received from participating companies, they were planted into 72 cell Poly trays to grow transplants (Hummert Int.; Earth City, MO). Seeds of standard and mini size cultigens were sown on 4 April 2019 and 2 April 2019, respectively. The planting medium used was "fine germinating mix", a commercial soilless mix (SunGro, Agawam, MA). Approximately 3 weeks after seeding, transplants were placed in a "hardening" greenhouse for approximately one week before being transplanted in the field. Telone II (12 gal/ac) was applied to the entire study area on 25 April 2019. K-Mag fertilizer (0-0-22-22S-11Mg) was applied pre-plant at a broadcast equivalent rate of 160 lbs/ac on 29 March. On 12 April the following pre-plant fertilizers were also applied to the entire study area (1.74 ac) in a broadcast equivalent rate of: (0-0-50) at 250lbs./ac; (15.5-0-0) at 200 lbs./ac and (18-46-0) at 100 lbs./ac. Black polyethylene plastic (1.25 mil thick high density plastic film, 60 inches wide; B.B. Hobbs, Clinton, NC) was laid on 25 April 2019. Standard and mini size triploid plants were established in the field on 13 May and 10 May 2019, respectively. Plot size for standard triploid size watermelons was 1 row, 10 plants per plot, 25 feet long with alleys of 10 feet between plots. In most cases, plots with missing plants were replanted approximately 3 days after planting to achieve 100% plant stand. ''SP-7'' and ''Wild Card Plus'' diploid pollinizer plants were used in the 2019 growing season. Alternate plantings of ''SP-7'' and 'Wild Card Plus' (4 plants/plot) were used as the pollinizer plants in each plot within the study. 'SP-7' pollenizer plants were planted after triploid plants 1 and 7 while 'Wild Card Plus' pollinizer plants were planted after triploid plant 4 and 10 in each plot. Row middles were 10 feet for all watermelon types and in-row spacing was 2.5 feet for the standard size triploid watermelons. Drip tape (NETAFIM, 12 inch spacing, 0.24 gph; NETAFIM, Tel Aviv, Israel) was installed beneath the plastic mulch and was utilized to fertigate the crop throughout the growing season. The following herbicides were applied to row middles on 8 May 2019; Sandea (1 oz/ac) and Strategy (4pt/ac). A subsequent application of Gramoxone (1qt/ac) plus crop oil (1 qt/ac) was spot sprayed on weed escapes on 22 May 2019.

Insecticides Carbaryl (1 qt/ac) and Asana (8 oz/ac) were rotated and applied as a preventive

measure on the following dates; 23 and 31 May 2019; 14, 21 and 27 June 2019; 3, 10 and 26 July 2019. Insecticide products were sprayed in rotation to avoid potential development of insect resistance.

Miticides Abba Ultra (8 oz/ac), Bantar (1lb/ac) and Portal (1 qt/ac) were rotated and applied on the following dates; 21 and 27 June 2019; 10 July 2019. These miticide products were rotated to avoid potential development of mite resistance to these products.

A total of 49 lbs/ac N, 46 lbs/ac P and 160 lbs/ac K were all applied broadcast (pre-plant) to the entire study area. Liquid fertilizer with 4-0-8 analysis was initially applied through drip tape fertigation on 21 May 2019 and similarly on the following dates; 22, 28 and 31 May 2019; 3, 4, 6, 12, 14, 17, 18, 19, 20, 24, 25 and 27 June 2019; 1, 8 and 10 July 2019. A total of 71 lbs/ac N, 0 lbs/ac P and 141 lbs/ac K were applied via fertigation throughout the growing season. Cumulative totals of applied fertilizer for the growing season were: 120 lbs/ac N, 46 lbs/ac P, 301 lbs/ac K, 20 lbs/ac S and 10 lbs/ac Mg.

Fungicides were initially applied on 31 May 2019 and similarly on the following dates: 14, 21 and 27 June 2019; 3, 10 July 2019. The following fungicides were rotated to avoid potential development of resistance from diseases; Bravo (1 qt/ac), Cabrio (16 oz/ac), Copper (1 lb/ac), Inspire (1pt/ac), Manzate (3 lb/ac), Presidio (4 oz/ac), Pristine (1 lb/ac), Quadris (14 oz/ac) and Tanos (8 oz/ac). Insect and disease pressure was minimal throughout the season with the exception of a flare up of spider mites that did moderate damage to watermelon vines in the entire study just prior to first harvest. The labeled rate of Abba Ultra, Portal and Bantar was applied for mite control. Significant crop vine loss occurred due to mites that resulted in significant sun scald on many fruit in the study. Each fruit was harvested when ripe, weighed and categorized statistically by size category**.**

Standard size triploid watermelon harvests (3) took place on: 17, 25 and 31 July 2019. For the triploid standard size watermelon test, fruits were placed in the following categories: ≤ 9.0 lbs, 9.1 – 13.5 lbs, 13.6 – 17.5 lbs, 17.6 – 21.4 lbs, and ≥ 21.5 lbs. Fruits were considered marketable if they weighed 9.1 lbs or more. Fruit are often commercially marketed by number or count per bin with 9.1-13.5 lbs fruit termed 60-count, 13.6 – 17.5 lbs fruit termed 45 count, 17.6 – 21.4 lbs fruit termed 36-count, and fruit 21.5 lbs or larger termed 30-count. We used these weight designations to categorize the harvested fruits in this study. The most popular standard triploid fruit size has typically ranged from 12-16 lbs and the majority of fruit harvested in this study ranged between 9.1 and 13.5 lbs. The mini triploid watermelon transplants were established in the field on 10 May 2019. Plot size for mini triploid size watermelons was 1 row, 8 plants per plot, 15 feet long with alleys of 10 feet between plots. Alternate plantings of 'SP-7' and 'Wild Card Plus' (4 plants/plot) were used as the pollenizer plants in this study. 'SP-7' pollenizer plants were planted after triploid plants 1 and 5 while 'Wild Card Plus' pollenizer plants were planted after triploid plant 3 and 7. Row middles were 10 feet for all watermelon types and in-row spacing was 1.9 feet for the mini size triploid watermelons.

Mini triploid watermelon harvests (3) occurred on: 17 and 25 July 2019; 5 August 2019. For the

mini triploid watermelon test, fruits were placed in the following categories: ≤ 3.0 lbs, 3.1 – 7.0 lbs, 7.1 – 9.0 lbs, and ≥ 9.1 lbs. Evaluations of each watermelon entry included yields, fruit size, production earliness, soluble solids, using a hand held digital refractometer (Atago, Vernon Hills, IL), fruit shape and size, exterior and interior descriptions (rind pattern, length/width ratio, seed trace size, occurrence of hard seeds, hollow heart incidence and severity, and flesh color), and interior flesh firmness.

Hard seed in triploid fruit was determined according to the USDA standards. Fruits were cut longitudinally in half, and then these halves were cut laterally. The number of hard seeds exposed on the cut surface were counted and recorded.

This is the sixth year we have rated for hard seeds according to the USDA standards. Evaluations of each melon entry included; yield, fruit size, production earliness, soluble solids, fruit shape and size and interior flesh firmness. Flesh firmness was taken by using a Penetrometer FT 011 with a 7/16" plunger tip, (QA Supplies LLC, Norfolk, Va.), and recorded in pounds. Soluble solids were measured by cutting a piece of fruit from the center of the fruit and squeezing out the fruit juice onto the digital refractometer (Atago, Vernon Hills, IL). Samples were obtained by cutting the center of the fruit from the stem to blossom end. Pressure was then taken in five areas of the fruit; stem end, top side, ground spot side, blossom end, and center. Pressure was not taken on fruit with hollow heart. The reported measures on flesh firmness are an average of the five sample areas and are an average value taken for five fruit per plot or 20 fruits per cultigen. Most of the quality measurements were taken at the first or second harvests.

Financial Support

In addition to seed companies, this research was supported by the College of Life and Agricultural Sciences, North Carolina Agriculture Research, North Carolina Cooperative Extension Services and the North Carolina Watermelon Association. This research was also supported by a grant from USDA National Institute of Food and Agriculture Specialty Crop Research Initiative (2015-51181-24285).

Table 1. Triploid Red-Flesh Watermelon Seed Sources and Descriptions; 2019.

Entry No.	Cultigen	Company	Description
1	Arizonita	United Genetics Seed Co.	Fairly distinct green stripe on light green background; medium to small oval to slightly round fruit; medium to large (36 to 45 count).
2	Boneci	Origene	Fairy distinct narrow to medium stripe on light green background; smaller fruit more round with medium size fruit more blocky; mostly small to medium (60 to 45 count) with few large (36 count).
3	Captivation	Syngenta	Indistinct, medium width, mainly dark green stripes on light green background; blocky/oval shapes; sizes mainly medium to small (36 to 45 count).
4	Charismatic	Sakata	Indistinct, medium width, medium to dark green stripes with light to medium green background; mainly short round shapes; thick rind; small to medium size (60 to 45 count).
5	Crunchy Red	HM Clause	Elongated shape, blocky; indistinct; medium to dark green stripes; medium width on light green background.
6	Declaration	Bayer Crop Science	Fairly distinct medium width dark green stripe on pale green background; blocky oval to slightly round fruit; mainly medium to large (36 to 45 count).
7	Embasy	Bayer Crop Science	Indistinct, medium wide, medium to dark green stripes on a light green background; slightly oval to round; mainly medium size (45 count).
8	Exclamation	Syngenta	Fairly distinct, medium width, medium to dark green stripes on a light green background, short blocky shapes or round; mainly medium to large size fruit (45 to 36 count).
9	Excursion	Syngenta	Indistinct, medium width medium to dark green stripes with light to medium green backround; medium to large sized fruit. 45 to 30 count).
10	Fascination	Syngenta	Indistinct, medium to large width, dark green stripes on light green background; oval shape in large fruit and long round in smaller fruits; size mainly medium (45 count).

Table 1. Cont. Triploid Red-Flesh Watermelon Seed Sources and Descriptions; 2019.

Entry No.	Cultigen	Company	Description
11	Golden Crisp	Syngenta	Distinct narrow green stripe on lighter green background; slightly oval to oblong; fruit mostly medium sized (45 count) with some small and large (60 to 36 count).
12	Maxima	Origene	Fairly distinct, dark green stripes on a medium green background; shape is round to longer than round; fruit mostly large in size (36 count).
13	Red Amber	Enza Zaden	Indistinct medium stripes on medium green background; cream to yellow ground spot on several fruit; fruit mostly oblong; fruit mostly medium size with some smaller (45 to 60 count).
14	Red Garnet	Enza Zaden	Indistinct wide dark green stripes on light green background; fruit mostly oblong in shape; sizes are small to medium (60 to 45 count).
15	Red Opal	Seedway	Indistinct narrow to medium width stripes; medium green on light green background; - sizes tend to be smaller with many in 60 to 45 count range.
16	Secretariat	Sakata	Indistinct medium to light green stripes on a light green background; thick rind; round to long round or oval; mostly small to medium in size (60 to 45 count).
17	Sweet Gem	Syngenta	Dark green exterior with more distinct stripes appearing on mature fruit; mostly round to slightly oval; mostly medium (45 count) with some small (60 count).
18	Tailgate	Seminis	Indistinct, medium to wide width dark green stripes with light green background; fruit are round to oval; fruit mostly medium sized but variable (45 count).
19	Troubadour	HM Clause	Distinct, narrow to medium width dark green stripes on light green background; fruit are slightly oval with smaller fruit tending to be more round; sizes variable (60 to 36 count).
20	Turnpike	HM Clause	Distinct medium width with medium to dark green stripes on light green background; fruit are consistent, medium size; mostly round to slightly oval shape; 45 to 60 count.

Table 1. Cont. Triploid Red-Flesh Watermelon Seed Sources and Descriptions; 2019.

Entry No.	Cultigen	Company	Description
21	Warrior	Bayer Crop Science	Indistinct, medium to wide width dark green stripess on medium green background; oval or blocky fruit; variable sizes from small to larger fruits (60 to 36 count).
22	7197 HQ	Bayer Crop Science	Indistinct, medium width, medium to dark green stripess on light green background; oval/short blocky shapes; mainly 45 and 60 count.
23	E26C.00063	Enza Zaden	Indistinct medium width mainly dark green stripess; mainly round to slightly oblong; mostly 60 to 45 count; distinct ground spot is yellow on many ripe fruit.
24	ORS 6064f	Origene	Indistinct narrow to medium width dark green stripess on light green background; medium size fruit oblong with some small fruit more round; most fruit 60 to 45 count; some knottyness on few fruit
25	ORS 6203a	Origene	Indistinct medium width stripes on light green background; mostly oblong to slightly round fruit; sizes range from mainly 60 to 45 count.
26	ORS 6371	Origene	Fairly distinct narrow to medium width dark green stripes on light green background; fruit mostly oblong to slightly round; size variable ranging from 60 to 36 count.
27	ORS 6375a	Origene	Fairly distinct dark green stripes on light green background; mostly oblong to slightly round fruit with few smaller fruit round and few medium fruit blocky; variable fruit sizes ranging 60 to 30 count.
28	ORS 6406b	Origene	Fairly distinct narrow to medium width stripes on lighter green background; mostly round to more oblong shape; variable sizes from 60 to 36 count.
29	SV0241WA	Seminis	Distinct dark green stripes on light green background; mostly oval to oblong shape; sizes mostly 60 to 45 count.
30	SV0502WA	Seminis	Distinct dark green stripes on light green background; mostly oblong to oval with some fruit more round; sizes 60 to 45 count.

Entry No.	Cultigen	Company	Description
31	SW 1981	Seedway	Fairly distinct narrow to medium width dark green stripes on light green background; large fruit blocky to oval with smaller fruit mostly oval; mostly 45 count with some 60 and some 36 count.
32	WDL 6404	Syngenta	Mostly solid dark green with narrow green stripes appearing on more mature fruit; distinct yellow groundspot on several fruit; variable fruit sizes ranging from 60 to 36 count.

Figure 1. Standard triploid watermelon photographs. **Clinton, NC, 2019.**

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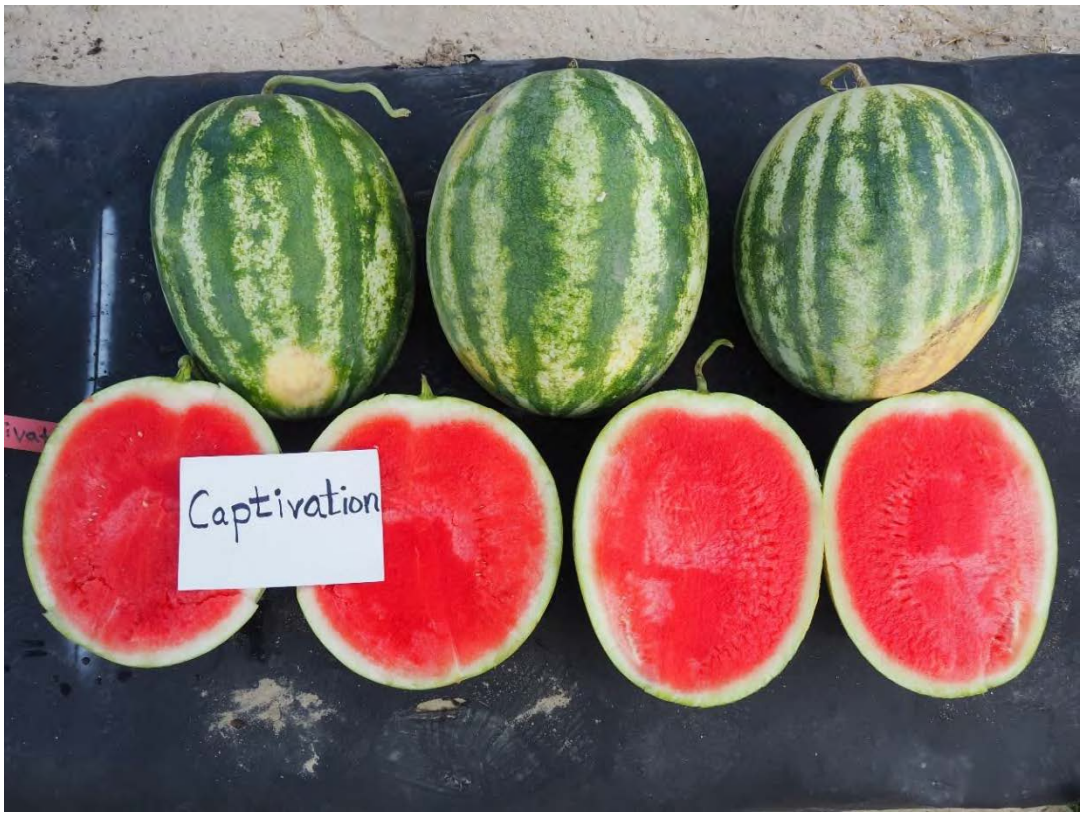

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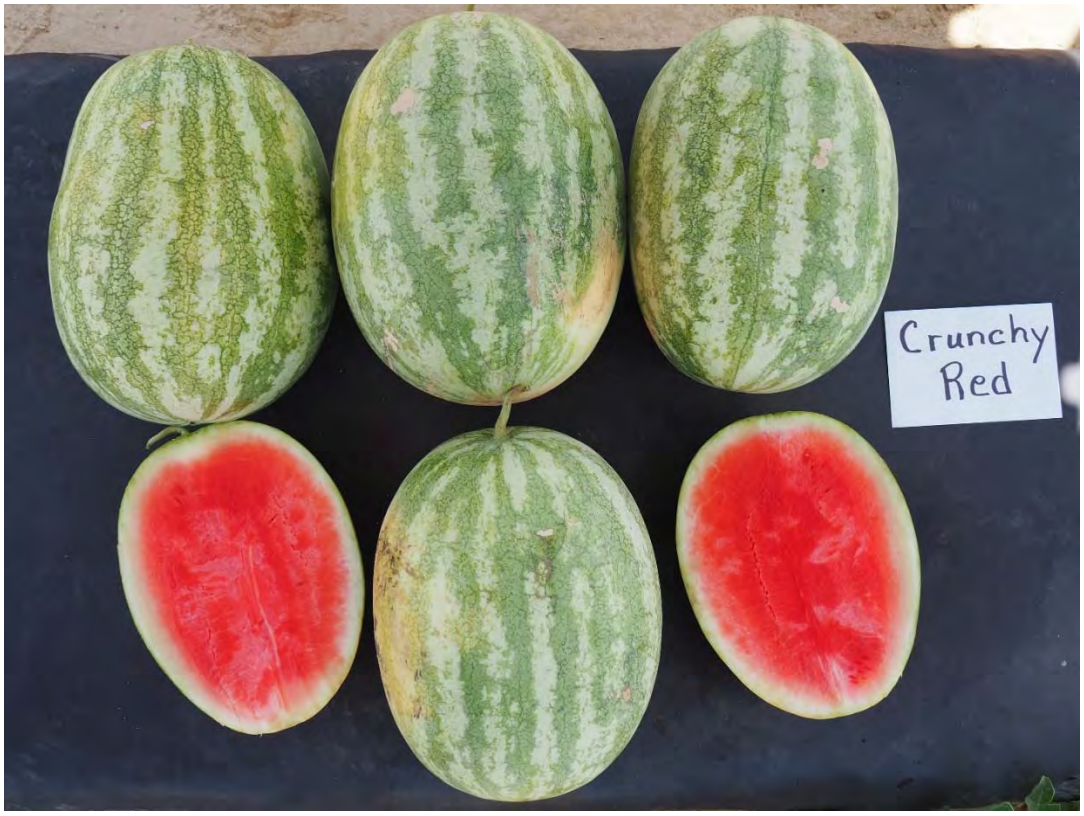

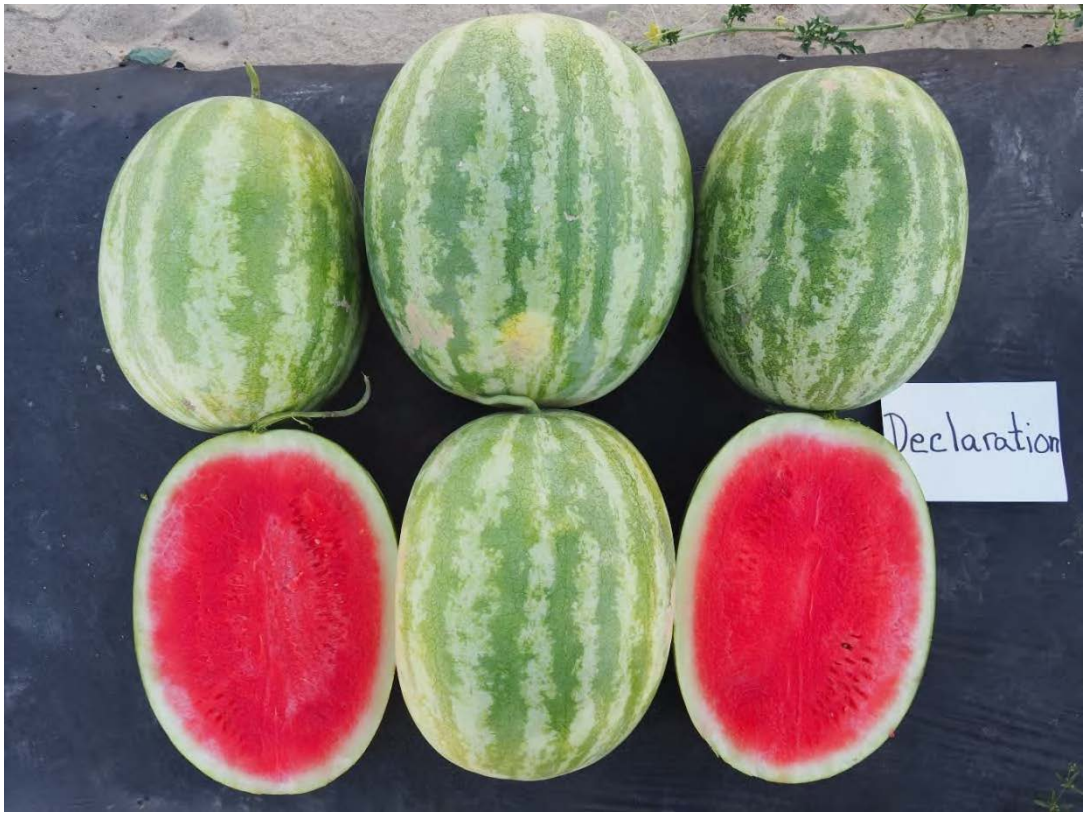

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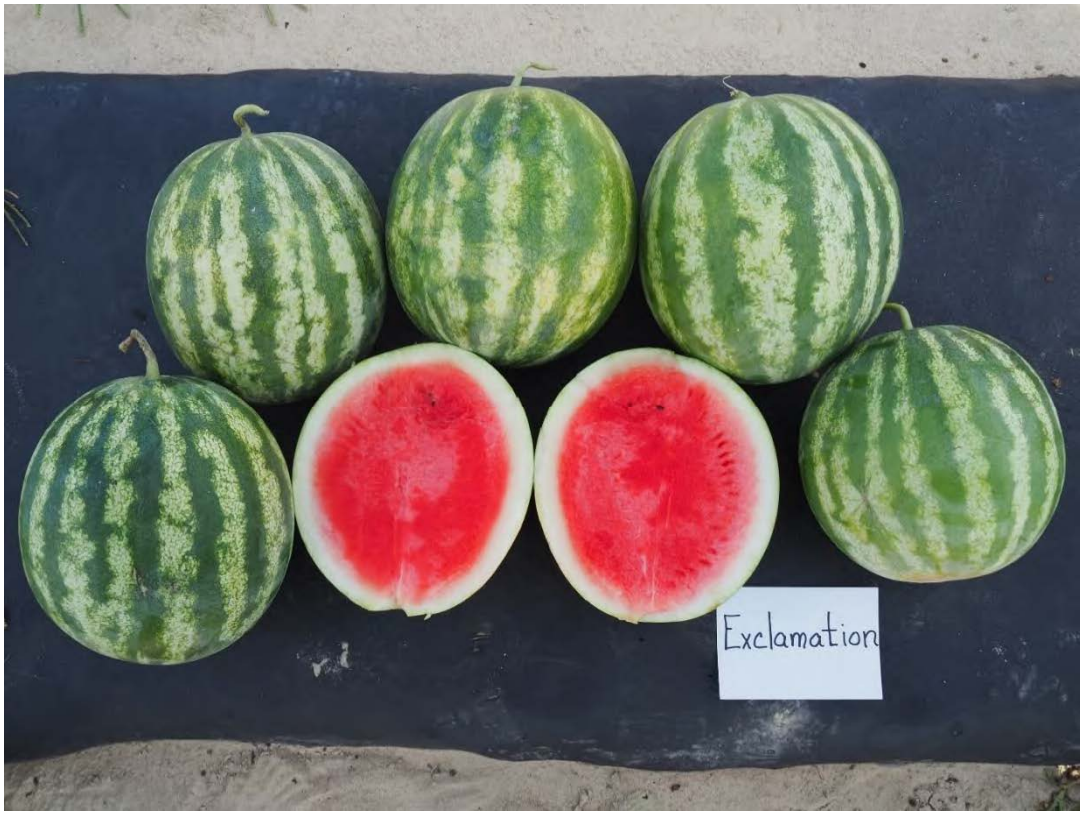

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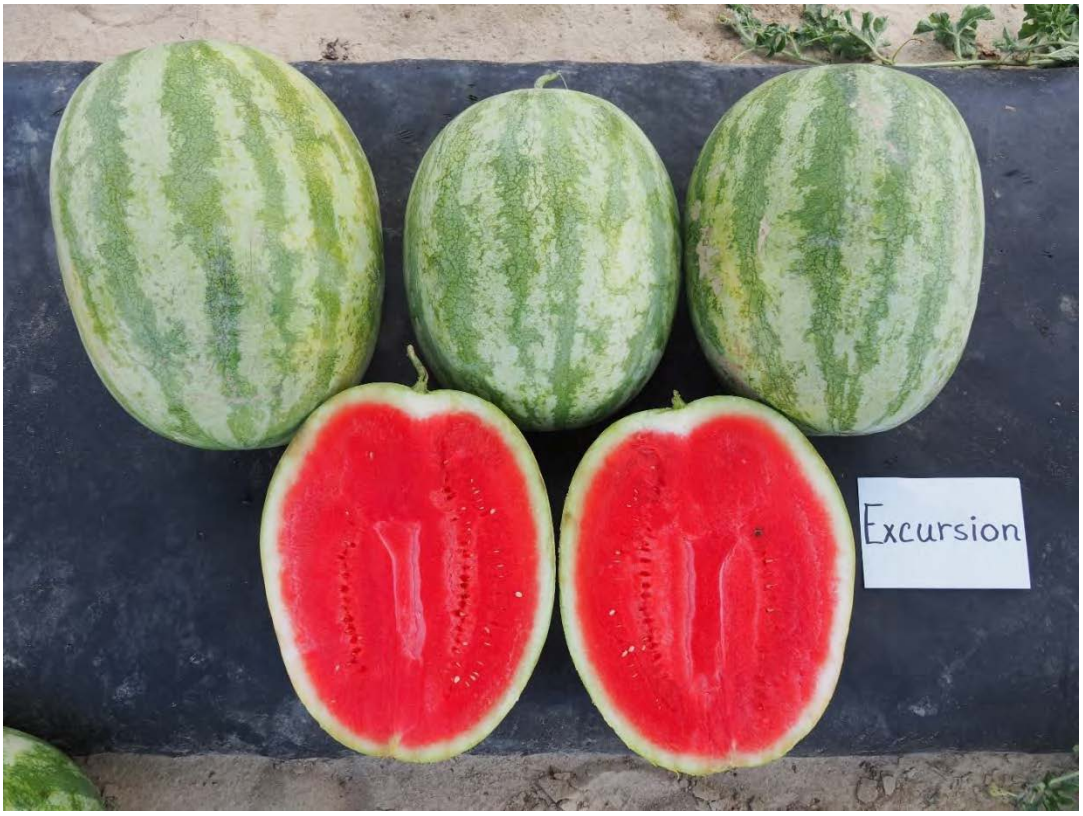

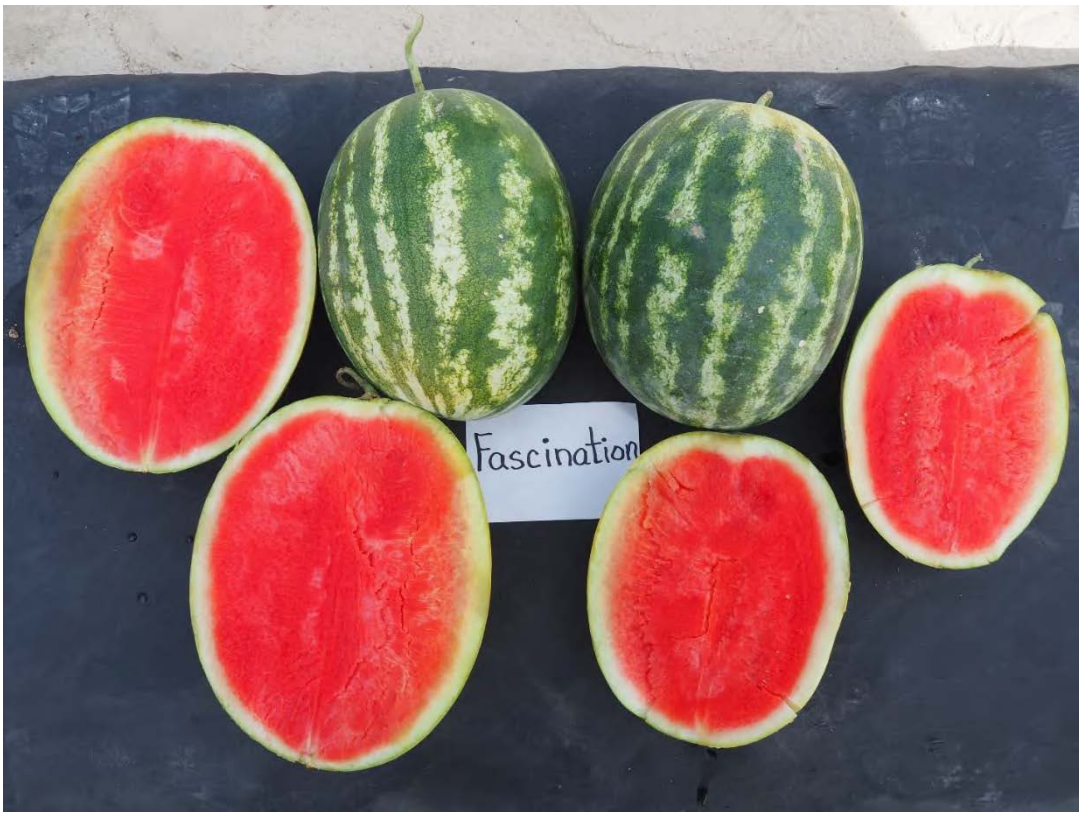

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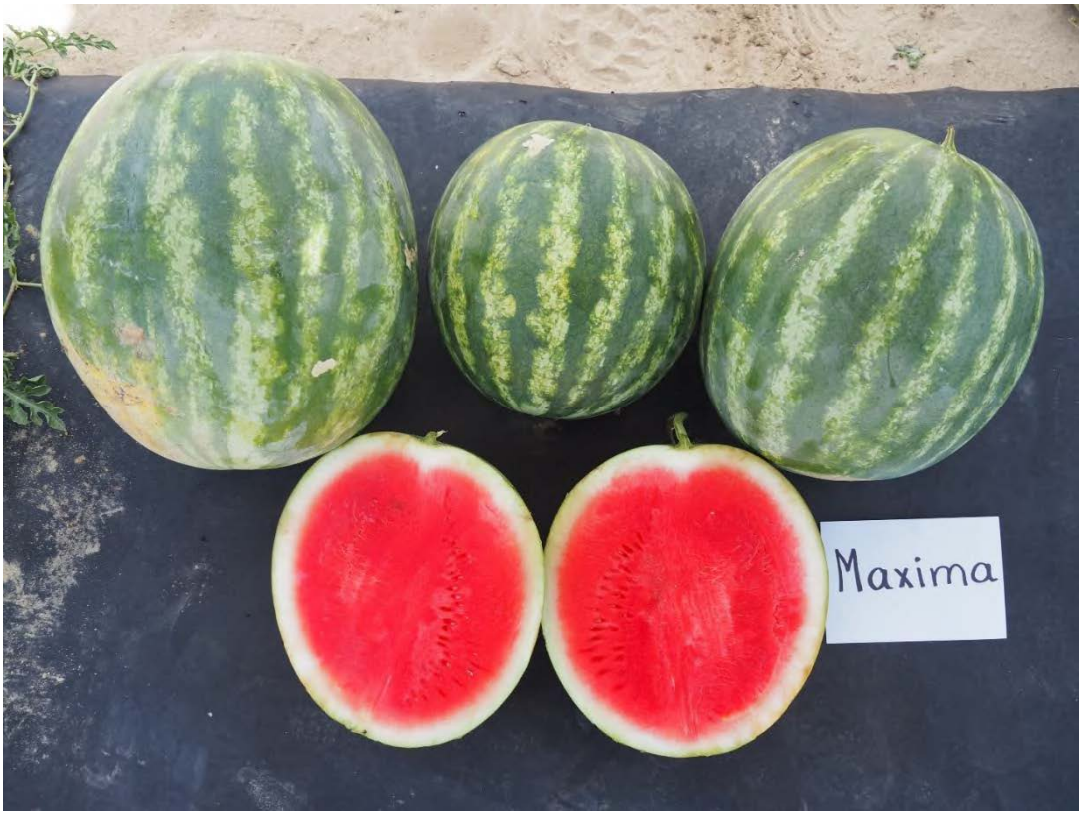

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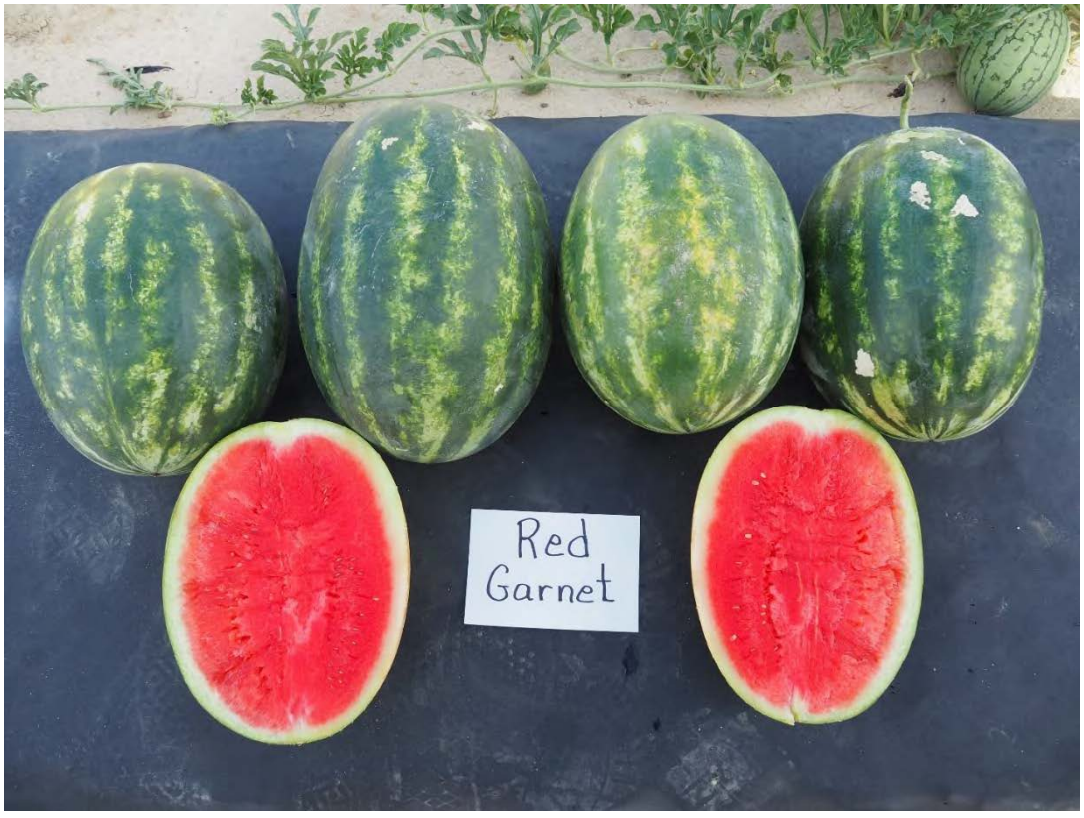

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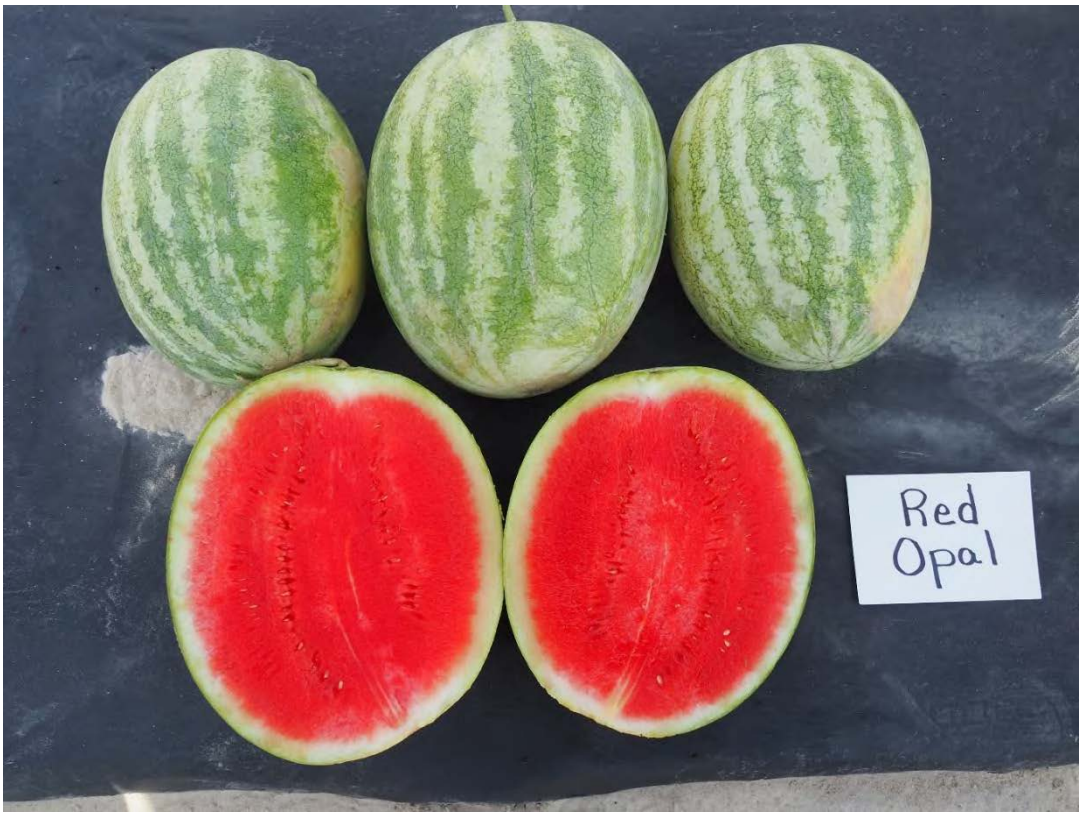

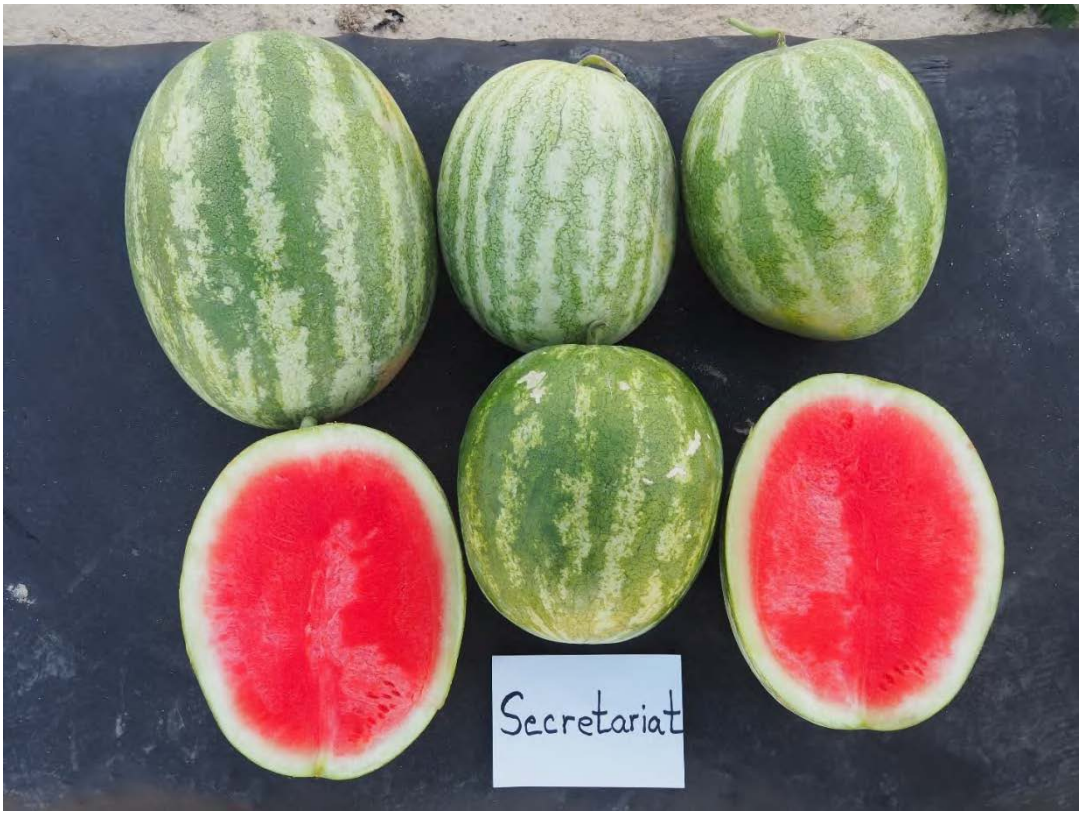

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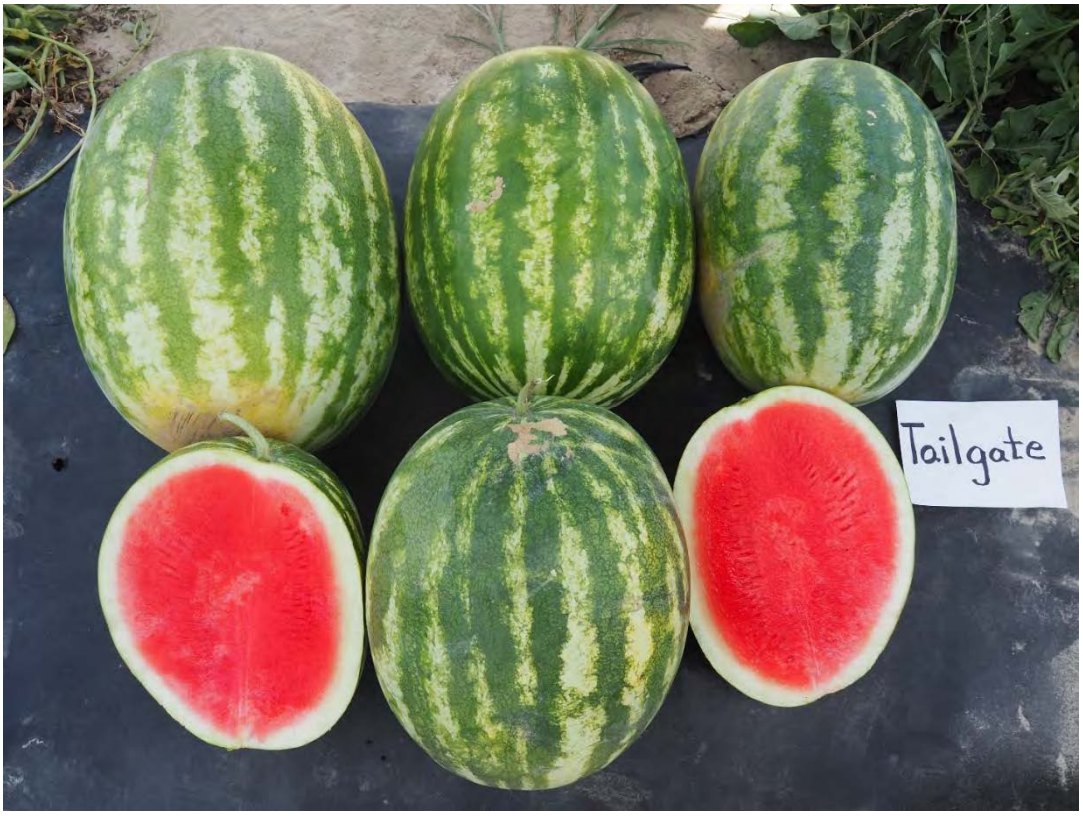

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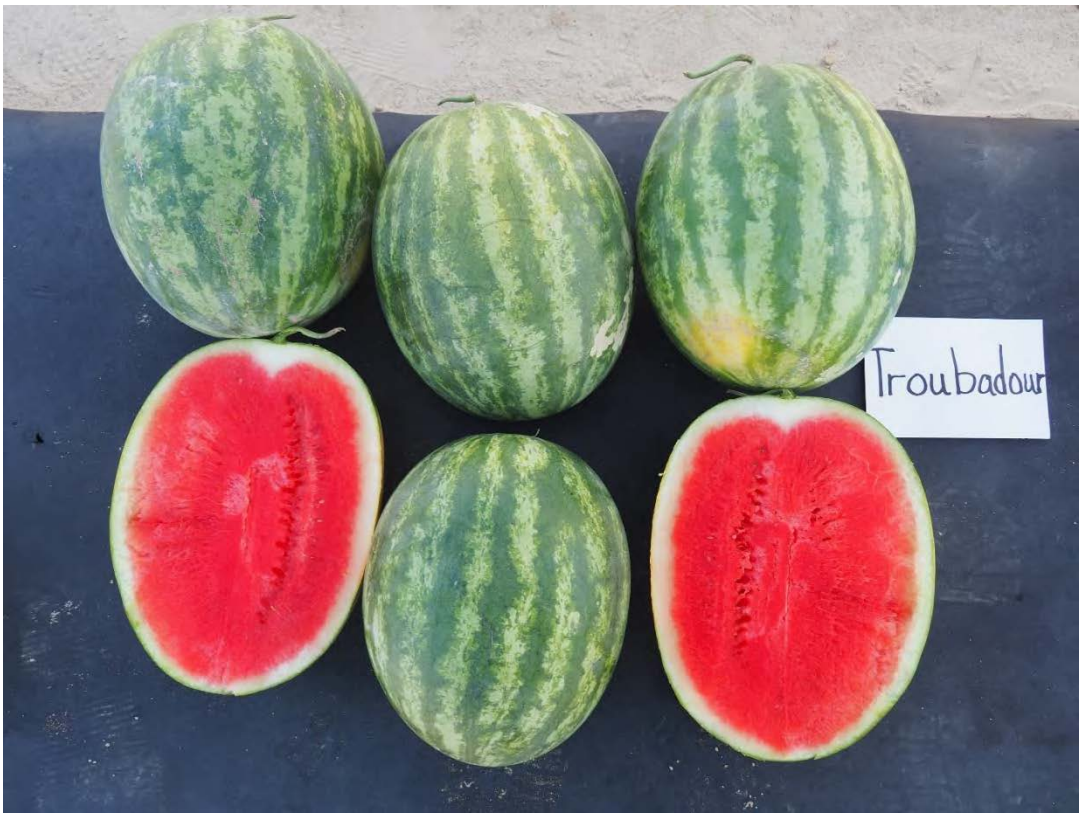

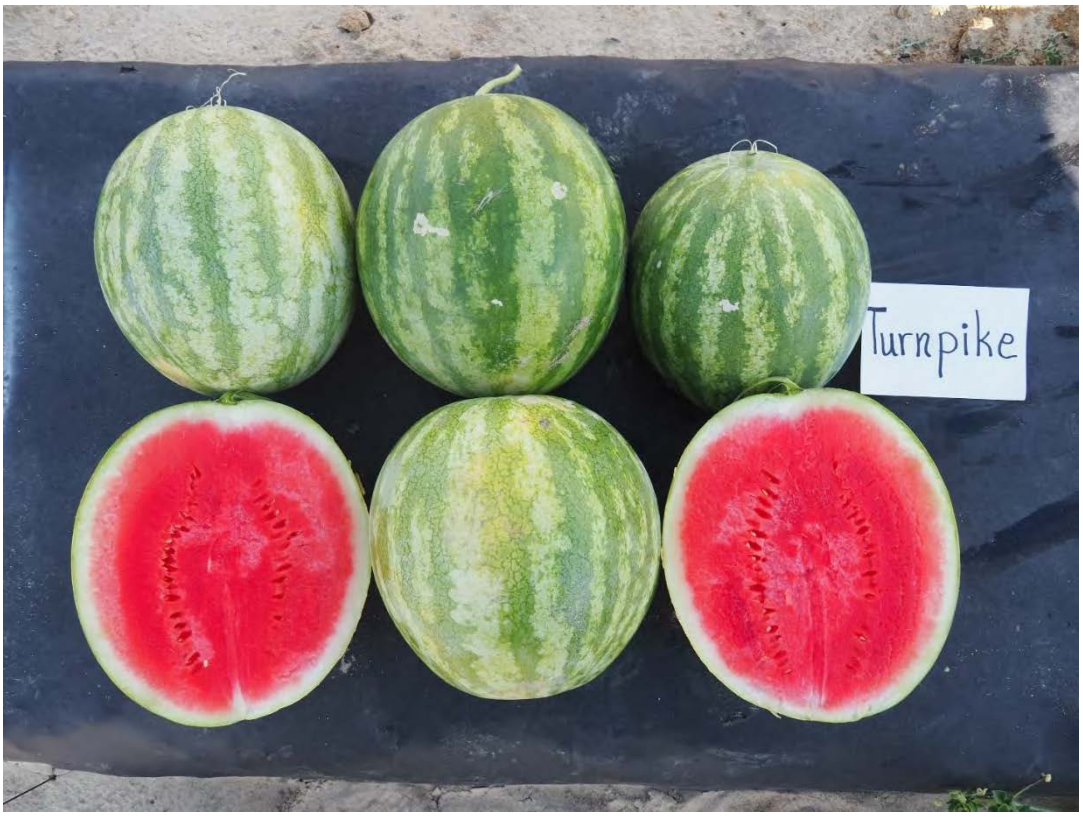

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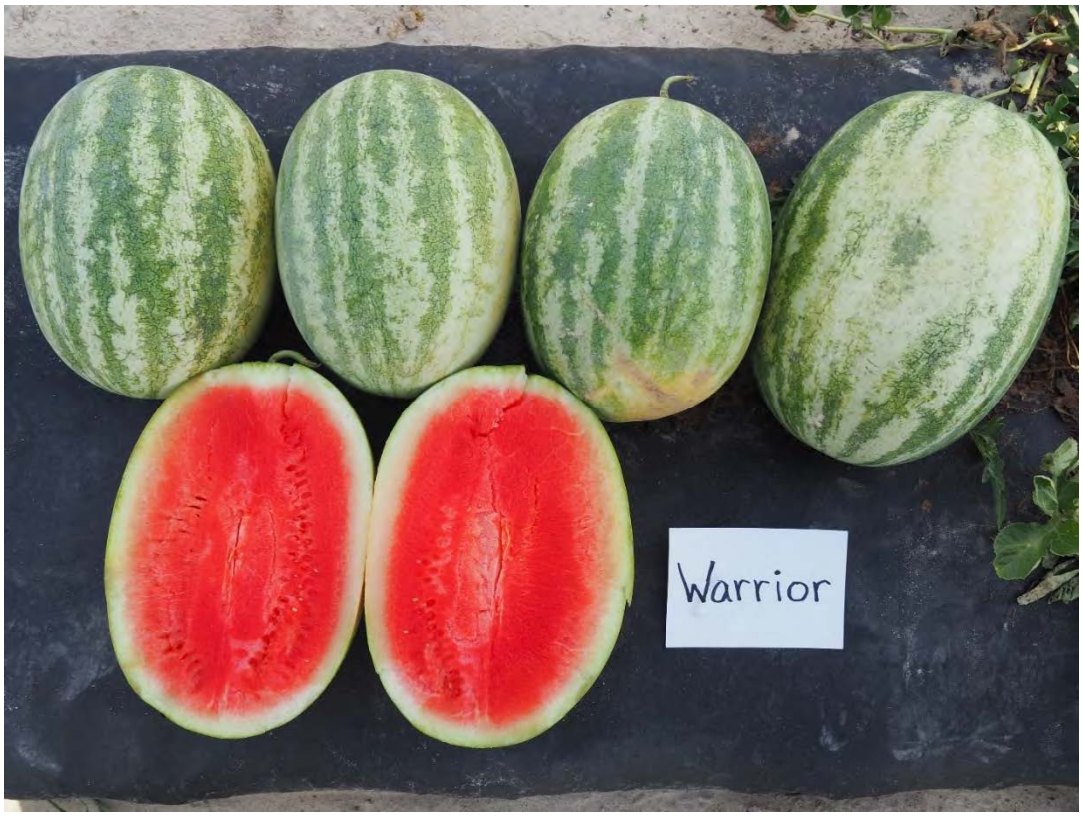

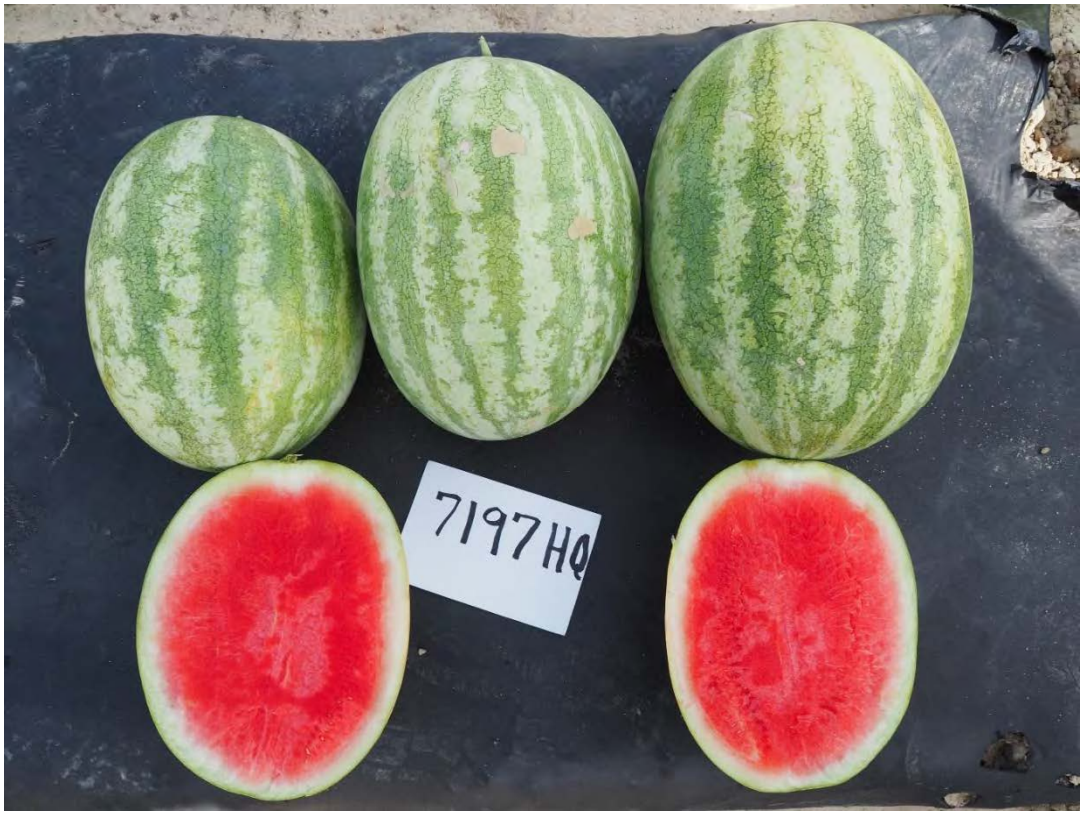

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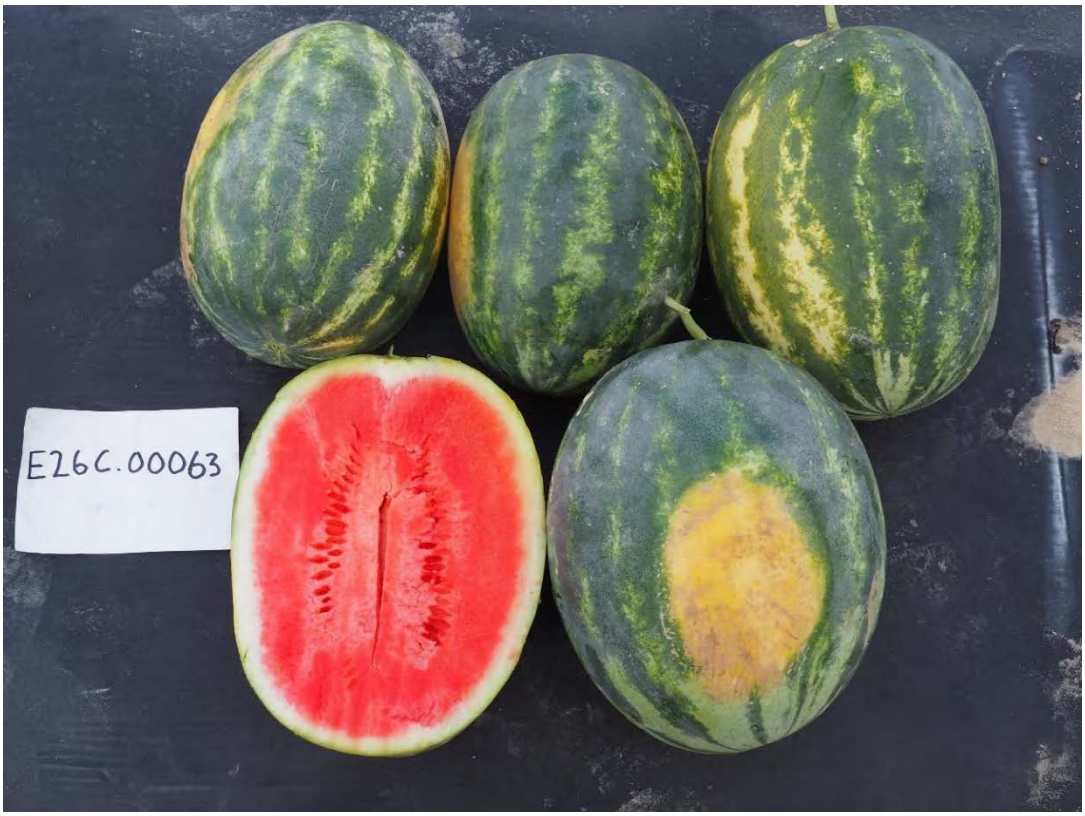

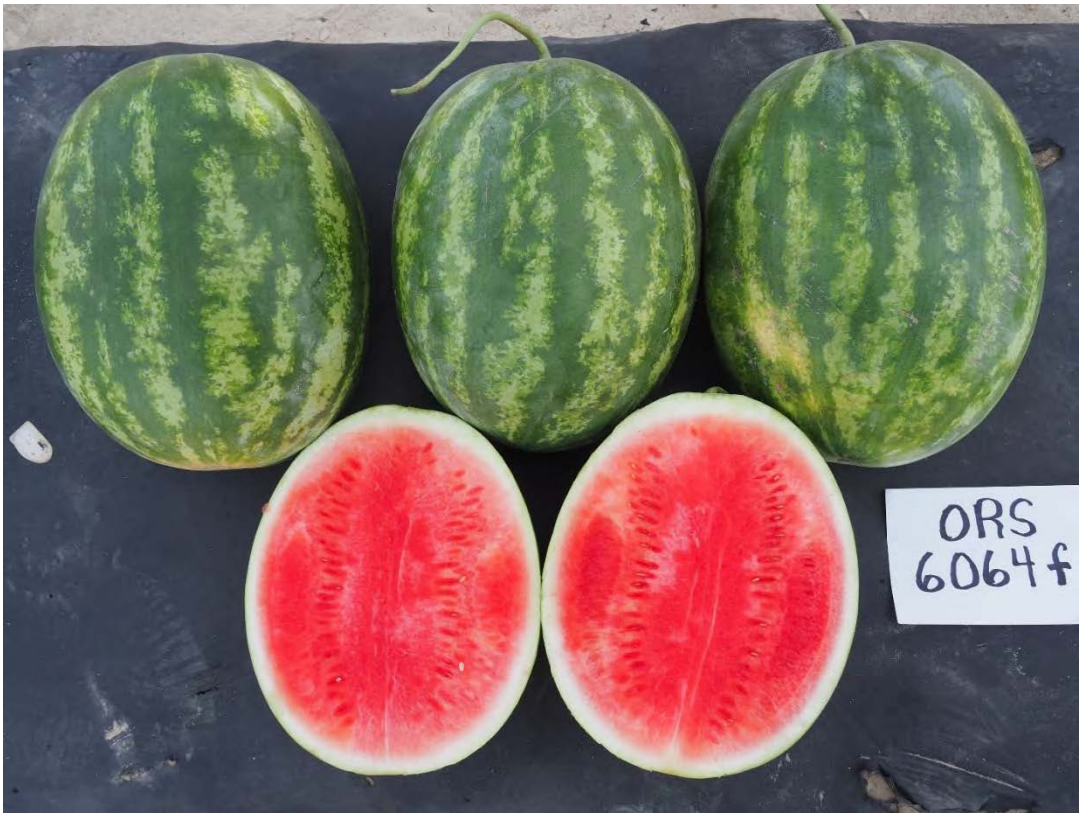

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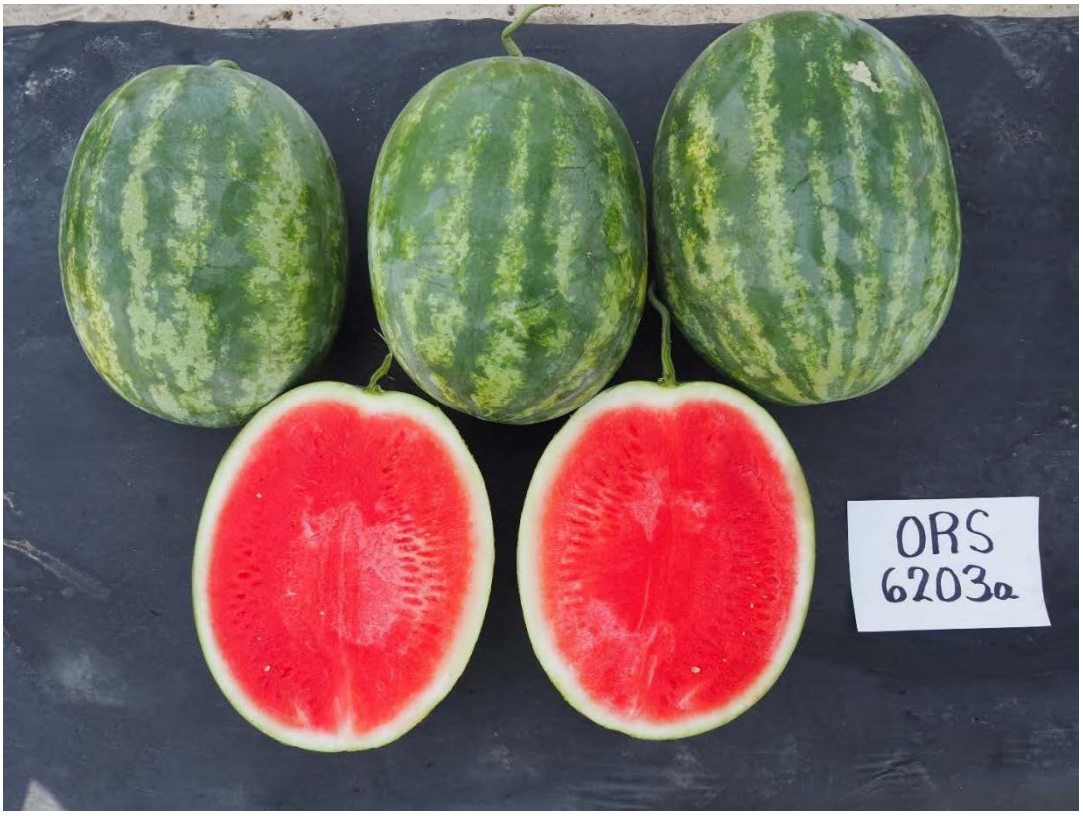

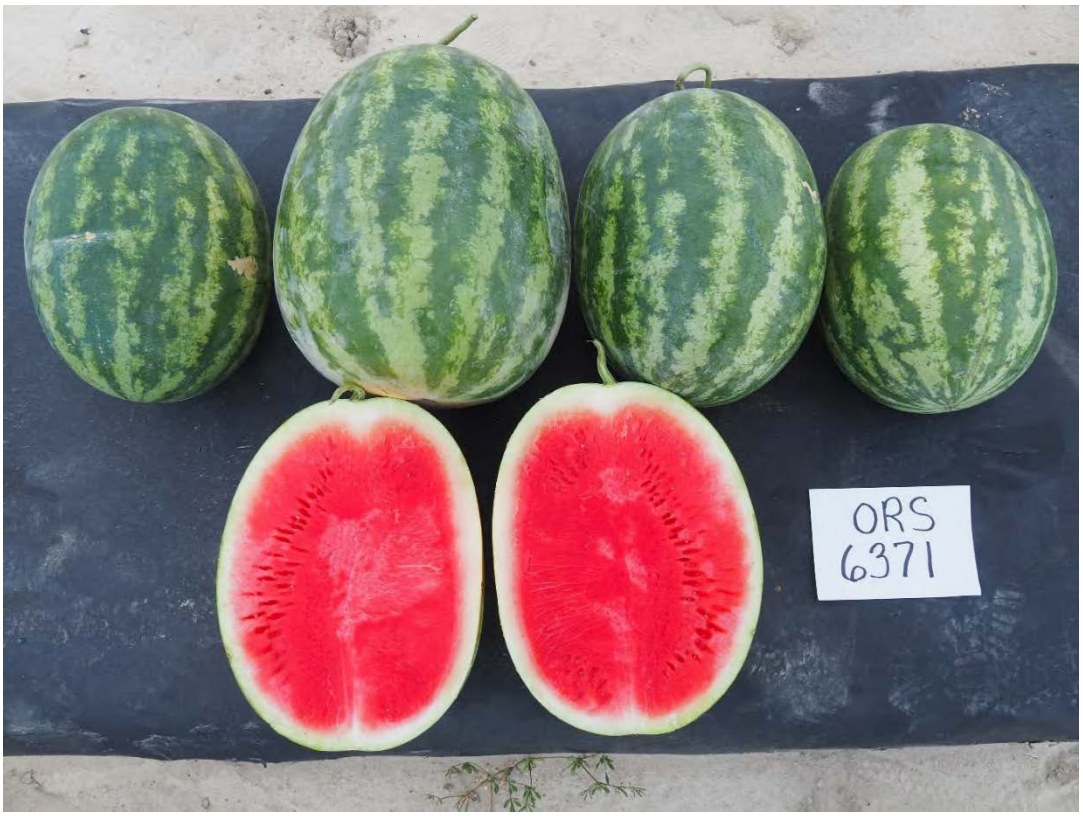

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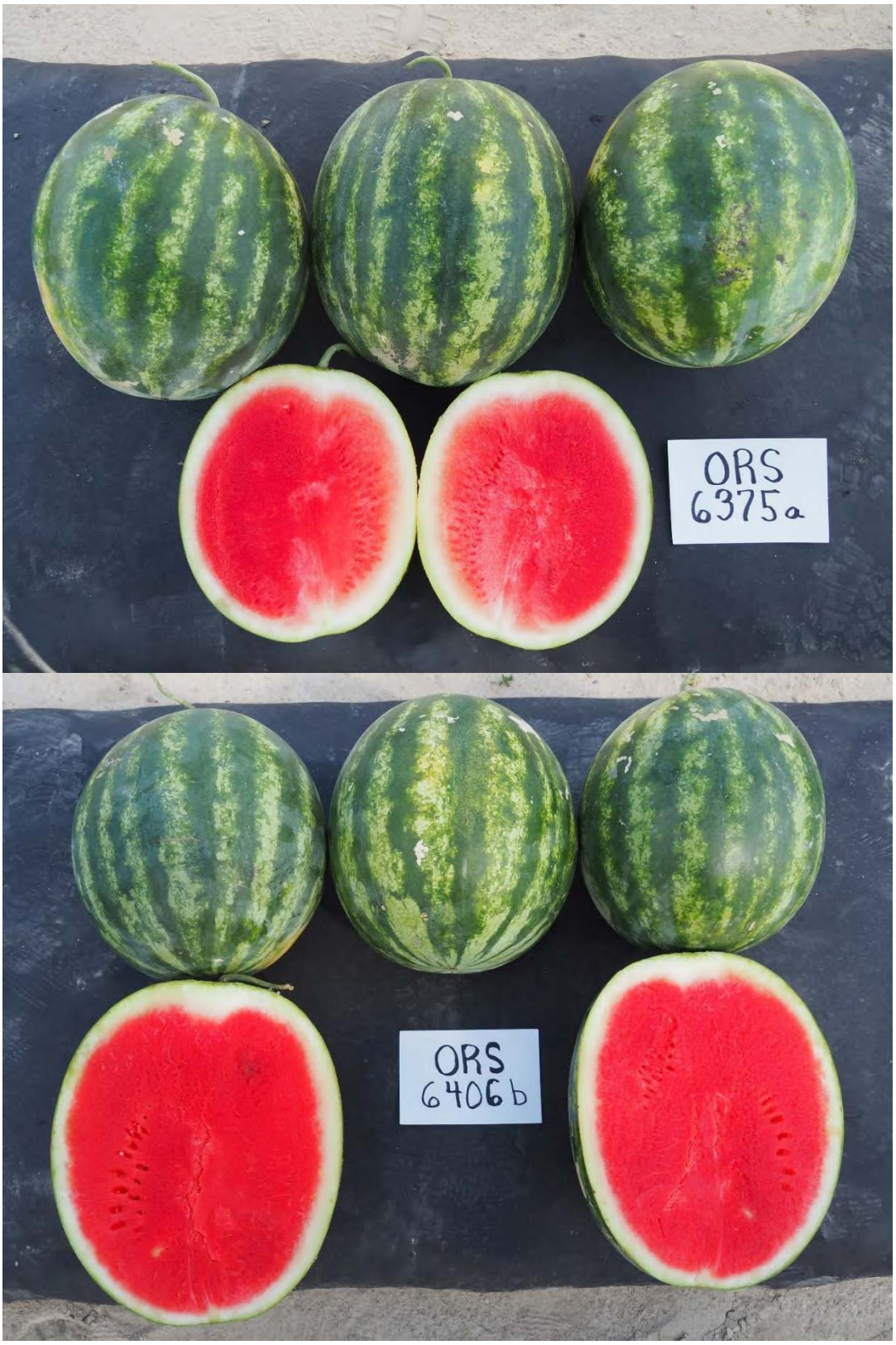

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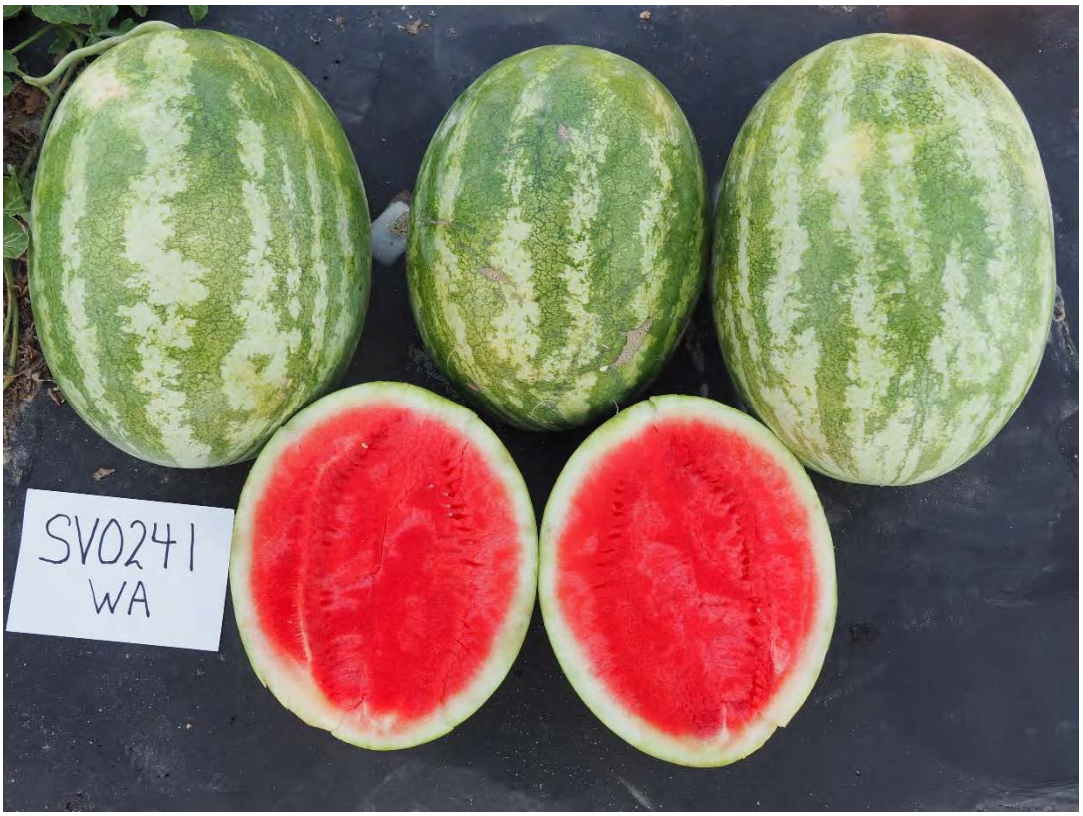

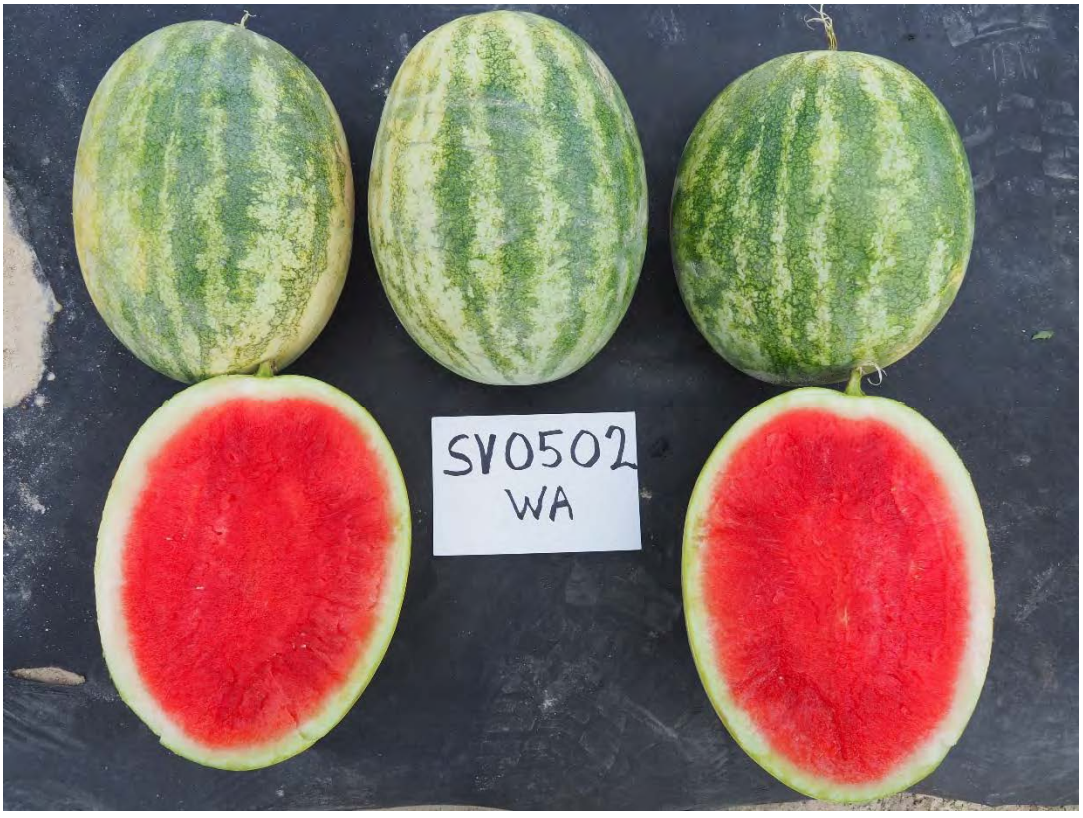

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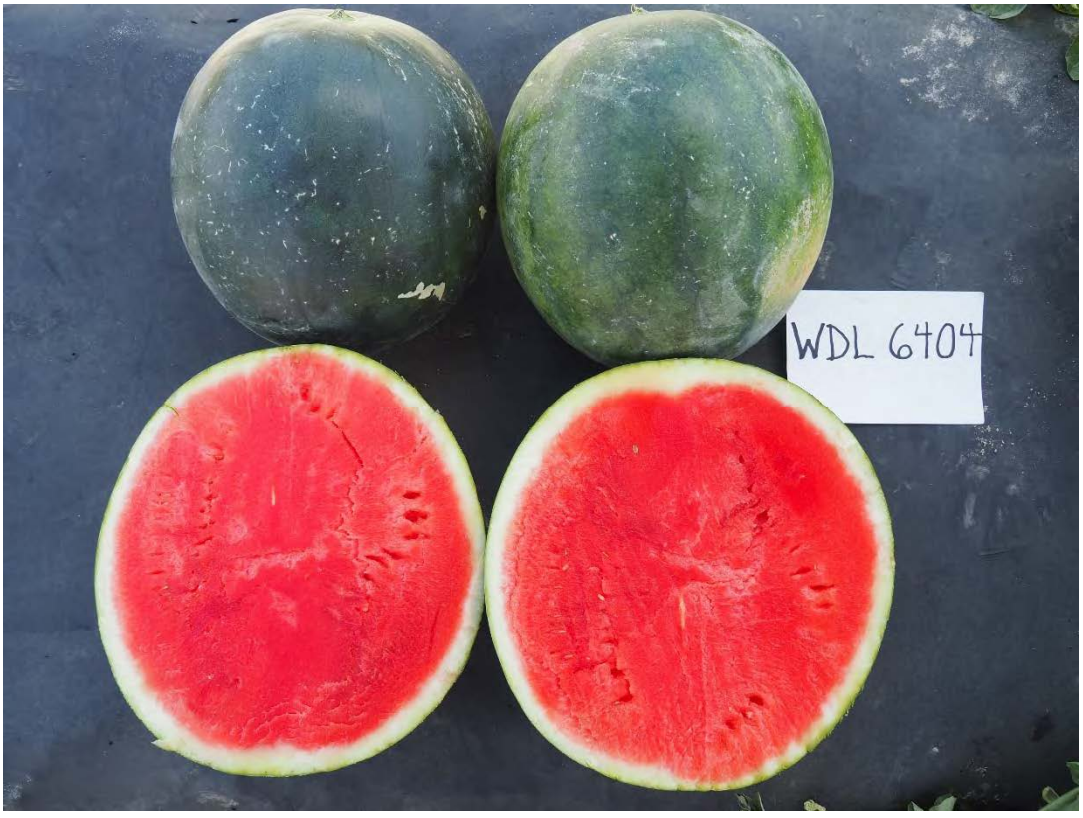


Table 2. Triploid Red-Flesh watermelon hybrid cultivar trial. **Fruit weight, (cwt.),** per acre by various weight classes including average fruit size[1] for harvest 1. **Clinton, NC 2019.**

	Cwt. (x100) by size						
Cultivar	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total Fruit Wt. / Acre	Mkt. Fruit Wt. / Acre[2]
Arizonita	9	103	100	42	94	348	339
Boneci	13	95	101	49	25	283	270
Captivation	12	91	111	64	0	279	267
Charismatic	20	71	133	11	24	259	238
Crunchy Red	4	88	132	40	0	264	260
Declaration	0	79	144	52	0	276	276
Embasy	11	85	178	72	38	383	372
Exclamation	3	112	170	74	25	384	382
Excursion	13	50	102	41	105	311	298
Fascination	26	74	102	53	0	255	229
Golden Crisp	9	69	119	84	26	306	297
Maxima	0	26	76	124	53	279	279
Red Amber	12	83	119	72	12	298	286
Red Garnet	4	108	104	29	0	246	241
Red Opal	23	93	105	63	13	297	274
Secretariat	20	142	129	20	13	325	304
Sweet Gem	12	71	115	30	14	242	230
Tailgate	3	68	114	96	51	332	329
Troubadour	26	149	84	10	0	268	243
Turnpike	13	126	94	41	0	274	262
Warrior	4	103	130	103	0	341	337
7197 HQ	13	124	135	52	25	348	335
E26C.00063	14	77	67	30	12	200	186
ORS 6064f	12	56	126	0	0	193	181
ORS 6203a	17	105	49	0	0	172	154
ORS 6371	3	39	109	70	38	259	256
ORS 6375a	4	65	96	103	76	345	340
ORS 6406b	0	50	66	82	39	237	237
SV0241WA	27	112	119	63	0	321	294
SV0502WA	43	103	83	0	0	229	186
SW 1981	0	44	161	41	97	342	342
WDL 6404	4	91	116	85	40	337	333
Average	12	86	112	53	26	289	277
LSD (0.05)	52	121	184	123	147	189	194

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' pollenizers were interplanted after triploid plants 1 and 7 and 'Wild Card Plus' were interplanted after triploid plants 4 and 10 (4 total pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Includes fruit ≥ 9.1 pounds.

Table 3. Triploid Red-Flesh watermelon hybrid cultivar trial. **Bin boxes** per acre by various weight classes including average fruit size[1] for harvest 1. **Clinton, NC 2019.**

	Bin boxes / acre by size grade[2]						% Total Yield by Count[4]				
Cultivar	≤ 9.0	9.1-13.5	13.6-17.5	17.6-21.4	≥ 21.5	Mkt. Bins / Acre[3]	30	36	45	60	Avg lb./ fruit
Arizonita	1	15	14	6	13	48	27	12	27	32	17.6
Boneci	2	14	14	7	4	39	9	15	39	33	14.1
Captivation	2	13	16	9	0	38	0	21	42	32	13.8
Charismatic	3	10	19	2	3	34	8	5	54	26	12.9
Crunchy Red	1	13	19	6	0	37	0	19	46	33	13.8
Declaration	0	11	21	7	0	39	0	20	50	30	14.5
Embasy	2	12	25	10	5	53	11	18	45	23	15.0
Exclamation	0	16	24	11	4	55	4	21	45	28	14.7
Excursion	2	7	15	6	15	43	30	14	35	17	16.2
Fascination	4	11	15	8	0	33	0	22	39	29	13.1
Golden Crisp	1	10	17	12	4	42	10	32	35	21	15.3
Maxima	0	4	11	18	8	40	22	41	26	10	17.8
Red Amber	2	12	17	10	2	41	4	23	40	26	14.2
Red Garnet	1	15	15	4	0	34	0	14	41	43	13.3
Red Opal	3	13	15	9	2	39	6	22	36	30	13.8
Secretariat	3	20	18	3	2	43	4	6	38	45	13.2
Sweet Gem	2	10	16	4	2	33	5	11	50	30	13.5
Tailgate	0	10	16	14	7	47	15	29	36	20	16.1
Troubadour	4	21	12	1	0	35	0	5	30	55	12.0
Turnpike	2	18	13	6	0	37	0	15	27	52	13.0
Warrior	1	15	19	15	0	48	0	31	37	31	15.0
7197 HQ	2	18	19	7	4	48	7	15	38	36	14.0
E26C.00063	2	11	10	4	2	27	6	12	33	42	13.0
ORS 6064f	2	8	18	0	0	26	0	0	62	30	12.8
ORS 6203a	2	15	7	0	0	22	0	0	36	49	11.7
ORS 6371	0	6	16	10	5	37	18	26	43	12	16.6
ORS 6375a	1	9	14	15	11	49	19	29	30	21	16.4
ORS 6406b	0	7	9	12	6	34	14	30	31	26	15.9
SV0241WA	4	16	17	9	0	42	0	18	38	35	13.1
SV0502WA	6	15	12	0	0	27	0	0	42	44	11.3
SW 1981	0	6	23	6	14	49	31	11	45	13	17.4
WDL 6404	1	13	17	12	6	48	11	29	33	26	16.0
Average	2	12	16	8	4	40	8	18	39	31	14.4
LSD (0.05)	8	17	26	18	21	28	- -	- -	- -	- -	5.5

1 Yields are calculated using 100 percent seedless watermelon population. 'SP-7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wild Card Plus' pollenizers were interplanted after triploid plants 4 and 10 (4 total pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Values were determined based upon 700 lb bin box weight.

[3] Includes fruit ≥ 9.1 pounds.

[4] Culls (≤ 9.0 lbs) are included in calculation for total yield by count for each respective bin category. Therefore, total will not equal 100 percent.

Table 4. Triploid Red-Flesh watermelon hybrid cultivar trial. **Fruit number** for harvest 1 by various weight classes (per acre) including fruit number per plant. **Clinton, NC 2019.**

		Fruit size category							
Cultivar	Rank[1]	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total Number	Total Mkt. No.[2]	Fruit No./ Plant
Arizonita	8	109	926	653	218	218	2124	2015	1.0
Boneci	18	218	817	653	272	109	2069	1851	1.0
Captivation	19	163	817	708	327	0	2015	1851	0.9
Charismatic	23	327	653	871	54	109	2015	1688	0.9
Crunchy Red	20	109	762	871	218	0	1960	1851	0.9
Declaration	12	0	708	926	272	0	1906	1906	0.9
Embasy	2	163	708	1143	381	163	2559	2396	1.2
Exclamation	1	109	926	1089	381	109	2614	2505	1.2
Excursion	22	163	436	653	218	436	1906	1742	0.9
Fascination	25	381	653	653	272	0	1960	1579	0.9
Golden Crisp	13	163	599	762	436	109	2069	1906	1.0
Maxima	26	0	218	490	653	218	1579	1579	0.7
Red Amber	14	163	708	762	381	54	2069	1906	1.0
Red Garnet	21	54	926	708	163	0	1851	1797	0.9
Red Opal	15	327	817	708	327	54	2232	1906	1.0
Secretariat	5	272	1198	817	109	54	2450	2178	1.1
Sweet Gem	24	163	653	762	163	54	1797	1634	0.8
Tailgate	9	54	599	708	490	218	2069	2015	1.0
Troubadour	16	327	1307	545	54	0	2232	1906	1.0
Turnpike	17	163	1089	599	218	0	2069	1906	1.0
Warrior	4	54	871	817	544	0	2287	2232	1.1
7197 HQ	3	218	1089	871	272	109	2559	2341	1.2
E26C.00063	30	272	708	436	163	54	1634	1361	0.8
ORS 6064f	31	163	490	817	0	0	1470	1307	0.7
ORS 6203a	32	218	926	327	0	0	1470	1252	0.7
ORS 6371	27	54	327	708	381	163	1634	1579	0.8
ORS 6375a	10	54	545	599	545	327	2069	2015	1.0
ORS 6406b	29	0	436	436	436	163	1470	1470	0.7
SV0241WA	6	381	1035	762	327	0	2505	2124	1.2
SV0502WA	28	653	980	545	0	0	2178	1525	1.0
SW 1981	11	0	381	1035	218	381	2015	2015	1.0
WDL 6404	7	54	762	762	436	163	2178	2124	1.0
Average	- -	174	752	725	279	102	2032	1858	0.9
LSD(0.05)	**- -**	**791**	**1058**	**1185**	**650**	**568**	**1424**	**1355**	**0.7**

[1] Ranked according to total marketable number.

[2] Includes fruit ≥ 9.1 pounds.

Table 5. Triploid Red-Flesh watermelon hybrid cultivar trial. Fruit **weight,** (cwt.), per acre by various weight classes including average fruit size[1] for harvests 2-3. **Clinton, NC, 2019.**

	Cwt. (x100) by size						
Cultivar	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total / Acre	Mkt / Acre[3]
Arizonita	16	126	69	10	0	220	204
Boneci	10	47	23	31	0	112	102
Captivation	25	79	60	30	24	218	193
Charismatic	8	117	34	42	0	201	193
Crunchy Red	21	117	43	10	0	191	170
Declaration	15	91	74	0	0	180	166
Embasy	21	68	94	20	0	202	181
Exclamation	17	102	85	76	12	292	275
Excursion	17	60	36	41	0	154	137
Fascination	13	22	8	11	0	54	41
Golden Crisp	16	36	26	10	25	113	96
Maxima	15	50	111	84	37	298	283
Red Amber	0	79	75	52	50	256	256
Red Garnet	3	105	50	10	0	168	165
Red Opal	20	63	32	10	0	125	105
Secretariat	15	89	8	0	0	113	97
Sweet Gem	20	72	9	10	0	111	90
Tailgate	40	90	9	20	13	172	132
Troubadour	32	44	57	0	0	132	101
Turnpike	38	90	42	10	0	181	143
Warrior	4	60	28	54	0	146	142
7197 HQ	26	59	56	32	12	186	160
E26C.00063	15	39	31	42	14	140	126
ORS 6064f	0	171	74	31	0	276	276
ORS 6203a	4	162	146	21	37	371	366
ORS 6371	8	99	64	61	54	285	277
ORS 6375a	8	71	60	60	54	254	246
ORS 6406b	29	113	59	54	39	295	266
SV0241WA	23	79	87	10	12	210	187
SV0502WA	41	66	43	51	0	201	160
SW 1981	24	79	25	42	29	199	175
WDL 6404	13	68	54	41	0	176	163
Average	17	82	52	31	13	195	177
LSD (0.05)	48	126	121	129	104	274	274

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wild Card Plus' pollenizer plants were interplanted after triploid plants 4 and 10 (4 pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Ranked according to total marketable weight.

[3] Includes fruit ≥ 9.1 pounds.

Table 6. Triploid Red-Flesh watermelon hybrid cultivar trial. **Bin boxes** per acre by various weight classes including average fruit size[1] for harvests 2-3. **Clinton, NC, 2019.**

	Bin boxes / acre by size grade[2]						% Total Yield by Count[4]				
Cultivar	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	> 21.5	Mkt. Bins / Acre[3]	30	36	45	60	Avg lb./ fruit
Arizonita	2	18	10	1	0	29	0	5	27	59	11.7
Boneci	1	7	3	4	0	15	0	21	19	53	12.0
Captivation	4	11	9	4	3	28	4	5	12	46	11.5
Charismatic	1	17	5	6	0	28	0	22	20	55	12.5
Crunchy Red	3	17	6	1	0	24	0	3	16	68	10.8
Declaration	2	13	11	0	0	24	0	0	43	45	11.7
Embasy	3	10	13	3	0	26	0	7	35	50	11.9
Exclamation	2	15	12	11	2	39	4	18	26	46	12.7
Excursion	2	9	5	6	0	20	0	37	20	33	13.9
Fascination	2	3	1	2	0	6	0	14	12	56	10.8
Golden Crisp	2	5	4	1	4	14	8	3	31	26	11.5
Maxima	2	7	16	12	5	40	9	22	46	21	15.1
Red Amber	0	11	11	7	7	37	14	15	37	34	14.8
Red Garnet	0	15	7	1	0	24	0	6	26	65	11.4
Red Opal	3	9	5	1	0	15	0	5	22	53	11.2
Secretariat	2	13	1	0	0	14	0	0	6	81	10.4
Sweet Gem	3	10	1	1	0	13	0	5	11	64	10.7
Tailgate	6	13	1	3	2	19	5	9	3	54	9.8
Troubadour	5	6	8	0	0	14	0	0	36	45	10.2
Turnpike	5	13	6	1	0	20	0	3	31	48	10.4
Warrior	1	9	4	8	0	20	0	24	17	28	14.2
7197 HQ	4	8	8	5	2	23	3	8	16	58	11.9
E26C.00063	2	6	4	6	2	18	5	15	17	28	13.0
ORS 6064f	0	24	11	4	0	39	0	14	25	62	12.8
ORS 6203a	1	23	21	3	5	52	7	5	40	46	13.1
ORS 6371	1	14	9	9	8	40	11	15	25	46	13.8
ORS 6375a	1	10	9	9	8	35	17	15	30	35	14.5
ORS 6406b	4	16	8	8	6	38	10	13	25	41	12.5
SV0241WA	3	11	12	1	2	27	3	4	46	31	11.5
SV0502WA	6	9	6	7	0	23	0	14	12	24	10.4
SW 1981	3	11	4	6	4	25	7	14	9	45	12.3
WDL 6404	2	10	8	6	0	23	0	16	23	56	13.0
Average	2	12	7	4	2	25	3	11	24	47	12.1
LSD (0.05)	7	18	17	18	15	39	- -	- -	- -	- -	6.0

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP-7' pollenizer plants were interplanted after triploid plants 1 and 7 while 'Wild Card Plus' pollenizer plants were interplanted after triploid plants 4 and 10 (4 pollenizer plants per/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Values were determined based upon 700 lb bin box weight.

[3] Includes fruit ≥ 9.1 pounds.

[4] Culls (≤ 9.0 lbs) are included in calculation for total yield by count for each respective bin category. Therefore, total will not equal 100 percent.

Table 7. Triploid Red-Flesh watermelon hybrid cultivar trial. **Fruit number** for harvests 2-3 by various weight classes (per acre) including fruit number per plant. **Clinton, NC, 2019.**

		Fruit size category							
Cultivar	Rank[1]	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total Number	Total Mkt. No.[2]	Fruit No./ Plant
Arizonita	8	218	1143	436	54	0	1851	1634	0.9
Boneci	29	163	436	163	163	0	926	762	0.4
Captivation	14	381	708	381	163	109	1742	1361	0.8
Charismatic	10	109	1089	218	218	0	1634	1525	0.8
Crunchy Red	11	272	1089	272	54	0	1688	1416	0.8
Declaration	15	218	817	490	0	0	1525	1307	0.7
Embasy	16	327	599	599	109	0	1634	1307	0.8
Exclamation	3	327	926	545	381	54	2232	1906	1.0
Excursion	24	218	545	218	218	0	1198	980	0.6
Fascination	32	163	218	54	54	0	490	327	0.2
Golden Crisp	31	218	327	163	54	109	871	653	0.4
Maxima	6	218	436	708	436	163	1960	1742	0.9
Red Amber	7	0	708	490	272	218	1688	1688	0.8
Red Garnet	12	54	1035	327	54	0	1470	1416	0.7
Red Opal	27	272	545	218	54	0	1089	817	0.5
Secretariat	25	218	817	54	0	0	1089	871	0.5
Sweet Gem	30	272	653	54	54	0	1035	762	0.5
Tailgate	22	599	871	54	109	54	1688	1089	0.8
Troubadour	28	490	436	381	0	0	1307	817	0.6
Turnpike	17	599	871	272	54	0	1797	1198	0.8
Warrior	23	54	545	163	272	0	1035	980	0.5
7197 HQ	18	381	545	381	163	54	1525	1143	0.7
E26C.00063	26	218	381	218	218	54	1089	871	0.5
ORS 6064f	2	0	1525	490	163	0	2178	2178	1.0
ORS 6203a	1	54	1470	980	109	163	2777	2723	1.3
ORS 6371	4	109	871	436	327	218	1960	1851	0.9
ORS 6375a	9	109	653	381	327	218	1688	1579	0.8
ORS 6406b	5	436	1035	381	272	163	2287	1851	1.1
SV0241WA	13	381	708	599	54	54	1797	1416	0.8
SV0502WA	19	653	599	272	272	0	1797	1143	0.8
SW 1981	20	327	653	163	218	109	1470	1143	0.7
WDL 6404	21	218	599	327	218	0	1361	1143	0.6
Average	- -	259	745	340	160	54	1559	1300	0.7
LSD(0.05)	**- -**	**735**	**1132**	**787**	**671**	**437**	**1818**	**1740**	**0.8**

[1] Ranked according to total marketable number.

[2] Includes fruit ≥ 9.1 pounds.

Table 8. Triploid Red-Flesh watermelon hybrid cultivar trial. **Weight (cwt.)**, for cumulative harvests (1-3) per acre of fruit harvested byvarious weight classes including average fruit size[1]. **Clinton, NC, 2019.**

			Cwt. (x100) by size						
Cultivar	Company	Rank[2]	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total / Acre	Mkt / Acre[3]
Arizonita	United Genetics	5	25	229	169	52	94	568	543
Boneci	Origene	27	23	143	124	80	25	395	372
Captivation	Syngenta	16	36	170	171	95	24	497	460
Charismatic	Sakata	20	28	187	167	53	24	460	432
Crunchy Red	HM Clause	21	25	204	175	50	0	455	430
Declaration	Bayer Crop Science	18	15	171	218	52	0	456	442
Embasy	Bayer Crop Science	4	32	153	271	91	38	585	554
Exclamation	Syngenta	1	20	214	256	150	37	676	657
Excursion	Syngenta	19	29	109	138	83	105	465	436
Fascination	Syngenta	32	38	96	109	65	0	309	271
Golden Crisp	Syngenta	25	26	105	145	94	50	419	393
Maxima	Origene	3	15	76	187	209	90	577	562
Red Amber	Enza Zaden	6	12	162	194	124	62	554	542
Red Garnet	Enza Zaden	22	8	213	154	40	0	414	406
Red Opal	Seedway LLC	26	42	156	137	74	13	421	379
Secretariat	Sakata	24	35	231	137	20	13	437	402
Sweet Gem	Syngenta	30	32	143	124	40	14	352	320
Tailgate	Seminis	15	44	158	123	117	64	504	461
Troubadour	HM Clause	29	57	193	140	10	0	401	344
Turnpike	HM Clause	23	51	216	137	52	0	455	405
Warrior	Bayer Crop Science	14	9	163	158	157	0	487	479
7197 HQ	Bayer Crop Science	12	39	183	191	84	37	534	495
E26C.00063	Enza Zaden	31	29	115	98	72	26	341	312
ORS 6064f	Origene	17	12	227	200	31	0	469	457
ORS 6203a	Origene	8	22	267	195	21	37	542	521
ORS 6371	Origene	7	11	137	173	131	92	544	533
ORS 6375a	Origene	2	13	137	156	164	130	598	586
ORS 6406b	Origene	10	29	163	125	137	78	532	503
SV0241WA	Seminis	13	50	191	206	73	12	531	481
SV0502WA	Seminis	28	84	169	126	51	0	431	346
SW 1981	Seedway LLC	9	24	123	185	84	126	541	517
WDL 6404	Syngenta	11	17	160	170	126	40	513	496
Average		- -	29	168	164	84	38	483	454
LSD (0.05)		- -	**66**	**157**	**211**	**177**	**173**	**1611**	**281**

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wild Card Plus' pollenizer plants were planted after triploid plants 4 and 10 (4 pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Ranked according to total marketable weight.

[3] Includes fruit ≥ 9.1 pounds.

Table 9. Triploid Red-Flesh watermelon hybrid cultivar trial. **Bin boxes** per acre for cumulative harvests (1-3) by various weight classes including average fruit size[1], **Clinton, NC, 2019.**

			Bin Boxes / Acre							% Total Yield by Count[4]				Avg. lbs./
Cultivar	Company	Rank[2]	≤ 9.0	9.1-13.5	13.6-17.5	17.6-21.4	≥ 21.5	Total	Total Mkt.[3]	30	36	45	60	fruit
Arizonita	United Genetics	5	4	33	24	7	13	81	78	17	10	28	41	14.5
Boneci	Origene	27	3	20	18	11	4	56	53	6	19	32	37	13.2
Captivation	Syngenta	16	5	24	24	14	3	71	66	3	21	33	36	13.3
Charismatic	Sakata	20	4	27	24	8	3	66	62	6	11	37	41	12.6
Crunchy Red	HM Clause	21	4	29	25	7	0	65	61	0	11	38	46	12.5
Declaration	Bayer Crop Science	18	2	24	31	7	0	65	63	0	12	48	37	13.4
Embasy	Bayer Crop Science	4	5	22	39	13	5	84	79	6	16	46	27	14.0
Exclamation	Syngenta	1	3	31	37	21	5	97	94	5	21	38	33	13.8
Excursion	Syngenta	19	4	16	20	12	15	66	62	20	20	30	24	15.0
Fascination	Syngenta	32	5	14	16	9	0	44	39	0	21	36	31	12.7
Golden Crisp	Syngenta	25	4	15	21	13	7	60	56	10	22	36	25	14.2
Maxima	Origene	3	2	11	27	30	13	82	80	15	36	32	15	16.4
Red Amber	Enza Zaden	6	2	23	28	18	9	79	77	11	23	34	30	14.8
Red Garnet	Enza Zaden	22	1	30	22	6	0	59	58	0	10	37	51	12.5
Red Opal	Seedway LLC	26	6	22	20	11	2	60	54	3	17	33	36	12.7
Secretariat	Sakata	24	5	33	20	3	2	62	57	3	5	29	55	12.3
Sweet Gem	Syngenta	30	5	20	18	6	2	50	46	4	11	34	42	12.5
Tailgate	Seminis	15	6	23	18	17	9	72	66	13	22	26	30	13.4
Troubadour	HM Clause	29	8	28	20	1	0	57	49	0	3	35	48	11.3
Turnpike	HM Clause	23	7	31	20	7	0	65	58	0	12	29	48	11.8
Warrior	Bayer Crop Science	14	1	23	23	22	0	69	68	0	30	34	34	14.6
7197 HQ	Bayer Crop Science	11	6	26	27	12	5	76	71	7	15	36	35	13.0
E26C.00063	Enza Zaden	31	4	16	14	10	4	48	45	6	17	28	39	12.0
ORS 6064f	Origene	17	2	32	29	4	0	67	65	0	6	41	50	12.8
ORS 6203a	Origene	8	3	38	28	3	5	77	74	7	4	36	50	12.8
ORS 6371	Origene	7	2	20	25	19	13	78	76	16	24	34	24	15.2
ORS 6375a	Origene	2	2	20	22	23	19	85	84	21	27	27	23	15.9
ORS 6406b	Origene	10	4	23	18	20	11	76	72	12	22	26	34	13.9
SV0241WA	Seminis	13	7	27	29	10	2	76	69	2	14	36	37	12.2
SV0502WA	Seminis	28	12	24	18	7	0	62	49	0	9	28	40	10.7
SW 1981	Seedway LLC	9	3	18	26	12	18	77	74	23	14	34	23	15.5
WDL 6404	Syngenta	12	2	23	24	18	6	73	71	6	25	32	34	14.5
Average	- -	- -	4	24	23	12	6	69	65	7	16	34	36	13.4
LSD (0.05)	- -	- -	**9**	**22**	**30**	**25**	**25**	**38**	**40**	- -	- -	- -	- -	**4.0**

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wild Card Plus' pollenizer plants were planted after triploid plants 4 and 10 (4 pollenizers per/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Ranked according to total marketable weight.

[3] Includes fruit ≥ 9.1 pounds.

[4] Culls (≤ 9.0 lbs) are included in calculation for total yield by count for each respective bin category. Therefore, total will not equal 100 percent.

Table 10. Triploid Red-Flesh watermelon hybrid cultivar trial. **Fruit number** for cumulative harvests (1-3), by various weight classes (per acre) including fruit number per plant. **Clinton, NC, 2019.**

			Fruit size category							
Cultivar	Company	Rank[1]	≤ 9.0	9.1 - 13.5	13.6 - 17.5	17.6 - 21.4	≥ 21.5	Total No. / Ac.	Total Mkt. No. / Acre[2]	Fruit No./ Plant
Arizonita	United Genetics	4	327	2069	1089	272	218	3975	3648	1.9
Boneci	Origene	28	381	1252	817	436	109	2995	2614	1.4
Captivation	Syngenta	15	545	1525	1089	490	109	3757	3213	1.7
Charismatic	Sakata	16	436	1742	1089	272	109	3648	3213	1.7
Crunchy Red	HM Clause	13	381	1851	1143	272	0	3648	3267	1.7
Declaration	Bayer Crop Science	17	218	1525	1416	272	0	3430	3213	1.6
Embasy	Bayer Crop Science	3	490	1307	1742	490	163	4193	3703	1.9
Exclamation	Syngenta	1	436	1851	1634	762	163	4846	4410	2.2
Excursion	Syngenta	24	381	980	871	436	436	3104	2723	1.4
Fascination	Syngenta	32	545	871	708	327	0	2450	1906	1.1
Golden Crisp	Syngenta	29	381	926	926	490	218	2940	2559	1.4
Maxima	Origene	11	218	653	1198	1089	381	3539	3321	1.6
Red Amber	Enza Zaden	5	163	1416	1252	653	272	3757	3594	1.7
Red Garnet	Enza Zaden	18	109	1960	1035	218	0	3321	3213	1.5
Red Opal	Seedway LLC	25	599	1361	926	381	54	3321	2723	1.5
Secretariat	Sakata	23	490	2015	871	109	54	3539	3049	1.6
Sweet Gem	Syngenta	30	436	1307	817	218	54	2831	2396	1.3
Tailgate	Seminis	21	653	1470	762	599	272	3757	3104	1.7
Troubadour	HM Clause	26	817	1742	926	54	0	3539	2723	1.6
Turnpike	HM Clause	22	762	1960	871	272	0	3866	3104	1.8
Warrior	Bayer Crop Science	19	109	1416	980	817	0	3321	3213	1.6
7197 HQ	Bayer Crop Science	8	599	1634	1252	436	163	4084	3485	1.9
E26C.00063	Enza Zaden	31	490	1089	653	381	109	2723	2232	1.3
ORS 6064f	Origene	9	163	2015	1307	163	0	3648	3485	1.7
ORS 6203a	Origene	2	272	2396	1307	109	163	4247	3975	2.0
ORS 6371	Origene	10	163	1198	1143	708	381	3594	3430	1.7
ORS 6375a	Origene	6	163	1198	980	871	545	3757	3594	1.7
ORS 6406b	Origene	12	436	1470	817	708	327	3757	3321	1.7
SV0241WA	Seminis	7	762	1742	1361	381	54	4302	3539	2.0
SV0502WA	Seminis	27	1307	1579	817	272	0	3975	2668	1.8
SW 1981	Seedway LLC	20	327	1035	1198	436	490	3485	3158	1.7
WDL 6404	Syngenta	14	272	1361	1089	653	163	3539	3267	1.6
Average	- -	- -	432	1497	1065	439	157	3590	3158	1.7
LSD(0.05)	- -	- -	**987**	**1407**	**1363**	**917**	**698**	**1611**	**1712**	**0.7**

[1] Ranked according to total marketable number, largest being 1, smallest being 38.

[2] Includes fruit ≥ 9.1 pounds.

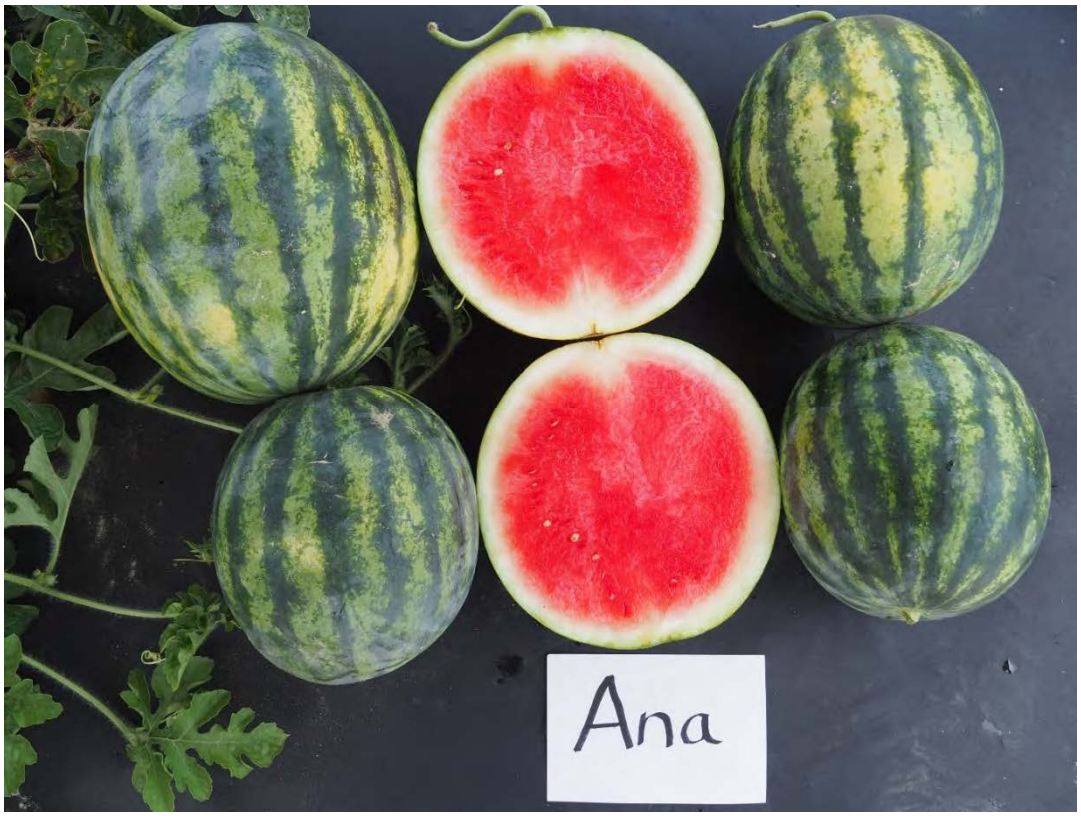
Table 11. Triploid Red-Flesh watermelon hybrid cultivar trial. **Interior fruit quality. Clinton, NC, 2019.**[1]

Cultivar	SS[2]	Flesh Color[3]	Sd. Trace Size[4]	Hard Seed Population[5]	LD[6]	Rind[7]	Flesh Firmness[8]	Vine Foliage[9]	Hollow Heart Ratings[10]				
									HH0	HH1	HH2	HH3	HH4
Arizonita	12.7	3.3	2.2	0.2	1.2	13.3	3.2	7.7	85	15	0	0	0
Boneci	12.5	3.6	3.1	0.9	1.1	15.5	3.2	4.9	90	0	0	10	0
Captivation	12.5	3.1	2.2	1.1	1.2	14.6	3.2	6.1	100	0	0	0	0
Charismatic	12.7	3.1	1.2	0.6	1.1	19.1	3.0	6.6	80	10	5	0	5
Crunchy Red	12.6	2.6	1.4	1.0	1.3	16.9	3.1	6.0	100	0	0	0	0
Declaration	12.7	3.0	2.2	5.4	1.3	17.3	3.0	6.1	65	20	5	5	5
Embasy	12.8	3.1	1.5	0.4	1.2	17.2	3.2	7.4	85	5	10	0	0
Exclamation	12.1	3.2	1.9	1.4	1.1	16.5	3.5	7.1	90	5	0	5	0
Excursion	12.5	3.4	2.1	0.4	1.2	14.4	3.0	6.1	95	0	5	0	0
Fascination	13.0	3.3	1.3	1.1	1.3	15.8	3.2	5.1	90	0	10	0	0
Golden Crisp	11.5	Yellow	1.5	0.3	1.4	15.8	6.2	5.9	100	0	0	0	0
Maxima	12.9	3.4	2.2	0.6	1.1	16.4	3.2	7.6	100	0	0	0	0
Red Amber	11.8	2.9	2.0	0.2	1.3	16.3	3.3	7.5	90	0	10	0	0
Red Garnet	12.6	3.1	2.2	0.4	1.2	14.5	3.0	6.5	60	30	5	5	0
Red Opal	13.0	3.0	1.6	0.3	1.3	16.4	2.9	6.8	80	20	0	0	0
Secretariat	12.6	3.1	1.3	0.3	1.3	18.1	3.2	6.4	85	5	10	0	0
Sweet Gem	12.3	3.4	2.0	0.1	1.1	15.6	2.7	7.4	65	10	10	15	0
Tailgate	12.8	3.4	1.5	0.5	1.2	16.0	3.3	6.5	95	0	5	0	0
Troubadour	11.9	3.1	2.4	0.7	1.3	13.6	3.3	5.6	85	5	10	0	0
Turnpike	12.4	3.1	2.1	0.4	1.1	14.0	3.2	6.5	100	0	0	0	0
Warrior	11.7	3.0	2.0	0.2	1.2	15.8	2.9	6.2	50	30	10	10	0
7197 HQ	12.8	2.9	2.1	0.1	1.2	16.7	3.1	6.6	65	30	0	5	0
E26C.00063	12.4	3.3	2.1	0.2	1.3	13.4	3.2	5.1	85	10	5	0	0
ORS 6064f	13.0	3.6	2.9	0.5	1.3	12.6	3.0	8.0	85	10	5	0	0
ORS 6203a	12.5	3.3	2.6	1.0	1.2	12.1	3.1	7.5	100	0	0	0	0
ORS 6371	12.9	3.2	1.8	0.8	1.2	18.9	3.0	6.7	60	10	10	15	5
ORS 6375a	12.5	3.5	2.4	0.3	1.1	17.1	3.2	7.0	95	5	0	0	0
ORS 6406b	12.6	3.3	2.7	0.3	1.1	16.9	3.3	6.1	100	0	0	0	0
SV0241WA	12.8	3.1	1.4	0.2	1.3	14.7	3.0	5.6	80	20	0	0	0
SV0502WA	12.2	3.3	1.1	0.2	1.2	14.7	3.3	5.6	95	5	0	0	0
SW 1981	12.0	3.6	1.8	0.8	1.3	14.4	2.9	6.6	95	0	5	0	0
WDL 6404	12.0	3.3	2.0	1.5	1.0	14.4	2.9	6.5	100	0	0	0	0
Average	12.5	3.2	2.0	0.7	1.2	15.6	3.2	6.5	86	8	4	2	0
LSD(0.05)	**1.6**	**0.6**	**1.1**	**5.1**	**0.1**	**4.2**	**0.6**	**0.7**	- -	- -	- -	- -	- -

[1] Most measurements were obtained from fruits in harvests 1 and 2.
[2] SS = Indicates sweetness, average of 5 melons per replication (20 total).
[3] Rating: 1 = yellow, 2 = pink, 3 = red, 4 = medium-dark red, 5 = blood red.
[4] Rating: 1=small (i.e. tomato), 3=medium, 5=large.
[5] Average number of hard seeds couted within 5 melons per replication (20 total).
[6] LD = Length and diameter ratio, average of 5 melons per replication (20 total).
[7] Rind = Rind thickness (mm), measured from rind to where white and colored flesh meet.
[8] Fruit pressure was taken by a penetrometer, Fruit Pressure Tester - FT011. from QA Supplies LLC, Norfolk Va.
[9] Vine Foliage = assessment of vine vigor; 9=very vigorous, 7=good vigor, 5=marginal, 1=dead foliage.

[10] HH Percentage Rating Scale:
HH0: No crack in flesh
HH1: Slight crack in flesh
HH2: Small crack in flesh
HH3: Med. separation in flesh
HH4: Complete separation in flesh to rind.
**HH3 & HH4 = Non-marketable

Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**



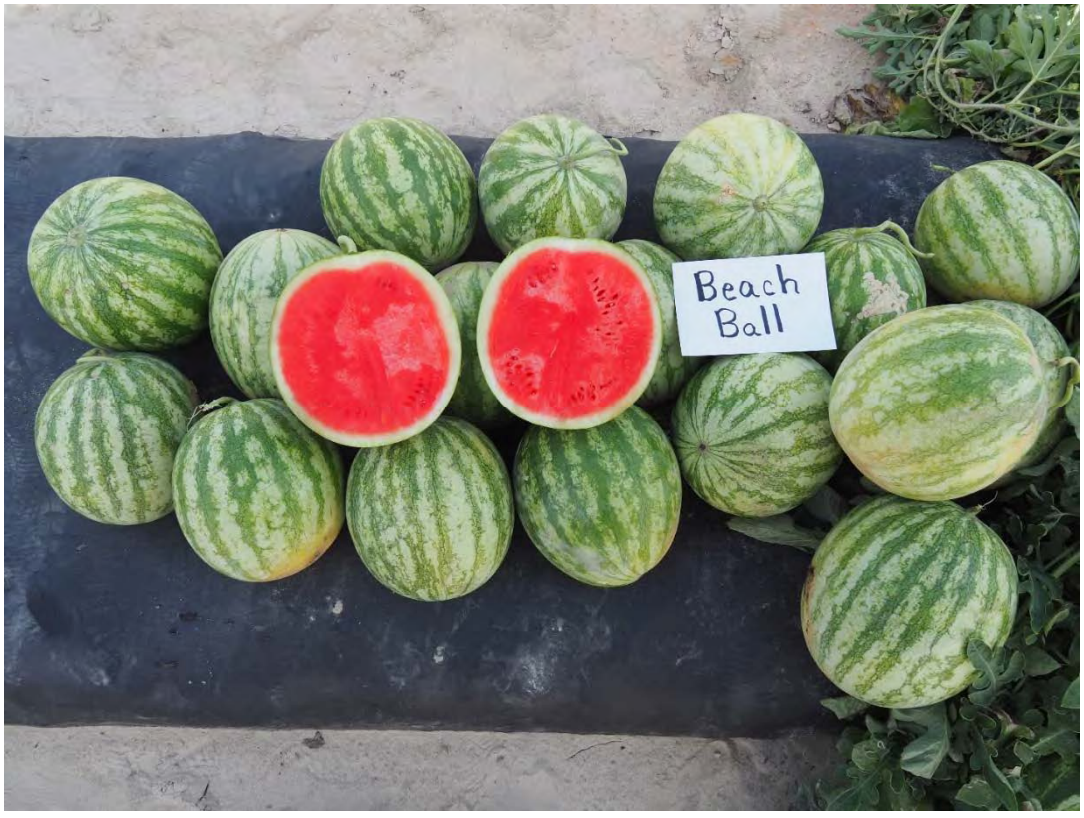
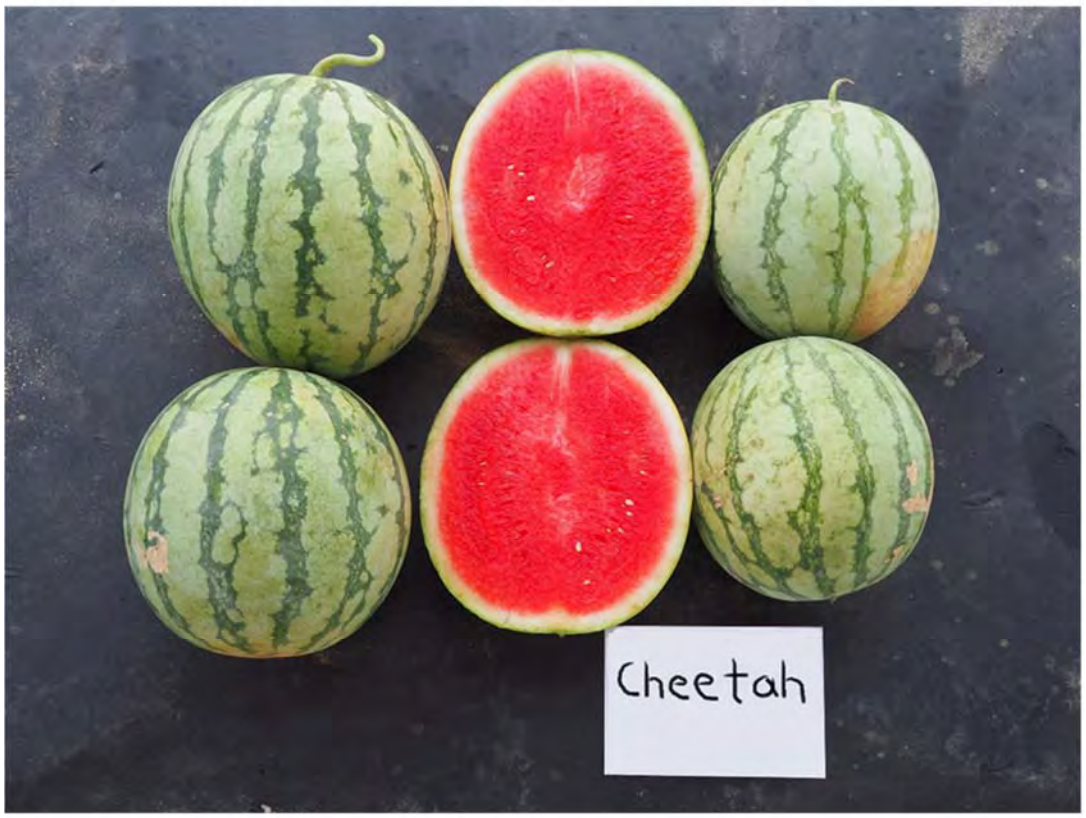


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**



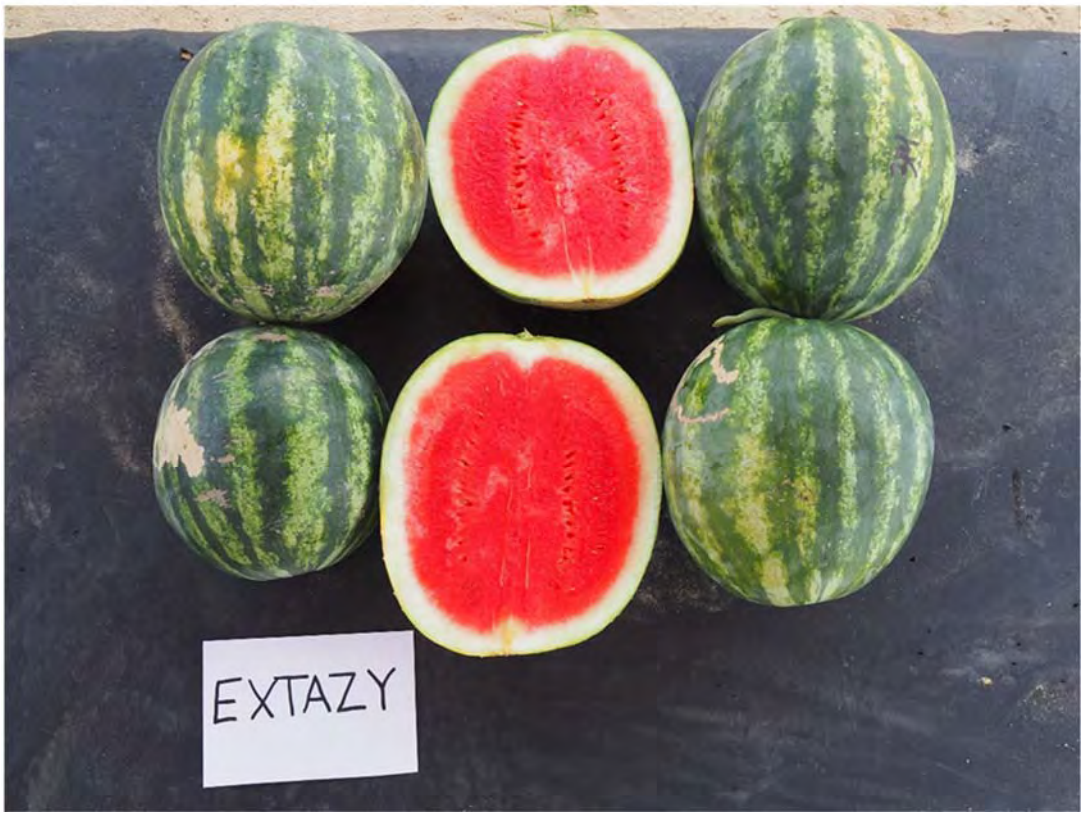


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**

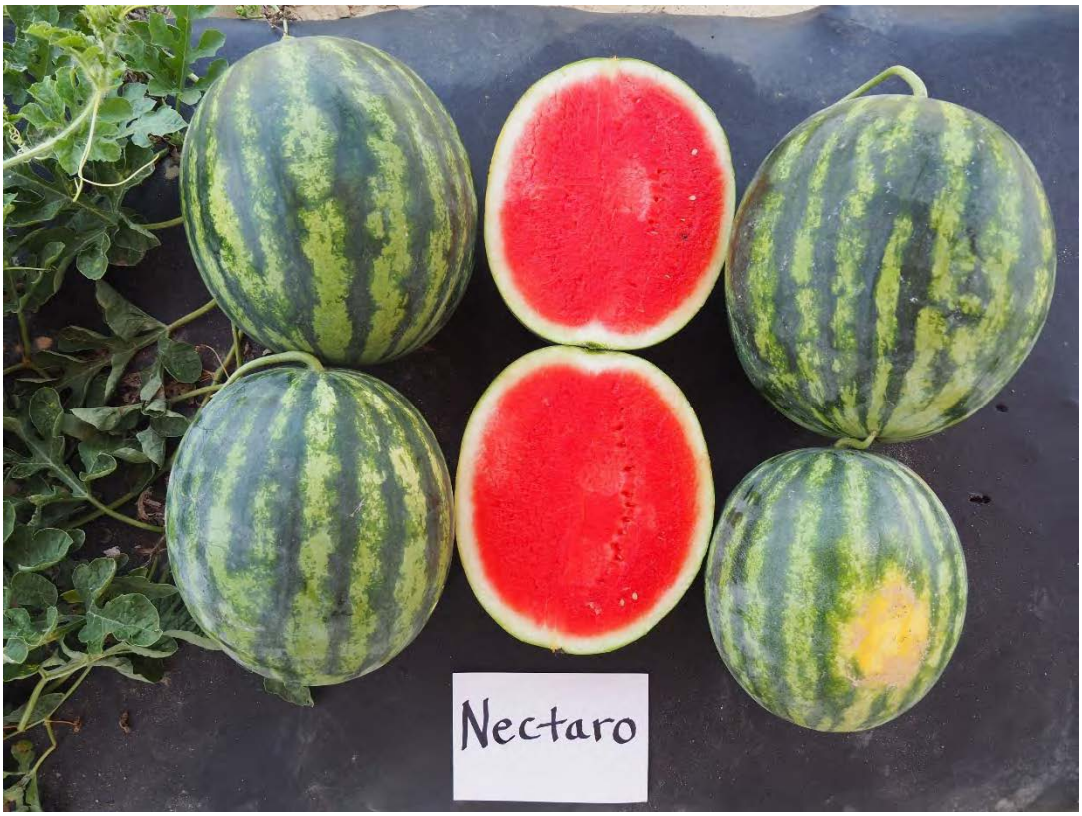
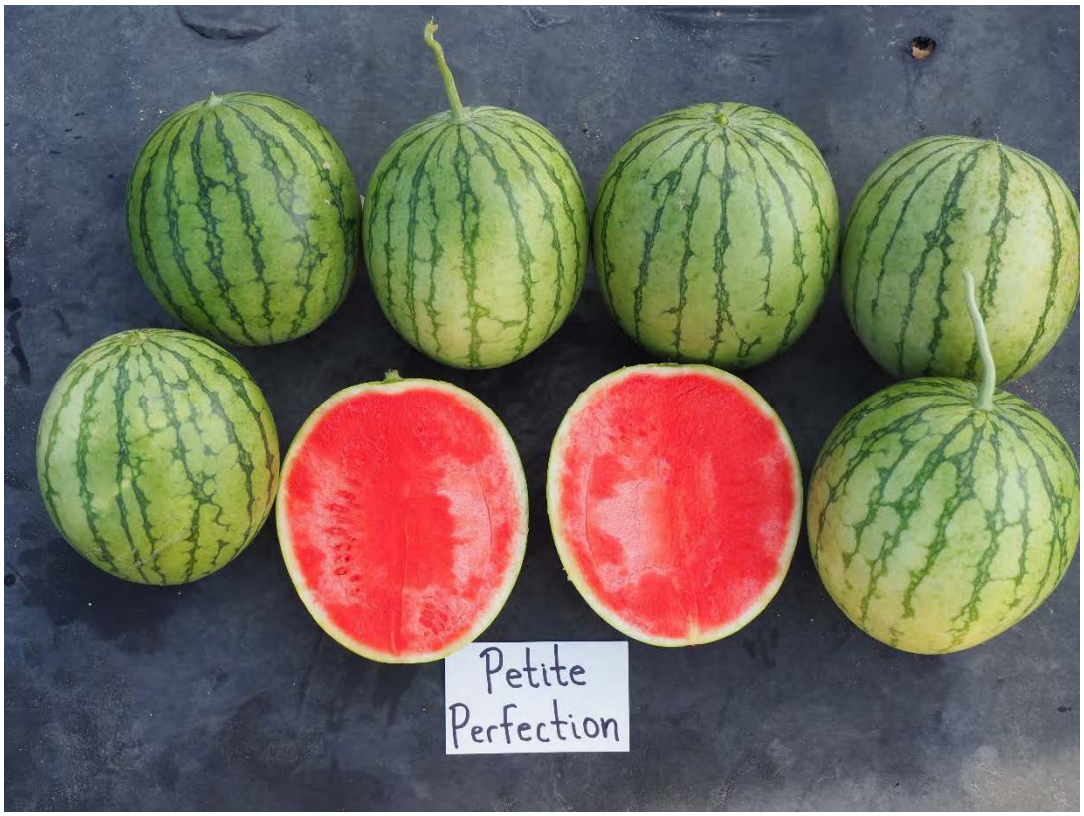


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**



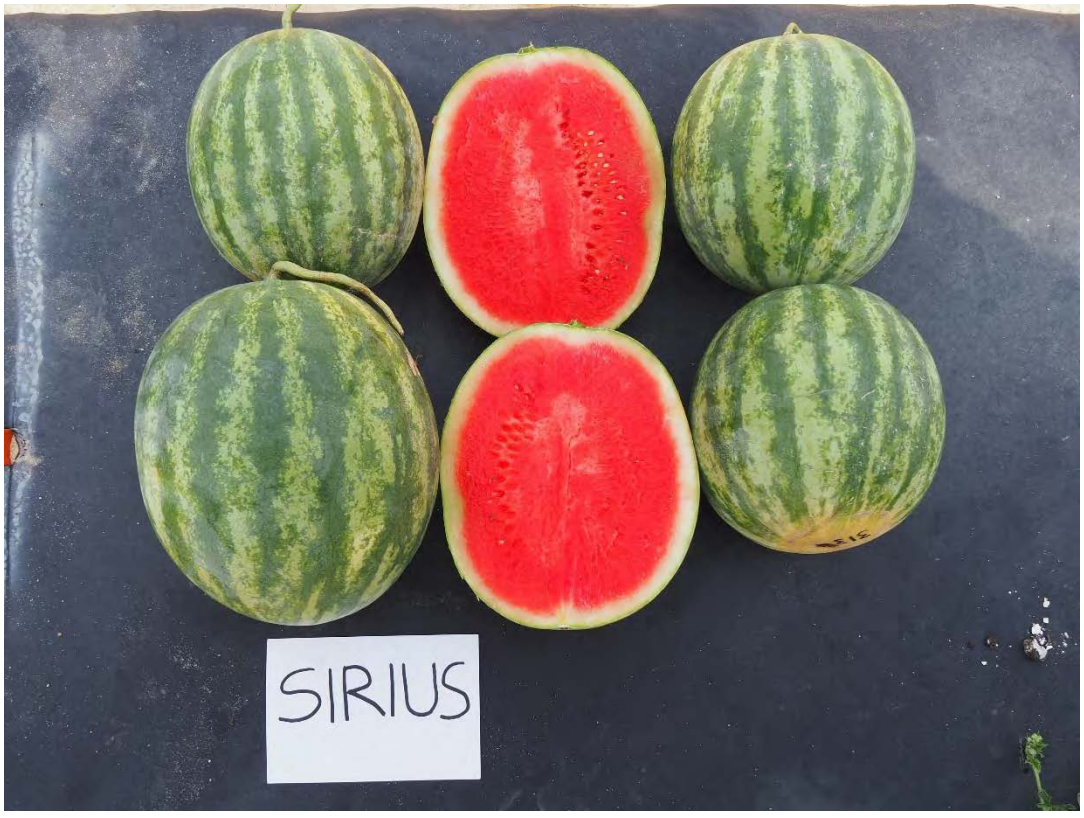


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**

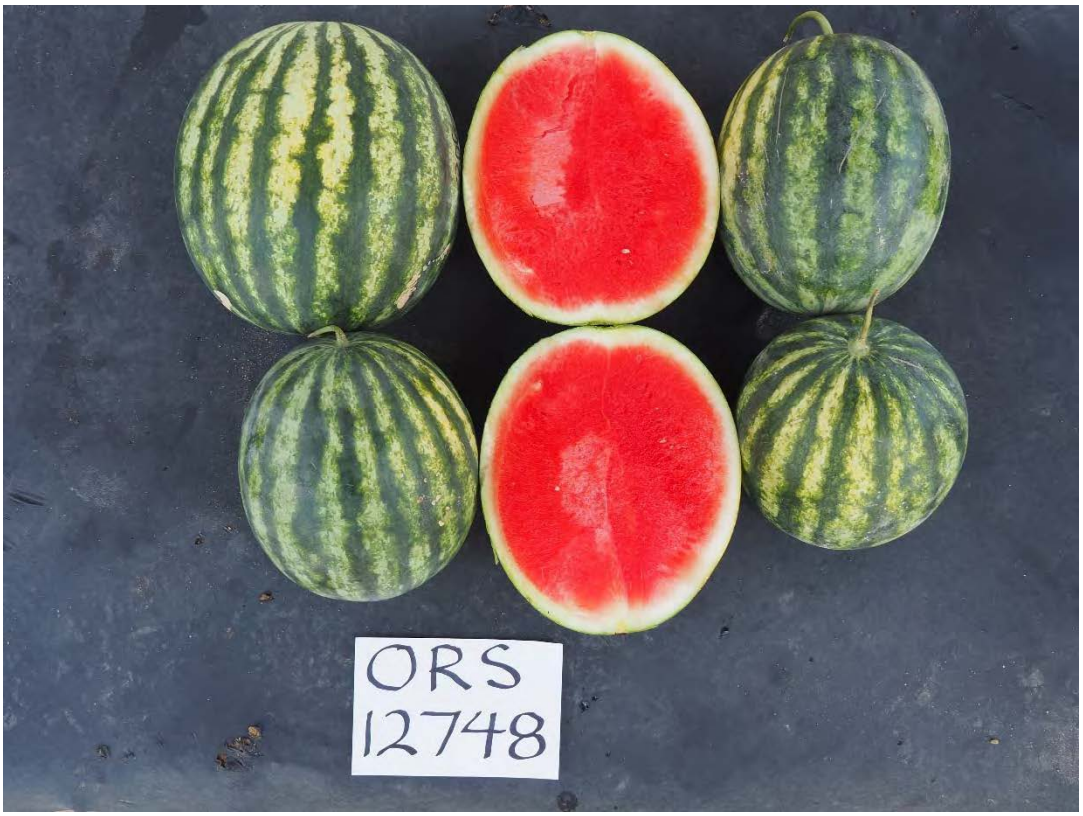


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**

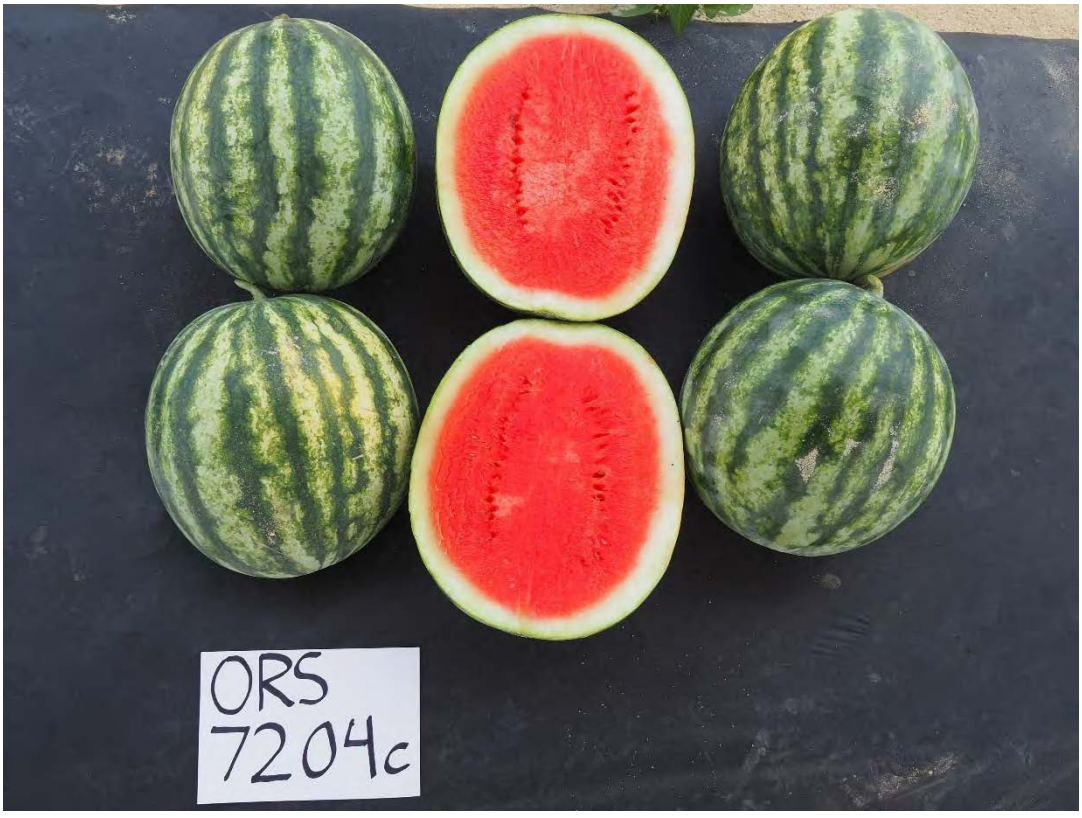


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**

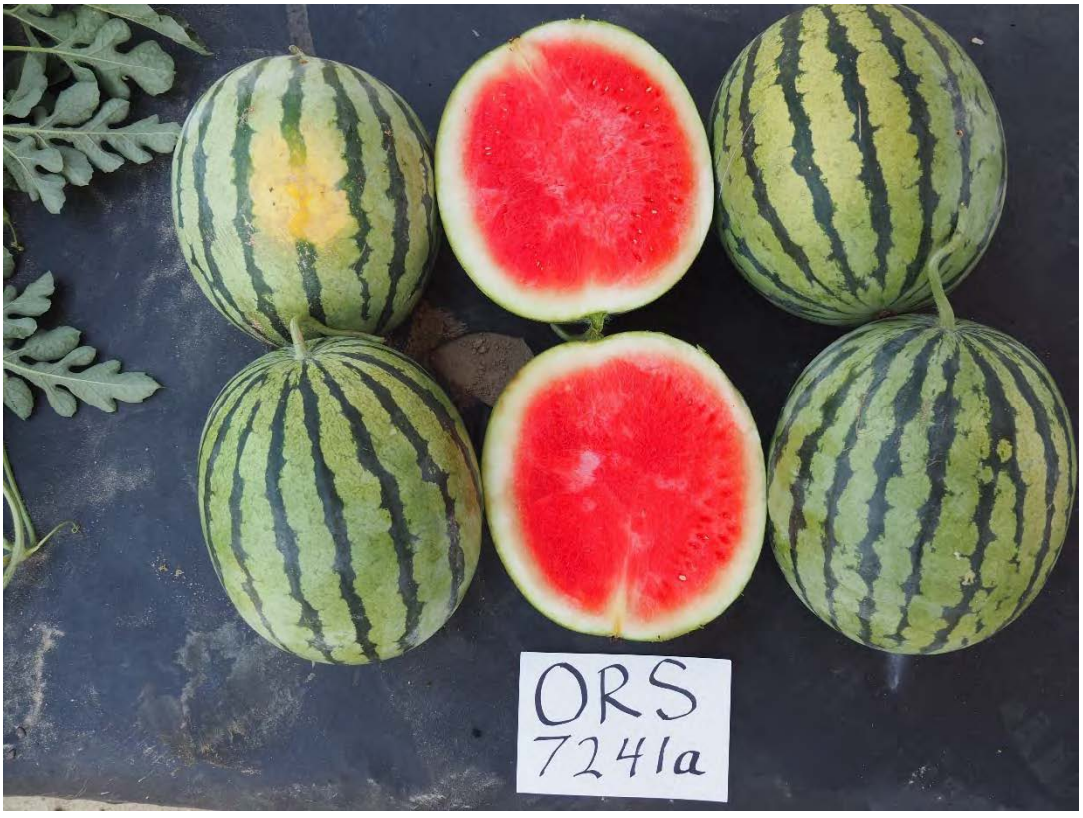


Figure 2. Mini triploid watermelon photographs. **Clinton, NC, 2019.**

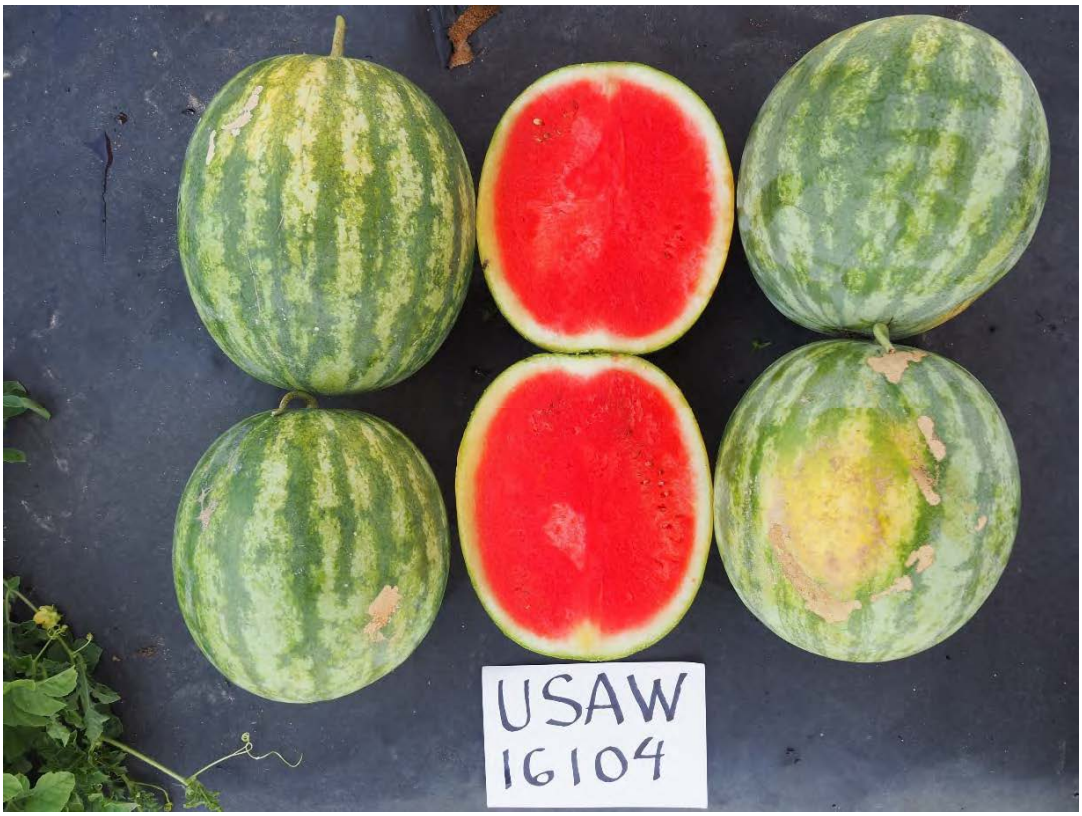


Table 12. Triploid-Mini watermelon hybrid cultivar trial. **Fruit weight, (cwt.)**, per acre by various weight classes including average fruit size[1] for **early season** harvests 1-2. **Clinton, NC 2019.**

	Cwt. (x100) by size				Total Fruit	Mkt. Fruit	Avg. Mkt.
Cultivar	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb	Wt. / Acre	Wt. / Acre[2]	Fruit Wt.[3]
Ana	0	146	120	22	288	266	6.3
Beach Ball	4	300	83	28	415	384	6.0
Cheetah	11	183	22	0	215	204	4.9
Extazy	3	147	51	29	230	198	5.8
Nectaro	3	203	51	25	282	255	5.6
Ocelot	8	123	17	0	148	140	5.0
Petite Perfection	7	140	18	0	166	159	4.7
Sirius	7	209	53	14	283	262	5.6
ORS12748	0	127	39	14	180	166	5.6
ORS70258	6	128	78	30	241	206	5.9
ORS7163	2	140	27	35	204	167	5.8
ORS7204c	4	159	70	47	280	229	5.8
ORS7204g	7	135	51	50	243	187	6.0
ORS7241a	0	131	97	38	266	228	6.2
USAW 16104	0	111	58	14	183	169	5.8
Average	4.0	159	56	23	242	215	5.7
LSD (0.05)	**18**	**113**	**110**	**86**	**164**	**144**	**1.4**

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' and 'Wild Card Plus' pollenizers were alternately interplanted after triploid plants1, 4, 7 and 10 (4 pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Average of fruit ≥ 3.1 to 9 pounds.

[3] Includes fruit ≥ 3.1 to 9 pounds.

Table 13. Triploid-Mini watermelon hybrid cultivar trial. **Fruit weight, (cwt.)**, per acre by various weight classes including average fruit size[1] for **mid to late season**, harvests 3-4. **Clinton, NC 2019.**

	Cwt. (x100) by size				Total Fruit	Mkt. Fruit	Avg. Mkt.
Cultivar	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb	Wt. / Acre	Wt. / Acre[2]	Fruit Wt.[3]
Ana	7	59	11	0	77	70	5.4
Beach Ball	2	34	18	0	54	52	4.8
Cheetah	7	36	16	0	58	51	5.3
Extazy	4	40	11	7	61	50	4.8
Nectaro	2	40	6	0	48	45	4.6
Ocelot	4	114	12	0	129	125	4.7
Petite Perfection	2	38	0	0	40	38	4.3
Sirius	3	88	6	0	97	94	4.8
ORS12748	0	56	25	20	100	81	5.2
ORS70258	0	83	45	40	167	128	5.7
ORS7163	0	65	34	38	137	100	5.1
ORS7204c	4	56	46	23	129	102	6.1
ORS7204g	5	62	45	0	112	107	5.3
ORS7241a	5	98	11	15	129	109	4.9
USAW 16104	0	97	40	15	152	137	5.8
Average	3	64	22	10	99	86	5
LSD (0.05)	**13**	**107**	**79**	**74**	**178**	**148**	**2.5**

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' and 'Wild Card Plus' pollenizers were alternately interplanted after triploid plants1, 4, 7 and 10 (4 pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Average of fruit ≥ 3.1 to 9 pounds.

[3] Includes fruit ≥ 3.1 to 9 pounds.

Table 14. Triploid-Mini watermelon hybrid cultivar trial. Fruit **number** for **early**[1] **season** harvests 1-2. **Clinton, NC, 2019**.

	Fruit size category				Total Fruit	Total Mkt.	Frt. No./
Cultivar	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb	No. / Acre	No. / Acre[2]	Plant
Ana	0	2614	1525	218	4356	4138	1.5
Beach Ball	145	5300	1089	290	6824	6389	2.4
Cheetah	436	3848	290	0	4574	4138	1.6
Extazy	145	2831	653	290	3920	3485	1.4
Nectaro	145	3920	653	218	4937	4574	1.7
Ocelot	363	2541	218	0	3122	2759	1.1
Petite Perfection	363	3194	218	0	3775	3412	1.3
Sirius	290	4066	653	145	5155	4719	1.8
ORS12748	0	2468	508	145	3122	2977	1.1
ORS70258	290	2396	1016	290	3993	3412	1.4
ORS7163	73	2541	363	363	3340	2904	1.2
ORS7204c	145	3049	871	436	4501	3920	1.6
ORS7204g	290	2468	653	436	3848	3122	1.3
ORS7241a	0	2468	1234	363	4066	3703	1.4
USAW 16104	0	2105	726	145	2977	2831	1.0
Average	179	3054	711	223	4167	3766	1.5
LSD (0.05)	**844**	**2296**	**1418**	**817**	**2624**	**2352**	**0.9**

[1] Ranked according to total marketable number.

[2] Average of fruit ≥ 3.1 to 9 pounds.

Table 15. Triploid-Mini watermelon hybrid cultivar trial. Fruit **number** for **mid to late season**[1] harvests 3-4. **Clinton, NC, 2019**.

	Fruit size category				Total Fruit	Total Mkt.	Frt. No./
Cultivar	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb	No. / Acre	No. / Acre[2]	Plant
Ana	290	1089	145	0	1525	1234	0.5
Beach Ball	73	799	218	0	1089	1016	0.4
Cheetah	290	799	218	0	1307	1016	0.5
Extazy	145	871	145	73	1234	1016	0.4
Nectaro	73	871	73	0	1016	944	0.4
Ocelot	145	2541	145	0	2831	2686	1
Petite Perfection	73	871	0	0	944	871	0.3
Sirius	145	1815	73	0	2033	1888	0.7
ORS12748	0	1234	290	145	1670	1525	0.6
ORS70258	0	1525	581	363	2468	2105	0.9
ORS7163	0	1307	436	363	2105	1742	0.7
ORS7204c	218	1089	581	218	2105	1670	0.7
ORS7204g	218	1307	581	0	2105	1888	0.7
ORS7241a	218	2105	145	145	2614	2251	0.9
USAW 16104	0	1815	508	145	2468	2323	0.9
Average	126	1336	276	97	1834	1612	1
LSD (0.05)	**512**	**2144**	**1004**	**705**	**2831**	**2567**	**1.0**

[1] Ranked according to total marketable number.

[2] Average of fruit ≥ 3.1 to 9 pounds.

Table 16. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **weight** per acre per indicated size category - **Early**[1] **season**, harvests 1-2. **Clinton, NC, 2019.**

	Fruit Size Category			
Cultivar	**≤ 3.0 lb**	**3.1 - 7.0 lb**	**7.1 - 9.0 lb**	**≥ 9.1 lb**
Ana	0	51	42	8
Beach Ball	1	72	20	7
Cheetah	5	85	10	0
Extazy	1	64	22	13
Nectaro	1	72	18	9
Ocelot	5	83	11	0
Petite Perfection	4	85	11	0
Sirius	2	74	19	5
ORS12748	0	71	22	8
ORS70258	2	53	32	12
ORS7163	1	69	13	17
ORS7204c	1	57	25	17
ORS7204g	3	56	21	20
ORS7241a	0	49	36	14
USAW 16104	0	61	32	8
Average	2	67	22	9

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 17. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **weight** per acre per indicated size category - **Mid to late season**, harvests 3-4. **Clinton, NC, 2019.**

	Fruit Size Category			
Cultivar	**≤ 3.0 lb**	**3.1 - 7.0 lb**	**7.1 - 9.0 lb**	**≥ 9.1 lb**
Ana	8	77	14	0
Beach Ball	4	64	33	0
Cheetah	12	61	27	0
Extazy	6	65	18	11
Nectaro	4	83	12	0
Ocelot	3	88	9	0
Petite Perfection	5	95	0	0
Sirius	3	91	6	0
ORS12748	0	56	25	20
ORS70258	0	50	27	24
ORS7163	0	48	25	27
ORS7204c	3	44	35	18
ORS7204g	4	55	41	0
ORS7241a	4	76	9	12
USAW 16104	0	64	26	10
Average	4	68	20	8

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 18. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **number** per acre per indicated size category - **Early Season**, harvests 1-2. **Clinton, NC, 2019.**

Cultivar	Fruit Size Category			
	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb
Ana	0	60	35	5
Beach Ball	2	78	16	4
Cheetah	10	84	6	0
Extazy	4	72	17	7
Nectaro	3	79	13	4
Ocelot	12	81	7	0
Petite Perfection	10	85	6	0
Sirius	6	79	13	3
ORS12748	0	79	16	5
ORS70258	7	60	25	7
ORS7163	2	76	11	11
ORS7204c	3	68	19	10
ORS7204g	8	64	17	11
ORS7241a	0	61	30	9
USAW 16104	0	71	24	5
Average	4	73	17	5

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 19. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **number** per acre per indicated size category - **Mid to late season**[2], harvests 3-4. **Clinton, NC, 2019.**

Cultivar	Fruit Size Category			
	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb
Ana	19	71	10	0
Beach Ball	7	73	20	0
Cheetah	22	61	17	0
Extazy	12	71	12	6
Nectaro	7	86	7	0
Ocelot	5	90	5	0
Petite Perfection	8	92	0	0
Sirius	7	89	4	0
ORS12748	0	74	17	9
ORS70258	0	62	24	15
ORS7163	0	62	21	17
ORS7204c	10	52	28	10
ORS7204g	10	62	28	0
ORS7241a	8	81	6	6
USAW 16104	0	74	21	6
Average	8	73	15	5

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 20. Triploid-Mini watermelon hybrid cultivar trial. **Fruit weight, (cwt.)**, per acre by various weight classes including average fruit size[1] for **all harvests,** 1-4. **Clinton, NC 2019**.

	Cwt. (x100) by size				Total Fruit	Mkt. Fruit	Avg. Mkt.
Cultivar	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb	Wt. / Acre	Wt. / Acre[2]	Fruit Wt.[3]
Ana	7	205	131	22	365	336	6.3
Beach Ball	6	335	101	28	469	435	5.9
Cheetah	18	218	38	0	273	256	5
Extazy	7	187	62	36	290	248	5.6
Nectaro	5	243	57	25	330	300	5.5
Ocelot	12	237	29	0	277	266	4.9
Petite Perfection	9	179	18	0	206	197	4.6
Sirius	10	297	59	14	380	356	5.5
ORS12748	0	183	64	34	280	246	5.5
ORS70258	6	211	123	69	409	334	6.0
ORS7163	2	206	61	73	342	267	5.7
ORS7204c	8	216	116	69	408	331	5.9
ORS7204g	12	197	97	50	355	294	5.9
ORS7241a	5	229	108	53	395	337	5.8
USAW 16104	0	208	98	29	335	306	6.0
Average	7	223	77	33	341	301	6
LSD (0.05)	**23**	**128**	**132**	**123**	**181**	**140**	**1.1**

[1] Yields are calculated using 100 percent seedless watermelon population. 'SP - 7' and 'Wild Card Plus' pollenizers were alternately interplanted after triploid plants1, 4, 7 and 10 (4 pollenizer plants/plot). Fruit weights for each category are rounded to the nearest whole number.

[2] Average of fruit ≥ 3.1 to 9 pounds.

[3] Includes fruit ≥ 3.1 to 9 pounds.

Table 21. Triploid-Mini watermelon hybrid cultivar trial. Fruit **number** for **all harvests**, 1-4. **Clinton, NC, 2019**.

Cultivar	Fruit size category				Total Fruit No. / Acre	Total Mkt. No. / Acre[2]	Frt. No./ Plant
	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb			
Ana	290	3703	1670	218	5881	5372	2
Beach Ball	218	6098	1307	290	7913	7405	2.7
Cheetah	726	4646	508	0	5881	5155	2
Extazy	290	3703	799	363	5155	4501	1.8
Nectaro	218	4792	726	218	5953	5518	2.1
Ocelot	508	5082	363	0	5953	5445	2.1
Petite Perfection	436	4066	218	0	4719	4283	1.6
Sirius	436	5881	726	145	7187	6607	2.5
ORS12748	0	3703	799	290	4792	4501	1.7
ORS70258	290	3920	1597	653	6461	5518	2.2
ORS7163	73	3848	799	726	5445	4646	1.9
ORS7204c	363	4138	1452	653	6607	5590	2.3
ORS7204g	508	3775	1234	436	5953	5009	2.1
ORS7241a	218	4574	1379	508	6679	5953	2.3
USAW 16104	0	3920	1234	290	5445	5155	1.9
Average	305	4390	987	319	6002	5377	2
LSD(0.05)	**1008**	**2724**	**1698**	**1168**	**2820**	**2525**	**1.0**

[1] Ranked according to total marketable number.

[2] Includes fruit ≥ 3.1 to 9 pounds.

Table 22. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **weight** per acre per indicated size category for **all harvests,** 1-4. **Clinton, NC, 2019.**

Cultivar	Fruit Size Category			
	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb
Ana	2	56	36	6
Beach Ball	1	71	21	6
Cheetah	6	80	14	0
Extazy	2	64	21	12
Nectaro	1	74	17	7
Ocelot	4	85	10	0
Petite Perfection	5	87	9	0
Sirius	3	78	16	4
ORS12748	0	65	23	12
ORS70258	1	52	30	17
ORS7163	1	60	18	21
ORS7204c	2	53	28	17
ORS7204g	3	55	27	14
ORS7241a	1	58	27	13
USAW 16104	0	62	29	9
Average	2	67	22	9

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 23. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of fruit **number** per acre per indicated size category for **all harvests**, 1-4. **Clinton, NC, 2019.**

Cultivar	Fruit Size Category			
	≤ 3.0 lb	3.1 - 7.0 lb	7.1 - 9.0 lb	≥ 9.1 lb
Ana	5	63	28	4
Beach Ball	3	77	17	4
Cheetah	12	79	9	0
Extazy	6	72	15	7
Nectaro	4	80	12	4
Ocelot	9	85	6	0
Petite Perfection	9	86	5	0
Sirius	6	82	10	2
ORS12748	0	77	17	6
ORS70258	4	61	25	10
ORS7163	1	71	15	13
ORS7204c	5	63	22	10
ORS7204g	9	63	21	7
ORS7241a	3	68	21	8
USAW 16104	0	72	23	5
Average	5	73	16	5

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 24. Triploid-Mini watermelon hybrid cultivar trial.
Percent[1] of total fruit **weight** per acre per indicated harvests.
Clinton, NC, 2019.

	Harvests		Total
Cultivar	**1 to 2**	**3 to 5**	**Frt. Weight**
Ana	79%	21%	36485
Beach Ball	88%	12%	46867
Cheetah	79%	21%	27327
Extazy	79%	21%	29047
Nectaro	86%	14%	32971
Ocelot	54%	46%	27737
Petite Perfection	80%	20%	20626
Sirius	74%	26%	37963
ORS12748	64%	36%	28031
ORS70258	59%	41%	40863
ORS7163	60%	40%	34160
ORS7204c	69%	31%	40834
ORS7204g	68%	32%	35523
ORS7241a	67%	33%	39476
USAW 16104	55%	45%	33494
Average	71%	29%	34094

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 25. Triploid-Mini watermelon hybrid cultivar trial. **Percent**[1] of total fruit **number** per acre per indicated harvests. **Clinton, NC, 2019.**

	Harvests		Total
Cultivar	**1 - 2**	**3 - 5**	**Fruit No.**
Ana	74%	26%	5881
Beach Ball	86%	14%	7913
Cheetah	78%	22%	5881
Extazy	76%	24%	5155
Nectaro	83%	17%	5953
Ocelot	52%	48%	5953
Petite Perfection	80%	20%	4719
Sirius	72%	28%	7187
ORS12748	65%	35%	4792
ORS70258	62%	38%	6461
ORS7163	61%	39%	5445
ORS7204c	68%	32%	6607
ORS7204g	65%	35%	5953
ORS7241a	61%	39%	6679
USAW 16104	55%	45%	5445
Average	69%	31%	6002

[1] Percentages for each fruit size category for each cultivar were rounded to the nearest whole number.

Table 26. Triploid-Mini watermelon hybrid cultivar trial. Interior fruit **quality**. **Clinton, NC, 2019.**[1]

Cultivar	Company	SS[2]	Flesh Color[3]	Seed Trace Size[4]	Hard Seed Population[5]	LD[6]	Rind[7]	Flesh Firmness[8]	Hollow Heart Ratings[9]					
									HH0	HH1	HH2	HH3	HH4	HH5
Ana	Origene Seeds	12.2	3.0	2.7	1.1	1.1	13.3	3.0	100	0	0	0	0	0
Beach Ball	Seminis	12.8	3.2	1.7	1.0	1.1	10.3	4.4	100	0	0	0	0	0
Cheetah	Hazera	11.7	2.9	2.0	0.5	1.1	11.8	3.4	100	0	0	0	0	0
Extazy	Hazera	12.3	2.9	1.8	0.8	1.1	15.5	3.4	95	5	0	0	0	0
Nectaro	Hazera	12.1	3.3	1.3	1.0	1.1	12.3	3.5	100	0	0	0	0	0
Ocelot	Hazera	12.2	2.9	1.8	0.9	1.1	11.5	3.6	100	0	0	0	0	0
Petite Perfection	Syngenta	12.6	3.3	1.4	0.3	1.1	7.8	3.0	95	5	0	0	0	0
Sirius	Syngenta	11.7	3.0	1.2	0.5	1.1	11.6	3.0	100	0	0	0	0	0
ORS12748	Origene Seeds	12.3	3.1	2.1	0.7	1.1	11.7	3.5	100	0	0	0	0	0
ORS70258	Origene Seeds	11.9	2.8	1.3	4.5	1.1	13.3	3.6	100	0	0	0	0	0
ORS7163	Origene Seeds	11.7	3.1	1.6	1.8	1.1	13.6	4.3	100	0	0	0	0	0
ORS7204c	Origene Seeds	11.9	3.0	1.2	2.0	1.1	15.7	3.4	100	0	0	0	0	0
ORS7204g	Origene Seeds	12.2	3.2	1.0	1.8	1.1	15.9	3.9	100	0	0	0	0	0
ORS7241a	Origene Seeds	12.1	3.2	1.8	2.6	1.1	13.6	3.9	95	5	0	0	0	0
USAW 16104	VoloAgri	12.0	3.1	1.8	0.9	1.1	13.7	3.5	100	0	0	0	0	0
Average		12.1	3.1	1.7	1.3	1.1	12.8	3.6		--	--	--	--	--
LSD(0.05)		**1.5**	**0.6**	**1.0**	**3.7**	**0.1**	**3.9**	**0.9**		--	--	--	--	--

[1] Most measurements were obtained from fruits in harvest 1 and 2.

[2] SS = Indicates sweetness, average of 5 melons per replication (20 total).

[3] Rating: 1 = yellow, 2 = pink, 3 = red, 4 = medium-dark red, 5 = blood red.

[4] Rating: 1=small (i.e. tomato), 3=medium, 5=large.

[5] Average number of hard seeds couted within 5 melons per replication (20 total).

[6] LD = Length and diameter ratio, average of 5 melons per replication (20 total).

[7] Rind = Rind thickness (mm), measured from rind to where white and colored flesh meet.

[8] Fruit pressure was taken by a penetrometer, Fruit Pressure Tester - FT011 from QA Supplies LLC, Norfolk Va.

[9] **HH Percentage Rating Scale:**
HH1: No crack in flesh
HH2: Slight crack in flesh
HH3: Small crack in flesh
HH4: Med. separation in flesh
HH5: Complete separation in flesh to rind.

**HH4 & HH5 = Non-marketable