# 2022 Triploid Mini Watermelon Cultigen Evaluation Studies



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#### 2022 North Carolina

#### Triploid Mini Size Watermelon

#### **Cultigen Evaluation Studies**

Hort. Series # 242

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#### **General Cultural Practices**

This watermelon study was grown on black plastic mulch and fertigated with drip tube. Pesticides used on all plots were chemicals labeled for that crop, (2022 North Carolina Agricultural Chemicals Manual, <u>https://content.ces.ncsu.edu/north-carolina-agricultural-chemicals-manual</u>).

#### Acknowledgements

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#### Disclaimer

This publication presents data from the triploid mini size watermelon cultigen evaluation study conducted during 2022. 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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# Watermelon Cultural Practices for 2022 Cultigen Studies, Horticultural Crops Research Station, Clinton, NC.

### Introduction

Growing conditions for the 2022 watermelon studies were favorable for the entire growing season. Temperatures were high and rainfall occurred in a timely manner and was never excessive during June through August (Figure 1). Rainfall was minimal during harvests 2 through 5 and watering was optimized through drip irrigation. Due to these favorable conditions, disease was not a factor and five harvests were made. The number of harvests in this study was comparable to the number of harvests and excellent markets that were experienced by commercial growers in North Carolina. North Carolina showed a small increase in watermelon production from 2020 to 2021. In 2020, acreage was reported at 9,000 acres. In 2021, acreage was reported at 9,300 acres. This translates to an economic value of \$36 million to North Carolina in 2021. North Carolina also saw a decrease in watermelon prices; \$14.10 per cwt in 2021 from \$15.80 per cwt in 2020 (USDA 2021 State Agriculture Overview, North Carolina). Although the acreage of mini watermelons grown in North Carolina is much less than the standard size watermelons, it is an important crop for some North Carolina growers, with one grower exclusively growing mini watermelon and no standard size watermelons.

# Materials and Methods

#### Sowing and Field Preparations

Once all seeds were received from participating companies, they were planted into 72-cell poly trays to grow transplants (Hummert Int.; Earth City, MO). The mini watermelon cultigens were sown on 31 March 2022. The trays of sown seeds were placed in a germination room for 24-48 hours. Temperature in the germination room was kept between 90-95 °F and humidity was kept between 85-90%. The planting medium used was a "fine germinating mix", a commercial soilless mix (SunGro, Agawam, MA). Transplants were moved to a greenhouse for approximately 4 weeks before transplanting, then "hardened" in a neighboring greenhouse for about 1 week before transplanting.

The study site was located at the Horticultural Crops Research Station in Clinton, NC. The mini watermelons were planted in block R5; a Norfolk soil type with a pH of 6.1, a phosphorus index of 99 and a potassium index of 118 (Figure 2). Telone II (12 gal/ac) was applied to the entire study area on 4 March 2022 for weed and nematode control. NPK fertilizer (10-10-10) at 500 lb/ac was applied pre-plant on 29 March 2022. Black polyethylene plastic (1.25 mil thick, high density plastic film, 60 inches wide; TriEast Ag Group, Inc., Clinton, NC) was laid on 22 April 2022. Command 3ME (0.5 pt/ac) and Curbit (4 pt/ac) were applied to row middles pre-plant on 3 May 2022.

#### Planting

The mini triploid watermelon transplants were established in the field on 5 May 2022. Plot size for mini triploid watermelons was 1 row, 10 plants per row, 15 feet long with alleys of 10 feet between plots. Row middles were 10 feet and in-row spacing was 1.5 feet. Plots with missing plants were replaced 1 week after planting to achieve 100% plant stand. 'SP-7' and 'Wingman' (4 plants/plot) were used as the pollenizer plants in this study. 'SP-7' pollenizers were planted after triploid plants 1 and 7 while 'Wingman' pollenizers were planted after triploid plants 4 and 10 in each plot.

#### Fertilizer and Pest Management

A total of 50 units/ac N, 50 units/ac P, and 50 units/ac K were all applied broadcast (pre-plant) to the entire study area. Drip tape (NETAFIM, 12 in spacing, 0.24 gph; NETAFIM, Tel Aviv, Israel) was installed beneath the black plastic mulch to fertigate the crop throughout the growing season. Liquid fertilizer with 4-0-8 analysis was initially applied through drip tape fertigation on 17 May 2022 and similarly on the following dates: 24 May 2022; 1, 6, 15, 21, 23, and 28 June 2022; 5, 11, and 21 July 2022. A total of 89 units/ac N, 0 units/ac P, and 188 units/ac K was applied throughout the growing season. Drip fertilizer application was calculated across the entire acreage being grown and not by bed area covered with plastic mulch. Cumulative totals of applied fertilizer nutrients were: 139 units/ac N, 50 units/ac P, and 238 units/ac K.

Fungicides were initially applied on 13 May 2022 and similarly on the following dates: 3, 10, and 22 June 2022; 1 and 19 July 2022. Proline (5.7 fl oz/ac) was applied on 13 May 2022 through drip irrigation and was followed by Miravis Prime (11.4 fl oz/ac) applied as a spray on 19 July 2022 to prevent against potential fungal diseases like *Fusarium* wilt. The application of the following fungicides were rotated to avoid potential development of resistance from diseases: Copper (1 lb/ac), Quadris (15 fl oz), Inspire (1 pt/ac), Manzate Pro Stick (3 lb/ac), Bravo (1 qt/ac).

Insecticides were initially applied on 13 May 2022 and similarly on the following dates: 3, 10, 17, and 22 June 2022; 1 July 2022. Carbaryl (1 qt/ac) and Asana (8 fl oz/ac) were the primary insecticide products used, and were sprayed in rotation to avoid potential development of insecticide resistance. Admire Pro (10 fl oz/ac) and Venom (6 oz/ac) were also applied once each.

Miticide Banter (1 lb/ac) was applied on 3 June 2022. Applications of Gramaxone (1 qt/ac), Sandea (0.75 oz/ac), and crop oil (1 qt/ac) were also spot sprayed on weed escapes on 20 May and 30 June 2022.

# Harvest and Yield Data Collection

Mini triploid watermelon harvests occurred on: 11 (harvest 1), 20 (harvest 2), 26 (harvest 3) July 2022 and 4 (harvest 4), 11 (harvest 5) August 2022. For the mini triploid watermelon study, fruits were placed in the following categories: < 3 lb, 3 - 7 lb, 7.1 - 9 lb, and  $\ge 9.1$  lb. Fruits were considered marketable if they weighed 3.0 - 9.0 lb. Fruit yields are reported as weight and number per acre.

#### Quality Evaluations

Evaluations of each melon entry included: fruit size, fruit shape, soluble solids, and interior flesh firmness. 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). Flesh firmness was taken using a Penetrometer FT 011 with a 7/16" plunger tip (QA Supplies LLC, Norfolk, VA), and was recorded in pounds. 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. The reported measures on flesh firmness are an average of the five sample areas and are an average value taken for 5 fruit per plot or 20 fruits per cultigen. Pressure was not taken on fruit with hollow heart. Hard seed in triploid fruit was determined according to the USDA standards. Fruits were cut longitudinally in half, and then the halves were cut laterally. The number of hard seeds exposed on the cut surface were counted and recorded. Most of the quality measurements were taken in the early harvests (1-2). Additional internal evaluations included hollow heart incidence and severity, flesh color, seed trace, and rind thickness.

#### Results

Overall fruit yield and quality were very good for the duration of the study. Average precipitation rates over the growing season granted excellent growing conditions with minimal disease pressure, allowing for 5 harvests. Rots/decay was a minor issue throughout all harvests. Bird pecks on fruits were primarily on harvest 4 in a few plots, mainly in one replication. Those fruits that could not be weighed were counted and weights were assigned to them based on average fruit weights in the plots for a given cultigen. A representative photograph of each cultigen entry is shown for the standard size cultigens (Figure 3).

#### Yield (lb/ac)

The highest yielding mini size triploid cultigens for marketable fruit in the early harvests (1-2) were Excite (25606 lb/ac), 50036 (22840 lb/ac), and Bolita (22136 lb/ac) (Table 1). Some of the cultigens with high total fruit weight were Altata (38159 lb/ac) and Prestige (27871 lb/ac). They had more fruits that exceeded 9 lb and therefore were not considered marketable as a mini watermelon. The average marketable yield for the early harvests (1-2) was 20869 lb/ac.

In the mid-season harvests (3-4), the highest yielding marketable mini size triploid cultigen was Ocelot (21882 lb/ac), followed by Extazy (20829 lb/ac) and Petite Perfection (19653 lb/ac) (Table 2). The average marketable yield for mid-season harvests (3-4) was 18098 lb/ac.

In the late season harvest (5), the highest yielding marketable mini size triploid cultigen was Altata (24873 lb/ac), followed by Bolita (24851 lb/ac) and Extazy (24212 lb/ac) (Table 3). The average marketable yield for late harvest (5) was 21638 lb/ac. Average fruit size was about 1 lb smaller in the late versus the early (Table 1) and mid-season (Table 2) harvests.

Cumulative marketable yield across all 5 mini size triploid harvests were greatest for Extazy (67061 lb/ac), followed by Bolita (66088 lb/ac) and Petite Perfection (62784 lb/ac) (Table 4). The average marketable yield across all harvests was 60604 lb/ac. These yields are substantially higher than what might be achieved in a normal production season.

The mini size triploid cultigens with the highest percentage of fruit in the early harvests (1-2) by weight were Altata (36%), 50036 (35%), and Melania (34%). Those cultivars with the highest percentage of fruit in the mid-season harvests (3-4) by weight were Excite (38%), Ocelot (38%), and Extazy (35%). The cultivars with the highest percentage of fruit in the late season harvest (5) by weight were Sugar Rush (39%), Petite Perfection (38%), and Bolita (37%). Yield by weight were fairly equal across harvests regardless of cultigen.

#### Percentage of fruit distribution by weight over harvests

The percentage fruit weight across the various size categories is presented for harvests 1-2 (Table 6), harvests 3-4 (Table 7) and the late harvest (s) (Table 8). 80% of the fruit weight produced in the first 2 harvests were marketable fruit (3-9 lb) (Table 6); 68% of the fruit weight produced mid-season (harvests 3-4) were marketable fruit (Table 7); and 80% of the fruit weight produced in the late harvest(s) were marketable fruit (Table 8).

#### Fruit Size (weight)

The mini size triploid cultigens with the highest average marketable fruit weight in the early harvests (1- 2) were Melania (7.4 lb/fruit), Sugar Rush (6.8 lb/fruit), Bolita (6.5 lb/fruit) and Extazy (6.5 lb/fruit) (Table 1). The average fruit weight for the early harvests (1-2) was 6.3 lb/fruit.

In the mid-season harvests (3-4), the mini size triploid cultigens with the highest average fruit weight were Melania (6.9 lb/fruit) and Prestige (6.9 lb/fruit), Extazy'(6.7 lb/fruit), and 50036 (6.6 lb/fruit) (Table 2). The average fruit weight for the mid-season harvests (3-4) was 6.4 lb/fruit.

In the late season harvest (5), the mini size triploid cultigens with the highest average fruit weight were Melania (5.8 lb/fruit), Excite (5.6 lb/fruit) and Extazy (5.5 lb/fruit) (Table 3). The average fruit weight for the late harvest (5) was 5.2 lb/fruit. A reduction in average fruit size occurred in the later harvest.

Average fruit weight across all five mini size triploid harvests was greatest for 'Melania' (6.6 lb/fruit) (Table 4). The cultigens with the lowest average fruit weight across all harvests were Petite Perfection (5.0 lb/fruit) and Ocelot (5.3 lb/fruit). The average fruit weight for all cultigens across all 5 harvests was 5.9 lb/fruit. 'Melania' consistently produced the largest fruit in all harvests.

#### Marketable number per acre

The cultivar Petite Perfection produced the greatest number of 3-7 lb size fruits in the early harvest (harvest 1-2) (Table 9). Other cultigens (500036, Excite) produced a similar number of total marketable fruit compared with Petite Perfection if the largest 7.1-9 lb size fruits were included.

For the mid-season harvest (3-4), marketable number of fruit exceeded 3000 fruit per are for cultigens 50036 (3049), Extazy (3122), Ocelot (3775), and Petite Perfection (3703) (Table 10). The average marketable fruit number produced per acre for mid-season harvest was 2904.

Marketable fruit number produced per acre was high for the late harvest (5) averaging 4153 fruits per acre (Table 11).

'Petite Perfection' had the highest fruit number produced per acre in the 3 to 9 lb size class (12415) for all five harvests when compared with all other cultigens (Table 12). Other cultigens that exceeded the marketable number of fruit produced per acre were Bolita, Extazy, Ocelot, and Sugar Rush.

#### Fruit number per plant

Fruit number per plant ranged from 1.5 to 1.7 fruits per plant for harvests 1-2 (Table 9.) The highest number of fruit per plant was produced by Altata (1.7) and the lowest number was produced by Ocelot (1.1)

Fruit number per plant were fairly similar across cultigens for harvests 3-4 and ranged from 1.1 to 1.5 fruits per plant (Table 10). A greater disparity in fruit number per plant was measured in harvest 5 (Table 11). 'Melania' produced only 1.2 fruits per plant while 'Altata' produced 2.2 fruits per plant.

The number of fruits per plant over all five harvests ranged from 3.8 ('Melania') to 5.0 ('Altata' and 'Bolita') (Table 12).

#### Percentage fruit distribution by number over harvests

The percentage marketable fruit number for early, mid-season, and late season harvests were 84%, 76%, and 80% for these harvests, respectively (Tables 13, 14, 15). Percentage marketable fruit number across all five harvests was 61% in the 3-7 lb category and 19% in the 7.1-9 lb category (Table 16). 80% of fruits produced across all cultigens were considered marketable based on fruit size.

# Quality

Interior fruit quality measurements included: soluble solids, flesh color, seed trace size, hard seed population, length and diameter ratio, rind thickness, flesh firmness, and hollow heart rating. The mini size triploid cultigens with the highest Brix readings (soluble sugars) were Extazy (11.8), Petite Perfection (11.8), 50036 (11.6), Melania (11.6), Prestige (11.6) and Ocelot (11.5) (Table 17). The cultigen with the lowest Brix reading was Excite (10.3). The average Brix reading across all mini triploid cultigens was 11.3. The mini size triploid cultigens with the highest flesh firmness ratings were 50036 (3.9), Melania (3.4), Ocelot (3.4) and Petite Perfection (3.2). The mini size triploid cultigens with the lowest flesh firmness ratings were Altata (2.4), Prestige (2.7), and Bolita (2.8). The average flesh firmness rating across all mini size triploid cultigens was 3.1. There was a low incidence of hollow heart across all cultigens with 97% fruits with a

HH0 rating (no crack in flesh). 'Altata' had the most severe & highest incidence rate of hollow heart, with 5% of fruits with a HH1 rating (hairline crack, is marketable) and 15% of fruits with a HH2 rating (obvious crack, still marketable).

# Summary

Overall, yields and fruit quality in this study were excellent. Good growing conditions and minimal pest and disease pressure were important factors that contributed to these results. The results in this study are reflective of what generally occurred in the North Carolina commercial watermelon production acreage in 2022.

# **Financial Support**

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Figure 1. Temperature & Precipitation for HCRS, Clinton, NC, 2022.

Figure 2. Mini watermelon soil test report. HCRS, Clinton, NC, 2022.

Sample	ID: RO	)5	Rec	ommend	ations:	L	ime		Nutrients (Ib/acre)								Mor	e		
			Cro	р		(ton	s/acre)	N	P20	05	K <sub>2</sub> O	Mg	S	Mn	Zn	Cu	в		nformat	ion
Lime His	story:		1-S	Soybean			0.0	0	0		0	0	0	0	0	0	0		Note: 3	
			2-0	corn, grai	n		0.0	120 - 16	60 0	1	0	0	0	0	0	0	0		Note: 3	
Test Results [units - W/V in g/crr <sup>3</sup> ; CEC and Na in meq/100 cm <sup>3</sup> ; NO3-N in mg/dm <sup>3</sup> ]: Soil Class: Mineral																				
HM%	W/V	CEC	BS%	Ac	рН	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-l	Na	ESP	SS-I	NO3-N
1.14	1.29	5.5	86	0.8	6.1	99	118	52	23	62	38	32	39	143	143	35	0.1	2		















Figure 3. Mini size triploid watermelon photographs. Clinton, NC 2022.















	Ib per acre by size category <sup>2</sup>											
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total lb / ac<sup>4</sup></u>	<u>Mkt. lb / ac⁵</u>	<u>Mkt. Avg Wt</u>					
50036	145	15943	6897		22985	22840	6.0					
Altata	•	12407	8088	17664	38159	20495	6.5					
Bolita	58	13075	9060	7253	29447	22136	6.5					
Excite	•	15297	10309	5111	30717	25606	6.3					
Extazy	36	13235	8785	6628	28684	22020	6.5					
Melania	211	4966	14883	7913	27973	19849	7.4					
Ocelot	167	13946	3340		17453	17286	5.6					
<b>Petite Perfection</b>	610	18390	2185	1365	22550	20575	5.2					
Prestige	182	8799	7507	11384	27871	16306	6.4					
Sugar Rush	196	10389	11188	2338	24110	21577	6.8					
Average	201	12645	8224	7457	26995	20869	6.3					
LSD (0.05)	770	10839	10845	11114	12277	1299	0.9					

**Table 1. Mini size triploid watermelon** cultigen study. **Fruit weight (lb)** per acre by size category for **early harvests (1-2)**, Clinton, NC, 2022.<sup>1</sup>

<sup>2</sup> Fruit weight for each category are rounded to the nearest whole number.

<sup>3</sup> "." indicates these cultigens were not included in the statistical analysis for the various size categories.

<sup>4</sup> Total weight included all fruit size categories.

<sup>5</sup> Marketable weight included fruit size categories 3-7 and 7.1-9 lb.

	Ib per acre by size category <sup>2</sup>												
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total lb / ac<sup>4</sup></u>	<u>Mkt. lb / ac⁵</u>	<u>Mkt. Avg Wt</u>						
50036		12959	6490	3753	23203	19450	6.6						
Altata		6621	4632	19842	31095	11253	6.5						
Bolita	123	9590	9511	11471	30695	19101	6.5						
Excite	421	9728	7064	18339	35552	16792	6.4						
Extazy	44	9213	11616	12248	33120	20829	6.7						
Melania		6534	12226	14789	33548	18760	6.9						
Ocelot	123	16865	5017	1503	23508	21882	5.8						
<b>Petite Perfection</b>	203	15878	3775		19856	19653	5.3						
Prestige		8429	9017	11028	28474	17446	6.9						
Sugar Rush		10890	4922	5358	21170	15812	6.0						
Average	183	10671	7427	10926	28022	18098	6.4						
LSD (0.05)	735	12215	9144	12544	14993	12822	1.6						

**Table 2. Mini size triploid watermelon** cultigen study. **Fruit weight (lb)** per acre by size category for **mid-season harvests (3-4)**, Clinton, NC, 2022.<sup>1</sup>

<sup>1</sup> Yields were calculated using 100 percent seedless watermelon population. 'SP-7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wingman' pollenizer plants were interplanted after triploid plants 4 and 10 (4 pollenizer plants per plot).

<sup>2</sup> Fruit weight for each category are rounded to the nearest whole number.

<sup>3</sup> "." indicates these cultigens were not included in the statistical analysis for the various size categories.

<sup>4</sup> Total weight included all fruit size categories.

<sup>5</sup> Marketable weight included fruit size categories 3-7 and 7.1-9 lb.

	Ib per acre by size category <sup>2</sup>												
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total lb / ac<sup>4</sup></u>	<u>Mkt. lb / ac⁵</u>	<u>Mkt. Avg Wt</u>						
50036	2004	15515	1249	1387	20154	16763	5.0						
Altata	1670	19087	5786	10135	36678	24873	5.3						
Bolita	1408	20103	4748	8618	34877	24851	5.3						
Excite	2047	10600	6926	8059	27632	17526	5.6						
Extazy	704	19014	5198	8276	33193	24212	5.5						
Melania	152	10621	7812	1670	20255	18433	5.8						
Ocelot	2018	18223	1154		21395	19377	4.8						
<b>Petite Perfection</b>	2272	19689	2868	733	25562	22557	4.7						
Prestige	1663	20669	3528	1321	27181	24198	5.3						
Sugar Rush	2272	21337	2251	5358	29163	23588	5.1						
Average	1621	17486	4152	5062	27609	21638	5.2						
LSD (0.05)	3330	8108	7359	10570	15911	10213	0.8						

**Table 3. Mini size triploid watermelon** cultigen study. **Fruit weight (lb)** per acre by size category for **late harvest (5)**, Clinton, NC, 2022.<sup>1</sup>

<sup>2</sup> Fruit weight for each category are rounded to the nearest whole number.

<sup>3</sup> "." indicates these cultigens were not included in the statistical analysis for the various size categories.

<sup>4</sup> Total weight included all fruit size categories.

<sup>5</sup> Marketable weight included fruit size categories 3-7 and 7.1-9 lb.

**Table 4. Mini size triploid watermelon** cultigen study. **Fruit weight (lb)** per acre by size category for **cumulative harvests (1-5)**, Clinton, NC, 2022.<sup>1</sup>

<u>Ib per acre by size category<sup>2</sup></u>											
<u>Cultigen</u>	<u>Company</u>	<u>Rank<sup>3</sup></u>	<u>&lt; 3 lb<sup>4</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total lb / ac⁵</u>	<u>Mkt. lb / ac<sup>6</sup></u>	<u>Mkt. Avg Wt</u>		
50036	Hazera	6	2149	44417	14636	5140	66342	59053	5.8		
Altata	Rijk Zwaan	10	1670	38115	18506	47640	105931	56621	5.9		
Bolita	<b>BASF/Nunhems</b>	2	1590	42769	23319	27341	95019	66088	6.0		
Excite	Hazera	5	2468	35625	24299	31508	93901	59924	6.1		
Extazy	Hazera	1	784	41462	25599	27152	94997	67061	6.1		
Melania	Origene	9	363	22121	34921	24372	81777	57042	6.6		
Ocelot	Hazera	7	2309	49034	9511	1503	62356	58545	5.3		
<b>Petite Perfection</b>	Syngenta	3	3086	53956	8828	2098	67968	62784	5.0		
Prestige	Syngenta	8	1844	37897	20052	23733	83526	57949	6.0		
Sugar Rush	US Agriseeds	4	52	42616	158	10999	74444	60977	5.8		
Average			1632	40801	17983	20149	82626	60604	5.9		
LSD (0.05)			3539	18033	13834	21202	26058	16189	0.6		

<sup>1</sup> Yields were calculated using 100 percent seedless watermelon population. 'SP-7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wingman' pollenizer plants were interplanted after triploid plants 4 and 10 (4 pollenizer plants per plot).

<sup>2</sup> Fruit weight for each category are rounded to the nearest whole number.

<sup>3</sup> Entries were ranked by marketable yield

<sup>4</sup> "." indicates these cultigens were not included in the statistical analysis for the various size categories.

<sup>5</sup> Total weight included all fruit size categories.

<sup>6</sup> Marketable weight included fruit size categories 3-7 and 7.1-9 lb.

	Percentage (%	Percentage (%) of total fruits harvested by weight (lb) <sup>2</sup>							
<u>Cultigen</u>	Early harvest (1-2)	<u>Mid-season harvest (3-4)</u>	Late harvest (5)						
50036	35	35	35						
Altata	36	29	35						
Bolita	31	32	37						
Excite	33	38	29						
Extazy	30	35	35						
Melania	34	41	25						
Ocelot	28	38	34						
Petite Perfection	33	29	38						
Prestige	33	34	33						
Sugar Rush	32	28	39						
Average	33	34	34						

Table 5. Mini size triploid watermelon study. Percentage of total fruits harvested early, mid and late season<sup>1</sup>. Clinton, NC 2022.

<sup>1</sup> Early harvests were 11 and 20 July (Harvests 1 and 2), mid-season harvests were 26 July and 4 August (Harvests 3 and 4), late harvests was 11 August (Harvests 5).

<sup>2</sup> Percentages are rounded to the nearest whole number; may not add up to 100%.

	Perc	Percent (%) of fruit weight (lb) by size category <sup>2</sup>							
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>					
50036	0	33	21	46					
Altata	0	44	31	25					
Bolita	0	50	34	17					
Excite	0	46	31	23					
Extazy	1	18	53	28					
Melania	1	80	19	0					
Ocelot	3	82	10	6					
Petite Perfection	1	32	27	41					
Prestige	1	43	46	10					
Sugar Rush	1	69	30	0					
Average	1	50	30	25					

**Table 6. Mini size triploid watermelon** cultigen study. **Percent of Fruit Weight (lb)** by size category for **early harvests (1-2)**, Clinton, NC, 2022.<sup>1</sup>

	Perc	Percent (%) of fruit weight (lb) by size category <sup>2</sup>						
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>				
50036	0	21	15	64				
Altata	0	31	31	37				
Bolita	1	27	20	52				
Excite	0	28	35	37				
Extazy	0	19	36	44				
Melania	1	72	21	6				
Ocelot	1	80	19	0				
<b>Petite Perfection</b>	0	30	32	39				
Prestige	0	51	23	25				
Sugar Rush	0	56	28	16				
Average	1	42	26	36				

**Table 7. Mini size triploid watermelon** cultigen study. **Percent of Fruit Weight (lb)** by size category for **mid-season harvests (3-4)**, Clinton, NC, 2022.<sup>1</sup>

		-							
	Percei	Percentage (%) of fruit weight (lb) by size category <sup>2</sup>							
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>					
50036	5	52	16	28					
Altata	4	58	14	25					
Bolita	7	38	25	29					
Excite	2	57	16	25					
Extazy	1	52	39	8					
Melania	9	85	5	0					
Ocelot	9	77	11	3					
<b>Petite Perfection</b>	6	76	13	5					
Prestige	8	73	8	11					
Sugar Rush	10	77	6	7					
Average	6	65	15	16					

**Table 8. Mini size triploid watermelon** cultigen study. **Percent of Fruit Weight (lb)** by size category for **late harvest (5)**, Clinton, NC, 2022.<sup>1</sup>

	<u>Fruit</u>	number (no.	category <sup>2</sup>				
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total no. / ac</u>	<u>Mkt. no. / ac</u>	<u>Frt no. / plant</u>
50036	73	2904	871		3848	3775	1.3
Altata	•	2178	1016	1597	4792	3194	1.7
Bolita	73	2251	1162	726	4211	3412	1.5
Excite		2759	1307	508	4574	4066	1.6
Extazy	73	2396	1089	653	4211	3485	1.5
Melania	73	871	1815	799	3557	2686	1.2
Ocelot	73	2686	436		3194	3122	1.1
Petite Perfection	218	3630	290	145	4283	3920	1.5
Prestige	73	1597	944	1089	3703	2541	1.3
Sugar Rush	305	305	1379	218	3485	3194	1.2
Average	120	2158	1031	717	3986	3340	1.4
LSD (0.05)	344	1874	1342	1054	1919	2083	0.7

**Table 9. Mini size triploid watermelon** cultigen study. **Fruit number** per acre by size category and **fruit number per plant** for **early harvests (1-2)**, Clinton, NC, 2022.<sup>1</sup>

<sup>2</sup> Fruit numbers for each category are rounded to the nearest whole number.

<sup>3</sup> "." indicates the culitgen was not included in the statistical analysis for the various size categories.

	<u>Fruit</u>	number (no.)	) per acre by size				
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total no. / ac</u>	<u>Mkt. no. / ac</u>	<u>Frt no. / plant</u>
50036		2251	799	363	3412	3049	1.2
Altata		1162	581	1742	3485	1742	1.2
Bolita	73	1815	1162	1089	4138	2977	1.4
Excite	145	1815	871	1597	4429	2686	1.5
Extazy	73	1670	1452	1162	4356	3122	1.5
Melania		1234	1525	1379	4138	2759	1.4
Ocelot	73	3122	653	145	3993	3775	1.4
Petite Perfection	73	3194	508	•	3775	3703	1.3
Prestige		1452	1089	1016	3557	2541	1.2
Sugar Rush		2033	653	508	3194	2686	1.1
Average	87	1975	929	1000	3848	2904	1.3
LSD (0.05)	327	2247	1143	1194	2070	2086	0.7

**Table 10. Mini size triploid watermelon** cultigen study. **Fruit number** per acre by size category and **fruit number per plant** for **mid-season harvests (3-4)**, Clinton, NC, 2022.<sup>1</sup>

1 Yields were calculated using 100 percent seedless watermelon population. 'SP-7' pollenizers were interplanted after triploid plants 1 and 7 while 'Wingman' pollenizer plants were interplanted after triploid plants 4 and 10 (4 pollenizer plants per plot).

2 Fruit numbers for each category are rounded to the nearest whole number.

3 "." indicates the culitgen was not included in the statistical analysis for the various size categories.

	<u>Fruit</u>	number (no.	) per acre by size	category <sup>2</sup>			
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total no. / ac</u>	<u>Mkt. no. / ac</u>	<u>Frt no. / plant</u>
50036	871	3194	145	145	4356	3340	1.5
Altata	653	3920	726	944	6244	4646	2.2
Bolita	581	4066	581	799	6026	4646	2.1
Excite	799	2251	871	799	4719	3122	1.6
Extazy	290	3775	653	799	5518	4429	1.9
Melania	73	2178	1016	145	3412	3194	1.2
Ocelot	799	3920	145		4864	4066	1.7
Petite Perfection	944	4429	363	73	5808	4792	2.0
Prestige	653	4211	436	145	5445	4646	1.9
Sugar Rush	871	4356	290	290	5808	4646	2.0
Average	653	3630	523	460	5220	4153	1.8
LSD (0.05)	737	1193	1001	633	1657	1588	1.0

**Table 11. Mini size triploid watermelon** cultigen study. **Fruit number** per acre by size category and **fruit number per plant** for **late harvest (5)**, Clinton, NC, 2022.<sup>1</sup>

2 Fruit numbers for each category are rounded to the nearest whole number.

3 "." indicates the culitgen was not included in the statistical analysis for the various size categories.

	Fruit	<u>number (no.</u>	) per acre by size	category <sup>2</sup>			
<u>Cultigen</u>	<u>&lt; 3 lb<sup>3</sup></u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>	<u>Total no. / ac</u>	<u>Mkt. no. / ac</u>	<u>Frt no. / plant</u>
50036	944	8349	1815	508	11616	10164	4.0
Altata	653	7260	2323	4283	14520	9583	5.0
Bolita	726	8131	2904	2614	14375	11035	5.0
Excite	944	6824	3049	2904	13721	9874	4.7
Extazy	436	7841	3194	2614	14084	11035	4.9
Melania	145	4283	4356	2323	11108	8639	3.8
Ocelot	944	9728	1234	145	12052	10963	4.2
Petite Perfection	1234	11253	1162	218	13867	12415	4.8
Prestige	726	7260	2468	2251	12705	9728	4.4
Sugar Rush	944	8204	2323	1016	12487	10527	4.3
Average	770	7913	2483	1888	13054	10396	4.5
LSD (0.05)	1373	3170	1720	2067	2283	2324	1.3

**Table 12.** Mini size triploid watermelon cultigen study. Fruit number per acre by size category and fruit number per plant for cumulative harvests (1-5), Clinton, NC, 2022.<sup>1</sup>

2 Fruit numbers for each category are rounded to the nearest whole number.

3 "." indicates the culitgen was not included in the statistical analysis for the various size categories.

	Per	Percent (%) of harvested fruit by size category <sup>2</sup>							
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>					
50036	0	45	21	33					
Altata	2	53	28	17					
Bolita	0	60	29	11					
Excite	2	57	26	16					
Extazy	2	24	51	22					
Melania	2	84	14	0					
Ocelot	5	85	7	3					
Petite Perfection	2	43	25	29					
Prestige	2	52	40	6					
Sugar Rush	2	75	23	0					
Average	2	58	26	17					

**Table 13. Mini size triploid watermelon** cultigen study. **Percent of Fruit Number** by size category for **early harvests (1-2)**, Clinton, NC, 2022.<sup>1</sup>

		/ = / =/ =							
	Percent (%) of harvested fruit by size category <sup>2</sup>								
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>					
50036	0	33	17	50					
Altata	2	44	28	26					
Bolita	3	41	20	36					
Excite	2	38	33	27					
Extazy	0	30	37	33					
Melania	2	78	16	4					
Ocelot	2	85	13	0					
<b>Petite Perfection</b>	0	41	31	29					
Prestige	0	64	20	16					
Sugar Rush	0	66	23	11					
Average	2	52	24	26					

**Table 14. Mini size triploid watermelon** cultigen study. **Percent of Fruit Number** by size category for **mid-season harvests (3-4)**, Clinton, NC, 2022.<sup>1</sup>

	Per	Percent (%) of harvested fruit by size category <sup>2</sup>								
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>						
50036	10	63	12	15						
Altata	10	67	10	13						
Bolita	17	48	18	17						
Excite	5	68	12	14						
Extazy	2	64	30	4						
Melania	16	81	3	0						
Ocelot	16	76	6	1						
<b>Petite Perfection</b>	12	77	8	3						
Prestige	15	75	5	5						
Sugar Rush	20	73	3	3						
Average	12	69	11	8						

**Table 15. Mini size triploid watermelon** cultigen study. **Percent of Fruit Number** by size category for **late harvest (5)**, Clinton, NC, 2022.<sup>1</sup>

	Per	Percent (%) of harvested fruit by size category <sup>2</sup>							
<u>Cultigen</u>	<u>&lt; 3 lb</u>	<u>3-7 lb</u>	<u>7.1-9 lb</u>	<u>≥ 9.1 lb</u>					
50036	5	50	16	30					
Altata	5	57	20	18					
Bolita	7	50	22	21					
Excite	3	56	23	19					
Extazy	1	39	39	21					
Melania	8	81	10	1					
Ocelot	9	81	8	2					
<b>Petite Perfection</b>	6	57	19	18					
Prestige	8	66	19	8					
Sugar Rush	8	72	16	4					
Average	6	61	19	14					

Table 16. Mini size triploid watermelon cultigen study. Percent of Fruit Number by sizecategory for cumulative harvests (1-5), Clinton, NC, 2022.1

									<u>Hollow</u>	/ Heart	Ratings <sup>8</sup>	
<u>Cultigen</u>	<u>Flesh Firmness</u>	Flesh Color <sup>2</sup>	Hard Seed Pop <sup>3</sup>	Seed Trace Size <sup>4</sup>	LD⁵	<u>Rind<sup>6</sup></u>	Soluble Solids <sup>7</sup>	<u>HH0</u>	<u>HH1</u>	<u>HH2</u>	<u>HH3</u>	<u>HH4</u>
50036	3.9	4.5	0.3	1.0	1.1	11.7	11.6	100.0	0.0	0.0	0.0	0.0
Altata	2.4	3.4	0.3	1.9	1.1	11.9	10.6	80.0	5.0	15.0	0.0	0.0
Bolita	2.8	3.1	2.8	1.8	1.0	7.9	10.8	100.0	0.0	0.0	0.0	0.0
Excite	3.0	4.0	0.3	2.0	1.1	11.5	10.3	100.0	0.0	0.0	0.0	0.0
Extazy	3.0	4.3	0.2	1.4	1.0	16.3	11.8	95.0	5.0	0.0	0.0	0.0
Melania	3.4	4.0	0.6	1.0	1.1	12.3	11.6	100.0	0.0	0.0	0.0	0.0
Ocelot	3.4	4.2	0.4	1.1	1.1	10.9	11.5	100.0	0.0	0.0	0.0	0.0
<b>Petite Perfection</b>	3.2	3.4	0.0	1.5	1.1	5.5	11.8	100.0	0.0	0.0	0.0	0.0
Prestige	2.7	3.5	0.5	1.9	1.1	11.8	11.6	95.0	5.0	0.0	0.0	0.0
Sugar Rush	2.9	3.8	0.3	1.7	1.1	12.8	11.3	100.0	0.0	0.0	0.0	0.0
Average	3.1	3.8	0.6	1.5	1.1	11.3	11.3	97.0	1.5	1.5	0.0	0.0

Table 17. Mini size triploid watermelon cultigen study. Interior fruit quality, Clinton, NC, 2022.<sup>1</sup>

<sup>1</sup> Most measurements were taken from fruits in harvests 1 and 2.

<sup>2</sup> Rating: 1=white, 2=pink, 3=red, 4=medium-dark red, 5=blood red

<sup>3</sup> Average number of hard seeds counted within 3 melons per replication (12 per entry).

<sup>4</sup> Rating: 1=small (i.e. tomato), 3=medium, 5=large.

<sup>5</sup> LD= length and diameter ratio, average of 5 melons per replication (20 per entry).

<sup>6</sup> Rind=rind thickness (mm), measured from rind to where white and colored flesh meet.

<sup>7</sup> Indicates sweetness, average of 3 melons per replication (12 per entry).

<sup>8</sup> HH Rating Scale

HHO: No crack in flesh

HH1: Hairline crack in flesh

HH2: obvious crack, marketable

HH3: moderate cracking, unmarketable

HH4: complete separation in flesh to rind, unmarketable