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# Midwest Triploid Watermelon Variety Trial in Southwest Indiana — 2014

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## Introduction

Indiana continues to rank high in watermelon (*Citrullus lanatus* L.) production nationally; in 2013, Indiana was 6<sup>th</sup> in acres planted at 7,400 acres as well as total value of production at over \$30,000,000. Indiana watermelon growers ranked 4<sup>th</sup> in yield per acre at 34,000 lbs./acre. Variety selection is one of the keys to remaining competitive in watermelon production. The objective of this study was to evaluate yield and internal quality of 23 triploid watermelon varieties grown under southwestern Indiana conditions.

## Materials and Methods

On April 18, 2014, 250 seeds of each of 23 varieties were sown in the greenhouse. Seeds were planted in 50-cell black polystyrene flats (T.O. Plastics, Clearwater, MN) using a peat-based soilless media: Jiffy-Mix Grower's Choice Plus (Jiffy Products of America, Lorain, Ohio). The pollenizer utilized for the trial was Accomplice and transplants of this variety were produced in the same manner.

The field location was prepared by cultivating and forming raised beds covered with black plastic mulch and drip tape in the bed. Plants were irrigated as needed when rainfall was insufficient. Prior to bed formation, fertilizer materials were applied preplant, including 350 lbs. (46-0-0), 100 lbs. (0-0-60), and 200 lbs. of pelletized lime per acre. The transplants were taken to the field on May 21, 2014, and planted in the designated locations based on the randomized complete block design with three replications. Row spacing was 8 feet center-to-center with 4-foot spacing between plants within the row. Experimental plots were 48 feet in length, which led to a planting density of 12 triploid plants and six pollenizers per plot. Pollenizers were interplanted in the same row as the triploid varieties arranged between each pair of triploid plants. Pests were managed using recommendations in the *Midwest Vegetable Production Guide for Commercial Growers, 2014* (Egel et al., 2014).

Fruit were harvested on a weekly basis for a total of five pickings on July 22, July 29, August 5, August 12, and August 21. Aside from harvest data, fruit quality data were also collected for nine fruit from each variety for parameters such as brix, fruit firmness, and presence of hollow heart. Yield data were analyzed by Fisher's least significant difference test using SAS statistical programs (SAS Institute, Cary, NC).

## Results

There were significant differences in most of the fruit quality characteristics. For example, UG 132512, Troubadour, and SV0258WA, had significantly higher brix than 6 varieties. It is interesting to note that Crunchy Red had a significantly higher firmness rating than all other varieties, but the lowest brix value numerically. Troubadour was in the top 3 for brix and firmness values.

All varieties were rated for hollow heart (Johnson and Ernest, 2012). Relatively low amounts of hollow heart were observed in 2014. Eight varieties were never observed with hollow heart. Liberty, which was placed in the trials due to a suspected likelihood of hollow heart, had significantly less hollow heart than 4 varieties. Unbridled had the highest hollow heart rating at value 1.2 mm, significantly more than 18 different varieties.

Captivation and ORS 12166 had the highest weight-per-acre values, which were significantly higher than 9 other varieties. There were no significant differences in the number of fruit per acre. Maxima had the highest average fruit weight; Troubadour had the lowest average fruit weight, which corresponds to the lowest weight per acre.

## Acknowledgments

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**Table 1.** Varieties, seed companies, and comments for SW Purdue Ag Center triploid watermelon trial, 2014.

<b>Triploid Variety</b>	<b>Seed Source</b>	<b>Comments</b>
AC 7167	Nunhems	SWPAC entry
ACX 6177 TSS	Nunhems	
Captivation	Syngenta	
Crunchy Red	Harris Moran	
Exclamation	Syngenta	
Fascination	Syngenta	
Liberty	Syngenta	SWPAC entry
Maxima	Origene	
Nun 01009	Nunhems	
ORS 12166	Origene	
Razorback	Highmark Seeds	
Revelation	Highmark Seeds	
Secretariat	Sakata	
SV0241WA	Seminis	
SV0258WA	Seminis	
Traveler	Harris Moran	
Tri-X 313	Syngenta	SWPAC entry
Troubadour	Harris Moran	
UG 131712	United Genetics	
UG 132512	United Genetics	
Unbridled	Sakata	
Wolverine	Highmark Seeds	
Yuval	Highmark Seeds	

**Table 2.** Fruit quality of triploid watermelon varieties, 2014.

Variety	Brix <sup>1</sup>	Rind Thickness (in.)	Firmness (lbs. force)	Fruit Length (in.)	Fruit Width (in.)	Degree of Seedlessness <sup>2</sup>
UG 132512	12.5 a <sup>3</sup>	0.67	2.5 fg	11.1 cdefgh	8.98 fg	0.2
SV0258WA	12.4 a	0.75	3.3 bcde	11.5 cd	9.61 bcd	0.2
Troubadour	12.4 a	0.71	3.6 b	11.0 defgh	8.74 g	0.0
Fascination	12.3 ab	0.67	2.7 efg	11.2 cdefg	9.49 cde	0.2
Yuval	12.2 abc	0.83	2.2 g	12.2 b	9.69 abcd	0.0
Secretariat	12.2 abc	0.75	3.0 bcdef	11.0 defgh	9.33 def	0.3
Razorback	12.2 abc	0.75	3.6 b	10.6 hi	9.80 abc	0.0
Wolverine	12.2 abc	0.71	3.5 bc	10.7 hi	9.80 abc	0.1
Unbridled	12.2 abc	0.75	3.2 bcdef	10.9 defgh	9.84 abc	0.1
SV0241WA	12.1 abcd	0.75	2.8 cdefg	10.9 defgh	8.94 fg	0.1
Nun 01009	12.0 abcde	0.75	2.5 fg	11.5 cde	9.13 efg	0.2
Tri-X 313	12.0 abcde	0.71	2.5 fg	10.9 defgh	9.33 def	0.1
UG 131712	12.0 abcde	0.67	2.7 defg	10.8 fgh	8.98 fg	0.0
Liberty	11.9 abcde	0.91	2.8 cdefg	11.6 c	9.33 def	0.0
AC 7167	11.9 abcde	0.75	3.0 bcdef	11.2 cdefg	9.29 def	0.0
Revelation	11.9 abcde	0.71	2.4 fg	15.7 a	8.11 h	0.0
ACX 6177 TSS	11.8 abcde	0.75	3.5 bc	11.1 cdefgh	10.00 ab	0.0
Exclamation	11.4 bcde	0.79	3.5 bcd	10.9 defgh	10.04 a	0.6
Captivation	11.4 cde	0.67	3.5 bc	11.7 c	9.57 cd	0.0
ORS 12166	11.4 cde	0.75	3.6 b	11.3 cdef	9.88 abc	0.3
Maxima	11.3 de	0.75	3.6 bc	10.9 efg	10.08 a	0.0
Traveler	11.2 e	0.75	3.5 bc	10.1 i	8.98 fg	0.0
Crunchy Red	11.2 e	0.83	4.6 a	11.5 cde	9.25 def	0.0

<sup>1</sup>Brix: Percent soluble solids are positively correlated with sugar content in the fruit.<sup>2</sup>Degree of seedlessness: 0 = no seeds, 1 = 1 – 5 black seeds, 2 = >5 black seeds<sup>3</sup>Means in columns separated by Fisher's least significant difference test ( $P \leq 0.05$ ), averages with the same letters are not statistically significantly different.

**Table 3.** Hollow heart severity of triploid watermelon varieties, 2014.

<b>Variety</b>	<b>Hollow Heart<sup>1</sup></b>	
Unbridled	1.2	a
Fascination	1	ab
Yuval	0.9	ab
Revelation	0.9	ab
UG 132512	0.7	abc
Razorback	0.4	bcd
Tri-X 313	0.4	bcd
Liberty	0.4	bcd
SV0258WA	0.2	cd
Troubadour	0.2	cd
Secretariat	0.2	cd
SV0241WA	0.2	cd
Nun 01009	0.1	cd
UG 131712	0.1	cd
AC 7167	0.1	cd
Wolverine	0	d
ACX 6177 TSS	0	d
Exclamation	0	d
Captivation	0	d
ORS 12166	0	d
Maxima	0	d
Traveler	0	d
Crunchy Red	0	d

<sup>1</sup>Hollow heart, 1=less than 10 mm gap, 2=gap between 10-20 mm, 3=gap more than 20 mm. Averages in columns separated by Fisher's least significant difference test ( $P \leq 0.05$ ), averages with the same letters are not statistically significantly different.

**Table 4.**Total harvest of triploid watermelon varieties, 2014.

<b>Triploid Variety</b>	<b>Weight (lbs.) per Acre</b>	<b>Number of Fruit per Acre</b>	<b>Mean Fruit Weight (lbs.)</b>
Captivation	66,464 a <sup>1</sup>	3,819.1	17.4 abc
ORS 12166	66,017 a	3,705.6	17.9 ab
Wolverine	65,161 ab	4,083.8	16.0 efg
Exclamation	64,513 abc	3,592.2	18.1 ab
Unbridled	63,452 abcd	3,743.4	16.9 bcde
Maxima	63,221 abcde	3,440.9	18.4 a
Yuval	61,978 abcde	3,894.7	15.9 efg
ACX 6177 TSS	61,550 abcde	3,554.4	17.4 abc
Razorback	60,958 abcde	3,856.9	15.8 efgh
SV0258WA	59,262 abcdef	3,440.9	17.2 abcd
SV0241WA	59,214 abcdef	3,932.5	15.1 fghi
Crunchy Red	58,106 abcdefg	3,705.6	15.7 fgh
Nun 01009	57,136 abcdefg	3,554.4	16.1 def
Liberty	56,028 abcdefgh	3,592.2	15.6 fgh
Revelation	54,774 bcdefgh	3,138.4	17.5 abc
UG 131712	54,225 cdefgh	3,592.2	15.2 fghi
Traveler	53,848 defgh	3,667.8	14.7 ghi
AC 7167	52,723 efgh	3,327.5	15.8 efgh
UG 132512	48,910 fgh	3,327.5	14.7 hi
Secretariat	48,839 fgh	3,251.9	15.0 fghi
Tri-X 313	48,528 gh	3,214.1	15.1 fghi
Fascination	47,896 gh	2,949.4	16.3 cdef
Troubadour	45,638 h	3,214.1	14.2 i

<sup>1</sup>Averages in columns separated by Fisher's least significant difference test ( $P \leq 0.05$ ), averages with the same letters are not statistically significantly different.

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