

Seedless Watermelon Cultivar Trials for Southwestern Indiana, 2007

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Seedless watermelons continue to generate both grower and consumer excitement, and in many urban markets around the United States the percentage of seedless melons purchased has risen considerably. Indiana remains a strong producer of seedless (triploid) watermelons, and since 1994, we have conducted extensive annual variety trials for seedless varieties. This trial, along with the seeded (diploid) watermelon variety trial provides an objective and independent comparative assessment of new watermelons for the commercial industry. This year's study included 39 seedless watermelons and one seeded variety.

Methods

Seeds of 40 watermelon cultivars were sown in the greenhouse on April 19 and transplanted on May 17 into a randomized complete block design with three replications. Pollimax (Nunhems Seed, Parma, ID) was used as the pollenizer and planted within each row. A water wheel transplanter with two planting spikes at 48 inches was modified to include a third spike at 24 inches on one side of the wheel. Care was taken to ensure that plots were planted with a pattern of seedless-pollenizer-seedless, and that pattern repeated until 12 seedless plants had been planted. Plots were single rows, 48 feet long, centered 8 feet apart, and covered with 4 feet of black plastic mulch. Each plot had 12 seedless plants and six pollenizer plants. The recommendations in the 2007 *Midwest Vegetable Production Guide for Commercial Growers* (Purdue Extension publication ID-56) were followed for fertilization, weed, disease, and insect control. Trickle irrigation was used as necessary to provide ample water to the field plots. Plots were harvested on July 11, 19, and 25, and August 2, 5, and 9. The data were analyzed using the Statistical Analysis Software (SAS) package (SAS Institute, Cary, NC). Yield data and quality data for all varieties in the trial are presented in Tables 1 and 2. Size distribution data are presented in Table 3.

Results and Conclusions

Yields and Quality

Yields ranged from 12.1 tons to 30.3 tons per acre with 1,733 to 3,767 fruit per acre harvested across all entries (Table 1). The average weight of seedless fruit was down this year to 15.0 pounds per fruit, with a range of 12.7 to 20.3 pounds per fruit. The highest yielding cultivars in this trial were: Crunchy Red, USS 7031, Matrix, Nun 6033, and Majestic. Most of the fruit in the trial this year were round to oval with dark pink to red flesh. The melon varieties with the highest soluble solids were Palomar, RWT 8173, WT-05-98, RWT 8207, Nu 7561, and L-2, all of which had a soluble solids greater than 12 Brix.

Seedless watermelons should be a part of your melon production strategy as long as you have a market that will purchase the fruit at a higher price than the seeded watermelons.

The majority of cultivars tested produced watermelon in the 12- to 18-pound range (Table 3). Notable exceptions were Matrix and USS 7031, which produced a little more than a third of their fruit in the 18- to 24-pound category. If a larger fruit size is desirable, WT-05-99 produced the most fruit over 24 pounds (12%).

Table 1. Comparison of Yield of Seedless Watermelon in Southwestern Indiana, 2007 .

Cultivar	Seed Source	Yield Cwt/Acre	Yield ^z Tons/Acre	Fruit No./Acre	Average Fruit Weight lbs.
Crunchy Red	HM	607.2	30.3 a	3,767	16.3
USS 7031	US	559.3	28.0 ab	3,293	17.1
Matrix	RG	558.8	28.0 ab	3,202	17.4
Nun 6033	NU	540.4	27.0 abc	3,428	15.7
Majestic	SM	534.1	26.7 abcd	3,352	16.0
9651 HQ	AC	529.5	26.5 abcde	3,277	16.3
WT-05-99	DP	527.5	26.4 abcde	2825	18.9
Cooperstown	SM	520.6	26.0 abcdef	3,315	15.8
SSX 7401	SK	508.0	25.4 abcdefg	3,654	14.1
WT-05-98	DP	505.1	25.3 abcdefg	3,089	16.5
8134	SM	487.1	24.4 abcdefgh	3,352	14.6
RWT 8174	RG	481.4	24.1 abcdefgh	3,363	14.4
SSC 1704	SR	479.8	24.0 abcdefgh	3,315	14.5
L1	AT	472.7	23.6 bcdefghi	3,051	15.7
HMX 4915	HM	467.1	23.4 bcdefghij	3,390	13.7
Liberty	NU	460.2	23.0 bcdefghij	3,089	15.0
Vagabond	HM	450.9	22.6 bcdefghij	3,239	14.0
Revolution	NU	428.3	21.4 bcdefghijk	2,448	17.5
5335	SM	427.9	21.4 cdefghijk	3,126	13.7
C-25	AT	418.4	21.0 cdefghijk	2,034	20.3
RWT 8207	RG	417.8	20.9 cdefghijk	3,051	13.7
Sugarheart	ZG	414.2	20.7 cdefghijk	2,863	14.5
Super Crisp 85	ZG	412.9	20.6 cdefghijk	2,863	14.4
Super Crisp	ZG	411.0	20.6 cdefghijk	2,904	14.0
Nu 7561	NU	405.4	20.3 defghijk	3,202	12.9
Nun 6032	NU	403.7	20.2 defghijk	2,750	14.8
212	RG	398.7	19.9 efghijk	2,900	13.8
Sweet Delight	RG	396.4	19.8 fghijk	2,674	15.0

^zYield weight averages spanned by the same letter are not significantly different.

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Table 1 (continued)

Cultivar	Seed Source	Yield Cwt/Acre	Yield ^z Tons/Acre		Fruit No./Acre	Average Fruit Weight lbs.
Rwt 8173	RG	393.9	19.7	fghijk	2,561	15.3
Triple Threat	RG	381.9	19.1	ghijk	2,863	13.3
Super Crisp 32	ZG	381.7	19.1	ghijk	2,486	15.3
Palomar	RG	364.0	18.2	hijkl	2,637	13.8
313	RG	363.2	18.2	hijkl	2,486	14.6
Constitution	NU	357.9	17.9	hijkl	2,712	13.4
RWT 8203	RG	345.6	17.3	ijkl	2,448	14.0
9570 HQ	AC	338.3	16.9	jkl	2,222	14.7
7176	AC	317.0	15.9	kl	2,147	14.8
L-2	AT	316.5	15.8	kl	2,335	13.5
Freshcut ESL	WI	302.3	15.1	kl	2,335	12.7
Cutmaster ESL	WI	241.4	12.1	l	1,733	14.0
Grand Mean		433.2	21.7		2,893	15.0
L.S.D. (5%)		131.1	6.6		596	4.5
C.V. (%)		8.6	8.6		6	8.5

^zYield weight averages spanned by the same letter are not significantly different.

Table 2. Comparison of Quality of Seedless Watermelon in Southwestern Indiana, 2007.

Cultivar	% SS ^q	Flavor ^r	Uniformity ^s	Length ^t	Width ^u	Ratio ^v	Shape ^w	Flesh ^x	Degree of Seedlessness ^y	Pressure ^z
Crunchy Red	10.4	2.9	2	11.5	8.8	1.3	Ov	Pink	3	2.0
USS 7031	11.6	3.6	3	11.5	9.5	1.2	Rd	D-pink	3	1.8
Matrix	10.4	2.0	3	12.0	8.3	1.4	Ob	Red	2	1.5
Nun 6033	11.5	4.4	3	10.6	9.2	1.2	Rd	D-pink	3	1.5
Majestic	9.9	2.3	1	11.1	9.1	1.2	Ov	Red	3	1.5
9651 HQ	11.4	3.7	3	9.6	8.7	1.1	Rd	Red	3	1.2
WT-05-99	11.2	2.7	2	10.3	9.2	1.1	Rd	D-pink	1	1.0
Cooperstown	11.2	3.7	1	9.9	8.4	1.2	Ov	Red	3	1.2
SSX 7401	11.9	3.7	2	10.4	8.7	1.2	Ov	Red	3	1.3
WT-05-98	12.3	2.4	2	10.4	9.1	1.1	Ov	Red	2	1.0
8134	10.0	3.5	3	10.6	8.0	1.3	Ov	Red	3	1.1
RWT 8174	10.8	3.2	3	10.8	8.7	1.2	Rd	Red	2	1.3
SSC 1704	10.3	2.8	3	11.1	9.2	1.2	Ov	Red	3	1.5
L-1	11.9	3.1	3	11.5	9.1	1.3	Ov	Red	2	1.7
HMX4915	10.1	2.6	2	10.8	8.4	1.3	Ov	Red	2	1.2
Liberty	10.8	4.0	2	11.0	9.1	1.2	Ov	D-pink	3	1.3

^q%SS = Percent soluble solids: the higher the value, the greater the amount of total sugar.

^rFlavor (1 to 5): 1=very poor, 3=acceptable, 5=great.

^sUniformity (1 to 3): 1=lacks uniformity/variable, 2=average, 3=very uniform.

^tLength: length of fruit from stem attachment end to blossom end (in inches).

^uWidth: width of fruit as measured following a longitudinal cut from stem end to blossom end (in inches).

^vRatio: length divided by the width of the fruit.

^wShape: Rd=round, Ov=oval, Ob=oblong.

^xFlesh: LR=light red, RO=red-orange, R=red, LP=light pink, P=pink, DP=dark pink, Y=yellow.

^yDegree of Seedlessness (1 to 3): 1=brown or black seeds present, 2=white seeds present, 3=no seeds present.

^zPressure: pressure test reading (in pounds per square inch).

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Table 2 (continued)

Cultivar	% SS ^q	Flavor ^r	Uniformity ^s	Length ^t	Width ^u	Ratio ^v	Shape ^w	Flesh ^x	Degree of Seedlessness ^y	Pressure ^z
Vagabond	11.0	3.7	1	10.3	8.8	1.2	R-Ov	D-pink	3	1.5
Revolution	9.9	2.7	1	16.2	9.5	1.7	Ob	Red	3	2.0
5335	11.0	3.2	2	10.7	8.3	1.3	Ov	Red	1	1.5
C-25	11.7	3.4	1	13.8	8.8	1.6	Ob	Red	N/A	1.0
RWT 8207	12.3	3.6	2	9.6	9.2	1.0	Rd	Red	3	1.3
Sugarheart	10.2	3.7	3	11.9	8.8	1.3	Ov	D-pink	2	1.2
Super Crisp 85	10.9	2.6	2	10.7	8.7	1.2	Ov	Red	1	1.0
Super Crisp	10.8	2.7	1	10.7	7.9	1.3	R-Ov	Red	2	1.0
Nu 7561	12.3	2.8	3	9.4	9.1	1.0	Rd	Red	3	1.5
Nun 6032	9.8	3.8	2	9.8	9.1	1.1	Rd	Pink	3	1.5
212	11.8	2.7	3	10.3	8.8	1.2	Rd	Red	3	1.0
Sweet Delight	11.4	3.8	1	11.1	9.1	1.2	Ov-Ob	Pink	3	1.0
RWT 8173	12.4	3.3	2	10.0	8.3	1.2	R-Ov	Red	3	1.5
Triple Threat	11.4	3.2	2	9.1	9.1	1.0	Rd	Red	3	1.5
Super Crisp 32	10.8	2.6	2	12.0	8.7	1.4	Ov	Red	1	1.0
Palomar	12.4	3.1	3	9.1	8.8	1.0	Rd	Red	2	1.0

^q%SS = Percent soluble solids: the higher the value, the greater the amount of total sugar.

^rFlavor (1 to 5): 1=very poor, 3=acceptable, 5=great.

^sUniformity (1 to 3): 1=lacks uniformity/variable, 2=average, 3=very uniform.

^tLength: length of fruit from stem attachment end to blossom end (in inches).

^uWidth: width of fruit as measured following a longitudinal cut from stem end to blossom end (in inches).

^vRatio: length divided by the width of the fruit.

^wShape: Rd=round, Ov=oval, Ob=oblong.

^xFlesh: LR=light red, RO=red-orange, R=red, LP=light pink, P=pink, DP=dark pink, Y=yellow.

^yDegree of Seedlessness (1 to 3): 1=brown or black seeds present, 2=white seeds present, 3=no seeds present.

^zPressure: pressure test reading (in pounds per square inch).

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Table 2 (continued)

Cultivar	% SS ^q	Flavor ^r	Uniformity ^s	Length ^t	Width ^u	Ratio ^v	Shape ^w	Flesh ^x	Degree of Seedlessness ^y	Pressure ^z
313	10.6	2.8	1	9.6	8.3	1.2	R-Ov	Red	3	1.0
Constitution	11.4	2.3	2	9.4	8.7	1.1	Rd	D-pink	2	1.3
RWT 8203	11.0	2.7	2	9.8	8.3	1.2	Ov	Red	3	1.5
9570 HQ	11.7	3.3	3	9.9	8.8	1.1	Rd	Red	1	1.0
7176	10.6	3.1	1	11.6	9.4	1.2	R-Ov	Pink	1	1.6
L-2	12.0	3.8	3	10.8	8.3	1.3	Ov	D-pink	3	1.0
Freshcut ESL	10.2	1.5	1	11.2	8.7	1.3	Ov	Red	3	1.3
Cutmaster ESL	11.2	2.4	3	10.0	8.4	1.2	Ov	Red	2	1.0

^rFlavor (1 to 5): 1=very poor, 3=acceptable, 5=great.

^sUniformity (1 to 3): 1=lacks uniformity/variable, 2=average, 3=very uniform.

^tLength: length of fruit from stem attachment end to blossom end (in inches).

^uWidth: width of fruit as measured following a longitudinal cut from stem end to blossom end (in inches).

^vRatio: length divided by the width of the fruit.

^wShape: Rd=round, Ov=oval, Ob=oblong.

^xFlesh: LR=light red, RO=red-orange, R=red, LP=light pink, P=pink, DP=dark pink, Y=yellow.

^yDegree of Seedlessness (1 to 3): 1=brown or black seeds present, 2=white seeds present, 3=no seeds present.

^zPressure: pressure test reading (in pounds per square inch).

Table 3. Percent of fruit broken down into size categories. Categories given are in pounds per fruit.

Cultivar	<12^z	12-18	18-24	>24
Crunchy Red	5	71	21	3
USS 7031	6	53	37	3
Matrix	2	59	35	4
Nun 6033	10	65	24	1
Majestic	7	70	24	0
9651 HQ	9	62	28	1
WT-05-99	3	51	35	12
Cooperstown	8	76	14	2
SSX 7401	27	65	8	0
WT-05-98	7	65	27	1
8134	16	78	7	0
RWT 8174	15	77	8	0
SSC 1704	18	70	10	1
L-1	11	69	20	0
HMX4915	21	73	6	0
Liberty	10	83	7	0
Vagabond	20	77	3	0
Revolution	3	62	29	6
5335	27	70	4	0
C-25	22	74	4	0
RWT 8207	15	74	11	0
Sugarheart	13	78	9	0
Super Crisp 85	17	74	9	0
Super Crisp	21	71	8	0
Nu 7561	39	58	4	0
Nun 6032	15	77	7	1
212	32	61	6	0
Sweet Delight	17	65	18	0
RWT 8173	15	65	21	0
Triple Threat	32	67	1	0
Super Crisp 32	15	67	17	2
Palomar	24	69	7	0
313	32	61	6	0

^zSize categories in pounds.

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Table 3 (continued)

Cultivar	<12^z	12-18	18-24	>24
Constitution	33	61	6	0
RWT 8203	23	63	14	0
9570 HQ	14	69	15	2
7176	14	74	12	0
L-2	29	68	3	0
Freshcut ESL	40	56	5	0
Cutmaster ESL	24	70	7	0

^zSize categories in pounds.