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Wenjing Guan

*Purdue University, guan40@purdue.edu*

Dan Egel

*Purdue University - Main Campus, egel@purdue.edu*

Dennis Nowaskie

*Southwest Purdue Agriculture Center, nowaskie@purdue.edu*

Thomas D H Haseman

*Purdue University*

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## 2020 Cantaloupe Variety Evaluation in Southern Indiana

Wenjing Guan<sup>1</sup>, Daniel S. Egel, Dennis Nowaskie, Dean Haseman

<sup>1</sup>Southwest Purdue Agricultural Center, Vincennes, IN, 47591, [guan40@purdue.edu](mailto:guan40@purdue.edu)

### Introduction

Indiana ranks sixth in cantaloupe production in the US. A total of 1,800 acres of cantaloupes were planted in Indiana with a production value of \$8.6 million in 2018 (USDA 2020). Melon produced in Indiana is primarily eastern-type cantaloupes. Traditional eastern-type cantaloupes have less pronounced netting, larger fruit size, softer flesh and relatively short shelf life compared with western-type cantaloupes. They are harvested at quarter-slip to full-slip stage, and require frequent harvest. Recently, extended shelf life varieties have been developed and are becoming attractive in the eastern market.

### Materials and Methods

Cantaloupe seeds were planted in 50-cell black seeding flats filled with a peat-based potting media on April 16. Transplants were grown in greenhouses at Southwest Purdue Agricultural Center. Seedlings were transplanted in the field on May 21.

Soils of the experimental fields are sandy loam with 1.5% organic matter. Fertilizers at a rate of 300 lb/acre urea (46-0-0), 100 lb/acre potash (0-0-60), 100 lb/acre K-Mag granular (0-0-22-11-22), 7 lb/acre boron 14.3%, and 10 lb/acre Zinc 10% LS were pre-plant broadcast applied. Plants were grown on raised beds covered with black plastic mulch. Drip tape with a 12-inch emitter spacing and a flow rate of 0.22 gpm/100 feet were used for irrigation. At transplant, each seedling received approximately one cup of starter fertilizer solution (Miracle-Gro<sup>®</sup> 20-20-20, 4.7 grams per gallon water).

A randomized complete block design with three replications was used for the experiment. The experimental plot was comprised of one 25-ft bed with 10 melon plants on 2.5 ft in-row spacing. The beds were spaced on 6 ft centers.

Disease and insect pests were managed by scouting and using recommendations from the *Melcast* ([melcast.info](http://melcast.info)) and the *Midwest Vegetable Production Guide for Commercial Growers* (Egel et al., 2019). Bravo Weather Stik<sup>®</sup>, Luna Experience<sup>®</sup>, Inspire Super<sup>®</sup>, Rally<sup>®</sup>, Aprovia Top<sup>®</sup>, Ranman<sup>®</sup>, and Pristine<sup>®</sup> were sprayed for disease control; Warrior<sup>®</sup> II, Permethrin<sup>®</sup> and Kanemite<sup>®</sup> were used for insect and mite control.

Harvests were conducted on July 13, 15, 17, 20, 22, 24, 27, 31 and Aug. 3 and 7. Fruit were weighed individually and separated as marketable and culls. Four fruit of each variety per replication were collected for fruit quality measurement. Fruit size, seed cavity size, total soluble solids, and flesh firmness were recorded.

### Results and Discussion

Seven cantaloupe varieties were compared in this report. Variety names and seed sources are provided in Table 1. Among the seven varieties, MS7350 (47,119 lb/acre) had the highest total yield (Table 2), significantly higher than HMC458279 (37,543 lb/acre) and Sun Pac (35,587 lb/acre). For the marketable yield, MS7350 (43,353 lb/acre) also ranked at the top, while

Aphrodite (28,809 lbs/acre) had the lowest marketable yield. Aphrodite and MS7350 had the largest fruit, but the seed cavity of MS7350 was smaller than that of Aphrodite. Average fruit weight of Aphrodite and MS7350 were 7.03 and 7.10 lb, respectively (Table 3). HMC458279 had the smallest fruit (average fruit weight 5.01 lb), but the difference was not significant compared to ME8977 (5.67 lb) and Accolade (5.65 lb). Variety ME8977 and Aphrodite had relatively higher yield in the first week's harvest (Figure 1), while variety MS7350 and ME8892 had most yield in the last week's harvest. Variety Aphrodite had the lowest flesh firmness value, while variety MS7350, ME8892 and ME8977 had the highest value in flesh firmness. Total soluble solids were similar among varieties. Numerically, MS7350 (11.69 °Brix) had the highest total soluble solids value.

### **References**

Egel, D., D. Lewis, E. Maynard, S. Meyers, et al. 2019 Midwest Vegetable Production Guide for Commercial Growers, 2020 (ID-56). Purdue University.

USDA, 2020 National Agricultural Statistics Service. Vegetables 2019 Summary. <[https://www.nass.usda.gov/Publications/Todays\\_Reports/reports/vegean20.pdf](https://www.nass.usda.gov/Publications/Todays_Reports/reports/vegean20.pdf)>.

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Table 1. Variety name and seed source of cantaloupes evaluated in the melon trial at Southwest Purdue Agricultural Center in Vincennes, IN in 2020.

Variety	Seed source
<b>Accolade</b>	Syngenta
<b>Aphrodite</b>	Syngenta
<b>ME8892 (Damaris)</b>	Syngenta
<b>ME8977</b>	Syngenta
<b>MS7350 (Heidi)</b>	Syngenta
<b>Sun Pac</b>	HM Clause
<b>HMC 458279</b>	HM Clause

Table 2. Marketable and total yields, and average fruit weight of cantaloupes evaluated in the melon trial at Southwest Purdue Agricultural Center in Vincennes, IN in 2020.

Variety	Marketable (lb/acre)		Marketable (No/acre)		Total yield (lb/acre)		Total yield (No/acre)		Average fruit weight (lb)
<b>MS7350</b>	43,353	a	6,187	ab	47,119	a	6,863	ab	7.10 a
<b>ME8892</b>	39,784	ab	6,573	a	45,020	ab	7,733	a	6.05 c
<b>ME8977</b>	39,732	ab	7,153	a	42,338	abc	7,733	a	5.67 cd
<b>Accolade</b>	37,509	ab	6,670	a	42,318	abc	7,637	a	5.65 cd
<b>Aphrodite</b>	28,809	b	4,157	b	41,095	abc	6,283	ab	7.03 ab
<b>HMC 458279</b>	33,789	ab	6,767	a	37,543	bc	7,540	a	5.01 d
<b>Sun Pac</b>	34,551	ab	5,703	ab	35,587	c	5,993	b	6.12 bc

Means within a column followed by the same letter are not significantly different according to Fisher's least significant difference test at  $P \leq 0.05$ .

Table 3. Fruit quality parameters of cantaloupes evaluated in the melon trial at Southwest Purdue Agricultural Center in Vincennes, IN in 2020.

Variety	Length (cm)		Width (cm)		Seed cavity length (cm)		Seed cavity width (cm)		Flesh thickness (cm)		Firmness (lbs-force)		Total soluble solids (°Brix)	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
<b>MS7350</b>	20.7	(19.2, 22.2)	17.9	(16.9, 18.8)	13.1	(11.9, 14.2)	7.0	(6.5, 7.5)	9.2	(8.6, 9.9)	7.7	(6.5, 9.0)	11.7	(10.3, 13.1)
<b>ME8892</b>	19.1	(17.7, 20.5)	16.9	(15.8, 18.0)	11.3	(10.1, 12.4)	7.2	(6.3, 8.1)	8.8	(7.8, 9.7)	7.7	(6.6, 8.8)	10.7	(9.3, 12.1)
<b>ME8977</b>	18.6	(17.7, 19.5)	16.8	(16.0, 17.6)	11.9	(11.4, 12.3)	7.3	(6.7, 7.9)	8.1	(7.5, 8.7)	7.2	(5.9, 8.5)	9.3	(8.3, 10.3)
<b>Accolade</b>	19.6	(18.3, 20.9)	17.3	(16.4, 18.1)	12.7	(11.9, 13.5)	7.5	(7.0, 8.0)	8.4	(7.4, 9.2)	6.0	(4.6, 7.3)	10.4	(9.4, 11.3)
<b>Aphrodite</b>	19.8	(18.1, 21.4)	18.4	(17.0, 19.8)	13.5	(12.3, 14.6)	9.2	(8.5, 9.9)	7.7	(6.9, 8.5)	3.1	(2.2, 4.0)	10.5	(9.6, 11.4)
<b>HMC 458279</b>	18.6	(18.0, 19.1)	16.3	(15.7, 16.9)	12.4	(11.8, 13.1)	7.7	(7.0, 8.4)	7.4	(6.8, 7.9)	4.7	(4.1, 5.3)	9.9	(9.0, 10.8)
<b>Sun Pac</b>	19.7	(19.0, 20.4)	17.7	(17.0, 18.3)	12.7	(12.0, 13.4)	7.8	(7.4, 8.3)	8.4	(7.8, 9.0)	5.6	(4.8, 6.4)	10.7	(9.6, 11.7)

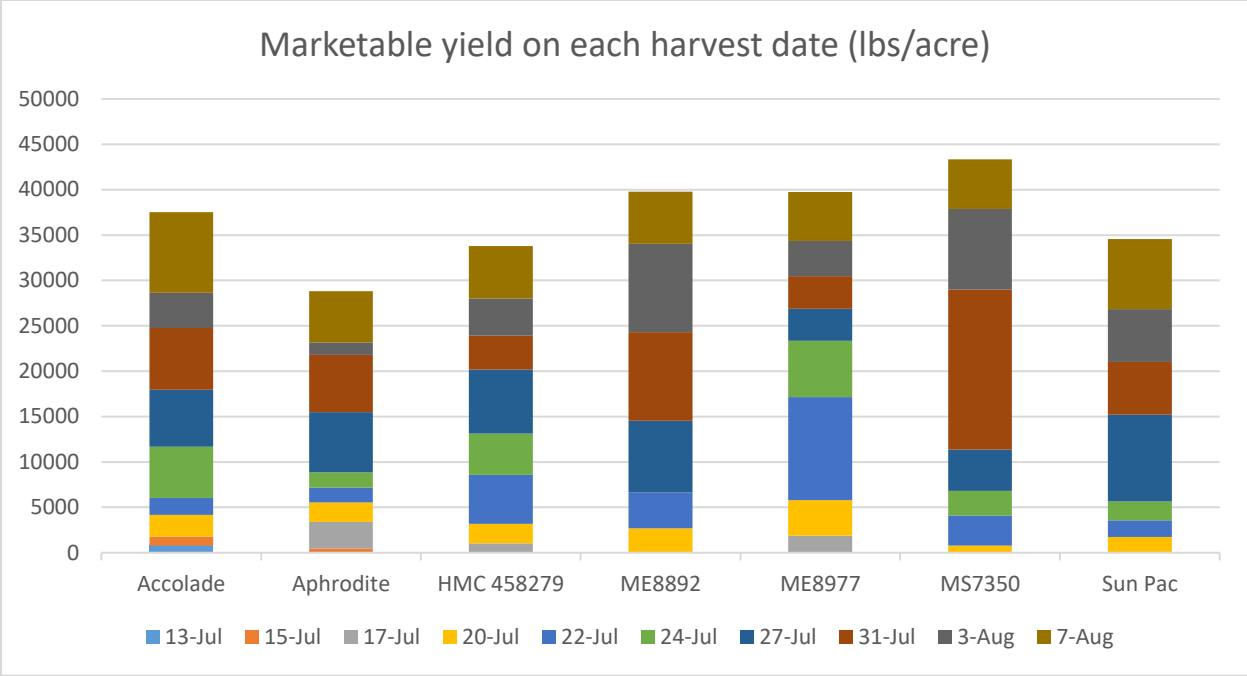










Figure 1. Marketable yield (lbs/acre) on each harvest date of cantaloupe varieties evaluated in the melon trial at Southwest Purdue Agricultural Center in Vincennes, IN in 2020.

<p><b>MS7350</b></p>		
<p><b>ME8892</b></p>		
<p><b>ME8977</b></p>		
<p><b>Accolade</b></p>		

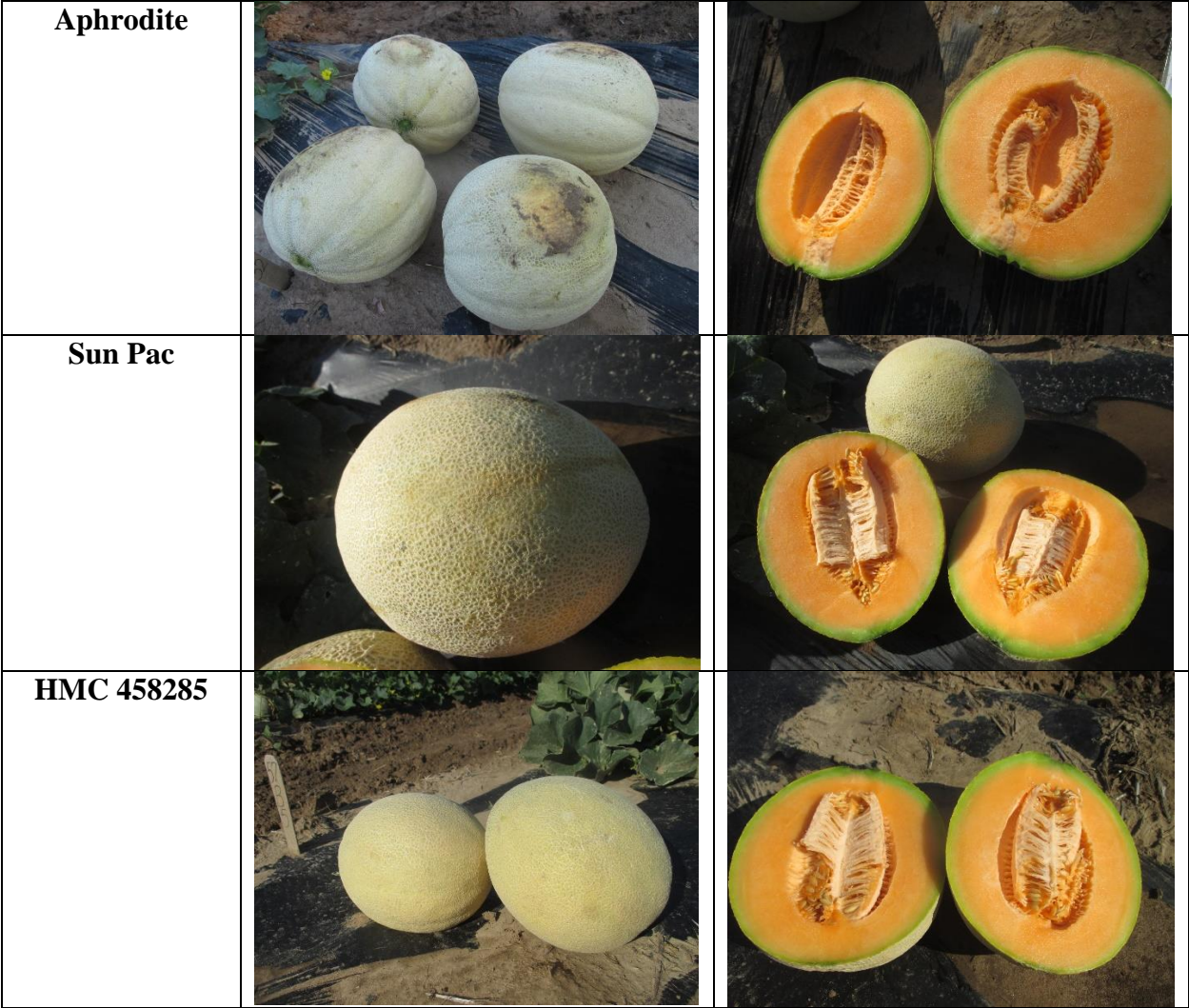


Figure 2. Exterior and interior of cantaloupe varieties evaluated in the melon trial at Southwest Purdue Agricultural Center in Vincennes, IN in 2020.