Muskmelon Cultivar Evaluation for Northern Indiana, 2003

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Muskmelon varieties were evaluated at Garwood Orchards in LaPorte County. Six experimental hybrids were compared to the cultivar Vienna. An eighth variety, Duke, was also included.

Materials and Methods. The trial was conducted in a commercial field on a coarse-textured soil low in organic matter. It was repeated on two planting dates. For each date, the 8 varieties were arranged as treatments in a randomized complete block design with two replications. A single plot consisted of one row with 20 plants spaced 32 in. apart in the row. Rows were centered 6 ft. apart on raised beds covered with green plastic mulch. Plant population was 2722 per acre. Transplants were seeded in 50-cell round trays on April 18 (April 15 for Vienna) and June 5; and transplanted on May 23 by hand, and on July 2 using a waterwheel transplanter, for the first and second planting dates, respectively. Fertilization and pest management followed standard grower practices. The plot was not irrigated. Melons were harvested from Aug. 15 though Sept. 3 for the first planting date and from Aug. 21 through Sept. 8 for the second planting date. Harvested fruit were graded into marketable and cull, and number and weight in each category determined. Marketable fruit harvested Aug. 15 and Aug. 19 were evaluated for soluble solids content (SS), shape, netting, sutures, rind thickness, cavity size, and for Aug. 19 only, uniformity. Soluble solids was measured using a refractometer. On 15 Aug., 3 fruit were sampled for SS (if available) and the highest two values used; on Aug. 19, 1 or 2 fruit were sampled and the highest value used. Quantitative data were analyzed separately for each planting date using analysis of variance and mean separation by Fisher's protected LSD, $P \leq 0.05$.

Results and Discussion. The variety Duke matured much later than other varieties and yield was very low – less than 6 tons per acre in the first planting, and 0 in the second planting. It was excluded from analysis and results are not presented.

Results for the two planting dates will be discussed separately. Cool wet weather prevailed at the start of the season. Transplants in the first planting did not grow well for the first few weeks, but grew well when temperatures increased. Marketable fruit number ranged from 4084 to 6262 per acre and yield ranged from 10.3 to 15.1 tons per acre, but there was no significant difference among the varieties (Table 1). Average weight per marketable fruit ranged from 3.98 to 6.31 lb. Vienna melons were significantly larger than any other variety, followed by SVR1461-1016 and ACX60. ACX70 produced the smallest fruit. The percentage of culls varied among varieties. RML38, ACX50 and SVR1461-1016 had close to 20% cull fruit (by number), significantly more than Vienna, ACX70 and RML39, which all had less than 10% culls. Early varieties with more than 2/3 of marketable fruit harvested Aug. 15 - 19 included ACX60, ACX70 and RML37. Late varieties with less than 1/3 of marketable fruit harvested Aug. 15 - 19 included RML39 and Vienna.

The second planting date produced much less marketable and total yield and fruit quality was poor. Marketable fruit number ranged from 545 to 1429 per acre and yield ranged from 1.1 to 2.5 tons per acre, but there were no differences among varieties. A dry period in August combined with weed pressure and possible virus infection probably limited yield and fruit quality in this planting. Average fruit size ranged from 2.97 to 5.01 lb. SVR1461-1016 was larger than all other varieties except RML39. Vienna, which was largest in the first planting, came in third, and did not differ in size from RML39. As in the first planting, the smallest variety was ACX70, although it did not differ significantly from two others.

Fruit characteristics were evaluated for the first planting date only (Table 2). Soluble solids ranged from 10.2 to 12.9 on Aug. 15 and from 10.5 to 12.4 on Aug. 19. ACX60 and RML38 were ranked among the top three on both dates; ACX70 was number 1 on Aug. 15 and Vienna was number 1 on Aug. 20. Most varieties were round to oval, but ACX60 was oblong, and Vienna was round to oblong. Degree of netting was medium for all varieties. The three RML lines had no sutures; Vienna and SVR1461-1016 had shallow sutures, and the ACX lines had medium sutures that stayed green.

A goal of this trial was to compare experimental hybrids to the grower standard Vienna. None of the hybrids looked better than Vienna in this trial.

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Table 1. Number of fruit, yield, average fruit weight, cull percentage, and harvest timing for seven muskmelon varieties planted on two dates in Northern Indiana, 2003.

Variety	Seed Source*	Mkt. Fruit	Mkt. Yield	Ave. Wt. Mkt. Fruit	Total Fruit	Total Yield	Culls	Percent of Melons Harvested From:			
		no./A	*ton/A*	*lb.*	*no./A*	*ton/A*	*% by no.*	8/15-8/19	8/21-8/23	8/27-9/3	9/8
First Planting Date, May 23											
ACX60	AC	5921	15.1	5.11 bc	7351	18.0	19 a	77	12	12	–
ACX70	AC	6262	12.6	3.98 e	6874	13.5	9 c	72	15	13	–
RML37	SY	5990	12.7	4.21 d	6874	14.0	12 bc	72	13	15	–
RML38	SY	5513	12.7	4.61 d	6942	15.4	21 a	51	44	5	–
RML39	SY	4220	10.3	4.85 cd	4696	11.2	10 c	27	32	41	–
SVR1461-1016	SM	4084	11.8	5.79 b	5037	14.1	19 ab	50	48	2	–
Vienna	SM	4220	13.1	6.31 a	4424	13.8	5 c	29	43	27	–
LSD .05**		NS	NS	0.46	NS	NS	8.1				
Second Planting Date, July 2											
ACX60	AC	1429	2.5	3.44 cd	3267	4.8	39	–	6	38	56
ACX70	AC	749	1.1	2.97 d	1770	2.3	59	–	23	48	29
RML37	SY	1497	2.5	3.28 cd	2178	3.5	30	–	68	27	5
RML38	SY	817	1.4	3.43 c	2178	3.1	67	–	45	55	0
RML39	SY	545	1.2	4.63 ab	1906	3.8	72	–	20	47	33
SVR1461-1016	SM	545	1.4	5.01 a	1225	2.9	55	–	0	100	0
Vienna	SM	817	1.8	4.36 b	1361	2.8	40	–	44	29	27
LSD .05**		NS	NS	0.420	NS	NS	NS				
LSD .05 for ACX60†				0.528							

*AC=Abbott & Cobb; SY=Syngenta; SM=Seminis.
**Means differing by more than this amount differ significantly at P≤.05 based on Fisher's protected LSD. NS=not significant.
†Data for only one replication for average weight, use indicated LSD.

Table 2. Fruit characteristics of seven muskmelon varieties in Northern Indiana, 2003.

Variety	SS (%)		Shape	Net*	Sutures**	Rind†	Cavity††	Uniformity#
	15Aug	20Aug						
ACX60	12.8	11.7	oblong	2.5	2	2	2.5	2
ACX70	12.9	10.5	round to oval	2	2	2	2.5	1
RML37	11.3	10.7	round to oval	1.5	0	3	2.5	2.5
RML38	11.8	11.0	round to oval	1.5	0	2	3	2
RML39	10.2	11.2	round to oval	1.5	0	3	3	2
SVR1461-1016	no data	10.9	round to oval	2.5	1	2.5	2.5	1.5
Vienna	11.7	12.4	round to oblong	2	1	2	2	2

*Net: 1 = light, 2-medium, 3-heavy.
**Sutures: 0=none, 1=shallow, 2=medium, 3=deep.
†Rind: 1=thin, 2=medium, 3=thick.
††Cavity size: 1=small, 2=medium, 3=large.
#Uniformity: 1=most variable, 3=most uniform.