

Evaluation of Pumpkin Cultivars in West Tennessee

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Interpretative Summary

A trial to identify pumpkin cultivars adapted to growing conditions in West Tennessee was conducted at Ames Plantation in 2003. 'Gold Metal' had about equal numbers of pumpkins of each size. It also had the highest number of large fruit per acre in the study. 'Pik-A-Pie' and 'Mystic Plus' produced the highest numbers of fruit per acre in the study. Most fruit weighed less than 10 lbs but both produced more than 10,000 fruit per acre. 'Pik-A-Pie' produced about 87 percent mature fruit. Several cultivars had only 60-70 percent of their fruit which had matured. No differences were found among cultivars for yield of mature fruit by weight. 'Big Rock' was the highest yielding cultivar in the study on the basis of total fruit weight. Most cultivars had acceptable scores for fruit color, fruit handle, fruit shape, fruit ribbing, and foliar disease rating.

Introduction

Interest in pumpkin production in West Tennessee is increasing. Information on new pumpkin hybrids and cultivars, particularly Jack-'o-Lantern types, is needed by growers interested in producing pumpkins. This study was undertaken to determine those cultivars which are adapted to growing conditions in West Tennessee and to identify those which will produce the most high quality, marketable fruit.

Materials and Methods

Fourteen pumpkin cultivars and hybrids (hereinafter called "cultivars") were planted June 12, 2003, in a replicated test at Ames Plantation. Prior to planting, 500 lbs/acre of 15-15-15 was broadcast and incorporated. Plots were 20 ft long and consisted of 5 hills planted 4 ft apart with two pumpkin seedlings per hill. Experimental design was a randomized complete block replicated four times. The planting was sidedressed with 30 lbs/acre of nitrogen from NH_4NO_3 at runner formation. The planting was irrigated as needed; approximately 6.9 inches of supplemental water was applied during the season. Prior to harvest, subjective ratings were made on fruit color, fruit stem size and attachment (the handle), fruit shape, fruit ribbing, and foliar disease incidence and severity (primarily powdery mildew). Fruit were harvested on October and separated into mature (orange) and immature (green) categories. All fruit were graded into size

classes of less than 10 lbs, 10 to 14.9 lbs, 15 to 19.9 lbs, and more than 20 lbs. Data were converted to per-acre yields and subjected to analysis of variance (ANOVA) using appropriate SAS procedures (SAS Institute Inc., Cary, N.C.). Means were separated using Duncan's multiple range test at $P \leq 0.05$ where applicable.

Results and Discussion

There was a wide array of pumpkin types and sizes grown in the 2003 test (Table 1). 'Gold Metal' probably had the most uniform distribution of fruit sizes, with approximately equal numbers of pumpkins in each size category. It also had the largest number of fruit >20 lbs and of 15 to 19.9 lbs resulting in a total of about 3100 fruit per acre over 15 lbs.

'Pik-A-Pie' and 'Mystic Plus' produced the highest numbers of fruit of the 14 cultivars in the study. Many of these fruit were small with more than 75 percent of pumpkins produced by these two cultivars weighing less than 10 lbs. Both produced more than 10,000 fruit per acre.

Table 1. Numbers of pumpkins produced per acre, by size, and total number per acre, Ames Plantation pumpkin trial, 2003.

Cultivar	Number and percent of fruit per acre by size (lbs)				Total number
	more than 20 lbs	15 to 19.9 lbs	10 to 14.9 lbs	less than 10 lbs	
Rock Star	980abc ^z (14.6)	1361ab (20.3)	1906c-f (28.4)	2450bc (36.7)	6697
Big Rock	1144ab (15.2)	1579ab (21.0)	2831abc (37.7)	1960bc (26.1)	7511
Tom Fox	327cd (5.6)	436c (7.5)	2232b-f (38.3)	2831bc (48.6)	5826
Racer	218cd (2.9)	273c (3.6)	2504a-d (33.3)	4520b (60.2)	7511
Magic Lantern	164d (1.9)	1633a (18.3)	3593a (40.7)	3430bc (38.9)	8820

Merlin	763a-d (9.8)	1525ab (19.6)	3158ab (40.6)	2341bc (30.0)	7786bcd
Mystic Plus	381bcd (3.8)	871abc (8.7)	1143f (11.4)	7623a (76.1)	10019ab
Autumn King	980abc (16.4)	1416ab (23.6)	1470def (24.5)	2123bc (35.5)	5989de
Pik-A-Pie	926a-d (8.1)	708c (6.2)	1089f (9.5)	8711a (76.1)	11434a
Gold Metal	1361a (22.9)	1743a (29.4)	1143f (19.3)	1688c (28.4)	5935de
Gold Gem	926a-d (19.5)	926abc (19.5)	1197ef (25.2)	1688c (35.8)	4737e
Gold Bullion	871a-d (14.3)	1525ab (25.0)	2450a-d (40.2)	1252c (20.5)	6098de
Gold Standard	545bcd (7.6)	1035abc (14.5)	2559a-d (35.9)	2994bc (42.0)	7133cde
Howden	980abc (14.8)	1688a (25.4)	2341b-e (35.2)	1633c (24.6)	6643cde

²Means followed by the same letter are not significantly different, Duncan's multiple range test, ($P \leq 0.05$).

'Pik-A-Pie' produced the most mature fruit in the test (Table 2) with almost 10,000 orange fruit which accounted for 87 percent of the total. Several cultivars had only 60-70 percent of their fruit which had matured. If harvest had been delayed, the maturity percentage of all cultivars would have improved.

No differences were found among cultivars for yield of mature fruit by weight. 'Merlin' had the most green fruit by weight. 'Big Rock' was the highest yielding cultivar in the study on the basis of fruit weight. Only 'Tom Fox' and 'Gold Gem' were significantly lower in total yield.

Table 2. Yield of mature and immature fruit from Ames Plantation pumpkin trial, 2003.

Cultivar	Number of fruit/acre	% orange	Pumpkin yield (tons/acre)
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	Orange	Green		Orange	Green	Total
Rock Star	4138bcd ^z	2559abc	62	30.9a	10.8bc	41.7abc
Big Rock	5227bcd	2287bc	70	38.0a	13.7ab	51.7a
Tom Fox	4356bcd	1470bc	75	23.6a	7.4bc	31.0c
Racer	6153b	1361bc	82	30.0a	5.6c	35.6abc
Magic Lantern	6262b	2559abc	71	37.8a	11.2abc	49.0ab
Merlin	4737bcd	3049ab	61	31.1a	18.3a	49.4ab
Mystic Plus	5935bc	4084a	59	21.7a	13.6ab	35.3abc
Autumn King	4302bcd	1688bc	72	31.4a	8.0bc	39.4abc
Pik-A-Pie	9964a	1470bc	87	33.8a	8.7bc	42.5abc
Gold Metal	3866cd	2069bc	65	31.6a	11.9abc	43.5abc
Gold Gem	3648d	1089c	77	26.3a	5.7c	32.0bc
Gold Bullion	3921cd	2178bc	64	29.7a	14.2ab	43.9abc
Gold Standard	5336bcd	1797bc	75	32.4a	8.7bc	41.1abc
Howden	4574bcd	2069bc	69	32.9a	13.8ab	46.7abc

^zMeans followed by the same letter are not significantly different, Duncan's multiple range test, ($P \leq 0.05$).

Most cultivars had acceptable scores for the characteristics that were rated (Table 3). Cultivars which were rated significantly lower in each category were:

Color - 'Mystic Plus'

Handle - 'Big Rock'

Shape - 'Autumn King'

Ribbing - 'Autumn King' and 'Gold Bullion'

Disease - 'Big Rock', 'Tom Fox', 'Racer', 'Autumn King', 'Pik-A-Pie', 'Gold Metal', 'Gold Gem', 'Gold Standard', and 'Howden'

Table 3. Ratings of fruit characteristics and disease incidence and severity, Ames Plantation pumpkin trial, 2003.

Cultivar	Fruit color rating ^z	Fruit handle rating ^y	Fruit shape rating ^x	Fruit ribbing rating ^w	Fol disease rating
Rock Star	3.8ab ^u	3.8a	4.0a	3.3abc	2.8a-d
Big Rock	3.8ab	2.3b	3.8a	3.3abc	1.8cde
Tom Fox	4.0a	3.5a	4.0a	3.8ab	1.5de
Racer	3.3ab	3.3ab	3.8a	3.3abc	1.3e
Magic Lantern	4.3a	3.5a	3.8a	3.8ab	2.8a-d
Merlin	4.0a	3.3ab	3.8a	3.3abc	4.0a
Mystic Plus	2.8b	3.8a	3.0ab	3.0abc	3.0abc
Autumn King	3.3ab	3.3ab	2.5b	2.3c	2.3b-e
Pik-A-Pie	3.3ab	3.5a	3.5a	3.3ab	1.3e
Gold Metal	3.3ab	3.3ab	3.0ab	2.8abc	1.8cde
Gold Gem	3.8ab	3.0ab	3.8a	4.0a	2.3b-e
Gold Bullion	3.3ab	4.0a	4.0a	2.5bc	3.3ab
Gold Standard	3.3ab	3.8a	4.0a	3.0abc	2.5b-e
Howden	3.5ab	3.5a	3.8a	3.3abc	2.5b-e

^zFruit color rating: 1=least red; 5=most red

^yHandle rating: 1=poor; 5=excellent

^xFruit shape rating: 1=poor; 5=excellent

^wFruit ribbing rating: 1=least or no ribs; 5=most ribs

^vFoliar disease rating (primarily powdery mildew): 1=heavily infected; 5=no disease

^uMeans followed by the same letter are not significantly different, Duncan's multiple range test, ($P \leq 0.05$)

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This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.