Performance of Pumpkin Cultivars, Ames Plantation, 2002

Charles A. Mullins, Marshall Smith, and A. Brent Smith

Interpretative Summary

The pumpkin cultivars were highly productive, and fruit size was very large for most of the large fruited cultivars. 'Appalachian' was among the top producers of large fruit. 'Touch of Autumn' produced more pumpkins per acre, and also produced more pumpkins that weighed less than 10 lb per pumpkin than any other cultivar.

Introduction

Pumpkins are grown in large commercial acreage for the Halloween market in Tennessee. An estimated 3500 acres of pumpkins are produced in Tennessee, with over half grown on the Cumberland Plateau. Pumpkins have been a profitable crop in recent years, and acreage production seems to increase each year. Several tobacco and row crop producers have considered or actually produced pumpkins as an alternative crop. Pumpkin production has many problems that need to be addressed for successful production of pumpkins. Weed control can be a problem in pumpkins as labeled herbicides fail to control all species of weeds adequately. Insecticides and fungicides need to be applied on a 7 to 10 day frequency. Bees are needed for pollination. Pumpkins require a fairly high degree of management for successful results. An experiment was conducted at the Ames Plantation at Grand Junction, TN in 2002 to evaluate performance of 12 pumpkin cultivars.

Materials and Methods

The site was prepared for planting by conventional tillage methods. Fertilizer was broadcast at 400 lb/A of 15-15-15 and incorporated with a disk on May 10. Bensulide (Prefar) was applied at 6.0 lb ai/A on June 11 and soil incorprated with the final disking. Plots were direct seeded with the selected cultivars on June 12. Plot size was one row, with a spacing of 12 by 20 ft. Each row contained 5 hills with 3 seeds/hill. After germination, hills were thinned to 2 plants/hill. Experimental plot design was a randomized complete block with four replications. A preemergence application of clomazone (Command) at 0.375 lb ai/A was made on June 3.

Insect control was by esfenvalerate (Asana) at 0.05 lb ai/A alternated with carbaryl (Sevin) at 1.0 lb ai/A on a 7 to 10 day frequency. Fungicides were azoxystrobin (Quadris) at 0.25 lb ai/A alternated with a combination of chlorothalonil (Bravo) at 2.0 lb ai/A and myclobutanil (Nova) at 0.125 lb ai/A applied with each insecticide treatment. Pumpkins were harvested on Sept 27 and 28. Harvested pumpkins were sorted according to sizes of over 20 lb, 15 to 20 lb, 10 to 15 lb, and less than 10 lb. Number and weight of pumpkins in each weight range were recorded. Quality ratings were made at harvest. All

ratings were on a 1 to 10 scale with 10 the most desirable. All data were analyzed by analysis of variance methods, and means were separated by Duncan's multiple range tests at the 0.05 level.

Results and Discussion

'Trickster' had the smallest total tonnage of pumpkins produced. The remaining cultivars were not significantly different (Table 1). 'Touch of Autumn' and 'Autumn Gold' produced a higher tonnage in the less than 10 lb class than any other cultivar. 'Mother Lode' and 'Trojan' was among varieties that produced a larger tonnage that weighed over 20 lb per pumpkin.

'Hybrid 510' led several cultivars that produced a higher tonnage that weighed between 15 and 20 lb per pumpkin. Fruit of 'Gold Standard', 'Touch of Autumn', and 'Trickster' had the lowest average weight. The remaining varieties were not significantly different. The average weights of 'Trickster' and 'Touch of Autumn' are higher than expected. Several pumpkins of each variety were in the 10-15 pound range. Seed purity for these cultivars, or mis-handling of the seed is probably the reason.

'Touch of Autumn' produced more pumpkins per acre, and also produced more pumpkins that weighed less than 10 lb per pumpkin than any other cultivar (Table 2). Yields in number of fruit per acre generally were very high. This is a high yield since the row spacing was 12 ft in order to help separate the cultivars at harvest. 'Trojan' produced more fruit that weighed over 20 lb per pumpkin than all cultivars except 'Gold Gem'. 'Gold Gem' and 'Hybrid 510' were among the leading varieties for pumpkins per acre in the 15 to 20 class. No significant differences were found among the cultivars for fruit color (Table 3).

'Gold Standard' and 'Touch of Autumn' were among several cultivars with a high rating for appearance and stem quality. 'Mother Lode' and 'Trojan' had longer fruit, while 'Trojan and 'Howden' were among several cultivars with larger diameter fruit.

Table 1. Yield in tons per acre of different size classes of pumpkin cultivars at The University of Tennessee Ames Plantation at Grand Junction, 2002.

Cultivar	total yield - tons/A	Pumpkins< 10 lb tons/A	Pumpkins 10-15 lb tons/A	Pumpkins5-20 lb tons/A	Pumpkins>20 lb tons/A	Pu ave wt
Autumn Gold	25.85 a[z]	16.93 ab	5.80 bcd	2.00 c	1.12 c	12.

Big Autumn	32.89 a	10.99 c	14.42 a	5.98 bc	1.50 c	12.25 a
Gold Bullion	33.92 a	4.55 de	13.31 ab	13.08 ab	2.98 bc	12.06 a
Gold Gem	26.96 a	4.28 de	8.26 abcd	9.28 abc	5.14 abc	12.00 a
Howden	24.61 a	2.59 e	10.76 ab	6.60 bc	4.66 abc	12.22 a
Hybrid 510	31.96 a	5.30 de	5.48 bcd	17.40 a	3.78 bc	12.64 a
Gold Standard	31.69 a	14.22 bc	15.45 a	1.43 c	0.59 c	9.77 b
Gold Fever	25.94 a	9.49 cd	8.99 abc	6.98 bc	0.48 c	11.45 a
Mother Lode	27.71 a	4.55 de	8.67 abc	5.82 bc	8.67 ab	11.85 a
Trojan	31.27 a	2.37 e	5.44 bcd	12.56 ab	10.90 a	12.57 a
Small Fruited						
Touch of Autumn	22.55 a	20.66 a	1.18 cd	0.00 d	0.00 c	7.65 b
Trickster	13.15 b	12.24 bc	0.55 d	0.00 d	0.00 c	7.28 b

[z] Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

Table 2. Yield in number per acre of different size classes of pumpkin cultivars at The University of Tennessee Ames Plantation at Grand Junction, 2002.

Cultivar	total yield - no./A	Pumpkins < 10 lb no./A	Pumpkins 10-15 lb no./A	Pumpkins 15-20 lb no./A	Pumpkins>20 lb no./A	
Autumn Gold	6941 bcd[z]	5626 c	998 cdef	227 c	90 c	

Big Autumn	6260 cd	3085 de	2359 ab	680 bc	136 c	Seedway
Gold Bullion	5262 cd	1361 f	2087 abc	1542 ab	272 bc	Rupp
Gold Gem	4082 cd	1179 f	1361 abcde	1089 abc	453 abc	Rupp
Howden	3692 d	771 f	1724 abcd	771 abc	408 bc	Harris Moran
Hybrid 510	4581 cd	1542 ef	862 cdef	1860 a	317 bc	Rupp
Gold Standard	7032 bc	4265 cd	2541 a	181 c	45 c	Rupp
Gold Fever	5761 cd	3403 d	1497 abcd	816 abc	45 c	Rupp
Mother Lode	4400 cd	1724 ef	1270 bcdef	680 bc	726 ab	Rupp
Trojan	3946 cd	771 f	816 def	1406 ab	953 a	Seedway
Small Fruited						
Touch of Autumn	18239 a	17968 a	181 ef	90 c	0 c	Rupp
Trickster	9482 b	9347 b	90 f	45 c	0 c	Seedway

[z] Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

Table 3. Quality ratings of pumpkin cultivars at The University of Tennessee Ames Plantation at Grand Junction, 2002.

Cultivar	Fruit color[x]	Fruit appearance[x]	Stem quality[x]	Fruit length	Fruit diame
Autumn Gold	7.75 a[z]	8.00 ab	7.25 abc	8.25 c	8.75 c
Big Autumn	7.75 a	7.25 ab	6.75 abc	9.00 bc	9.50 a

Gold Bullion	7.75 a	7.50 ab	7.50 ab	10.00 b	10.00 abc
Gold Gem	8.00 a	8.00 ab	7.50 ab	9.75 b	10.50 ab
Howden	8.00 a	6.00 c	6.75 abc	9.75 b	10.50 ab
Hybrid 510	7.00 a	6.75 bc	6.50 bc	10.25 b	9.50 abc
Gold Standard	7.75 a	8.50 a	7.75 ab	8.25 c	9.50 abc
Gold Fever	7.50 a	7.75 ab	6.75 abc	9.75 b	9.25 bc
Mother Lode	6.50 a	7.50 ab	6.00 c	12.00 a	9.75 abc
Trojan	7.25 a	7.50 ab	7.25 abc	11.75 a	10.75 a
Small Fruited					
Touch of Autumn	7.75 a	8.25 a	8.00 a	5.00 d	5.25 d
Trickster	7.75 a	8.00 ab	6.75 abc	5.00 d	6.00 d

[z] Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

[x] Graded on a scale of 1-10, with 10 being dark orange color, good appearance, and good stem.

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.