

SQUASH VARIETY TRIAL, 2006

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Introduction

Summer squash are an important crop in Georgia with both yellow and zucchini squash produced in the state. Production begins as early as is practicable in the spring with growers usually staggering plantings every two weeks to extend the season into late spring and early summer. Squash are highly susceptible to a variety of aphid transmitted viruses, which preclude production in the summer when aphid populations are at a maximum level. Growers will often switch to virus resistant varieties later in the season to ameliorate this problem, but these varieties are not resistant to all potential virus diseases.

Yellow and winter squash production accounted for \$33 million of production in 2005 and \$11.5 million of production was zucchini squash. Combined these represented almost 5% of vegetable farmgate value in 2005 (Boatright and McKissick, 2006).

This study was undertaken to evaluate squash varieties both yellow and zucchini types for yield and graded yield in southeast Georgia.

Materials and Methods

Nine varieties of squash were direct seeded by hand with 2-3 seed per hill on 26 May 2006 in a randomized complete block design with four replications. Five of the entries were zucchini and four were yellow summer squash. After emergence, plants were thinned to one plant per hill. Each experimental unit or plot consisted of 10 hill with an in-row spacing of 3 ft. and a between row spacing of 6 ft. Weed, disease, and fertilization followed University of Georgia Cooperative Extension Service recommendations for summer squash.

Harvest began on 26 June 2006 and continued until 27 July 2006. Fruit were harvested three times per week with a total of 13

harvests. Total weight per plot was recorded and fruit were graded into three classes according to the USDA grade standards for summer squash, which does not have a size requirement (USDA, 1997). We graded them into fancy grade, ≤ 1.5 in., #1's, >1.5 in. and ≤ 2 in., and #2's >2 in.

Data were analyzed with an analysis of variance with the coefficient of variation (CV) and Fisher's Protected Least Significant Difference (LSD) reported.

Results and Discussion

Total yield ranged from 21,308 to 37,897 lbs/acre (Table 1). The highest yielding variety was 'Independence II', which is a zucchini squash. 'Independence II', however, was only significantly different from 'Gentry' and 'Lemondrop L'. Four of the five zucchini squash ranked 1-4 for total yield. Spineless Beauty had a lower yield, but not significantly lower, ranking seventh overall.

Three of the entries were genetically modified organisms (GMO) and included 'Independence II', 'Justice III', and 'Prelude II'. The Roman numeral in the name indicates the number of viruses the variety is resistant to. 'Independence II' is resistant to watermelon mosaic virus (WMV) and zucchini yellow mosaic virus (ZYMV). 'Justice III' has resistance to cucumber mosaic virus (CMV), WMV, and ZYMV. Finally 'Prelude II' has resistance to WMV and ZYMV.

Fancy grade fruit are not generally offered for sale in our markets unless as a specialty item or for specific customers. They would also command a premium price, but the market is limited and under most circumstances growers would have trouble marketing them unless a specific market had been developed ahead of time. In our trial fancy fruit yield ranged from 3,013 lbs/acre for 'Gentry' to 1,089

lbs/acre for 'Independence II'. Since timing is so critical to squash harvest (they continue to rapidly increase in size) these values are not really of much use in determining suitability for this market niche. Quality parameters such as free from blemishes and scratches as well as uniformity in size would be more important. In our trial particularly with the earlier harvests the workers were picking fruit that was too small. Many fruit were picked in the flower stage, which would not have any value even in the fancy market.

Number 1's are the predominant size class marketed in Georgia. Yields ranged from 3,234 lbs/acre for 'Independence II' to 7,974 lbs/acre for 'Prelude II'. These yields may not be indicative of the potential performance of these varieties because the fruit continue to increase in size. Fruit that could have been harvested in this size class may have been missed because of the rapid fruit growth.

Number 2's ranged in yield from 14,767 lbs/acre for 'Lemondrop L' to 29,500 lbs/acre for 'Independence II'. This mirrors almost exactly the variety rankings for total yield. This may be indicative of a problem with the trial. Our labor force does not work on the weekend therefore no fruit were harvested on Saturday or

Sunday and even for this short period (Friday to Monday) the fruit grow so rapidly many fruit that might have been harvested in the #1 size class enlarge to the #2 size. Although there is a #2 size class it is not unlimited in size above 2 in. Many of the fruit harvested in the #2 size class would be considered too large to market. Very large squash will have hard seed, which will render the fruit unedible.

'Lemondrop L' had significantly lower yields than any of the other varieties. When first sown, this variety was very slow to emerge. At first we thought the seed was no longer viable, but they finally germinated perhaps two weeks later than the other varieties. This is main reason this variety did so poorly in this trial.

In conclusion, zucchini squash yielded better than yellow summer squash, but generally not significantly so. It is unclear if this would be consistent in future trials. Fancy fruit has a very limited market therefore these yield data are not very useful. The #1 size, which is the primary size for market may be lower than the potential for these varieties because no fruit was harvested on the weekends. Number 2's would also include a lot of fruit that would be too large to market.

Literature Cited

- Boatright, S.R. and J.C. McKissick. 2006. 2005 Georgia Farm Gate Value Report. University of Georgia.AR-06-01.
- USDA. 1997. United States standards for grades of summer squash. U.S. Dept. Agr.Washington, D.C.:3.

Table 1. Squash Variety Trial, 2006.
Vidalia Onion and Vegetable Research Center

Entry	Type	Company	Harvest Weight	Grades			
				Fancy	#1s	#2s	
				(lbs/acre)			
Independence II	Zucchini, GMO	Seminis	37,897	1,089	3,234	29,500	
Radiant	Zucchini	Seminis	36,034	1,742	6,951	27,298	
Justice III	Zucchini, GMO	Seminis	35,005	2,589	7,236	25,132	
Cash Flow	Zucchini	Rogers	33,608	1,791	7,744	23,928	
Dixie	Yellow Semi-crookneck	Seminis	32,337	2,287	6,389	22,712	
Prelude II	Yellow Crookneck, GMO	Seminis	31,944	2,807	7,974	20,316	
Spineless Beauty	Zucchini	Rogers	31,932	1,500	4,477	25,543	
Gentry	Yellow Semi-crookneck	Rogers	31,351	3,013	7,187	19,723	
Lemondrop L	Yellow Straightneck	Seminis	21,308	2,353	4,943	14,767	
			CV	13%	31%	20%	15%
			Fisher's Protected LSD (p=0.05)	6,193	977	1,832	5,234