

Harvest Frequency, Yield, and Economics of Summer Squash

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Title: Harvest Frequency, Yield, and Economics of Summer Squash

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The baseball bat (top) was the
only size that did not sell at
Farmers' Market. What size
yields the greatest profit?

Objectives:

To determine how harvest frequency and harvest size affect the yield and marketability of fruits produced by summer squash plants, *Cucurbita pepo*.

I compared the yields from harvesting mini squash daily vs. every 2-3 days at a larger size. Is mini squash worth the extra effort, and can it be profitable for a small market gardener? The study included a field experiment, a customer survey at two Farmers' Markets, a vendor survey, and development of an enterprise budget for squash production aimed at market gardeners and small farmers.



How does squash yield compare if I harvest small squash more frequently vs. larger squash less frequently? While a squash fruit is growing, it inhibits the growth of younger fruit and flowers. When harvested daily the plant compensates for the loss of fruit by producing new vegetative growth, flowers and fruits.



August 8, flowering begins. Flags indicate harvest frequency. Squash from each hill were weighed individually.



Squash harvest over a 3-day period. Top right: Large squash harvested 9/3. Left and bottom right: small squash harvested 9/3-5.

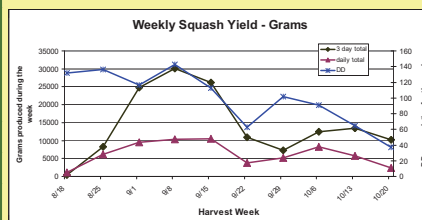
Materials and Methods:

Two zucchini **green: Cash Flow** from Johnny's Selected Seeds
yellow: Butterstick from Territorial Seed Company
Two patty pans **green: Starship** from Territorial Seed Company
yellow: Sunburst from Territorial Seed Company

40 equally spaced hills were randomly assigned a variety and harvest frequency. There were 5 hills of each variety and harvest frequency combination. Each hill was planted with 5 seeds of the same variety and thinned to 3 plants. Flags indicate harvest frequency. Squash from each hill were counted and weighed individually.

Results: Squash Yield

Weekly squash yield tracked fluctuations in temperature (DD = Weekly degree day accumulations) over the season.



Weekly yield by weight of large squash was about 3 times the yield of small squash at peak production. The difference was less as yields declined late in the season.

Daily harvests yielded a greater number of fruits. Small yellow patty pans are especially prolific for mini squash production.

Color Variety	Green				Yellow			
	Patty Pan		zucchini		Patty Pan		zucchini	
Harvest frequency	daily	2-3 days	daily	2-3 days	daily	2-3 days	daily	2-3 days
Total number of squash harvested	438	213	392	196	743	232	335	225
Daily number / 3 day number		206%		200%		320%		149%
3 day weight / Daily weight		278%		241%		124%		355%

Results: Squash Sales and Pricing

Large squash sold well at Farmers' Markets at 2-4 for \$1.00. Small squash sold well at 5 - 8 for \$1.00. The number of small squash for \$1.00 increased as size of the squash decreased late in the season. Mini squash sold by numbers brought in the highest price per pound.

Color Variety	Green				Yellow			
	Patty Pan		zucchini		Patty Pan		zucchini	
Harvest frequency	daily	2-3 days	daily	2-3 days	daily	2-3 days	daily	2-3 days
before Sept. 16	165 gm (5 fruits)	669 gm (3 fruits)	225 gm (5 fruits)	645 gm (3 fruits)	175 gm (5 fruits)	720 gm (3 fruits)	205 gm (3 fruits)	738 (3 fruits)
Price per lb	\$2.74	\$0.68	\$2.01	\$0.70	\$2.59	\$0.63	\$2.21	\$0.61
after Sept. 16	152 gm (8 fruits)	561 gm (3 fruits)	256 gm (8 fruits)	552 gm (3 fruits)	160 gm (8 fruits)	534 gm (3 fruits)	248 gm (8 fruits)	549 gm (3 fruits)
Price per lb	\$2.97	\$0.81	\$1.77	\$0.62	\$2.83	\$0.85	\$1.82	\$0.62

Average Weight of \$1.00 of Squash and Cost per Pound

Percent that sold:

small squash 94% (green squash slightly more than yellow)
large zucchini 83%
large patty pans 72%. ("What do you do with these?")

Results: Squash Sales and Pricing, Customer Survey



75 people filled out our market survey on three days. On two survey days we **grilled squash** for tasting. Customers loved it; we sold out. Customers were equally willing to purchase baby squash compared with "medium" sized squash. Few were interested in "huge" squash.

Most preferred to buy squash by numbers (5-6 baby, 2-4 medium squash) (89% of respondents) than by the pound.

Most customers said they would pay no more than \$1.00 per pound for squash, and many said they would not pay as much per pound for baby squash as for medium squash (yet they paid much more).

Results: Enterprise Budget

I modified an enterprise budget for summer squash from the University of Kentucky, using my 2007 costs. I used the enterprise budget to consider what combinations of yield, price of squash, and costs of growing squash will result in a profit.

If I grow and sell at least 600 lbs of squash, I profit if it sells for more than \$2.75 per pound.

Conclusions: Harvesting mini squash lowers yield by weight but is worth the extra effort. I should aim to produce 600+ lbs per year, and sell it at \$2.75 per pound (within my price range for mini squash) to make a profit. To increase customers, consider grilling some squash at market as a value-added product.

