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The IPM Scout

Pumpkin Field Spacing Study

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The 1997 pumpkin spacing trial at Clemson University's Coastal Research and Education Center contrasted 12 treatments varying in row spacings (between rows and within rows). The objective of the study was to determine an ideal spacing that would maximize numbers of marketable pumpkins per acre and pumpkin quality (shape, size, color, weight and density). The distance between rows was 6, 9, or 12 feet apart and the distance between plants within rows was 3, 6, 9, or 12 feet apart. Plant populations ranged from as few as 303 plants/acre to 2,420 plants/acre. The open-pollinated variety Connecticut Field was selected because it usually produces an ideal jack-o-lantern-type pumpkin that consumers like.

Transplants were seeded in the greenhouse June 23rd and field planted July 9th. Each cultural system included 3 rows aligned side-by side with a total of 18 plants within each 3-row plot. One ton of lime and 1 ton of 10-10-10/acre were incorporated in beds before mulching with black plastic. Fungicides and insecticides were applied weekly until Sept. 25th with complete harvest on Oct. 1. All pumpkins were cut from the vine, weighed and graded. Field rots were also counted on Oct. 1. During the pumpkin

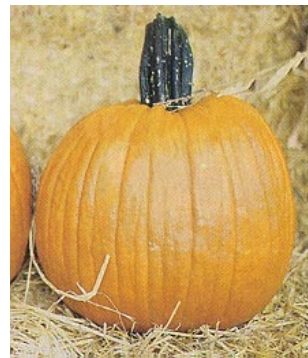
production season, there were 24.4 inches of rain.

At harvest, each pumpkin was weighed and length and width measured. There were no significant effects of plant spacing on color, handle quality and shape of the marketable pumpkins, but there were some interesting and important trends on density, volume and weight. The most notable was that as plant populations increased from low (303 plants/acre) to high (2,420 plants/acre), pumpkin weight tended to remain unchanged, yet the volume approximately doubled, but the density decreased. Translated, as plants/acre increased, the pumpkin fruit grew larger in size, but these larger pumpkins could be perceived as lighter and airy.

Marketable yield was best for any row spacing that combined a 3-foot spacing between plants within the rows (for example 6' between rows and 3' within the row; 9' x 3'; and 12' x 3'). The highest yielding system, however, was plants in 12' rows and 3' between plants within the rows, followed by the 9' x 3' system and lastly the 6' x 3' spacing. The quality of the pumpkins at these three spacing schemes were all acceptable; however, the heaviest and densest pumpkins of these 3 spacings occurred with the 12' x 3' spacing, averaging about 9.4 lbs. The 12' x 3' spacing produced very few culls and field rots.

(continued on page 3...)

Cultivar Corner



'Gold Rush' (PVP pending) is a new hybrid cultivar from Rupp Seeds, Inc. It has one of the thickest stems of any cultivar, with handles measuring 4 in. long and nearly 3 in. thick. Fruit are large, weighing 20-35 lb. "with a dark rind, thick flesh and heavy weights." Gold Rush matures in 120 days.

'Gold Strike' (F1) is another new hybrid from Rupp Seeds. The fruit type is similar to Howden. Fruit average 27 lb. with deep ribbing and a "burnt orange" color. The handles measure up to 5 in. long and reportedly stay attached well. 110 days to maturity. Contact: Rupp Seeds, 17919 Co. Rd. B, Wauseon, OH 43567; 419-337-1841; fax 419-337-5491.



'Racer,' an F1 hybrid, is a new cultivar for 1998 from Johnny's Selected Seeds. It is one of the earliest cultivars, maturing

in only 85 days. The heavy, dark orange, ribbed fruit weigh 12-18 lb and have dark green handles. The plant type is semi-vine. Phone 207-437-4395; fax 800-437-4290; www.johnnyseeds.com.

'Hybrid Pam' (F1) is a large pie pumpkin from Seedway, Inc. The fruit measure 6 in. tall by 7 in. wide and weigh 5-7 lb. They have a "deep burnt orange color" and are lightly ribbed. Handles are "long, thick, and dark green." The plant type is semi-vine. Hybrid Pam matures in 90 days. Contact: Seedway, Inc., 1225 Zeager Road, Elizabethtown, PA 17022; 717-367-1075; fax 717-367-0387.

'Wee-B-Little' (PVP pending) is an All-America selection for 1998. This mini-pumpkin has smooth, deep orange fruit which weigh 1 lb and are shaped like a typical jack-o-lantern. The stems are spineless. The plants are "compact vine," spreading 6-8 ft. Maturity is 120 days. According to Seed Trade News (Nov. 15, 1997), this mini-pumpkin should be very popular for crafts and decorating. Seed will be available May 1. Contact: Novartis Seeds, Inc., Boise, ID 83711; 208-737-3443. (Thanks to Roger Rupp for suggesting this cultivar.)

Ask the Great Pumpkin

Q: I grow pumpkins in my garden, Atlantic Giant being my favorite. I have battles every year with squash bugs, borers, and cucumber beetles, also mosaic virus and powdery mildew at various times of the year. I would appreciate any information concerning systemic fungicides or if there is a systemic for insects?

GP: You are right that systemic pesticides (those taken up by the plant) are more effective than protectants (those that remain on the surface). However, the GP prefers to start pest control in home gardens with cultural tactics. If you don't have too many plants, the brown egg masses of squash bugs can be hand-picked off the plants. Trap adults beneath shingles or cardboard placed under the plants and "dispose" of them.. Fabric row covers can be used to protect young plants from cucumber beetles, but remove the covers at flowering so bees can pollinate.

No systemic insecticides are labeled for use in home gardens. Thiodan (endosulfan) is recommended to control squash bugs, vine borers and cucumber beetles. Use 2 tablespoons of the 50% WP formulation per gallon of water.

No systemic fungicides against powdery mildew are labeled for home gardens. Chlorothalonil (sold under various brand names, such as Daconil, Multi-purpose Fungicide, Fungi-Gard) is the recommended protectant. Early in the season, you can use a mixture of paraffinic oil (SunSpray is one manufacturer) and baking soda at the rate of 3 tablespoons each per gallon of water. Spray this mixture twice a week. There are no pesticides to control mosaic virus. We are testing reflective mulch to repel aphids, which carry the virus, this season.

Send your questions about growing, selling, or buying pumpkins in the Southeast to: SC Pumpkin News, c/o Dr. Anthony P. Keinath, Coastal REC, 2865 Savannah Highway, Charleston, SC 29414-5332; fax: 843.571.4654; or via the Internet to: tknth@clemson.edu. tknth@clemson.edu.

Next issue (Jul. '98): Diseases affecting pumpkin handles; pumpkin playgrounds.

Yield and quality of 'Connecticut Field' pumpkins grown using different between and within row spacings.

Feet between Rows	Plants/acre	Number per acre					Marketable pumpkins		
		Marketable	Cull	Field rots	Total	Wt (lbs.)	Volume (in ³)	Density (oz/in ³)	
6	3	2,420	670	536	581	1,787	6.7	1,214	.09
6	6	1,210	268	201	179	648	6.7	942	.11
6	9	807	293	103	402	798	6.6	617	.21
6	12	605	528	110	264	902	6.3	923	.11
9	3	1,613	712	119	771	1,602	6.5	1,060	.10
9	6	807	352	103	191	646	8.0	1,132	.12
9	9	538	300	126	309	735	6.6	1,147	.10
9	12	403	279	95	330	704	6.6	764	.14
12	3	1,210	781	67	134	982	9.4	993	.15
12	6	605	198	110	187	495	6.7	891	.12
12	9	403	271	95	176	542	6.7	688	.16
12	12	303	181	48	80	309	7.8	675	.21

Connecticut Field, an open-pollinated variety, displayed lots of variability in fruit size and shape. It is expected, however, that hybrid cultivars might respond differently to spacing. With Connecticut Field, I did not find that spacings wider than the 12' x 3' spacing (1,210 plants/acre) produced the desired "package" of many large and dense pumpkins. Another advantage of the 12' x 3' spacing over the 6' x 3' and 9' x 3' spacings is the need for fewer transplants than closer planting schemes.

In 1997, all plant spacings received the same amount of preplant fertilizer, which may have limited pumpkin weight, density, volume and yield. The failure of closely spaced schemes to produce larger numbers of dense, heavier pumpkins may have been caused by the greater nutritional demands of more plants in a unit area. In 1998, attempts will continue to improve quality and yield of closely spaced pumpkins by evaluating the nutritional demands of plants growing under greater competition.



Market Window

The **Alabama Pumpkin Association** is very likely the only grower association in the country devoted entirely to pumpkins. The Association was started in May, 1997, and currently has 45 members, both commercial and hobby producers. Membership is \$20 per year. Contact **Mr. Dwight James**, President, 140 Cedar Hill Lane, Tuscumbia, AL 35674; 256-383-4831 (home) or 256-386-5026 (work).

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