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## The IPM Scout

The 1997 pumpkin cultivar trial at Clemson University's Coastal Research & Education Center in Charleston, SC, featured the same 32 cultivars tested in 1996. Cultivars were separated into three maturity groups: 85-95, 100-105, and 110-120 days to maturity (DTM). Each group was started from seed in the greenhouse and transplanted to the field 10-11 days after seeding. Seeding and transplanting were staggered so that harvest dates for all maturity groups would coincide (approximately October 1). Seeding dates for the three maturity groups (in order) were June 27, July 8 and July 18; transplanting dates were July 8, July 18 and July 29, respectively. Plant spacing was 4 ft within rows, with eight plants per replication. Raised beds covered with white-on-black polyethylene mulch were spaced 9 ft apart.

Asana, Thiodan, Javelin, Xentari, Ambush, and Pounce were sprayed to manage aphids, pyralid caterpillars, cucumber beetles, squash vine borers, silverleaf whiteflies, and pickle worms. The fungicides Maneb and Bravo WeatherStik were used alone for the first month, then Reach and Maneb + Benlate were used on alternate weeks to manage powdery mildew. Ridomil/Bravo and Aliette were sprayed alternate weeks to control downy mildew.

In the table, average ratings for cultivars with the most disease are double-underlined; averages for cultivars with the **least** amount of disease are in **bold**.

Cultivar	DTM	Powdery mildew (%) <sup>1</sup>	Necrosis (%) <sup>2</sup>	Virus (%) <sup>2</sup>
Autumn Gold.....	90	23.8 ab	<b>43.5 de</b>	78.2 b-g
Big Autumn.....	90	8.3 bc	71.2 a-d	92.5 a-e
Jack of all Trades...	95	20.8 ab	67.5 a-d	89.8 a-f
Jackpot.....	90	<u>27.7 a</u>	50.0 b-e	78.2 b-g
Lumina.....	85	<b>3.6 c</b>	<b>44.6 cde</b>	<b>50.0 g</b>
Pro-Gold 500.....	95	23.9 ab	72.2 a-d	72.9 c-g
Pro-Gold 510.....	95	<u>27.1 a</u>	53.3 a-e	86.6 a-f
Rocket.....	95	22.6 ab	<u>82.0 a</u>	88.9 a-f
Spirit.....	95	<u>27.7 a</u>	72.2 a-d	89.4 a-f
Spooktacular.....	85	14.3 abc	69.6 a-d	80.2 a-g
Trickster.....	90	<u>28.5 a</u>	72.2 a-d	91.3 a-e
Funny Face.....	100	<u>47.1 j</u>	66.4 a-d	92.6 a-e
HMX6688.....	100	<b>1.9 k</b>	61.4 a-d	85.4 a-f
Little Lantern.....	100	19.6 j	47.5 b-e	91.4 a-e
Oz.....	105	19.6 j	75.3 abc	82.1 a-g
Small Sugar.....	100	37.3 j	62.5 a-d	<u>98.0 ab</u>
Appalachian.....	110	46.8 t-w	61.4 a-d	93.6 a-e
Big Max.....	120	27.2 v-y	50.0 b-e	<b>67.1 d-g</b>
Connecticut Field..	110	49.2 tuv	66.4 a-d	72.2 c-g
Ghost Rider.....	115	40.8 t-x	62.5 a-d	89.9 a-f
HMX5683.....	115	<b>2.1 z</b>	50.0 b-e	94.3 a-d
HMX6686.....	115	<b>0.1 z</b>	56.3 a-e	85.5 a-f
Happy Jack.....	110	<u>55.6 tu</u>	<u>76.8 ab</u>	<u>99.3 a</u>
Howden.....	115	50.5 tuv	62.5 a-d	<u>95.2 abc</u>
Howden Biggie.....	115	30.9 u-x	56.3 a-e	81.6 a-g
Mammoth Gold.....	120	22.6 xy	56.3 a-e	<b>64.7 efg</b>
Pankow's Field.....	120	23.9 wxy	70.6 a-d	76.9 b-g
Rouge Vif				
d'Etamps.....	115	<b>11.8 y</b>	<b>27.5 e</b>	70.6 c-g
Spookie.....	110	<u>53.1 tu</u>	72.2 a-d	87.9 a-f
Tallman.....	110	48.4 tuv	72.2 a-d	<b>58.6 fg</b>
Tom Fox.....	110	50.5 tuv	72.2 a-d	85.5 a-f
Wizard.....	115	<u>59.8 t</u>	61.4 a-d	<u>97.4 ab</u>

<sup>1</sup>Means within the three maturity groups followed by the same letter are not statistically different (approximates  $P=0.05$ ).

<sup>2</sup>Means across the three maturity groups followed by the same letter are not statistically different (approximates  $P=0.05$ ).

Powdery mildew was not completely controlled by weekly fungicide sprays. Powdery mildew ratings were done in August and the last rating on Sept. 5 is shown in the table. Among short season (85-95 DTM) cultivars, Lumina had significantly less powdery mildew than most of the other cultivars. Trickster, Jackpot, Spirit and Pro-Gold 510 were among the most susceptible cultivars. Of the mid-season (100-105 DTM) cultivars, the powdery mildew-resistant breeding line HMX 6688 had a much lower rating than the other four cultivars. Among the long-season cultivars (110-120 DTM), the powdery mildew-resistant breeding lines HMX 5683 and HMX 6686 had much less powdery mildew than all 14 other cultivars. Wizard, Happy Jack and Spookie were among the most susceptible cultivars.

Senescence of vines, measured as percent necrotic tissue, was due to powdery and downy mildew and other unidentified causes related to heavy rainfall in late Sept. By the end of Sept., Rouge Vif d'Etemps, Autumn Gold, and Lumina had less necrotic leaf tissue than Rocket and Happy Jack.

Downy mildew severity was low for most of the season and adequately controlled with fungicides. Downy mildew became active in Sept. with heavy dew and more frequent rain than in Aug., when rainfall was below normal. In early Sept., Big Max (0 %) and Jackpot, Rouge Vif d'Etemps, Big Autumn, Mammoth Gold and Trickster (all 0.1%) had significantly less downy mildew than Connecticut Field and Howden (both 3.6%).

Viruses. Essentially all plants were infected with either zucchini yellow mosaic virus (ZYMV) or ZYMV and papaya ringspot virus. Lumina, Tallman, Mammoth Gold and Big Max had significantly less leaf area with symptoms of virus (distortion and mottling) than Howden, Wizard, Small Sugar and Happy Jack. Many fruit had warts or lumps due to infection with ZYMV.

Command 4EC herbicide was applied at 2 pt/acre preplant incorporated on June 23, immediately before shaping the beds and covering them with plastic mulch. Symptoms of phytotoxicity, ranging

from slight yellowing of leaves around veins to dramatic bleaching of entire leaves, were observed in many cultivars shortly after transplanting. Symptoms disappeared on most cultivars over time. Big Max, Mammoth Gold and Oz were very tolerant, whereas Spirit and HMX5683 were the most sensitive. It is possible that the injury resulted from covering soil immediately after Command application with plastic mulch or that an incorrect rate was applied. These observations are being checked by a USDA weed scientist with additional research in the greenhouse.

What we learned. Based on observations from the cultivar trials in 1996 and 1997, powdery mildew and viruses were the most serious diseases. Lumina, a white-skinned pumpkin, stood out in 1997 as having good natural resistance to powdery mildew, early senescence, and virus infection. Happy Jack, on the other hand, had uniformly high levels of disease. It is difficult to find an orange, jack-o-lantern-type cultivar (*Cucurbita pepo*) which does uniformly well under the severe conditions of these tests. Also, not all cultivars performed the same in both years. The three powdery mildew-resistant breeding lines from Harris-Moran Seed Company (HMX 5683, 6686, and 6688) all had very low powdery mildew throughout both seasons.



## Cultivar Corner

HMX 4695, an F1 hybrid from Harris-Moran Seed Company, is a new mini-pumpkin cultivar just released for 1998. The fruits are smooth, measure 4 x 4.5 inches, and are suited for carving or painting. The plants are a bush type with a few short runners. HMX 4695, which has not yet been named, is a long-season cultivar (about 115 days) with "high yield potential." Note that this Harris-Moran cultivar is not resistant to powdery mildew.

HMX 4695 is available from Harris-Moran Seed Company, Central Industrial Park, 3900-A Consumer St., Riviera Beach, FL 33404; 407-840-9958.

## Market Window

Here's a new reason to maintain good disease control to produce sturdy, healthy handles: pumpkin noses.

Handles (called "peduncles" in botanical terms) become noses in a new way to carve a pumpkin into a jack-o-lantern. The idea originated with Joost Elffers, who wrote "Play With Your Food" (1997, Stewart, Tabori & Chang, \$19.95) and was demonstrated locally by chef Brian Connors, who teaches food carving at Trident Technical College in North Charleston, SC. The pumpkin is laid on its side, and eyes and a mouth are carved shallowly on what usually is the top of the pumpkin. Only the dark orange rind is removed; the pale yellow flesh underneath is left for the eyeballs and teeth. Dark beans are added for pupils.



According to Connors, misshapen pumpkins are some of the best ones to use—their deformities suggest facial expressions. He's also used mottled fruit (and probably wouldn't mind one with ZYMV lumps, either.) His biggest problem was "finding pumpkins that had enough stem left to provide a really expressive look."

(Reported by Ann Burger, The Post and Courier, Charleston, SC, Wed., Oct. 22, 1997; photo by Wade Spees)

## Ask the Great Pumpkin

**Q:** What kind of pumpkin would have been served at the first Thanksgiving?

**GP:** The pumpkin eaten at the first Thanksgiving probably was very similar to the pumpkins we use today. Historical evidence suggests that *Cucurbita pepo* was cultivated by native Americans along the eastern seaboard. Pumpkin flesh was boiled, roasted, or dried and ground like meal; the seeds also were roasted. According to Nikta Hazelton's *Way with*

*Vegetables* (1976, M. Evans and Company), the first pumpkin pie was baked right in the pumpkin shell with milk, spices and maple syrup.

**Q:** Is SC Pumpkin News available on the World Wide Web?

**GP:** Yes it is! Point your browser to <http://agweb.clemson.edu/Hort/vegprog.htm> to find **SC Pumpkin News** beginning with Vol. 2 No. 1 (July 1997). The newsletters are in Adobe format, so if you print a hard copy, it will be in columns like you're reading now. You can download a free copy of Acrobat Reader software at the site to open Adobe-formatted documents. Newsletters are posted on the Web about one week after mailing. Thanks to Bob Polomski, Extension Consumer Horticulturist at Clemson University, for serving as the pumpkin webmaster.

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: 803.571.4654; or via the Internet to: [tknth@clemson.edu](mailto:tknth@clemson.edu).

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**Editor and Contributor**.....Anthony Keinath  
**Production Assistants**.....Ginny DuBose & Harriett Hall

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**Next issue** (Jan '98): Pumpkin cultivar trial results, Part 2: Yield and storage.