

Evaluation of powdery mildew resistant pumpkin experimentals, 2007.

Five experimental pumpkins being developed by Outstanding Seeds were compared to Sorcerer. Four of these experimentals have a gene for resistance to powdery mildew from both parents (homozygous). Sorcerer was not bred with resistance. Four of the experimentals are now named varieties.

Seedlings were transplanted into black plastic mulch with drip irrigation on 14 Jun. Plots were three adjacent rows each with four plants spaced 24 in apart. Rows were spaced 68 in apart. A plant of Multipik, a susceptible summer squash variety, was planted between each plot in each row to separate plots and provide a uniform source of inoculum throughout the experiment. No fungicides were applied with activity for powdery mildew. Disease severity was evaluated on both leaf surfaces of older leaves on 2 Aug. Mature fruit were harvested and weighed on 19 and 20 Sep.

All experimentals exhibited control of powdery mildew on lower leaf surfaces relative to Sorcerer on 2 Aug when severity on this susceptible variety was 13% (73-97% control). Best suppression was provided by Packer and Progress (94-97%), which was significantly better than control provided by Summit (73%), which is the only one in the experiment with heterozygous resistance. On upper surfaces, average powdery mildew severity on Summit (18%) was not significantly different from severity on Sorcerer (33%). Control provided by the other experimentals was 75-93%.

Average weight of fruit for Summit (15 lb) was significantly greater than for Sorcerer (10.6 lb). Fruit weight for the other experimentals ranged from 6.2 lb for Progress to 11.3 lb for Superior. All experimentals produced fruit with nice shape and good dark orange color.

Pumpkin variety	Powdery mildew severity on 2 Aug ^z		
	Upper leaf surface (%)	Lower leaf surface (%)	Fruit weight (lb)
Progress (8405) (RR) ^y	2.5 b ^x	0.4 c	6.2 d
Packer (6888) (RR)	4.7 b	0.8 c	7.4 cd
6899 (RR)	5.5 b	1.0 bc	8.4 c
Superior (8408) (RR)	8.4 b	2.2 bc	11.3 b
Summit (8491) (R)	17.9 ab	3.6 b	15.0 a
Sorcerer (std) (S)	33.5 a	13.3 a	10.6 b
P-value (trt)	0.0573	0.0001	< 0.0001

^zExact colony counts were made when possible and severity was estimated using the conversion factor of 30 colonies/leaf = 1%. Severity data is for old leaves on 2 Aug.

^y'S' indicates susceptibility to powdery mildew, 'R' indicates entry has resistance from one parent (intermediate resistance), and 'RR' indicates entry has resistance from both parents (resistant).

^xNumbers in each column with a letter in common are not significantly different according to Fisher's Protected LSD ($P = 0.05$).