

Efficacy of alternative products for *Phytophthora capsici* in pumpkin, 2005.

The objective of this study was to evaluate several alternative products for their ability to control *Phytophthora* blight in pumpkin. SprayHandler reportedly affects soil structure and porosity, thus it might improve water drainage enough that conditions will not be favorable for the onset of *Phytophthora* blight. Companion and AgBlend are microbial products. An experiment was conducted at the Long Island Horticultural Research and Extension Center in a field of Haven loam soil where *Phytophthora* blight had developed in 1991 to 1993, 1995 to 1999, 2003, and 2004. On 22 Jul, the field was rototilled, 'Cotton Candy' pumpkin seed was planted by hand, and Strategy 2.1E (3 pt/A) was applied for weed control. Nitrogen (34-0-0) was side-dressed on 17 Aug. Each plot consisted of three 25-ft rows of pumpkin with 24-in. plant spacing and 68-in row spacing. The unplanted buffer zone between plots was 20 ft. A randomized complete block design with four replications was used. Fungicide applications were made on 9, 16, 22, 29 Aug, 6, 12, 19, 27 Sep and 3 Oct with a tractor-mounted boom sprayer equipped with D5-25 hollow cone nozzles spaced 17 in. apart that delivered 85 gal/A at 100 psi. The insecticide Asana XL EC (9.6 fl oz/A) was applied to control cucumber beetles on 21 Aug and 6 Sep. Powdery mildew was controlled with applications of Quintec 2.08 SC (4 fl oz/A) on 21 Aug and 19 Sep. During the season weeds were controlled by cultivation and hand weeding. The field was overhead irrigated (approx. 1.0 in.) on 22 Jul, 1 Aug, and 5 Aug when soil was dry due to inadequate rainfall. Average monthly high and low temperatures (°F) were 81/61 in Jun, 84/67 in Jul, 85/69 in Aug, 79/62 in Sep, and 63/51 in Oct. Rainfall (in.) was 1.20, 1.36, 1.48, 3.46, and 20.32 for these months, respectively. Pumpkin canopy condition including percentage of foliage dieback was rated on 22 Sep. Fruit rot incidence (percentage of infected fruit per plot) was assessed on 26 Sep, and 3, 17, and 24 Oct. A square root transformation was used when needed prior to analysis to achieve homogeneity of variance.

Conditions were dry during most of the 2005 growing season and thus not conducive for *Phytophthora* blight. None of the treatments with alternative products had significantly lower percentage of fruit with *Phytophthora* rot than the nontreated control or significantly higher percentage of marketable fruit at the end of the experiment. Pumpkins treated with Acrobat 50 WP alternated with Phostrol 6.69 EC, a conventional fungicide program for *Phytophthora* blight in pumpkin, had significantly more marketable fruit than pumpkins that were nontreated or pumpkins that received most of the alternative product treatments. These fungicide-treated pumpkins had the lowest percentage fruit with *Phytophthora* rot, but this wasn't significantly different from the other treatments. Foliage dieback due primarily to downy mildew was significantly lower in the pumpkins treated with Acrobat and Phostrol than in all other treatments.

Treatment and rate/A (application dates)*	22 Sep	24 Oct	
	Downy mildew defoliation (%)	Phytophthora fruit rot (%)	Total healthy fruit
Acrobat 50 WP 6.4 oz (2,4,6,8) alt. Phostrol 6.69 EC 5 pt (3,5,7,9).....	5.3 b**	1.5	34.8 a
SprayHandler 6 fl oz + AgBlend 2 gal (1,4,7)	17.5 a	10.4	27.0 ab
Companion 13.5 fl oz (1-9)	21.3 a	23.8	23.8 bc
SprayHandler 6 fl oz (1,4,7)	16.3 a	14.8	24.3 bc
AgBlend 2 gal (1,4,7)	21.3 a	28.6	17.8 c
Nontreated	20.0 a	28.1	23.0 bc
Treatment <i>P</i> -value	0.0048	0.2888	0.0274

* Formulated product rate per acre. Applications were made on 1=1 Aug, 2=9 Aug, 3=16 Aug, 4=22 Aug, 5=29 Aug, 6=6 Sep, 7=12 Sep, 8=19 Sep, and 9=27 Sep.

** Numbers in each column followed by the same letter are not significantly different from each other according to Fisher's Protected LSD (*P*=0.05).