

EVALUATION OF ACROBAT MZ FOR MANAGING PHYTOPHTHORA FRUIT ROT OF PUMPKIN, 2000: A field experiment was conducted at the Long Island Horticultural Research and Extension Center in Riverhead, NY, in a field (Riverhead sandy loam soil) where *Phytophthora* fruit rot of pumpkin had developed in 1994 and 1996 through 1999. A similar experiment was conducted in this field in 1999 (F & N Tests 55:250). Fertilizer (1000 lb/A of 10-20-20) was broadcast and incorporated on 8 May. Pumpkin seeds were planted on 22 Jun at 24-in. within row spacing and 68-in. between row spacing. Weeds were controlled by applying Curbit EC (1 pt/treated A) + Command 4EC (4 pt/treated A) in a 10-inch band over the planted rows on 22 Jun; these were incorporated by irrigating. Mechanical cultivation and hand weeding were also done. Soil drainage was improved by subsoiling on 19 Jul between rows before vines grew over. Cucumber beetles were managed by applying Sevin XLR (1 qt/A) on 20 Jul and 9 Aug. Lannate (3 pt/A) was applied on 29 Aug to control aphids. Powdery mildew was managed by applying Nova 40W (5 oz/A) + Bravo Ultrex (2.7 lb/A) on 11 Aug and Quadris F (12 oz/A) on 18 Aug. Average monthly high and low temperatures (F) were 81/61 in Jun, 81/64 in Jul, 81/65 in Aug, 76/59 in Sep, and 66/48 in Oct. Rainfall (in.) was 4.24, 4.7, 2.42, 3.92 and 0.46 for these months, respectively. The field was irrigated (approx. 1.0 in.) on 8 Jul when soil was dry due to inadequate rainfall. The field was irrigated frequently and often excessively (more than 1 in.) beginning in late Aug to create conditions favorable for *Phytophthora* fruit rot development by saturating the soil. Irrigation dates were 28 Aug, 5 Sep, 11 Sep, 12 Sep, and 2 Oct. Plots were three 26-ft rows with 14 ft between plots. Treatments were applied on 4, 10, 17, and 25 Aug; 1, 9, 18, and 30 Sep; and 12 Oct with a tractor-mounted boom sprayer equipped with D3-45 hollow cone nozzles spaced 11 in. apart that delivered 100 gpa at 200 psi. The 7-day application interval could not be maintained after 9 Sep because of windy conditions and sprayer malfunction. A randomized complete block design with five replications was used. Fruit were examined weekly for symptoms of *Phytophthora* fruit rot and other diseases. A simultaneous observational study with the same cultivar was conducted to examine the benefit of applying Acrobat MZ weekly as a component of an integrated management program. The field used for this study had been rotated out of pumpkins from 1997 through 1999. *Phytophthora* fruit rot occurred in 1992 – 1995 where the observational study was conducted and in the adjacent section of the field in 1992 – 1996. Seeding date, fertility, insect and weed control were the same as in the replicated experiment. In addition to rotation, management practices were used to minimize the potential of the soil becoming saturated with water and thus favoring disease onset. Sorghum sudangrass was planted instead of pumpkin in the low portion of the field where water drained poorly after rain in previous years. Drainage throughout the field was improved by subsoiling on 19 Jul between rows before vines grew over. This field was not irrigated. Acrobat MZ was applied weekly to half of the field (3 200-ft rows). Applications were made just before treating the plots for the replicated experiment.

Very few fruit developed symptoms of *Phytophthora* fruit rot. Most symptomatic fruit in the replicated experiment could not be confirmed as having *Phytophthora* fruit rot because visible signs of the pathogen did not develop before these fruit completely rotted. In sharp contrast, during the previous experiment in this field with the same cultivar, most fruit were infected and had visible sporangia (F & N Tests 55:250). Also, most affected fruit in the observational study in 2000 had sporangia. Fewer affected fruit were observed where Acrobat MZ was used in 2000; however, these differences were not significant in contrast with 1999 results (F & N Tests 55:250). There were significantly more healthy fruit where Acrobat MZ was used.

Treatment and rate/A	Fruit with <i>Phytophthora</i> fruit rot (%)		Healthy Fruit (%)				
	17 Oct	25 Oct	21 Sep	27 Sep	2 Oct	17 Oct	25 Oct
Replicated experiment							
Nontreated	4	4	82	78 b*	68 b	59 b	55 b
Acrobat MZ 2.25 lb	2	2	92	90 a	86 a	79 a	79 a
<i>P</i> -value	0.49	0.40	0.057	0.0193	0.0095	0.0213	0.002
Observational study							
Nontreated	13	17	93	89	86	68	60
Acrobat MZ 2.25 lb	1	1	93	92	90	86	79

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