

EVALUATION OF FUNGICIDES FOR MANAGING PHYTOPHTHORA CROWN ROT AND FRUIT ROT IN PUMPKIN UNDER STRINGENT CONDITIONS, 1992: A field experiment was conducted at the Long Island Horticultural Research Laboratory in Riverhead, N.Y., on a Haven loam soil. The field was infested in 1991. Pumpkin fruit with *Phytophthora* fruit rot were observed in Sep 91. Ten fruit with symptoms and 25 nonsymptomatic fruit were placed in each plot to obtain an even distribution of inoculum just before the field was disced in early Oct 91. Pumpkin seed were planted on 22 Jun 92 at 24-in. within row plant spacing and 68-in. between row spacing. Fertilizer (10-10-10) was broadcast at a rate of 1000 lb/A on 25 Jun. Weeds were controlled by applying Round-up at 2 qt/A on 17 Jun, Amiben 2S at 1.5 pt/treated A in a 12-in. band over the row on 25 Jun, mechanically cultivating, and hand-weeding. The insecticides Lannate L (1 qt/A), Metasystox-R (1 pt/A), and Sevin 4F (1 qt/A) were applied on 8 Jul. The fungicides Bravo 720 (1 qt/A), Benlate 50DF (4 oz/A), and Bayleton 50DF (2 oz/A) were applied on 30 Jul to suppress powdery mildew. Average monthly high and low temperatures (F) and total rainfall (in.) were 78, 58, and 6.51 in Jun; 81, 63, and 3.45 in Jul; 80, 62, and 6.92 in Aug; and 74, 59, and 4.81 in Sep, respectively. The field was irrigated (0.5-1.0 in.) in late Jun; and mid Jul. Plots were thinned manually to obtain 80 plants in four 45-ft rows. There were 5 replications in a randomized block design. Ridomil/Bravo 81WP was applied 2 or 3 times on 5 and/or 21 Aug and 2 Sep with a tractor-mounted boom sprayer that delivered 40 gal/A at 68 psi. The first application done on 4 Aug was repeated on 5 Aug because a heavy rain occurred after spraying. The largest fruit observed in early and mid-Aug were about 2 in. and 7 in. long, respectively. Number of symptomatic and apparently healthy (nonsymptomatic) fruit were counted in row 2 of each plot on 18 Aug and 1 Sep and in all rows on 8, 18, and 23 Sep and 1 Oct. Only 1 row per plot was examined when the canopy was full to minimize damage to stems from walking through the plot. Percent of plot defoliation was assessed on 3 and 18 Sep.

Disease symptoms were observed on 17 Aug near the end of an extensive period of rain (5.8 in. over 7 days during the period from 9 to 18 Aug). The time of disease onset for a plot and the speed of disease development (fruit rot and vine death) was influenced by soil drainage. Most plots in replications 3 and 4 were in a slightly lower area of the field than the rest of the experiment; consequently, the plots in these replications had more affected fruit and more vine death in early Sep than the rest of the field. The importance of soil drainage is revealed by comparing the adjacent plots (10-ft interplot area) with treatment 1 in replications 2 and 3: 30% and 95% of these plots were defoliated on 3 Sep, respectively, and 52% and 100% of the fruit were symptomatic on 8 Sep. Fungicidal control results are inconclusive because of the high between-plot variation and high disease pressure due to favorable conditions for disease establishment and quantity of inoculum. There were significant differences among replications but not among treatments. However, in the replication with the lightest disease pressure (replication 1) all fungicide treatments appeared to provide some disease suppression. No phytotoxicity was observed. Effective control of *Phytophthora* fruit rot necessitates use of an integrated management program that includes crop rotation and soil water management.

Treatment and rate/A (No. of applications ³)	Fruit with rot due to <i>Phytophthora</i> (%) ¹				Defoliation (%) ²	
	1 Sep	8 Sep	18 Sep	1 Oct	3 Sep	18 Sep
Control (No Fungicide).....	57	68	85	95	58	99
Ridomil/Bravo 81WP 3 lb (3).....	40	41	52	70	41	83
Ridomil/Bravo 81WP 3 lb (2).....	30	36	62	83	34	87
Ridomil/Copper 70WP 2.7 lb (3).....	48	51	63	80	49	92
Ridomil 2E 2 qt ⁴ + Ridomil/Bravo 81WP 3 lb (3).....	69	57	63	79	59	92
LSD (P = 0.05).....	NS	NS	NS	NS	NS	NS
Replication 1 only:						
Control (No Fungicide).....	29	57	86	96	50	98
Ridomil/Bravo 81WP 3 lb (3).....	18	16	49	87	20	90
Ridomil/Bravo 81WP 3 lb (2).....	17	13	34	56	25	80
Ridomil/Copper 70WP 2.7 lb (3).....	4	11	18	48	15	85
Ridomil 2E 2 qt ⁴ + Ridomil/Bravo 81WP 3 lb (3).....	22	9	8	34	15	75

¹ Number of symptomatic fruit and nonsymptomatic fruit were counted in row 2 on 1 September and in all 4 rows on the other dates.

² Percent of plot area that was defoliated.

³ Applications were made on 5 and 21 Aug and 2 Sep or on 21 Aug and 2 Sep.

⁴ Ridomil 2E was applied 3 days after planting at 2 qt/treated A in a 7-in. band over the rows.