

EVALUATION OF YARD-WASTE COMPOST USED ALONE OR IN COMBINATION WITH FUNGICIDES FOR MANAGING PHYTOPHTHORA CROWN ROT AND FRUIT ROT IN PUMPKIN, 1995: The experiment was conducted at the Long Island Horticultural Research Laboratory in Riverhead, NY, in a field (Riverhead sandy loam soil) where *Phytophthora* fruit rot of pumpkin had developed in 1992, 1993, and 1994. Fertilizer (1000 lb/A of 10-20-20) was broadcast on 4 May and incorporated. Composted yard waste was obtained from Long Island Compost Corporation in East Moriches, NY. It was spread on 2 Jun at a rate of approximately 60 and 120 tons/A with a Millcreek compost spreader. The compost was distributed evenly over the plots by raking, then incorporated to a maximum of 6 in. deep by disking on 9 Jun. Plots amended with compost in 1995 also were amended with compost at 60 tons/A in 1994. There were four replications in a randomized block design. Pumpkin seed were planted on 23 Jun at 24-in. within row plant spacing and 68-in. between row spacing. Plots were thinned manually to obtain 40 plants in four 22-ft rows. Several plants in most plots died during Jul because of bacterial wilt. Weeds were controlled by applying Curbit at 2 pt/treated A in a 12-in. band over the row on 26 Jun, mechanically cultivating and hand-weeding. Cucumber beetles and aphids were managed by applying the following insecticides: Lannate LV (3 pt/A) on 28 Jul, Metasystox R (1 qt/A) on 12 Jul and 8 Aug, and Asana (9.6 oz/A) on 21 Jul and 22 Aug. Bravo Ultrex (1.4 lb/A) was applied on 29 Jul and Bravo Ultrex (2.0 lb/A), Bayleton 50DF (4 oz/A), and Benlate 50WP (4 oz/A) were applied on 22 Aug to suppress powdery mildew. Average monthly high and low temperatures (F) were 80/57 in Jun, 86/65 in Jul, 86/62 in Aug, 76/56 in Sep, and 70/49 in Oct. Rainfall (in.) was 2.52, 1.52, 0.7, 4.43, and 6.35 for these months, respectively. The field was irrigated (approx. 1.0 in.) 12 times on 26-27 Jun; 13-14, 24, and 31 Jul; 14, 18-19, 24-25 Aug; 1, 8, 15, and 21 Sep; and 30 Sep-1 Oct (sometimes several days were required to move pipe across the field). Soil drainage was improved by subsoiling between rows on 21 Jul and rototilling driveways. Fungicide treatments were applied with a tractor-mounted boom sprayer equipped with no. 3 hollow cone nozzles that delivered 40 gal/A at 68 psi. The first treatment was made at the start of fruit formation: most of the largest fruit were about 2 in. long and few female flowers had opened. The canopy had closed within rows but not between rows. Kocide applications were initiated on 7 Sep when fruit were turning orange and leaves were starting to senesce. Apparently healthy (symptomless) and rotting fruit were counted in each plot on 15 Sep; 4, 10, 17, and 26 Oct; and 3 Nov. Data on orange fruit only are presented in the table.

Phytophthora fruit rot was observed first on 4 Oct, when there were three affected fruit in control plots and two in compost-amended plots. No additional symptoms were found on 10 Oct. Disease onset was much earlier (23 Aug) in this field in 1994 (B&C Tests 10:143), most likely because of differences in amount of rainfall between the two years. Sporangia visible to the unaided eye were seen on most fruit with typical symptoms when symptoms first were observed or by the next assessment. Although there was a higher proportion of fruit with *Phytophthora* fruit rot in the control plots compared with the compost-amended plots throughout the experiment, these differences were not significant. However, there were significantly more fruit that remained healthy through 3 Nov in compost-amended plots compared with control plots. Many fruit apparently rotted due to other causes, primarily black rot. By 3 Nov, 282 orange fruit had rotted because of *Phytophthora* in this experiments while 270 fruit had rotted without typical symptoms of *Phytophthora* fruit rot. There were no significant treatment differences in the proportion of fruit that rotted from other causes; however, there was a higher proportion in the control plots. Most fruit with other rots were affected before 17 Oct, when conditions evidently were not favorable for *Phytophthora* fruit rot.

Treatment	Fruit with <i>Phytophthora</i> fruit rot (%)			Healthy fruit (%)	Proportion of orange fruit that rotted from other causes
	17 Oct	26 Oct	3 Nov	3 Nov	
Control (No Compost + No Fungicide)	15.2	31.4	48.9	7.2 a *	43.9
Compost (60 ton/A)	0.8	10.4	35.0	27.2 b	37.8
Compost (120 ton/A)	6.7	15.4	32.7	32.0 b	35.3
Compost (60 ton/A) + Fungicides **	4.2	16.8	40.1	24.2 b	35.6
P-value	0.1069	0.3305	0.4541	0.0118	0.8269

* Means followed by the same letter in a column are not significantly different according to Fisher's protected LSD.

** The fungicide program consisted of a post-plant, pre-emergence broadcast application of Ridomil 2E (1 pt/A) on 28 Jun and weekly foliar applications (Ridomil/Copper 70WP at 2.5 lb/A on 2, 16 and 30 Aug; Aliette 80WG at 3 lb/A + Potassium carbonate 100WG at 1.8 lb/A + Maneb 75DF at 2 lb/A on 8 and 23 Aug; and Kocide 50DF at 2 lb/A on 7, 12, and 20 Sep). Kocide applications were initiated after the leaves had started to senesce thereby exposing the fruit.