

Powdery mildew; *Erysiphe cichorachearum*

Evaluation of foliar treatments for control of powdery mildew in Phlox, 2002.

Phlox (cv name) block trials were planted at Michigan State University Muck Soils Research Farm, Laingsburg, MI in a coarse mineral soil on 30 Jul 2002. Ten-plant plots were planted into beds with 1 ft between plants and 3 ft between rows and replicated four times in a randomized complete block design. Plots were irrigated as needed with sprinklers and were cultivated immediately before sprays began and at weekly intervals thereafter to remove weeds. All fungicides in this trial were applied on a 14-day interval from 20 Aug to 21 Sep (4 applications) with a hand-held R&D spray boom delivering 100 gal/A (40 p.s.i.) and using one XR11003VS nozzle per row. Fungicides and biological control agents were applied on 20 Aug, 2, 16 and 30 Sep. Weeds were controlled by hilling and with Dual 8E (1.5 pt/A on 30 Jul), and Poast (1.0 pt/A on 27 Jul). Plots were rated visually for percentage foliar area affected by powdery mildew on 11 and 30 Sep and 15 Oct. Powdery mildew was evaluated on every plant in each plot with a scale from 0 to 5; where 0 = no symptoms; 1 = less than 5%; 2 = 5 - 10%; 3 = 10 - 20%; 4 = 20 - 50%; 5 = 50 - 100% of the foliage affected. The number in each class is multiplied by the class number and summed. The sum is multiplied by a constant to express as a percentage. Maximum and minimum air temperature (°F) were 88.7 and 68.6 (Aug) and 91.3 and 64.8 (30 Sep). Maximum and minimum soil temperature (°F) were 84.3 and 74.2 (Aug) and 82.3 and 69.3 (30 Sep). Precipitation was 0.41" (Aug) and 0.9" (Sep). Plots were irrigated to supplement precipitation to about 1"/A/4 day period with overhead sprinkle irrigation. An electrified deer fence was erected around the plot.

Powdery mildew was slow to develop in Aug but spread quickly in Sep and individual plants in untreated controls had up to 60% of foliage affected by 15 Oct. At evaluations on 11 and 30 Sep all treatments had significantly less foliar affected by powdery mildew than the untreated control. There were no significant differences between any treatments which had about 63 to 75% less powdery mildew on 11 Sep and 58 to 68% less on 30 Sep. Following a curative fungicide application on 30 Sep, by 15 Oct all treatments had significantly less foliar affected by powdery mildew than the untreated control. Treatments 7, 9 and 11 had significantly less foliar area affected by powdery mildew than treatments 1 and 3 but were not significantly different from any other treatment. No other treatments had significantly different foliar powdery mildew at the final evaluation.

Treatment and rate/acre ¹		Leaf area affected by powdery mildew (%) ²		
		11Sep	30 Sep	15 Oct
1	Heritage 50WDG 0.5 lb	5.8 b ⁴	13.3 b	12.0 b
2	Systhane 40WP 0.143 lb	5.8 b	13.5 b	10.3 bc
3	Headsup 100WDG 0.25 lb⁵	6.8 b	13.3 b	11.8 b
4	Cygnus 50WDG 0.225 lb	9.0 b	12.0 b	8.8 bc
5	A1639 10NF 0.125 lb	6.5 b	16.0 b	7.8 bc
6	A1639 10NF 0.25 lb	7.5 b	14.0 b	8.3 bc
7	A1639 10NF 0.0625 lb + Terraquard 50WP 0.25 lb	4.3 b	11.0 b	6.3 c
8	A1639 10NF 0.125 lb + Terraquard 50WP 0.25 lb	7.3 b	14.5 b	7.0 bc
9	Terraquard 50WP 0.25 lb	6.3 b	12.3 b	5.8 c
10	Terraquard 50WP 0.5 lb	5.3 b	12.0 b	8.3 bc
11	Terraquard 4SC 0.25 pt	6.8 b	13.5 b	5.8 C
12	Terraquard 4SC 0.5 pt	6.0 b	15.0 b	8.3 bc
13	Untreated.....	20.3 a	38.8 a	55.0 a

¹ Fungicides were applied in 100 gal water/A at 40 p.s.i..

² Powdery mildew was evaluated on every plant in each plot with a scale from 0 to 5; where 0 = no symptoms; 1 = less than 5%; 2 = 5 - 10%; 3 = 10 - 20%; 4 = 20 - 50%; 5 = 50 - 100% of the foliage affected. The number in each class is multiplied by the class number and summed. The sum is multiplied by a constant to express as a percentage.

³ Application dates A = 20 Jul; B= 2 Sep; C= 16 Sep; D= 30 Sep.

⁴ Values within a column followed by the same letter are not significantly different at $P = 0.05$ (Tukey Multiple Comparison).