BEAN (BABY LIMA) (*Phaseolus lunatus* 'Eastland')
Downy Mildew; *Phytophthora phaseoli* race E

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Timing of post-infection fungicide applications for the control of downy mildew of baby lima bean, 2003.

Post-infection fungicide timing schedules were tested for control of downy mildew of baby lima bean at the University of Delaware's Experiment Station Farm in Newark, DE. The baby lima bean cultivar Eastland was planted on 9 Jul with a commercial four-row Monosem planter. Dual Magnum 7.62E (1.5 pt/A) and Pursuit 2SC (2.0 oz/A) were applied pre-emergence for weed control. The soil type was a Matapeake silt loam and nitrogen (60 lb/A) was side-dressed after seedling emergence on 6 Aug. Treatments were arranged in a randomized complete block design with four replications. Each plot consisted of three sprayed rows, 20-ft-long and spaced 30 in. apart. A single border row separated each plot. The middle 10 ft of the center row of each plot was evaluated for percentage of infected pods, percentage of infected plants (incidence) and yield. On 5 Sep and again on 12 Sep all plots were inoculated with a sporangial suspension of *Phytophthora phaseoli* race E in the evening using a backpack sprayer. The plots were misted nightly with a low pressure misting system equipped with low volume misting nozzles. The system was operated intermittently from dusk to dawn daily to increase humidity and favor infection. Supplemental irrigation was provided when needed throughout the growing season. Two fungicides, Ridomil Gold/Copper WP 2.0 lb and Champ DP 2.0 lb were tested as post-infection applications according to different schedules. The first application was made on 14 Sep using a backpack CO_2 pressurized sprayer that delivered 30 gal/A at 52 psi. Applications were made with a broadcast boom equipped with hollow cone nozzles (D4 disks, no. 45 cores). On 5 Oct, the middle ten feet of the center spray row were evaluated for percent plants infected (presence of infection on the raceme, petiole or pod). The plants were harvested on 8 Oct and the percentage of infected pods and yield were determined.

Disease severity was very high throughout the season. All plants and more than sixty percent of the pods were infected in the control plots. The best two post-infection application schedules tested were Ridomil Gold/Copper WP 2.0 lb applied two times seven days apart and Ridomil Gold/Copper WP 2.0 lb applied one time followed by one application of Champ DP 2.0 lb. Both treatments significantly reduced the percentage of infected pods and increased yield compared to the control. None of the treatments were significantly different than the control plots for the percentage of plants infected with downy mildew or for total pods produced. No phytotoxicity was observed for any of the treatments.

Treatment and rate/A (Application timing) *	Incidence (%) of downy mildew		No. pods/10 ft	Yield (lb/A)
	Plants	Pods		
Untreated control.	100.0 a**	64.2 a	461.5 a	1088.9 b
Ridomil Gold/Copper WP 2.0 lb (A) . .	98.7 a	52.2 ab	460.3 a	1328.5 ab
Champ DP 2.0 lb (A,B,C)	100.0 a	53.2 ab	489.5 a	1263.2 ab
Champ DP 2.0 lb (A)	100.0 a	49.1 b	544.5 a	1633.4 a
Ridomil Gold/Copper WP 2.0 lb (A,B) . .	100.0 a	33.9 c	557.0 a	1589.9 a
Ridomil Gold/Copper WP 2.0 lb (A) alt. w/Champ DP 2.0 lb (B).	97.6 a	35.5 c	559.5 a	1742.3 a

* Application timings A=14 Sep, B=22 Sep, C=29 Sep.

** Means followed by the same letter are not statistically different at P=0.05 (Tukey's multiple comparison)