

**Evaluation of fungicides for the control of downy mildew of baby lima bean, 2003.**

Fungicides 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 soil and nitrogen (60 lb/A) was side-dressed after seedling emergence on 6 Aug. Treatments were arranged in a randomized complete block 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 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. Fungicides were applied on 3, 10, 17, and 24 Sep using a backpack CO<sub>2</sub> 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). The adjuvants HyperActive (2.0 pt/100 gal) and LI-700 (2.0 pt/100gal) were each included in one treatment with Headline 2.09F 6.0 fl oz. 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 7 Oct and the percentage of infected pods and yield were determined.

The disease severity in the field was very high this season and all plants in the control plots were infected. Ridomil Gold/Copper WP 2.0 lb, Phostrol 4.0 pt, Headline 2.09F 6 fl oz, and Headline 2.09F 6 fl oz + LI-700 2.0 pt/100gal all significantly increased yield and significantly reduced the percent pod infection compared to the untreated plots. Phostrol 2.0 pt and Champ DP 2.0 lb both performed well and significantly reduced the percent plant and percent pod infection compared to untreated plots. However, the yield data for this trial was highly variable these treatments did not significantly increase yield compared to the control plots. Plots treated with Ridomil Gold/Copper WP 2.0 lb, Headline 2.09F at both the 6.0 and 9.0 fl oz rates, and Headline 2.09F 6.0 fl oz + HyperActive 2.0 pt/100 gal all significantly increased the no. of total pods compared to the control plots. HyperActive 2.0 pt/100 gal and LI-700 2.0 pt/100gal did not improve the performance of the Headline 2.09F 6.0 fl oz treatment. Neither of the biological fungicides tested, Sonata AS 1.0 gal and Serenade WP 6.0 lb, reduced disease incidence or increased pod no. or yield compared to the control plots. No phytotoxicity was observed for any of the treatments.

Treatment and rate/A	Incidence (%) of downy mildew			No. pods/10 ft	Yield (lb/A)
	Plants	Pods			
Untreated control . . . . .	100.0 a*	72.9	ab	385.3 de	487.8 cd
Champ Formula 2 4.6F 2.0 lb . . . . .	100.0 a	44.7	bcd	499.0 abcde	1306.7 abcd
Cuprofix Disperss DF 3.0 lb . . . . .	100.0 a	37.4	cd	577.8 abcde	1676.9 abcd
Serenade 10WP 6.0 lb . . . . .	100.0 a	80.9	a	442.3 cde	505.3 cd
Headline 2.09F 6.0 fl oz + LI-700 2.0 pt/100 gal . . . . .	100.0 a	38.4	cd	650.0 abc	1894.8 ab
Headline 2.09F 6 fl oz + HyperActive 2.0 pt/100 gal . . . . .	100.0 a	45.7	bcd	696.0 ab	1526.1 abcd
Quadris 2.08SC 9.2 fl oz . . . . .	100.0 a	51.6	bc	611.3 abcd	1350.3 bcd
Sonata AS F 1.0 gal . . . . .	98.9 a	57.6	abc	355.5 e	422.5 d
Headline 2.09F 6.0 fl oz . . . . .	98.7 a	40.1	cd	678.0 abc	1807.6 ab
Kocide 2000 DF 2.0 lb. . . . .	97.6 ab	40.4	cd	615.0 abcd	1589.9 abcd
Headline 2.09F 9.0 fl oz . . . . .	95.1 ab	44.6	bcd	742.0 a	1633.4 abcd
Champ DP 2.0 lb. . . . .	82.3 b	20.6	de	650.0 abc	1742.3 abc
Phostrol 2.0 pt. . . . .	58.2 c	21.6	de	448.0 bcde	1341.6 abcd
Phostrol 4.0 pt. . . . .	4.2 d	4.1	e	528.0 abcde	1916.5 ab
Ridomil Gold/Copper WP 2.0 lb. . . . .	0.0 d	2.7	e	743.0 a	2308.6 a

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