

Evaluation of lima bean cultivars for resistance to downy mildew, 2001.

Lima bean cultivars were tested for resistance to the recently identified race E of *Phytophthora phaseoli* at the University of Delaware’s Research and Education Center near Georgetown, DE. Plots were arranged in a randomized complete block design with four replications. Each plot consisted of one row. The middle ten feet of the row was evaluated for percent infected plants and pods, and yield was also determined. The soil type was Falsington loamy sand and irrigation was supplied as needed throughout the growing season. Cultivars were planted on 11 July in 20 ft rows spaced 30 in. apart. A cultivar (Packer) susceptible to race E was planted every five rows to facilitate disease spread. On 6 and 20 Sep, plots were inoculated in the evening with a sporangial suspension of race E of *P. phaseoli*, using a backpack sprayer. After inoculation on 6 Sep, plants were misted nightly for the duration of the test to increase relative humidity and leaf wetness. Plots were sprayed with Asana on 13 Aug for corn earworm control. Downy mildew was first seen on 12 Sep and percent plants infected was determined on 3 Oct. After inoculation, weather conditions from 6 Sep until harvest favored disease development with precipitation of 2.01 inches and a maximum temperature of only 86.8 °F. On 11 Oct, plants were harvested, pods counted and yield determined.

The cultivars M-15 DM11, M-15 DM11EA1, 184-85, C-elite Sel and Bridgeton were determined to be resistant to race E in the field and their relative yields were significantly better than the susceptible control. Yields are not included in the table. Frost damage impeded the harvest data and comparisons of baby lima and a Fordhook yield does not provide relevant data.

Cultivar	Type	Resistance	Percent Plants Infected ^a	Percent Pods Infected
1072.....	Fordhook	HS ^b	100.0 a ^c	88.8 a
3-28.....	Baby	HS	100.0 a	61.2 b
8-78.....	Baby	HS	100.0 a	56.9 bc
Eastland.....	Baby	HS	100.0 a	50.6 cd
Packer.....	Baby	HS	96.2 ab	47.0 d
Jackson Wonder.....	Baby	HS	93.9 ab	22.6 e
Butter Bean.....	Baby	HS	90.1 ab	11.0 fg
M-15.....	Baby	HS	86.9 b	15.6 ef
M-15 BG2.3.....	Baby	S	18.9 c	2.9 gh
829-01 EMR.....	Fordhook	S	18.5 c	7.6 fgh
821-01 EMR.....	Fordhook	S	18.1 c	9.4 fgh
826-01 EMR.....	Fordhook	S	17.1 c	7.4 fgh
812-01 EMR.....	Fordhook	MR	12.4 cd	5.0 gh
809-01 EMR.....	Fordhook	MR	5.7 de	1.6 gh
M-15 DM11.....	Baby	R	1.4 e	.04 h
M-15 DM11 EA-1...	Baby	R	0.6 e	0.1 h
184-85.....	Baby	R	0.0 e	0.0 h
C-elite Sel.....	Baby	R	0.0 e	0.0 h
Bridgeton.....	Baby	R	0.0 e	0.0 h

^a Percent plants infected include infection of any plant part including racemes, petioles or pods.

^b Resistance reactions: HS = highly susceptible (>85% infected plants), S = susceptible (between 15 and 17 % infected plants), MR = moderately resistant (between 5 and 15 % infected plants), R = resistance (<2% infected plants).

^c Means followed by the same letter are not significantly different (Fisher’s Protected LSD, P=0.05).

