LETTUCE (*Lactuca sativa* 'Winterhaven')
Powdery mildew; *Golovinomyces cichoracearum*

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Comparison of fungicides for management of powdery mildew on lettuce, 2014.

This study was conducted at the University of Arizona, Yuma Valley Agricultural Center. The soil was a silty clay loam (7-56-37 sand-silt-clay, pH 7.2, O.M. 0.7%). Lettuce 'Winterhaven' was seeded, then sprinkler-irrigated to germinate seed on 6 Nov 13 on double rows 12 in. apart on beds with 42 in. between bed centers. All other water was supplied by furrow irrigations or rainfall. Treatments were replicated five times in a randomized complete block design. Each replicate consisted of 25 ft of bed, which contained two 25 ft rows of lettuce. Plants were thinned 12 Dec at the 3-4 leaf stage to a 12 in. spacing. Treatment beds were separated by single nontreated beds. Treatments were applied with a tractor-mounted boom sprayer that delivered 50 gal/acre at 100 psi to hollow-cone nozzles spaced 12 in. apart. Foliar application of treatments was made 30 Jan 14, 10 Feb and 18 Feb. Maximum and minimum ranges (°F) of air temperature were as follows: 54-79, 35-52 during Dec; 69-82, 34-59 during Jan; and 65-90, 32-59 during Feb. Maximum and minimum ranges (%) for relative humidity were as follows: 25-98, 9-47 during Dec; 34-80, 8-24 during Jan; 62-93, and 8-34 during Feb. Monthly rainfall in inches was as follows: Dec, 0.01; Jan, 0.00; and Feb, 0.00. Disease severity was determined 26-28 Feb by rating 10 plants within each of the five replicate plots per treatment using the following rating system: 0 = no powdery mildew present; 1 = powdery mildew present on bottom leaves of plant; 2 = powdery mildew present on bottom leaves and lower wrapper leaves; 3 = powdery mildew present on bottom leaves and all wrapper leaves; 4 = powdery mildew present on bottom leaves, wrapper leaves and cap leaf; 5 = powdery mildew present on entire head. Yield loss due to rejected lettuce heads would normally begin to occur on plants with a rating above 2.0.

Among treatments, reduction of powdery mildew compared to untreated plots ranged from 13 to 100%. Treatment with Rally, Merivon+Dyne-Amic, and Quintec provided excellent disease control. Powdery mildew (caused *by Golovinomyces cichoracearum*) was first observed in plots on 27 Jan, just before the first application of products. Phytotoxicity symptoms were not noted on lettuce for any of the materials tested.

Treatment and rate of product/A	Days after first application[z]	Disease rating[y]
Rally 40W 5.0 oz	0, 11, 19	0.0
Merivon 11.0 fl oz Dyne-Amic 16.0 fl oz	0, 11, 19 0, 11, 19	0.1
Quintec 2.08SC 5.0 fl oz	0, 11, 19	0.2
Merivon 7.0 fl oz Dyne-Amic 16.0 fl oz	0, 11, 19 0, 11, 19	0.2
Merivon 9.0 fl oz Dyne-Amic 16.0 fl oz	0, 11, 19 0, 11, 19	0.5
MBI-01 4.0 qt	0, 11, 19	2.5
MBI-02 2.0 qt	0, 11, 19	2.7
MBI-106 2.0 qt	0, 11, 19	2.9
Oxidate 2.0 gal Holdit 1.0 pt	0, 11, 19 0, 11, 19	3.1
Oxidate 0.5 gal Holdit 1.0 pt	0, 11, 19 0, 11, 19	3.4
Nontreated control	-------	3.9
LSD ($P = 0.05$)[x]		0.1

[z] Treatments were applied to foliage on 30 Jan, 10 Feb, and 18 Feb.

[y] Disease rating was performed 26 to 28 Feb by rating 10 plants within each of the five replicate plots per treatment using the following rating system: 0 = no powdery mildew present; 1 = powdery mildew present on bottom leaves of plant; 2 = powdery mildew present on bottom leaves and lower wrapper leaves; 3 = powdery mildew present on bottom leaves and all wrapper leaves; 4 = powdery mildew present on bottom leaves, wrapper leaves and cap leaf; 5 = powdery mildew present on entire head.

[x] Least Significant Difference at $P = 0.05$. Values differing by more than the least significant difference are significantly different from each other according to Fisher's Protected LSD test.