

**Evaluation of fungicides for management of powdery mildew on lettuce, 2012.**

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 on 7 Nov 11 in double rows 12 in. apart on beds with 40 in. between bed centers, then sprinkler-irrigation was used to germinate the seed. Treatments were replicated five times in a randomized complete block design. Each replicate plot consisted of 25 ft of bed, which contained two 25 ft rows of lettuce separated by a 5 ft length of nontreated bed. Plants were thinned 6 Dec at the 3-4 leaf stage to a 12-in. spacing within rows. Treatment beds were separated by single nontreated beds. Treatments were applied with a tractor-mounted boom sprayer that delivered 50 gal/A at 100 psi to hollow-cone nozzles spaced 12 in. apart. Foliar applications of treatments were made 20 and 31 Jan, 15 Feb, and 1 Mar. The first visible signs of powdery mildew were detected just before the second application of treatments. Maximum and minimum ranges (°F) of air temperature were as follows: Dec 11, 56-79, 29-47; Jan 12, 65-80, 33-52; Feb, 66-85, 36-51; 1-13 Mar, 63-86, 37-47. Maximum and minimum ranges (%) for relative humidity were as follows: Dec, 57-100, 10-82; Jan, 36-92, 7-34; Feb, 62-100, 8-33; 1-13 Mar, 35-79, 7-25. Total rainfall in in. was as follows: Dec, 0.75; Jan, 0.06; Feb, 0.18; 1-13 Mar 0.00. The severity of powdery mildew was determined near plant maturity on 13 Mar 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 was not recorded; however, for powdery mildew, yield loss due to rejected heads would normally begin to occur on plants with a rating above 2.0.

Among treatments, disease reduction levels for powdery mildew ranged from 9 to 100%, compared to nontreated plots. All treatments provided statistically significant reductions in disease compared to nontreated plants; however, the highest level of disease control was achieved with Merivon, Rally, Quintec, Regalia+Rally, Sonata rotated with Microthiol Disperss, and Regalia rotated with Quintec. Phytotoxicity symptoms were not noted on lettuce for any of the materials tested.

Treatment and rate of product/A <sup>z</sup>	Powdery mildew severity rating <sup>y</sup>
Regalia 5BC 1.0 qt + Rally 40W 4.0 oz (1,2,3,4) .....	0.0
Merivon 4.2SC 4.0 fl oz + Induce 16.0 fl oz (1,2,3,4) .....	0.0
Merivon 4.2SC 8.0 fl oz + Induce 16.0 fl oz (1,2,3,4) .....	0.0
Rally 40W 5.0 oz (1,2,3,4) .....	0.0
Sonata 1.38WG 3.0 qt (1,3), Microthiol Disperss 80WDG 10.0 lb (2,4) .....	0.1
Regalia 5BC 1.0 qt (1,2), Quintec 2.08SC 6.0 fl oz (3,4) .....	0.1
Quintec 2.08SC 6.0 fl oz (1,2,3,4) .....	0.2
Regalia 5BC 1.0 qt (1,3), Quintec 2.08SC 6.0 fl oz (2,4) .....	1.0
HM0736 14.0 fl oz (1,4), Quintec 2.08SC 5.0 fl oz (2,3) .....	1.2
Quadris 2.08SC 15.4 fl oz (1,2,3,4) .....	1.2
Torino 0.85SC 3.4 fl oz + Dyne-Amic 16.0 fl oz (1,3) .....	1.3
Sonata 1.38WG 3.0 qt + Prophyt 4.2SC 2.0 qt (1,2,3,4) .....	2.2
Sonata 1.38WG 3.0 qt (1,2,3,4) .....	2.2
HM0736 14.0 fl oz (1,2,3,4) .....	3.2
Untreated control .....	3.5
LSD ( $P = 0.05$ ) <sup>x</sup>	0.2
z Foliar applications of treatments: (1) = 20 Jan; (2) = 31 Jan; (3) = 15 Feb, (4) = 1 Mar. The first visible signs of powdery mildew were detected just before the second application of treatments.	
y The severity of powdery mildew was determined near plant maturity on 13 Mar by using the rating system described earlier to rate 10 plants per replicate plot.	
x Least Significant Difference at $P = 0.05$ . Values in each column differing by more than the least significant difference are significantly different according to Fisher’s Protected LSD test.	