

**Comparison of fungicides to manage downy mildew of lettuce, 2016.**

This study was conducted at the 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 'Eblin' was seeded on 19 Nov 15 in double rows 12 in. apart on beds with 42 in. between bed centers, then sprinkler-irrigated to germinate seed. All other water was supplied by furrow irrigations or rainfall. Treatments were replicated four 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 11 Jan 16 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 flat-fan nozzles spaced 12 in. apart. Foliar applications of treatments were applied twice, 1 and 10 Feb. Downy mildew was first observed in plots on 25 Feb, two weeks after the second application of products. Maximum and minimum ranges (°F) of air temperature were as follows: 58-78, 29-47 during Dec; 56-80, 33-47 during Jan; 60-89, 32-60 during Feb; 65-92, 44-53 during 1 to 18 Mar. Maximum and minimum ranges (%) for relative humidity were as follows: 62-97, 9-50 during Dec; 39-100, 10-78 during Jan; 41-90, 8-23 during Feb; 57-89, 6-33 during 1 to 18 Mar. Monthly rainfall in inches was as follows: Dec, 0.10; Jan, 0.61; Feb, 0.00; 1 to 18 Mar, 0.00. Disease severity was determined 14 to 18 Mar by recording the number of leaves infected with *Bremia lactucae* on 10 lettuce plants arbitrarily selected within each of the four replicate plots per treatment.

Among treatments, the mean reduction in the number of leaves containing downy mildew compared to untreated plots ranged from 26 to 97%. All treatments significantly decreased downy mildew, with disease reduction of at least 80% recorded on lettuce plants treated with Actigard + Manzate followed by A20941 + Revus, Actigard + Manzate followed by Prophyt, Actigard + Manzate followed by Quadris, Zampro + Kinetic, Manzate followed by Forum, Presidio, and Actigard. It should be noted that a time period of over 4 wk elapsed from the last application of fungicides until rating of disease severity. Due to irrigations and several multiday periods of windy conditions, additional treatment applications could not be made. Likely, the final degree of disease control for most treatments would have been higher if additional treatment applications had occurred; therefore, these data reflect disease control under a much less than optimal application scenario. Phytotoxicity symptoms were not noted for any treatments.

Treatment and rate of product/A	Days after first application <sup>z</sup>	Mean number of infected leaves <sup>y</sup>
Actigard 50WG 0.75 oz	0	0.1
Manzate 4SC 1.6 qt	0	
A20941 1.64 fl oz	10	
Revus 2.09SC 5.5 fl oz	10	
Actigard 50WG 0.75 oz	0	0.2
Manzate 4SC 1.6 qt	0	
Prophyt 6.64SL 2.0 qt	10	
Actigard 50WG 0.75 oz	0	0.3
Manzate 4SC 1.6 qt	0	
Quadris 2.08SC 12.8 fl oz	10	
Zampro 14.0 fl oz	0, 10	0.4
Kinetic 8.0 fl oz	0, 10	
Manzate 4SC 1.6 qt	0	0.4
Forum 6.0 fl oz	10	
Presidio 4SC 4.0 fl oz	0, 10	0.7
Actigard 50WG 1.0 oz	0, 10	0.7
Dithane 1.6 qt	0, 10	0.8
Kphite 3.0 qt	0, 10	1.5
Actigard 50WG 0.75 oz	0	1.8
Ridomil Gold 480SL 4.0 fl oz	0	
A20941 1.64 fl oz	10	
Revus 2.09SC 5.5 fl oz	10	
Revus 2.08SC 8.0 fl oz	0, 10	2.0
Timorex Gold 27.4 fl oz	0	2.1
Revus 2.08SC 8.0 fl oz	10	
Nontreated control	-----	3.1
LSD ( $P = 0.05$ ) <sup>x</sup>		0.2

<sup>z</sup> Treatments were applied to foliage on 1 and 10 Feb.

<sup>y</sup> Disease severity was determined 14 to 18 Mar by recording the number of leaves infected with *Bremia lactucae* on 10 lettuce plants arbitrarily selected within each of the four replicate plots per treatment.

<sup>x</sup> 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.