

**Evaluation of fungicides for management of downy mildew on lettuce, 2015.**

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 12 Nov 14 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 15 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 28 Jan 15, 13 Feb and 4 Mar. Maximum and minimum ranges (°F) of air temperature were as follows: 54-79, 29-59 during Dec; 54-81, 27-56 during Jan; 70-88, 40-58 during Feb; and 62-91, 42-67 during 1 to 18 Mar. Maximum and minimum ranges (%) for relative humidity were as follows: 75-100, 11-75 during Dec; 42-100, 8-59 during Jan; 49-95, and 11-39 during Feb; and 33-96, 8-50 during 1 to 18 Mar. Monthly rainfall in inches was as follows: Dec, 0.34; Jan, 0.14; Feb, 0.00; and 1 to 18 Mar, 0.46. Disease severity was determined 16-18 Mar by counting the number of leaves containing one or more visible downy mildew infection sites on 10 plants within each replicate plot per treatment.

All treatments provided a statistically significant reduction of downy mildew compared to nontreated plants; however, only Dithane and Zampro reduced the number of infected leaves by at least 70%. Downy mildew was already present in plots before the first application of fungicide products. It is possible that better performance from all tested products might have been achieved if they were in place before disease symptoms were noted. Phytotoxicity symptoms were not noted on lettuce for any of the materials tested.

| Treatment and rate of product/A | Days after first application <sup>z</sup> | Infected leaves per plant <sup>y</sup> |
|---------------------------------|---|--|
| Dithane F-45 1.6 qt             | 0, 16, 35                                 | 0.6                                    |
| Zampro 14.0 fl oz               | 0, 16, 35                                 | 0.9                                    |
| Kinetic 8.0 fl oz               | 0, 16, 35                                 |  |
| Revus 2.09SC 8.0 fl oz          | 0   | 1.1                                    |
| Actigard 50WG 1.0 oz            | 16  |  |
| Phostrol 4.17SL 2.0 qt          | 35  |  |
| A20941 2.4 fl oz                | 0   | 1.2                                    |
| Revus 2.09SC 5.5 fl oz          | 0   |  |
| Actigard 50WG 1.0 oz            | 16  |  |
| Phostrol 4.17SL 2.0 qt          | 35  |  |
| GWN-10389 36.0 fl oz            | 0, 16, 35                                 | 1.3                                    |
| Dyne-Amic 4.0 fl oz             | 0, 16, 35                                 |  |
| Oxidate 2.0 2.0 qt              | 0, 16, 35                                 | 1.3                                    |
| AquaSil 4.5 fl oz               | 0, 16, 35                                 |  |
| Oxiphos 4.0 qt                  | 0, 16, 35                                 | 1.4                                    |
| Revus 2.08SC 8.0 fl oz          | 0, 16, 35                                 | 1.4                                    |
| Reason 500SC 8.2 fl oz          | 0, 16, 35                                 | 1.5                                    |
| GWN-10250 36.0 fl oz            | 0, 16, 35                                 | 1.5                                    |
| Dyne-Amic 4.0 fl oz             | 0, 16, 35                                 |  |
| Actigard 50WG 1.0 oz            | 0   | 1.6                                    |
| Ridomil Gold SL 4.0 fl oz       | 0   |  |
| Dyne-Amic 4.0 fl oz             | 0,16,35                                   |  |
| Phostrol 4.17SL 2.0 qt          | 16  |  |
| Revus 2.09SC 8.0 fl oz          | 35  |  |
| A20941 2.4 fl oz                | 0   | 2.1                                    |
| Actigard 50WG 0.75oz            | 16  |  |
| Phostrol 4.17SL 2.0 qt          | 35  |  |
| Presidio 4SC 4.0 fl oz          | 0,16,35                                   | 2.2                                    |
| Actigard 50WG 1.0 oz            | 0,16,35                                   | 2.3                                    |
| Timorex Gold 20.2 fl oz         | 0,16,35                                   | 2.4                                    |
| Nontreated control              | -----                                     | 3.5                                    |
| LSD ( $P = 0.05$ ) <sup>x</sup> |   | 0.2                                    |

<sup>z</sup> Treatments were applied to foliage on 28 Jan, 13 Feb, and 4 Mar.

<sup>y</sup> Mean number of leaves for five replicate plots per treatment containing one or more visible downy mildew infection sites.

<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.