LETTUCE (*Lactuca sativa*) cv. 'Headmaster'
Downy mildew; *Bremia lactucae*

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Comparison of materials for control of downy mildew on iceberg lettuce, 2011.

Lettuce downy mildew fungicides were compared in a study conducted at the University of California West Side Research and Extension Center at Five Points, CA. On 15 Dec 2010, iceberg lettuce seed were sown in two seed lines per 40-in bed and sprinkler irrigated. After the lettuce had four true leaves, sprinklers were removed, lettuce was thinned and furrow irrigated for the remainder of the season. The experimental design was a five replication randomized complete block. Each treatment was applied over 30 ft of one bed. There was a 5 ft buffer between treatments within rows and one planted untreated buffer bed between treated beds. Materials were applied on 24 Feb, 3, 10, 17, 29 Mar and 6 Apr. At the time of the first application, plants had 4 to 5 true leaves and no downy mildew was detected. Treatments were applied with a CO_2 pressurized backpack sprayer calibrated to deliver 30 gal/A at 35 psi. A 2-nozzle spray boom with Teejet 8004VS nozzles spaced 18.5-in apart was used. Due to very low disease levels on 28 Mar, evaluations were based on the number of mid-canopy leaves per 10 heads with downy mildew lesions. By early Apr much higher levels of disease were present; on 5 and 18 Apr, 10 mid-canopy leaves per plot were rated for downy mildew severity on a scale of 0 to 10 .The scale is proportional to the percentage of leaf surface with downy mildew as follows: 0=no symptoms, 1=1-10%, 2=11-20%, 3=21-30%, 4=31-40%, 5=41-50%, 6=51-60%, 7=61-70%, 8=71-80%, 9=81-90%, 10=91-100%. Data was subjected to analysis of variance and Student Newman-Keuls Multiple Comparison Test (P=0.05) was used for mean separation was used for mean separation. For the ratings used in the evaluations performed on 5 and 18 Apr, arcsine transformations were analyzed, but non-transformed data is presented.

Disease levels were sufficient to see treatment differences after 28 Mar. All treatment had lower levels than the untreated control. Disease was observed on less than 1% of untreated plants on 10 Mar and 1.7 on17 Mar. All entries including Ridomil Gold/Revus/Previcur Flex rotations, with or without Actigard, were consistently among top performing treatments over the last two evaluations. In addition, the Ridomil Gold/Zampro/Previcur Flex rotation, Gavel, Revus/Fungi-phyte rotations or Fungi-phyte alone also consistently performed well. Revus/Previcur Flex and Zampro/Previcur Flex performed well at the 5 Apr evaluation, but fell sharply by 18 Apr. No phytotoxicity was observed.

Treatment[z]	Incidence[y]		Severity rating (0-10)[x]			
	28 Mar		5 Apr		18 Apr	
Ridomil Gold SL 4 fl oz + Actigard 0.75 oz (1)/Revus 8 fl oz + Actigard 0.75 oz (2,5)/Revus 8 fl oz (3,6)/Previcur Flex 2 pt (4)[w]…….....…	0.2	b[v]	0.10	f	0.74	e
Ridomil Gold SL 4 fl oz(1,3), Revus 8 fl oz(2,4,5), Previcur Flex 2 pt (6).	2.6	b	1.04	cde	0.74	e
Fungi-phyte 2 qt……..	8.8	b	1.50	bcd	1.10	de
Revus 8 fl oz…….....	5.2	b	0.86	de	1.36	cde
Gavel 2.0 lbs …….....	4.4	b	1.30	bcde	1.36	cde
Revus 8 fl oz (1,3,5), Fungi-phyte 2 qt (2,4,6)…….....	1.6	b	0.64	e	1.64	bcd
Actigard 0.75 oz……..	5.2	b	1.64	bc	1.66	bcd
Zampro 14 fl oz (1,3,5), Fungi-phyte 2 qt (2,4,6)…….....	8.2	b	2.22	b	1.78	bcd
Previcur Flex 2 pt…….....	6.2	b	0.82	de	1.86	bcd
Zampro 14 fl oz……	5.0	b	1.70	bc	1.86	bcd
Ridomil Gold SL 4 fl oz + Actigard 0.75 oz (1), Zampro 14 fl oz + Actigard 0.75 oz (2,5), Zampro 14 fl oz/A (3,6), Previcur Flex 2 pt (4)…..	1.8	b	0.84	de	1.98	bcd
Dithane 75DF RainShield 2.0 lb……..	13.2	b	1.76	bc	2.00	bcd
Revus 8 fl oz (1,3,5), Previcur Flex 2 pt (2,4,6)……...	3.0	b	0.64	e	2.50	bc
Zampro 14 fl oz (1,3,5)/Previcur Flex 2 pt (2,4,6)……...	6.0	b	0.88	de	2.56	b
Untreated……..	51.6	a	5.02	a	3.42	a

[z] Tank mixes including Ridomil or Fungi-phyte were applied without a surfactant; all others were applied with Induce 0.125%. Rates are expressed in units formulated product per acre.

[y] Numbers of leaves per 10 heads with downy mildew lesions.

[x] Average rating (0-10) per 10 mid canopy leaves/plot.

[w] Materials separated by a "+" were tank mixed and materials separated by a "/" were alternated. Numbers in parentheses refer to application dates: 1 = 24 Feb, 2 = 3 Mar, 3 = Mar, 4 = 17 Mar, 5 = 29 Mar, and 6 = 6 Apr.

[v] Means within a column followed by the same letter do not differ according to Student Newman-Kuel's Multiple Comparison Test (P=0.05) performed on arcsine transformed data. Non-transformed means are presented.