CABBAGE (*Brassica oleracea* var. *capitata* 'Platinum Dynasty')
White mold; *Sclerotinia sclerotiorum*

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Evaluation of fungicides for the control of white mold on cabbage, 2007.

The experiment was conducted at the Ohio Agricultural Research and Development Center's North Central Agricultural Research Station in Fremont, OH on Colwood fine sandy loam soil. Potassium (240 lb/A K_2O), phosphorous (78 lb/A P_2O_5), nitrogen (108.5 lb/A urea), and borate (7.5 lb/A) were incorporated into the test field on 8 May. The test field was cultivated and raised beds were prepared on 5 ft centers on 10 May. 'Platinum Dynasty' cabbage seeds were hot water-treated (10 min pre-soak at 100° F, treatment for 25 min at 122° F) and sown on 19 Apr into 200-cell plug trays containing Metromix 360 seedling mix. On 18 May, seedlings were transplanted 1.5 ft apart into 25 ft long twin rows spaced 1.5 ft apart. Starter fertilizer (N-P-K 10-34-0; 0.7 qt/50 gal water) was applied in the transplant water. Treatments were arranged in a randomized complete block design with four replications. Treated beds were alternated with untreated guard beds. The herbicide Dual II Magnum (1 pt/A) was applied on 15 May. The field was cultivated on 18 Jun and hand weeded and hoed on 18 and 25 Jun and 16 Jul. Insecticide Mustang Max (2 fl oz/A), Pounce 3EC (3 fl oz/A), Assail 30SG (4 oz/A), and Asana XL (4 & 6 fl oz/A) were applied on 5 Jun; 18 Jun; 29 Jun; and 29 Jun and 16 Jul, respectively. Treatments were applied using a tractor-mounted CO_2-pressurized sprayer (55 psi, 38.4 gal/A, 3 mph) on a 7 day schedule beginning 22 Jun and ending 26 Jul for a total of six applications. Cabbage plants were inoculated on 2 Jul by pouring 0.51 fl oz homogenized mycelial suspension of *Sclerotinia sclerotiorum* on each plant. Inoculum was prepared by homogenizing mycelia from a 4-day-old *S. sclerotiorum* culture grown on PDA medium in distilled water. The optical density at 600 nm (OD600) of the liquid inoculum was adjusted to a value of 1.0. Plants were overhead irrigated with 0.75, 0.90 and 0.90 in. water on 13 and 27 Jun, and 10 Jul, respectively. White mold incidence (number of symptomatic plants/plot) and severity (rated on a 0-6 scale, see table footnote) were evaluated on 11, 19, and 25 Jul. Heads were harvested from the middle 10 ft of each treatment row on 13 Jul and numbers and weights of marketable head, head with white mold, and "other" (heads with minor insect damage) were determined. Average maximum temperatures for 18-31 May, Jun, and 1-13 Jul were 80.5, 82.8, and 84.5°F; average minimum temperatures were 56.0, 59.0, and 60.5°F; and rainfall amounts were 0.63, 0.81, and 0.13 in., respectively. Data were analyzed by ANOVA using SAS statistical software. Means were separated using Fisher's protected least significant difference test.

White mold pressure was high in this experiment, with an average disease incidence of 81% in the untreated control plots. All treatments significantly reduced both the incidence and severity of the disease compared to the untreated control. LEM 17SC (16.8 fl oz/A) and the standard treatment (Endura 70WDG 8 oz/A) were equally effective in reducing disease incidence and severity, and significantly more effective than the low rate of LEM 17EC (9.6 fl oz/A). All of the treatments resulted in increased marketable yield compared to the untreated control, but marketable yield did not differ among treatments. Treatment with the low rate of LEM 17EC resulted in significantly fewer diseased heads than the untreated control but more than for plants treated with higher rates of LEM 17EC, LEM 17SC or Endura 70WDG.

Treatment and rate/A (application timing[z])	White mold incidence (%)		White mold severity[y]		Yield (heads) (tons/A)	
	25 Jul	AUDPC[x]	25 Jul	AUDPC[x]	Marketable	Diseased
LEM 17EC 9.6 fl oz (1-6)	42 b[w]	4.1 b	1.7 b	14.1 b	12.7 a	11.1 b
LEM 17EC 16.8 fl oz (1-6)	26 bc	2.8 bcd	1.1 bc	9.6 bcd	15.9 a	7.6 c
LEM 17EC 24 fl oz (1-6)	28 bc	3.2 bc	1.1 bc	10.3 bc	17.4 a	7.0 c
LEM 17SC 16.8 fl oz (1-6)	1.3 c	1.4 d	0.5 c	4.5 d	19.8 a	3.9 c
Endura 70WDG 8 oz (1-6)	16 c	1.8 cd	0.7 c	6.4 cd	16.1 a	6.5 c
Untreated control	81 a	8.2 a	3.4 a	27.9 a	1.7 b	16.9 a
P value	0.0001	0.0001	0.0001	0.0001	0.0058	0.0001

[z]Application times were: 1= 22 Jun; 2= 29 Jun; 3= 5 Jul; 4= 13 Jul; 5= 21 Jul; 6= 26 Jul.

[y]Disease ratings and area under the disease progress curves (AUDPC) were based on the values of the scale of 0-6, were 0 = non-symptomatic: 1= 1-2 lesions < 2 in. in diameter; 2 = 1-2 lesions ≥ 2-4 in. in diameter, 3 = lesion more > 4 in. in diameter but < 0.1 in. deep, 4 = spreading lesion covering up to half the head, up to 1 in. deep; 5 = lesion more than 1 in. deep, covering more than half the head, plant wilting; and 6 = dead plant.

[x]Area under the disease progress curve calculated according to the formula: $\sum([(x_i+x_{i-1})/2](t_i-t_{i-1}))$ where x_i is the rating at each evaluation time and (t_i-t_{i-1}) is the time between evaluations.

[w]Values are the means of four replicate plots; treatments followed by the same letter within a column are not significantly different at $P \leq 0.05$. Means were separated using Fisher's protected least significant difference test.