

ZINNIA (*Zinnia elegans* 'Magellan Orange')  
Powdery mildew; *Golovinomyces* sp.

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### Evaluation of experimental fungicides and biofungicides for control of powdery mildew of zinnia in the greenhouse, 2019.

Zinnia 'Magellan Orange' seed were planted into 128-cell flats on 2 Aug. The zinnia seedlings were transplanted into 6-in pots containing a soilless media (Suremix MI Grower Products Inc, Galesburg MI) on 29 Aug. Plants were maintained in a research greenhouse and fertilized three times weekly with 200 ppm Peters 20-20-20 water-soluble fertilizer (ICL Fertilizers, Columbia, MO). Greenhouse temperatures averaged 73.8°F during the experiment. Six, single plant replicates per treatment were arranged in a completely randomized block design. Fungicides were applied to the foliage with a Solo 418 hand-pressurized sprayer (Solo Inc., Newport News, VA) until glistening on 12, 21, and 29 Sep, with the exception of Eagle EW, which was applied on 12 and 29 Sep. Plants were inoculated by placing zinnia plants with actively sporulating *Golovinomyces cichoracearum* among the treatment blocks on 19 Sep. The total number of powdery mildew colonies present on each plant were counted on 23 and 30 Sep. Data were analyzed using SAS PROC GLM and statistical differences were compared using the Fisher's Protected Least Significant Differences test ( $P=0.05$ ).

Disease pressure was severe in this trial with the untreated control plants averaging 109.3 powdery mildew colonies on the final rating date. IKF-309 (both rates tested) was highly efficacious in this trial resulting in powdery mildew colonies statistically similar to the industry standard product, Eagle 20EW. Plants treated with BAS 9747, Serifel, and Cease resulted in powdery mildew colony counts similar to the untreated control. A response was not observed between the rates tested of Serifel, BAS 9747, and IKF-309 with no statistical differences noted for each rating. Phytotoxicity was not observed on any of the treated zinnia plants in this experiment.

Treatment and rate/100 gal	Avg. # of powdery mildew colonies per plant	
	23 Sep	30 Sep
Untreated control	38.5 c*	109.3 b
Serifel 16 oz	38.2 c	114.8 b
Serifel 48 oz	48.8 c	93.7 b
BAS 9747 38.4 fl oz	20.3 abc	85.3 b
BAS 9747 115.2 fl oz	31.2 bc	89.5 b
Cease 8 qt	24.8 abc	84.8 b
IKF-309 4 fl oz	0.0 a	8.8 a
IKF-309 5 fl oz	4.7 ab	37.0 a
Eagle 20EW 5 fl oz	0.0 a	22.0 a

\*Column means with a letter in common are not significantly different (Fisher's LSD;  $P\leq 0.05$ ).