

Evaluation of experimental fungicide and biopesticides against Botrytis blight on poinsettia, 2020.

Poinsettia plants in 4 in. plastic pots were obtained from a commercial greenhouse on 5 Nov 2019 and placed inside a research greenhouse on the campus of Michigan State University. Plants were fertilized three times weekly with 200 ppm Peters 20-20-20 liquid fertilizer (ICL Specialty Fertilizers, Dublin, OH). Greenhouse temperatures averaged 68.9°F and ranged from a low of 58.7°F and a high of 80.9°F. Six, one-plant replications per treatment, were arranged in a completely randomized design. *Botrytis cinerea* cultures were grown on potato dextrose agar for two weeks. Plates were flooded with sterile distilled water, and scraped with a sterile spatula to dislodge spores. Liquid from the plates was strained through cheesecloth, and diluted to 5.0 x 10⁶ conidia/fl oz. Fungicides were applied to glistening with a hand pump compressed air sprayer on 14 Jan 2020. Due to the hydrophobic properties of poinsettia bracts, CapSil (6 fl oz/100 gal) was added to each spray mixture. Plants were inoculated one time, post initial fungicide application, by spraying 3.0 ml of the conidial suspension onto each plant on 15 Jan. Immediately after inoculation, the plants were enclosed in translucent plastic bags for increased humidity. The plants remained in the bags for the entirety of the experiment. The total number of bracts and the number of bracts with sporulating *B. cinerea* were counted and a disease severity rating was noted on 21 and 28 Jan. At the end of the experiment the marketability of each plant was noted.

Disease pressure was severe in this experiment with the untreated inoculated control plants averaging 65.5% of bracts with sporulating *B. cinerea* on the 28 Jan. The biocontrol product BWN165N was efficacious with the higher rate tested resulting in bracts with sporulating *B. cinerea* statistically similar to the industry standard product Broadform. It should be noted that a rate response trend was observed the higher rate of BWN165N tested resulting in a lower proportion of bracts with *B. cinerea* and a lower disease severity value for both rating dates. Botector, EcoSwing, and SP2480 (both rates) were not effective in limiting *B. cinerea* infection in this trial with all ratings statistically similar to the untreated control. The single application of experimental product S2200 proved to be very effective in limiting *B. cinerea* with ratings statistically similar to Broadform. Poinsettias treated with Broadform were the only plants that would be considered marketable with an average rating of 0.2. Phytotoxicity and residue were not observed on any of the treated plants in this study.

Treatment and rate per 100 gal	Bracts with sporulating <i>B. cinerea</i> (%)		Disease severity ^x		Marketability ^y
	21 Jan	28 Jan	21 Jan	28 Jan	28 Jan
Untreated inoculated	31.2 c ^z	65.5 c	4.2 d	7.5 c	8.0 d
Botector WG 8 oz	17.0 bc	63.2 c	3.3 d	7.7 c	8.5 d
BWN165N WP 3 lb	5.3 ab	29.0 b	1.7 bc	4.2 b	4.8 bc
BWN165N WP 4 lb	3.8 ab	11.5 ab	1.5 abc	3.0 b	3.3 b
EcoSwing 2 pt	30.5 c	74.1 c	3.7 d	7.8 c	8.0 d
S2200 SC 7.5 fl oz	1.0 a	13.5 ab	0.5 ab	2.3 ab	3.0 ab
SP2480 20 fl oz	31.0 c	74.1 c	4.0 d	8.0 c	8.5 d
SP2480 30 fl oz	17.1 bc	69.1 c	2.7 cd	6.8 c	7.5 cd
Broadform SC 8 fl oz	0.0 a	0.0 a	0.0 a	0.0 a	0.2 a

^xRated on a scale of 1-10, where 1=healthy, 2=small/isolated lesions, 3=moderate sized isolated lesions, 4=numerous moderate sized lesions, 5=large necrotic areas, 6=large necrotic areas/30-50% defoliation, 7=large necrotic areas/51-70% defoliation, 8= large necrotic areas/71-90% defoliation, 9= \geq 91% defoliation, 10=plant death.

^yMarketability rated on a scale of 0-10; 0-2=still acceptable for retail sale; 3-10=increased levels of damage that would result in a plant not marketable for wholesale or retail.

^zColumn means with a letter in common are not statistically different (Fishers Protected LSD; $P=0.05$).