

**Evaluation of experimental fungicides 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). Daily greenhouse temperatures averaged 68.9°F and ranged from a low of 58.7°F to 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 two layers of cheesecloth and diluted to  $5.0 \times 10^6$  conidia/fl oz using a hemocytometer. Fungicides were applied to glisten with a hand pump compressed air sprayer on 14 Jan 2020 to all plants except the untreated inoculated control. Due to the hydrophobic properties of poinsettia bracts, CapSil (6 fl oz/100 gal) was added to each spray mixture. Plants were inoculated once, following the first fungicide application on 15 Jan, by spraying 3.0 ml of the conidial suspension on each plant including the untreated inoculated control. Immediately after inoculation, the plants were enclosed in translucent plastic bags and incubated under high relative humidity. The plants remained in the bags for the duration of the experiment. On 21 and 28 Jan the total number of leaves and the number of leaves with sporulating *B. cinerea* were counted, disease severity was assessed, with plant marketability determined at the end of experiment on 28 Jan. Data were analyzed using SAS PROC GLM for bracts with sporulating *B. cinerea* and SAS PROC NPAR1WAY for disease severity and marketability.

Disease pressure was severe in this experiment with the untreated inoculated control plants averaging 31.2% and 65.5% of bracts with sporulating *B. cinerea* on 21 and 28 Jan, respectively. The disease severity rating for the untreated inoculated control was 7.5 on the last observation date (28 Jan) indicating large necrotic areas and significant defoliation. Several treatments provided a significant level of protection compared to the untreated inoculated control. Broadform SC, S2200 SC, and both rates of BWN165N WP provided significantly better plant protection based on disease ratings than the untreated inoculated control for all parameters measured. The experimental product S2200 SC reduced the percentage of bracts with sporulating *B. cinerea* and disease severity and maintained plant marketability; these assessments were similar to treatment with the industry standard Broadform SC. The biocontrol product BWN165N WP was efficacious at both rates tested compared to the untreated inoculated control; a rate response was not observed. However, the high rate (4 lb/100 gal) of BWN165N WP provided control similar to Broadform SC for bracts with sporulating *B. cinerea* (21, 28 Jan) and disease severity (21 Jan). Botector WG, EcoSwing, and SP2480 (both rates) were not effective in limiting disease in this trial with all ratings similar to the untreated inoculated control. Marketability was retained for those plants treated with Broadform SC and S2200 SC. Phytotoxicity was not observed on any of the treated plants in this study.

Treatment and rate/100 gal	Bracts with sporulating <i>B. cinerea</i> (%)				Disease severity <sup>z</sup>				Marketability <sup>y</sup>	
	21 Jan		28 Jan		21 Jan		28 Jan		28 Jan	
Untreated inoculated control	31.2	c <sup>x</sup>	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

<sup>z</sup>Rated 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 with 30-50% defoliation, 7=large, necrotic areas with 51-70% defoliation, 8=large, necrotic areas with 71-90% defoliation, 9= $\geq$ 91% defoliation, 10=plant death.

<sup>y</sup>Marketability rated on a scale of 0-10; 0-3=acceptable, plant is marketable; 4-10=increased levels of damage, plant not marketable.

<sup>x</sup>Column means with a letter in common are not statistically different (Fisher’s Protected LSD;  $P=0.05$ ).