Evaluation of PureCrop1 for efficacy against Downy Mildew on Basil

Peronospora belbaharii

Trial conducted at BAAR Scientific Research Farm, Phelps, NY; 2020

Treatment	Rate	Downy Mildew % leaf area Sept 11, 2020	Downy Mildew % leaf area Sept 18, 2020	Phyto Sept 11
Control		**40.0**	**65.0**	**0**
PureCrop1	1:128 (= 1 fl oz/ Gal)	**15.0**	**37.5**	**0**
PureCrop1	1:64 (=2 fl oz/Gal)	**9.5**	**35.0**	**0**
Biological Std Double Nickel	3 Qt/A	**30.0**	**50.0**	**0**
LSD P=.10		10.245	14.692	
Standard Deviation		7.904	11.335	

Applications Aug 21, 28 & Sept 4, 2020.

Applications made using CO2 Backpack sprayer calibrated to deliver 40 gallons of water per A; using 42 PSI, and TXVS18 hollow Cone Nozzles. The spray boom consisted of 2 nozzles that were 18 inches apart.

Basil plants transplanted June 4, 2020. Basil plugs had been obtained from Lucas greenhouse in May, and were maintained in 4 inch pots within a greenhouse. Plants were transplanted into the field into sandy loam on June 4. Plot area were fertilized and watered as needed throughout the summer. The 2020 season was considerably dryer than usual. Downy mildew typically becomes severe in early August. However, with no downy mildew observed in August, the trial was begun on Aug, 21, with expectations for the development of downy mildew in early September. Additional applications were made weekly on Aug 28 and Sept 4. At time of applications, plants were mostly about 24 inches tall 20 to 28 inches wide.

Downy mildew infections finally occurred without inoculation. No downy mildew was noted within plants until the timing of the third application. Severe infections probably occurred on Aug 27 when 1.99 inches of rain occurred during 17 hours of leaf wetness.

Data on Sept 11 was an evaluation from each plot, which consisted of a single estimation from each of 4 plants; data was recorded as as to the percent leaf area with downy mildew. Data on Sept 18 consisted of collecting shoots from each plot with subsequent estimation of leaf area with symptoms of downy mildew. Data on Sept 18 consisted of a visual estimate of the percent leaf area with downy mildew from each of 4 shoots. Downy mildew symptoms on Sept 11 and 18 ranged from chlorotic specks or zones on 5 to 20% of leaf area to larger necrotic lesions on 10 to 40%.

Overall Summary.

Downy mildew can be very severe on basil in the Eastern US. Fungicide programs need to be timed before infections as infections result in unsightly lesions, which reduce the visible quality of Basil. Applications of PureCrop1 before and during an outbreak of downy mildew provided significant reduction in the level of infection of the foliage. Foliage treated with PureCrop1 had numerically less disease than a popular biological product DoubleNickel. PureCrop1 should be recommended as a product that can be incorporated into a commercial downy mildew management program for basil growers.

After three applications once a week of PureCrop1, three applications of double nickel and control group, data was collected. 2% of PC1 showed 75% less infection compared to grower's standard of double nickel. 1% of PcC1 showed 50% less infection than compared to grower's standard. Seven days later the leaves continue to show 50% less infection compared to standard and control without additional application.

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Data on Sept 11 was a single evaluation per plot, which consisted of a single estimation as to the percent leaf area with downy mildew. Data on Sept 18 consisted of collecting shoots from each plot with subsequent estimation of leaf area with symptoms of downy mildew. Downy mildew symptoms on Sept 11 and 18 ranged from chlorotic specks or zones on 5 to 20% of leaf area to larger necrotic lesions on 10 to 40% of the leaf area. Downy mildew became rather severe by Sept 18.