

Evaluation of registered and experimental products for control of *Stemphylium* leaf blight on onion, 2019.

This study was conducted at a grower cooperator's farm located in Hamilton, MI in a field previously planted to alfalfa. Onion 'Aldrin' seeds were sown 2 Apr on raised beds that were 6 in. tall and 60 in. wide at the top and were spaced 80 in. apart at the row center. Each bed consisted of eight rows spaced 6 in. apart and seeds spaced 2 in. within a row (at approximately 250,000 seeds/A). A completely randomized block design with four replicates was established in an area 100 ft long by 11 beds. Each treatment was 20 ft long with a 2-ft buffer section between replicates within a row. Fertilization, weeds and insects were managed by the grower cooperator and were to commercial production standards. The fungicide treatments were applied on 5, 11, 18, and 25 Jul; 1, 8, 14, and 21 Aug using a CO₂ backpack sprayer and a broadcast boom equipped with three XR8003 flat-fan nozzles spaced 18 in. apart, calibrated at 50 psi and delivering 50 gal/A. Foliage was evaluated for symptoms of *S. vesicarium* infection (0 to 100%) on 16 and 23 Aug. Bulbs from the center 5 ft of each replicate were harvested on 4 Sep. The onions were sorted for size and weighed on 11 Oct. After harvest, the bulb tops were removed, and bulbs stored at 50°F for four months. The onions of the three alternation programs, and the untreated control were sorted for storage rot and weighed on 18 Feb 2020. Data were analyzed using an analysis of variance, with means separation performed using Fisher's protected least significant difference (LSD).

Disease pressure was severe in this trial with 85% of the untreated control plants showing *S. vesicarium* symptoms by 23 Aug. On both rating dates, all treatments statistically limited foliar necrosis compared to the untreated control. Luna Experience SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC, and Luna Tranquility SC + MSO EC alternated with Bravo WeatherStik SC + MSO EC were the most effective programs for limiting foliar necrosis. Bravo WeatherStik SC alternated with Luna Tranquility SC + Activator 90 SL, and Bravo WeatherStik SC were also efficacious resulting in $\leq 26.2\%$ less disease than the untreated control. Two treatments produced significantly higher yields of large onions compared to the untreated control, Luna Experience SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC, and Luna Tranquility SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC. The following programs resulted in total yields that were significantly greater than the untreated control: Luna Experience SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC, Luna Tranquility SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC, and Bravo WeatherStik SC alternated with Luna Tranquility SC + Activator 90 SL, significantly increased overall yield. Applications of Luna Tranquility SC + MSO EC alternated with Bravo WeatherStik SC+ MSO EC resulted in an increased yield of large bulbs compared to those resulting from treatment with Bravo WeatherStik SC or Bravo WeatherStik SC+ MSO EC alternated with Luna Tranquility SC. All treatment programs limited the storage rot (%) compared to the untreated control.

Treatment ^z and rate/A, application schedule, applied at 7-day intervals	Foliar necrosis (%) ^y		Yield (lb)				Storage rot (%)
	16 Aug	23 Aug	Small (< 2 in.)	Medium (2-3 in.)	Large (> 3 in.)	Total ^v yield	
Untreated control	38.8 c ^x	85.0 d	8.1 b	27.7 a	3.1 a	38.8 a	17.3 a
Bravo WeatherStik SC 24 fl oz, apps A,B,C,D,F,H -alt- Luna Tranquility SC 22 fl oz + Activator 90 SL, apps E,G	20.0 b	42.5 b	6.9 ab	33.8 b	5.9 ab	46.6 b	11.3 b
Bravo WeatherStik SC 24 fl oz, apps A-H	20.0 b	58.8 c	7.1 ab	29.5 ab	5.4 ab	42.0 ab	
Luna Tranquility SC 16 fl oz + MSO EC, apps A,C,E,G -alt- Bravo WeatherStik SC 24 fl oz + MSO, apps B,D,F,H	7.5 a	30.0 a	5.4 a	31.1 ab	10.2 c	46.8 b	5.8 b
Luna Experience SC 10 fl oz + MSO EC, apps A,C,E,G -alt- Bravo WeatherStik SC 24 fl oz + MSO, apps B,D,F,H	6.3 a	26.3 a	5.1 a	33.1 b	7.3 bc	45.4 b	5.5 b
P-Value	0.0001	0.001	0.0229	0.089	0.005	0.0427	0.0011

^zapps = applications. -alt- = alternate.

^yBased on a visual estimation of the percentage of foliage infected.

^xColumn means with a letter in common are not significantly different (LSD t-Test; P=0.05).

^vTotal = Weight of all bulbs at harvest