

Evaluation of fungicides for the 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 of plants spaced 6 in. apart and seeds spaced 2 in. apart within rows (at approximately 250,000 seeds/A). A completely randomized block design with four replicates was established in an area 100 ft long by eleven 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. Treatments were applied as a foliar spray 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. Foliar infection (0 to 100%) was assessed visually on 16 and 23 Aug. Bulbs from the 5 ft of center six rows of each replicate were harvested on 4 Sep. The onions were topped, sorted for size, and weighed on 4 Oct. Data were analyzed using an analysis of variance (ANOVA) with means separation performed using Fisher's protected least significant difference (LSD) using statistical software SAS v9.4.

Disease pressure was severe in this trial with 72.5% of the foliage from the untreated control plants blighted by *S. vesicarium* on the final rating date (23 Aug). On both rating dates, all treatments, except for Manzate ProStik DF alternated with Bravo WeatherStik SC alternated with Quadris SC alternated with Rovral 4, and Pristine WG (applied alone) limited foliar necrosis compared to the untreated control. Three spray programs resulted in reduced foliar disease at both ratings (16 and 23 Aug) and an increase of large bulbs and total yield compared to the untreated control and included the following: Miravis Prime SC alternated with Bravo WeatherStik SC alternated with Tilt SL, Luna Tranquility SC alternated with Bravo WeatherStik SC alternated with Tilt SL + Koverall DG, and Luna Experience SC (applied alone). Applications of Omega 500F protected the onion foliage over the course of the season and produced more large bulbs than the untreated control. However, the total bulb yield from the Omega 500F treatment was similar to the untreated control. Miravis Prime SC alternated with Bravo WeatherStik SC alternated with Tilt SL+ Koverall DG was more effective in limiting foliar blight caused by *S. vesicarium* than Pristine WG (16 and 23 Aug), Luna Sensation SC (23 Aug), Bravo WeatherStik (23 Aug), Quadris Top SC (23 Aug), and Manzate ProStik DF alternated with Bravo WeatherStik SC alternated with Quadris SC alternated with Rovral 4 (16 and 23 Aug).

Treatment ^z and rate/A, applied at 7- to 10-day intervals except where indicated	Foliar necrosis (%) ^x		Yield (lb)			
	8/16	8/23	Small	Medium	Large	Total ^v
Untreated control	30.0 d ^w	72.5 e	6.6	31.4 a-c	5.5 a	43.5 a-d
Quadris Top SC 14 fl oz, <i>apps A-F</i>	15.0 a-c	52.5 d	5.8	29.5 a	7.1 ab	42.4 a-c
Miravis Prime SC 11.4 fl oz + Activator 90 SL, <i>apps A,D</i> -alt- Bravo WeatherStik SC 32 fl oz, <i>apps B,E</i> ^y -alt- Tilt SL 8 fl oz + Koverall DG 2 lb, <i>apps C,F</i> ^y	6.0 a	23.8 a	4.4	35.7 c	11.4 b-d	51.5 e
Manzate ProStik DF 32 oz, <i>apps A,E</i> -alt- Bravo WeatherStik SC 32 fl oz, <i>apps B,F</i> ^y -alt- Quadris SC 12 fl oz, <i>apps C,G</i> ^y -alt- Rovral 4 Flowable Fungicide 1.5 pt, <i>apps D,H</i> ^y	23.8 cd	56.3 de	6.2	28.6 a	7.2 a-c	42.0 ab
Bravo WeatherStik SC 32 fl oz, <i>apps A-F</i>	11.3 ab	46.3 cd	4.8	30.9 ab	5.4 a	41.1 a
Luna Experience SC 12.8 fl oz, <i>apps A-F</i>	6.0 a	31.3 a-c	5.0	31.7 a-c	13.7 d	50.4 e
Omega 500F 16 fl oz, <i>apps A-F</i>	13.8 a-c	41.3 a-d	4.5	31.6 a-c	12.1 cd	48.3 de
Luna Tranquility SC 16 fl oz, <i>apps A,D</i> ^y -alt- Bravo WeatherStik SC 32 fl oz, <i>apps B,E</i> ^y -alt- Tilt SL 8 fl oz + Koverall DG 2 lb, <i>apps C,F</i> ^y	8.0 a	30.0 a-c	4.4	32.1 a-c	13.7 d	50.2 e
Aprovia Top 10.5 fl oz, <i>apps A-F</i>	6.8 a	26.3 ab	4.8	34.3 bc	8.9 a-d	48.0 c-e
Luna Sensation SC 7.6 fl oz, <i>apps A-F</i>	8.8 a	42.5 b-d	4.4	32.7 a-c	10.2 a-d	47.2 b-e
Pristine WG 15 oz, <i>apps A-F</i>	20.5 b-d	57.5 de	5.9	30.9 ab	6.1 a	42.9 a-d
P-value	0.002	0.0001	0.4521	0.1972	0.0031	0.0026

^z*apps* = applications. -alt- = alternate.

^yApplied at 7-day intervals.

^xBased on visual estimation of the percentage of foliage infected.

^wColumn means with a letter in common or with no letter are not significantly different (LSD t-Test; *P*=0.05).

^vTotal = Weight of all bulbs at harvest