

Evaluation of fungicides for control of Stemphylium leaf blight of onion, 2018.

This study was conducted at a grower cooperator's farm located in Hamilton, MI. Onion 'Bradley' seeds were sown 21 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 planting spaced 6 in. apart and seeds spaced 2 in. within a row. A completely randomized block design with four replicates was established in an area 100 ft long by seven 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 22 and 27 Jun; 3, 10, 17, and 25 Jul; and 1, 9, and 15 Aug. Treatments were applied 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 blight (0 to 100%) was assessed visually on 26 Jul, 6, 14, and 21 Aug from the center 5 ft of the six center rows of each treatment plot. Onion bulbs were harvested from 5 ft of the center six rows of the treatment plots and weighed with dried tops attached on 10 Sep. They were allowed to dry, topped, graded (small <2 in., medium 2 to 3 in., large >3 in.) and weighed on 8 Oct. Data were analyzed using an analysis of variance, with means separation performed using Fisher's protected least significant difference (LSD).

On the first evaluation (26 Jul), treatments provided a significant level of protection compared to the control; Cabrio was the exception and had the same level of blight as the control. Eleven days later, the foliar blight in the control plot reached 76.3% and was similar to plots treated with Quadris or Cabrio. On 14 Aug, nearly all foliage in the control plot was blighted. Luna Experience was especially effective and limited blight to an acceptable level. Luna Sensation and Omega treatments resulted in 42.5% and 52.5% disease, respectively. All foliage was dead from disease in the control plot by the last rating (21 Aug). Treatment with Luna Experience limited foliar blight to 52.5% whereas other effective treatments (Luna Sensation and Omega) resulted in blighting of 80 to 88.8%. According to area under disease progress curve (AUDPC) data, Luna Experience was most effective followed by Luna Sensation, and then Omega. Although Quadris Top, Bravo WeatherStik, Pristine, Tebuzol, Aprovia Top, and Tilt limited disease compared to the control according to AUDPC data, the amount of foliar blighting at the last observation date was extensive and may not be commercially acceptable. Five products protected the total bulb yield compared to the control and included Luna Experience, Luna Sensation, Omega, Aprovia Top, and Tebuzol. Significant differences in yield among the bulb sizes were noted. For example, Luna Experience, Luna Sensation, and Omega yielded fewer small bulbs than the control. Luna Experience, Luna Sensation, Omega, Tilt, Pristine, Tebuzol, and Aprovia Top treatments yielded more medium-sized bulbs than the control. Only Luna Experience resulted in a significantly higher yield of large bulbs than the control. Results of this study indicate that Quadris, Cabrio, and Manzate were not effective, although these products have historically been considered part of an effective overall onion disease management program.

Treatment and rate/A, applied at 7- to 10-day intervals	Foliar blight (%) ^z					Yield (lb)			
	7/26	8/6	8/14	8/21	AUDPC ^y	Total ^x	Small	Medium	Large
Untreated control	26.3 a ^w	76.3 ab	98.8 a	100.0 a	2010.6 ab	25.9 e-g	10.9 ab	13.0 e	0.0 b
Quadris Top SC 14 fl oz	13.0 b	52.5 de	86.3 cd	98.8 a	1595.5 de	31.4 b-f	8.9 b-c	20.3 c	0.1 b
Quadris SC 15.5 fl oz	25.0 a	63.8 b-d	96.3 ab	100.0 a	1859.4 bc	25.2 fg	11.7 a	11.6 e	0.0 b
Manzate Pro-Stick DG 32 oz	25.0 a	80.0 a	100.0 a	100.0 a	2050.0 a	26.8 d-g	10.9 ab	13.8 de	0.0 b
Bravo WeatherStik SC 32 fl oz	9.8 b	50.0 e	87.5 b-d	97.5 a	1556.0 d-f	23.3 g	9.8 a-c	10.7 e	0.1 b
Luna Experience SC 12.8 fl oz	1.0 c	17.5 f	26.3 h	52.5 d	561.6 i	45.4 a	4.9 e	30.4 a	4.6 a
Omega 500F 16 fl oz	7.3 bc	30.0 f	52.5 f	88.8 b	1047.9 g	34.3 bc	8.0 cd	23.9 bc	0.2 b
Tilt EC 8 fl oz	8.5 b	48.8 e	85.0 d	98.8 a	1521.6 ef	32.2 b-e	8.7 b-d	21.3 bc	0.3 b
Cabrio EG 16 oz	26.3 a	68.8 a-c	100.0 a	100.0 a	1945.0 ab	24.8 g	11.8 a	11.2 e	0.0 b
Luna Sensation SC 7.6 fl oz	1.0 c	22.5 f	42.5 g	80.0 c	829.7 h	36.0 b	6.5 de	25.8 ab	0.4 b
Pristine WG 15 oz	12.3 b	58.8 c-e	95.0 a-c	100.0 a	1723.5 dc	29.3 c-g	8.4 b-d	18.6 cd	0.2 b
Tebuzol SC 6 fl oz	9.3 b	52.5 de	91.3 a-d	98.8 a	1610.5 de	32.5 b-d	8.7 b-d	21.5 bc	0.1 b
Aprovia Top EC 10.5 fl oz	7.5 b	46.3 e	72.5 e	95.0 a	1383.8 f	34.1 bc	9.5 a-c	22.0 bc	0.3 b

^zBased on a visual estimation of percentage of foliage diseased.

^yArea under the disease progress curve.

^xTotal = Weight of bulbs with dried tops intact at harvest.

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