ASPARAGUS (*Asparagus officinalis* L. 'Millennium')   J. R. Spafford, and M. K. Hausbeck
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Evaluating fungicides for control of *Stemphylium vesicarium* on asparagus fern, 2022

The trial was established in a grower-cooperator's field in Oceana County, MI in a sandy loam soil with established 'Millennium' asparagus. Fertilization, weed, and insect control were managed to commercial production standards by the grower-cooperator. A randomized complete block design with four replicates was used. Treatment replicates consisted of 20-ft rows with 5-ft buffers between treatments within a row. Four treatments were applied with a CO_2 backpack sprayer and a three-nozzle boom equipped with XR8003 nozzles calibrated at 35 psi and to deliver 50 gal/A. Fungicide applications occurred on 7, 18, and 28 Jul; and 10, 19, and 29 Aug. Bravo WeatherStik and Manzate are currently labeled for purple spot disease on asparagus fern in Michigan and an alternating program of the two was compared to the fungicides Esendo, Howler and Theia. Disease severity was evaluated by visually estimating the percentage of symptomatic foliage. Disease ratings were taken on 18, 22, 26 Aug; and 2 and 8 Sep. Data were analyzed using an analysis of variance (ANOVA), with a mean separation preformed using Fisher's least significant difference (LSD) using the statistical software R v4.1.

Over the course of the study, disease severity progressed from 3.5% to 70% for the untreated control. Manzate Pro Stick WP alternated with Bravo WeatherStik SC and Esendo WP limited disease compared to the untreated control. On the last observation date of 8 Sep (10 days post spray), Howler WP and Theia WP were similar to the untreated control and Bravo WeatherStik SC alternated with Manzate Pro Stick WP. Esendo WP provided significantly better control compared to all other treatments. The area under the disease progress curve (AUDPC) values indicated that Esendo WP was more effective than all other fungicides included in the study. Bravo WeatherStick SC alternated with Manzate Pro Stick WP was more effective than the untreated control, Howler WP, and Theia WP. The AUDPC data indicated Howler WP and Theia WP were not significantly different to the untreated control.

	Disease severity (%)					
Treatment[z] and rate/A, *application schedule*[y]	18 Aug	22 Aug	26 Aug	2 Sep	8 Sep	AUDPC[x]
Untreated Control	3.5 a[w]	11.8 ab	21.3 a	67.5 a	70.0 a	819.6 a
Esendo WP 2.8 lb + Dyne-Amic 0.375% V/V, *A-F*	1.5 c	1.8 d	1.8 c	2.0 d	5.0 c	47.6 c
Bravo WeatherStik SC 32 fl oz, *ACE* -*alt*- Manzate Pro Stick WP 2 lb, *BDF*	2.0 bc	5.8 cd	9.5 b	38.8 c	57.5 b	503.6 b
Howler WP 5 lb + Dyne-Amic 0.375% V/V, *A-F*	3.8 a	14.5 a	22.5 a	52.5 bc	62.5 ab	718.0 a
Theia WP 3 lb + Dyne-Amic 0.375% V/V, *A-F*	3.0 ab	10.0 bc	17.5 a	57.5 ab	67.5 ab	718.5 a
P-value	<0.05	<0.005	<0.005	<0.0001	<0.0001	<0.0001

[z]-*alt*-=alternate.

[y]Application dates: A=7 Jul, B=18 Jul, C=28 Jul, D=10 Aug, E=19 Aug, and F=29 Aug.

[x]AUDPC=Area under the disease progress curve.

[w]Column means with a letter in common are not statistically different as determined by Fisher's LSD (P=0.05).