PUMPKIN *(Cucurbita pepo* 'Sorcerer'*)*
Powdery mildew; *Podosphaera xanthii*

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Evaluation of fungicides for control of pumpkin powdery mildew – Hancock, Wisconsin, 2017.

A trial was established on 18 May at the University of Wisconsin Hancock Agricultural Research Station in Hancock, WI to evaluate the effectiveness of fungicides for control of powdery mildew on pumpkin. 'Sorcerer' pumpkin was direct seeded into black plastic mulch. Each treatment plot consisted of 10 plants spaced 2 ft apart (within row) and a 5 ft spacing between rows. Treatments were replicated four times and arranged in a randomized complete block design. Insecticide, herbicide, and fertility applications were made according to standard production practices for the region. Natural precipitation provided 20.1 in. of water during the growing season. Supplemental irrigation was provided with overhead irrigation totaling 9.1 in. The first fungicide application was initiated when powdery mildew was first detected in the plots on 2 Aug. Five additional applications were made at 1-week intervals on 9 Aug, 16 Aug, 23 Aug, 30 Aug, and 7 Sep. Plots were treated with fungicides using a CO_2 backpack sprayer equipped with four TeeJet 8002VS nozzles spaced 19-in. apart and calibrated to deliver 35 gal/A at a boom pressure of 35 psi. Powdery mildew severity was visually assessed on 27 Jul, 8 Aug, 23 Aug, 30 Aug, and 6 Sep using the Horsfall-Barratt rating scale (0-11 rating with 0 = no disease, 11 = 100% disease severity). The Area Under the Disease Progress Curve (AUDPC) was determined by trapezoidal integration and then converted into Relative AUDPC (RAUDPC), i.e. percentage of the maximum possible AUDPC for the whole period of the experiment. Plots were harvested for yield and stem handles were rated 1-5, with 1 being poor and 5 being excellent, on 25 Sep.

While onset of powdery mildew was relatively late in the growing season, disease pressure rapidly increased with nearly complete defoliation of the non-treated control plots by the final rating date. All fungicide treatments provided significantly greater disease reduction than the non-treated control. While there was no significant differences in yield among treatments, there was a numerical reduction in yield for the non-treated control in comparison to the fungicide treatments. There was no significant difference among treatments for the stem health/handle rating.

Treatment and rate/acre	Application Timing[z]	Plot Yield (lb)	Median Handle Ratingy	RAUDPC[x]
Unsprayed Control	NA	33.4	2	0.540 b[w]
Bravo Weather Stik 720SC 2.0 pt	1-6	46.7	2	0.303 a
Bravo Weather Stik 720SC 2.0 pt	1,2			
Microthiol Disperss 80WP 4.0 lb	3-6	47.2	2	0.328 a
Bravo Weather Stik 720SC 2.0 pt	1,2			
Quintec 2.08SC 6.0 fl oz	3-6	50.6	2	0.282 a
Bravo Weather Stik 720SC 2.0 pt	1,2			
Torino 10SC 3.4 fl oz	3-6	56.3	2	0.320 a
Bravo Weather Stik 720SC 2.0 pt	1,2			
Quintec 2.08SC 6.0 fl oz	3,5			
Torino 10SC 3.4 fl oz	4,6	57.4	3	0.273 a

[z]Fungicide application dates 2017: 1 = 2 August, 2= 9 August, 3= 16 August, 4= 23 August, 5= 30 August, 6= 7 September
[y]No significant difference amongst median handle ratings (Kruskal-Wallis test, $P \geq 0.05$).
xRAUDPC= Relative Area Under the Disease Progress Curve.
[w]Column numbers followed by the same letter are not significantly different at P=0.05 as determined by Fisher's Least Significant Difference (LSD) test.