

FOLIAR FUNGICIDES FOR CONTROL OF DISEASES ON PUMPKINS, 2001

N. B. Shamiyeh, A. B. Smith and C. A. Mullins

Interpretive Summary

Plots treated with fungicides had significantly lower disease ratings and higher yields than the untreated check. Powdery Mildew and Microdochium blight were the two predominant diseases.

Introduction

Pumpkins for Halloween usage have become a widely grown crop in Tennessee. This season four fungicide treatments were evaluated for efficacy at The University of Tennessee Plateau Experiment Station at Crossville in 2001. Foliar diseases require a strict spray schedule for effective control. Therefore, a well balanced Integrated Pest Management program for control of mildew and blight diseases is essential for a profitable and successful crop. Powdery and downy mildews can completely defoliate the crop causing considerable reduction in both yield and total numbers of pumpkins.

Materials and Methods

Four foliar fungicide treatments were compared to an untreated check for control of powdery mildew and microdochium blight. Fertilization consisted of 400 lb of 15-15-15 applied broadcast and disc incorporated on 3 Jun. Transplants of 'Howden' were transplanted on 10 Jun. Plot size was a single row, 20ft long and 12ft wide containing 5 hills of pumpkins. Treatments were replicated 4 times in a randomized complete block design. Weed and insect control were maintained in the conventional manner during the growing season. Fungicide applications were made on 13, 20, and 27 July using a Solo backpack mist blower at 136gal of solution per acre. Disease ratings (0-10 with 0 being no disease symptoms showing and 10 being 100% of the plants showing symptoms) were made on 8, 17 Aug for powdery mildew, and 20, 27 Jul, and 8, and 17 Aug for microdochium blight. Plots were once-over hand harvested on 27 Jul. All data were analyzed by ANOVA.

Results and Discussion

All Plots treated with fungicides had lower disease ratings for powdery mildew and microdochium blight than the untreated check plots. Plots treated with Zoxium alternated with a tank-mix of Nova + Zoxium had a higher disease rating for microdochium blight than the other fungicide treatments (Table 1 & 2). Plots treated with Bravo Ultrex, Dithane alternated with a tank-mix of Nova + Dithane, and Zoxium alternated with a tank-mix of Nova + Zoxium produced more pumpkins than the untreated check plots (Table 3).

Table 1. Powdery mildew ratings of pumpkins receiving various fungicide treatments at The University of Tennessee Plateau Experiment Station, Crossville, 2001.

Treatment and Rate (lb ai/A)	Disease Rating (0-10) Powdery Mildew		
	07/27/01	08/08/01	08/17/01
Dithane 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i> Dithane 75DF 1.50.....	0.00	0.75	1.25
Zoxium 80WP 0.20 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i> Zoxium 80WP0.20.....	0.00	0.88	1.69
Gavel 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i> Gavel 75DF 1.50.....	0.00	0.94	1.50
Bravo Ultrex 82.5WG.....	0.00	0.50	2.00
UTC.....	0.00	3.06	4.13
LSD (P=0.05)	N/A	0.43	0.38

Table 2. Microdochium blight ratings of pumpkins receiving various fungicide treatments at The University of Tennessee Plateau Experiment Station, Crossville, 2001.

Treatment and Rate (lb ai/A)	Disease Rating (0-10) Microdochium Blight			
	07/20/01	07/27/01	08/08/01	08/17/01
Dithane 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i> Dithane 75DF 1.50..	0.56	1.00	1.50	2.00
Zoxium 80WP 0.20 <i>Alt w/</i>				

Nova 40WP 0.10 <i>Tank mix</i>				
Zoxium 80WP 0.20..	1.06	1.13	2.38	3.44
Gavel 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i>				
Gavel 75DF 1.50..	0.69	0.88	1.75	2.25
Bravo Ultrex 82.5WG.....	0.00	0.00	0.00	2.00
UTC.....	1.69	2.69	5.88	7.50
LSD (P=0.05)	0.29	0.28	0.76	0.77

Table 3. Yield and average fruit weight of pumpkins treated with various fungicides at the University of Tennessee Plateau Experiment Station, Crossville, 2001.

Treatment and rate (lbs ai/A)	Pumpkin Yield		Avg. Fruit Weight (lbs/fruit)
	(Fruit/plot)	(Ton/A)	
Dothane 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i>			
Dithane 75DF 1.50	6.00	7.19	13.24
Zoxium 80WP 0.20 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i>			
Zoxium 80WP0.20.....	6.50	7.07	12.00
Gavel 75DF 1.50 <i>Alt w/</i> Nova 40WP 0.10 <i>Tank mix</i>			
Gavel 75DF 1.50.....	7.00	7.04	11.13
Bravo Ultrex 82.5WG.....	6.75	7.95	13.05
UTC.....	5.50	4.18	8.68
LSD (P=0.05)	1.42	0.96	2.63

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This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.