

Control of Botrytis In Greenhouse Grown Leaf Lettuce 2002

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Interpretive Summary

All plots treated with a fungicide had a lower disease rating for Botrytis than those in the untreated plots. Plots treated with BAS-510 had a lower Botrytis disease rating than in plots treated with the other chemicals.

Introduction

Initial Hydroponic lettuce production trials conducted at the University of Tennessee Experiment Station were successful with marketable heads being produced with leaf lettuce. Local retailers have expressed an interest in locally grown lettuce with particular interest in speciality varieties provided that the cost of production can be maintained . Without effective disease control of Powdery Mildew and Botrytis would make Lettuce production in the greenhouse would be prohibitive . A trial was conducted to evaluate some of the Bio-fungicides for control of Botrytis at the Plateau Experiment Station, Crossville, Tennessee.

Materials and Methods

Six foliar applied fungicides were evaluated for control of Botrytis in the greenhouse on Greenhouse grown Tomatoes at The University of Tennessee Plateau Experiment Station, Crossville. 'Bibb' Lettuce plants were transplanted in 2 gallon pots in the greenhouse on 16 Aug. Standard weed and insect control practices were implemented during the growing season. Plots consisted of 4 plants /treatment and spaced 3 feet apart replicated 4 times in a Complete Random Design. Plot size was 12 X 2 feet and blocks were 6 feet apart. Infected Geranium plants with Botrytis were placed in the greenhouse adjacent to the healthy lettuce plants on 8 Aug. Lettuce plants were inoculated with a suspension of Botrytis spores using a Quart spray bottle on 22 Aug. Fungicide applications were made on 29 Aug, 5 , 12, and 19 Sept. Applications were made using a 2.5 gal CO₂ backpack sprayer calibrated to deliver 60 gal/A at 40 psi. Weekly disease ratings ranged from 0 (no disease incidence) to

10 (100% leaf necrotic and defoliated). Due to the lateness of the infection, yields were not taken. All data were subjected to ANOVA.

Results and Discussion

All plots treated with fungicide had a lower disease severity rating than the untreated check plots

(Table 1). By the 3rd application, plots treated with Scala and BAS-510 had lower disease ratings than any other treatment. After the 4th application, there were no significant differences in disease control among treatments. The Bio-fungicides are promising in providing effective control as well as safety. Lettuce is very susceptible to Botrytis inceptions which is severe enough to kill the plants.

Table 1. Botrytis disease ratings of ‘Bibb’ lettuce receiving various bio -fungicides at the University of Tennessee Plateau Experiment Station, Crossville, 2002.

Treatment and Rate lb(ai)/A	Botrytis Disease Rating ¹ (0-10)			
	29 Aug	5 Sep	12 Sep	19 Sep
Elevate 50 WG 4lb Product/A	0.69	1.19	1.63	2.50
Switch 62.5 WG 4.5 Product/A	0.00	1.13	1.75	2.31
Serenade 100 WG 6 lb P / A 2%	0.69	2.06	2.63	3.63
Milsana 100FL 0.5%	0.25	1.56	1.94	3.25
BAS - 516 0.45 lb ai/gallon	0.56	1.19	1.63	3.06
BAS - 510 0.45 lb ai/gallon	0.00	0.69	1.00	1.63
UTC	0.94	3.06	6.75	10.00
LSD (P=0.05)	0.35	0.19	0.55	0.59

¹ Botrytis Disease Rating: 0= No lesions or Leaf Necrosis present; 10 = 100% of leaves have necrosis.

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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.