

Evaluation of Bio-Fungicides For Control of Bean Rust, 2002

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Interpretative Summary

Rust developed late in the season with a sporadic distribution. All fungicide treated plots had significantly less rust symptoms than the untreated check plots.

Introduction

Successful commercial snap bean production requires establishment of adequate stands of healthy plants. Rust can be a devastating disease of snap beans in Tennessee and several other locations in the United States. Several strains of rust have been identified and variety susceptibility varies considerably. Although rust resistant varieties are available, they have not become widely grown commercially. Over several years of testing various cultivars in Tennessee, rust affected 'Mountaineer Half Runner' and 'Pinto 111' beans in most years while numerous varieties of bush beans in the same trials were not affected by rust. A study was conducted in 2002 at The University of Tennessee Plateau Experiment Station at Crossville to evaluate the effect of selected fungicide treatments for control of snap bean rust.

Materials and Methods

Five fungicide treatments were evaluated for control of bean rust at The University of Tennessee Plateau Experiment Station, Crossville, TN. Fertilizer (15-15-15) was broadcast on 29 Apr at 300 lb/A. 'Hialeah' snap bean was planted in a randomized complete block design with four replications on 22 May. Plot size was two rows, 10 ft long. Rows were spaced 36in apart, and seeds were spaced 2 in apart. Metolachlor (Dual) at 2 lb (ai)/A was applied for pre-emergence weed control after the 22 May planting date. Fungicides were applied at the first appearance of rust on 11, 17, and 25 July. Plants were rated for rust using a scale of 0 (no rust) to 10 (severe rust with complete defoliation) on 11, 17, and 25 July. Yield determinations were made on 30 July and expressed as Ton/acre. All data were analyzed by ANOVA.

Results and Discussion

All treated plots had significantly less rust than the untreated check plots (Table 1). Rust developed late in the season and was distributed sporadically. Degrees of control among the treatments varied with Serenade (6lbs) and Bravo Ultrex treated plots had significantly less disease severity than the rest of the treatments. Plots treated with BAS-500 and BAS- 500 had no disease symptoms and had the highest yields.

Table 1. Leaf rust ratings of ‘Mountaineer White Half Runner’ snap beans receiving fungicide treatments at The University of Tennessee Plateau Experiment Station, Crossville, 2002.

Disease Rating (0 -10) Yield

Treatment	Formulation	Rate lb ai/a	7/11/02	7/17/02	7/25/02	Ton/A
Serenade	100FL	2.00%	0.00	3.75	2.50	5.35
BAS-500	70WG	0.500	0.00	0.00	0.00	6.50
Serenade	100FL	2.00%	0.00	2.63	1.75	3.69
Bravo Ultrex	82.5WP	2.22	0.00	1.44	1.00	3.25
UTC	-----	-----	1.56	3.06	6.25	3.20
LSD(0.05)	-----	-----	0.29	0.64	0.67	1.14

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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.