POSTER SESSION

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Control of Rhizoctonia Blight on Longleaf Pine in Nurseries with the Fungicide, Moncerèn

by

Charles E. Affeltranger

Abstract

Post-symptom applications of Moncerèn prevented further development of Rhizoctonia blight of nursery-grown longleaf pine. Four applications at 1 pound a.i./acre allowed only 3 percent blight as opposed to 8 percent for non-sprayed controls. Future evaluations will concentrate on reducing the concentration of the fungicide and making applications prior to symptoms.

Introduction

Spring sowing of longleaf pine often results in a higher incidence of Rhizoctonia blight than fall sowing (Davis, 1941). However, fall sowing can lead to winter kill, as occurred in 1983 in Alabama and Mississippi. Thus a protective or eradicative fungicide that would allow spring planting would be beneficial in producing longleaf.

In the spring of 1989 Alabama's state and industrial nurseries began suffering losses from this foliage disease. Mortality reached 600,000 at one facility. Container Corporation of America's Rock Creek facility, asked both FPM and Auburn University to evaluate promising materials for control of this fungus.

Moncerèn (N-[(4-chlorophenyl)methy1]-N-cyclopentyl-N'-phenylurea(C.A.)), a Rhizoctonia specific fungicide, may soon be registered for use against this pathogen on rice. However, this chemical has a minimal effect on R. oryzae which is not as detrimental to rice as R. solani (Donaldson, pers. comm.). This material has also been effective against Rhizoctonia on tomatoes, turf and ornamentals. The material has been known for approximately ten years (Donaldson, pers. comm.).

The effect of Moncerèn was evaluated late, and thus only post-symptom sprays were applied and tested.

Materials and Methods

Moncerên was applied at 1 pound a.i. per acre on May 30 and June 12. Since the disease was not satisfactorily suppressed, additional sprays were applied on the 2nd and fifteenth of August. A boom-type field sprayer was used to apply this material to two beds at a time. The additional August applications were applied to one bed at a time. Five treatments - a check and one, two, three and four applications of Moncerèn were thus applied. These treatments were replicated six times.

Evaluations were made July 26, August 23 and September 19. Five randomly chosen subplots (1 x 4 feet) were placed in each 50-foot plot. The five feet on each end of the plots were not evaluated to allow for treatment overlap. Percent diseased seedlings was the only parameter measured.

Results

The table indicates that Monceren reduced infection compared to the check in the last observation. Statistical analysis, using Duncan's Multiple Range Test, indicated differences at the one and five percent level of significance between the four spray treatment and the check. The September evaluation indicated the greatest and most consistent difference between these treatments. Only 3 percent of the seedlings were diseased in treated (four applications) areas as opposed to 8 percent for the check. Differences were detected in every replicate of this comparison.

Table 1.

% Rhizoctonia Infection

Replicate	Moncerèn Treatments*					Date Evaluated
	Check	One Spray	Two Sprays	Three Sprays	Four Sprays	
1	3.0	2.4	2.4			7/26/89
2	4.5	7.4	3.1			
3	0.6	0.5	1.0			
4	6.7	11.5	1.0			
5	9.2	11.7	1.5			
6	1.0	5.1	13.6			
1	8.6	2.3	0.6	1.7	1.9	8/23/89
2	0	7.5	4.3	3.4	2.1	
3	2.6	1.2	1.2	3.7	2.5	
4	6.5	5.5	1.5	16.2	2.0	
5	1.9	1.7	2.1	8.5	0	
6	2.2	5.6	14.2	5.6	2.0	
1	4.5	2.6	1.1	1.7	2.0	9/19/89
2	7.3	3.3	0.6	2.8	0.6	
3	9.5	5.1	2.8	4.2	2.2	
4	9.4	4.4	0	6.6	3.2	
5	2.7	2.2	4.2	6.2	1.9	
6	16.1	5.0	4.2	7.4	7.7	
Mean	7.9	3.7	2.0	4.7	2.9	

* Concentration - 1 pound a.i. per acre.

Discussion

August and September evaluations indicated consistent large differences in incidence between four applications of Monceren and the check. Range of incidence was much smaller with four applications as compared to the check.

Field observations at the state nursery at Atmore, Alabama indicated that Rhizoctonia blight was also reduced there (Wilson, personal communication). Data discussed at the Auburn Forest Nursery Management Cooperative meeting at Andalusia, Alabama in September, 1989 indicated slow release ureas helped control the disease (Gilley, pers. comm.). As mentioned above, Monceren is a phenylurea.

In '90 the rate will be halved, and spraying will begin in early May prior to symptoms. It is hoped that this will reduce cost without reducing efficacy. Rates as low as 3 ounces a.i. per acre have been reported effective in controlling sheath blight of rice caused by R. solani(Donaldson, pers. comm.). Research workers at Louisiana State University (LSU) report that Monceren controls vertical as well as horizontal spread of sheath blight (Van Eckhout et al., 1990). Vertical spread is limited by Moncere flowing down the stem to the base of rice where infection is initiated according to LSU research. A similar effect may occur when this fungicide flows down needles to the terminal bad and adjacent needles of longleaf pine.

Next summer mortality figures will be separated from total infection to give a further measure of Moncerèn efficacy.

References Cited

Davis, W. C. 1941. Damping-off of longleaf pine. Phytopathology 31:1011-1016.

VanEckhout, E., M.C. Rush and M. Blackwell. 1990. Performance of propiconazole against Rhizoctonia solani Kuhn causing sheath blight of rice. Paper presented at the Louisiana Association of Plant Pathologists & Nematologist Meeting (March 8-9, 1990), Baton Rouge, Louisiana.