Environment & Ecology 29 (1A) : 393—394, 2011
 ISSN 0970-0420

Epidemiology and Management of Foot Rot of Finger Millet (*Eleusine coracana* Gaertn.) in Karnataka

H. K. RAMAPPA, C. R. RAVISHANKAR AND P. PRAKASH

Zonal Agricultural Research Station, VC Farm
Mandya 571405, Karnataka, India

Abstract

After blast and blight, the foot rot of ragi caused by *Scleratium rolfsii* results considerable yield loss in rained and irrigated condition and both in *kharif* and summer seasons. The incidence of foot rot was higher in crop taken after tobacco. Among different varieties evaluate, Indaf-5 observed more incidence and showed susceptible reaction. The effect of dates of sowing on the incidence revealed that crop sown during June, July and August recorded more or less same incidence. Whereas crop sown during November and December recorded zero incidence of foot rot owing to low temperature during these months. Among different bioagents and fungicides tested, captan 0.3, 0.2% drenching, captan 0.2% and carbendazim 0.1% root dipping at the time of planting were found to be effective in reducing the foot rot incidence and recorded 6.55, 8.33, 8.30 and 8.83% respectively and also recorded higher grain yield as compared to untreated check. *Trichoderma harzianum*, a fungal bioagent and *Pseudomonas fluorescens*, a bacterial bioagent also found to be effective in reducing the foot rot incidence as compared to untreated check.
Key words : Epidemiology, Management, Foot rot of ragi, Finger millet.

After blast and blight caused by *Pyricularia grisea* and *Helminthosporium nodulosum* respectively, the foot rot of ragi caused by *Sclerotium rolflsii* cause considerable yield loss in rainfed and irrigated situation and both in *kharif* and summer seasons. *S. rolfsii* is a soil borne pathogen and having a broad host range and it is difficult to manage under field condition unless integrated approaches evolve. The out break of disease in a given area depends on several factors like sowing time, variety being cultivated. Therefore current study was undertaken to assess the effect of time of sowing on the foot rot incidence and also to know the effective fungicides and their application methods along with two bioagents were also tested against foot rot.

Methods

Effect of Dates of Sowing on Foot Rot Incidence

The experiment was conducted at Zonal Agricultural Research Station (UAS Bangalore) V. C. Farm, Mandya, Karnataka. Four varieties, namely, indaf 5, KM 252, PR 202 and GPU 28 were used for date of sowing experiment. Ten sowings were carried out at an interval of 15 days starting from 1 June 2004. Separate seed bed of 1m^2 area was prepared for each Varity and 10 rows were made at 10 cm apart and 2—3 gram of each variety was sown in the rows and covered the seeds with mixture of soil and FYM.Watering is done with the help of rows cane regularly. After seedlings attaining the age of 21 days, they were transplanted to a plot size of 3 × 2.15 m at the spacing, of 22.5 × 10 cm. Four replication were maintained in randomized complete block design. For raising the crop, the rec-

Table 1. Effect of dates of sowing on the incidence of foot rot of ragi.

	Date of sowing	Varieties and disease incidence % Foot rot			
		Indaf-5	KM-252	PR-202	GPU-28
1	1 Jun 2004	25.14	8.75	6.25	8.50
2	15	27.50	13.75	8.75	10.0
3	1 Jul 2004	23.50	10.25	8.75	10.0
4	17	27.50	13.75	10.50	22.50
5	3 Aug 2004	25.50	9.99	9.50	15.0
6	16	18.55	9.25	5.22	8.75
7	1 Sep 2004	15.50	5.50	5.20	5.5
8	15	10	2.50	5.0	2.50
9	1 Oct	05	0	0	0
10	21	0	0	0	0

Table 2. Effect of different fungicides and bioagents against foot rot disease of finger millet.

	Treatments	Per liter dosage conc	Foot rot incidence (%)	Yield q/ha
1	Trichoderma harzianum root dipping	2g	12.0–6	35.89
2	*Pseudomonas fluorescens* root dipping	2g	16.50	37.92
3	Carbendazim drenching	1g	9.50	37.96
4	Carbendazim root dipping	1g	8.50	40.34
5	Mancozeb drenching	2g	9.50	36.78
6	Mancozeb root dipping	2g	8.50	37.60
7	Captan drenching	2g	8.50	39.30
8	Captan root dipping	2g	7.0	39.30
9	Hexaconzzole drenching	2g	8.0	38.0
10	Captan drenching	3g	6.33	42.51
11	Check (no chemical)	0	18.00	33.61
	CD at 5%			

ommended packages of practices were followed.

Management of Foot Rot Disease

One fungal bioagent *Trichoderma harzianum*, bacterial bioagent *Pseudomonas fluorescens*, five fungicides namely carbendazim (0.1%), mancozeb (0.2%), captan 0.2 and 0.3% and hexacanozole 0.2% were applid as root dipping at the time of planting and drenching at maximum tillering stage. Twenty-day old seedlings of indaf-5 a susceptible variety was planted in plots size of 3 × 2.25 m at a spacing of 22.5 × 10 cm in randomized complete block design design and three replications were maintained. Observation on disease incidence and yield were recorded.

Results and Discussion

The variety indaf-5 variety was found to be more susceptible to foot rot disease from June to August sowing than other varieties (Table 1). Foot rot incidence was almost similar (up to 25%) from June to August sowings and declining during September and no incidence on crop sown during October and November was observed. Similar trend was observed on KM 252, PR 202 and GPU 28. Same trend of foot rot incidence was observed at Mandya situation earlier (1). In Bangalore condition, disease was more during warm and dry months of Feb—April months (2). The low incidence of foot rot disease on finger millet during September and October, months could be attributed to occurrence low temperature and high soil moisture.

Among different fungicides tested, captan drenching at 0.3% observed less incidence (6.33) and recorded maximum grain yield of 42.51 q/ha. Followed by captan root dipping at 0.2% and carbendazim rooting dipping (Table 2). *T. harzianum* and *P. fluorescence* were also found to be effective in reducing the incidence of disease and increasing the yield as compared to check (Table 2). The susceptible age of plants ranged from 45 to 51 days in indaf-5 and 77 to 91 days in indaf-9 (3). Management of foot rot of finger millet has not been studied thoroughly for the reason that it may not be economical. Nevertheless, there have been a few attempts in this direction. Present study indicated that dipping of seedlings at 0.2% before planting reduced the incidence and increased the yield considerably (Table 2). Study conducted at Bangalore showed that duter, a tin compound and vitavax were found to be effective and were much better than bassicol in controlling foot rot of finger millet (4).

References

1. Ramappa H. K., C. R. Ravishankar and P. Prakash. 2004. Effect of dates of sowing on the finger millet diseases. *Ind. Phytopath.* 57 : 384.
2. Channamma K. A. L., P. C. Hiremath and S. Viswanath. 1980. Efficacy of some fungicides in controlling foot rot of ragi caused by *Sclerotium rolfasii, Curr. Res.* 9 : 142—143.
3. Sujatha T. 1991. *Studies on Sclerotium foot rot of ragi (Eleusine coracana (*L.) *Gaertn).* M.Sc. (Ag.) thesis. UAS, Bangalore, 58 pp.
4. Viswanath and K. A. L. Channmma. 1987. Seasonal incidence of blast, foot rot, virus and vector population on fingermillet, *Curr. Res.* 6 : 45.