

Efficacy of fungicidal seed treatment on incidence of grain mould in sorghum

P.R. PADGHAN AND J.H. SANAP

Accepted : August, 2008

See end of the article for authors' affiliations

Correspondence to:

P.R. PADGHAN

Department of Plant Pathology, Vivekanand Agriculture College, Mehakar, BULDANA (M.S.) INDIA

ABSTRACT

Ten varieties of sorghum [*Sorghum bicolor* (L.) Monech.] with three fungicidal seed treatments were examined to find out the best fungicidal treatment on mould situation of grain in rainy season. The seeds treated with thiram + carbendazim (0.2%) showed better results, where the minimum infection of *Fusarium* sp. was found in genotype IS-14332 (7.53%) x physiological maturity and *Curvularia* spp. in SPH-1445 (21.33%) x physiological maturity than the seed treated with thiram and carbendazim, separately.

Key words : *Fusarium* sp., *Curvularia* sp., Grain mould, Fungicides, Sorghum.

Sorghum [*Sorghum bicolor* (L.) Moench.] is the second largest grain crop in India. In Asia, sorghum is extensively cultivated in India, China, Yemen, Pakistan and Thailand (Anonyms, 2001). But the Sorghum has behind in case of yield because of so many factors. Among these factors diseases are one of the important constraints in the quality production of sorghum. A number of diseases attack on sorghum like grain mould, charcoal rot, downy mildew, anthracnose and sorghum viral diseases (Frederiksen, 1982) out of that grain mould is a major problem at maturity. The grain becomes discoloured such as black (*Curvularia* sp.) and pink (*Fusarium* sp.). The effect of moulds on grain may include discoloured pericarp, relative sprouting and presence of mycotoxins (Somani *et al.*, 1999 and Sawant, 2000). The losses due to mould in sorghum is up to 50 per cent (Sundaram *et al.*, 1972). Grain mould results in reduction of market value, germination and acceptability of grains for human consumption. Numerous fungal species are associated with deteriorated grains *viz.* *Fusarium Curvularia* and *Alternaria* (Castor, 1977; Sharma *et al.*, 1976). Among that species of *Fusarium* and *Curvularia* were found to cause the infection (Tar, 1962; Junejo and Malik, 1967; Mathur, *et al.*, 1964; Reddy and Reddy, 1977, Gaymukhe, 1984).

However, as new sorghum genotypes are coming up, it is necessary to harvest the crop timely because the harvest of sorghum genotypes plays an important role in occurrence and severity of grain mould infection (Kumar *et al.*, 1991; Garud *et al.*, 1998 and Gaikwad *et al.*, 2000.). Hence, the present investigation has been taken to study the effect of fungicidal seed treatments on grain mould incidence of sorghum.

MATERIALS AND METHODS

The experiment was conducted at Sorghum Research Station, Marathwada Agricultural University, Parbhani to find out the best fungicidal treatment on mould situation of grain in *kharif* season. Ten varieties of sorghum were selected with three treatments *viz.* Thiram (Hexathir) @ 0.1%, Carbendazim (Bavistin) @ 0.1% and Thiram + Carbendazim @ 0.2% and untreated control. The experiment was laid out in Factorial Randomized Block Design with three replications with 45 x 15 cm spacing. Data on per cent incidence at physiological maturity stage and maturity stage have been recorded. The per cent infection of grain mould was recorded by using blotter paper method. For that purpose, a lot of one hundred apparently healthy seeds of each genotype at different harvesting stages, at physiological maturity and maturity stage was treated with the fungicides and all the seeds were placed on blotter paper. Second lot of 100 apparently healthy seed of same genotypes harvested at different harvesting stages were used as untreated control. Seeds were placed on blotter paper for comparison. The material was incubated at 28°C + 1°C and exposed for 12 hours to light and 12 hours to dark. After 7 days the observations were recorded.

RESULTS AND DISCUSSION

Data presented in Table 1 indicate that the treatment of thiram + carbendazim was significantly superior over untreated control where the *Fusarium* sp. infection was increased from 8.50% to 15.00% and in the variety IS-14332 and CSH-9, respectively. Also *Curvularia* sp. infection was increased from 24.16% to 29.33% in the variety SPH-1457 and IS-14332, respectively. The second promising treatment was seed treated with thiram in which