5. SUMMARY
This study on diazotrophic facultative symbiotrophic associations isolated from the rhizosphere of foxtail millet is essentially concerned with the following aspects:

- Isolation of facultative symbiotrophic associations from the non-rhizosphere and rhizosphere samples of foxtail millet and

- Evaluation of nitrogen fixation by the facultative symbiotrophic associations obtained from the rhizosphere and the non-rhizosphere samples of foxtail millet.

Results from the present study revealed that the rhizosphere samples harboured higher populations of the symbiotrophic associations which seem to contribute appreciable amounts of nitrogen in the rhizosphere of foxtail millet. These associations assume significance since microorganisms in nature (including the rhizosphere) are known to occur not as pure cultures but as associations.

The amount of nitrogen fixed by the facultative symbiotrophic associations from the non-rhizosphere samples increased from 30 days until 60 days. The activity, in general, declined at 75 days and remained at levels below or at par or above the initial level of nitrogen fixed by these associations initially at 30 days. Similarly, the activity of the associations obtained from the rhizosphere samples of foxtail millet planted to black and red soils during Rabi and Kharif seasons in most cases also increased from 30 days and attained maximum activity at 60 days. It is interesting to note that the maximum activity coincided with maturity stage of the plants. Like the associations from the non-rhizosphere samples, the activity of the associations from
the rhizosphere samples, in general, decreased at 75 days when compared to the activity of the associations isolated at 60 days.

Data on the diazotrophic associations isolated from the rhizosphere samples of Lepakshi variety revealed that the associations obtained from the rhizosphere samples of both the soils during Kharif season are more efficient. The associations from black soil showed slightly higher activity when compared with red soil during Rabi season while the activity of the associations from the both soils during Kharif season is at par.

Results from the present study on the symbiotrophic associations isolated from Chitra variety indicated that black soil possessed more effective associations irrespective of the season. A slight increase in the activity of the associations obtained from black soil during Kharif season was noticed while the associations from Kharif season possessed higher activity than those from Rabi season in case of red soil.

The nitrogen-fixing associations from Prasad variety indicated that the associations obtained during Kharif season in both the soils are more efficient than those obtained during Rabi season. The associations from red soil are slightly more efficient than those from black soil during Rabi season.

A comparison of the activities of diazotrophic associations obtained from the rhizosphere samples of foxtail millet planted to black and red soils cultivated during Rabi and Kharif seasons indicated that the variety Prasad harboured more efficient diazotrophic associations followed by the varieties Chitra and Lepakshi which indicates that the activities of the associations also vary with the variety of plant.
Irrespective of the soil type and the variety, the diazotrophic associations isolated from the rhizosphere samples obtained during Kharif season exhibited higher nitrogen-fixing activity when compared to the activity possessed by the associations obtained during Rabi season. Thus, the activity of the symbiotrophic associations in the rhizosphere of foxtail millet is influenced by the season.