VI SUMMARY AND CONCLUSION

In this study, geographical survey of the agricultural aspects of North Gujarat region was made through various channels of information with a view to assessing and projecting the BF demand potential of the region which has hitherto remained neglected for want of such attention.

*Brassica juncea* (Mustard) and *Foeniculum vulgare* (Fennel) being the major cash crops (next to cotton and groundnut) of the region and hence responsible for region’s economy were included in this study for the isolation and screening of BF candidates.

The region is moderately fertile to semi desert and sandy with meagre irrigation facilities and agriculture is mostly dependent on unpredictable rains. Therefore any other means of raising agricultural productivity can be significant for its economy and welfare of people. BF can be one of such means. At present BF use is not popular in this region.

The region’s soil is found to harbour native *Azospirillum* strains, but they vary widely in nitrogen fixing ability. For assured results it is therefore necessary to screen and select high nitrogen fixing strains. *Azospirillum* strains were isolated from *Brassic juncea* (Mustard) and *Foeniculum vulgare* (Fennel) crops. In this study Bj-15 and Fv-9 strains showed 9-15 µg nitrogen fixation under cultural conditions. Their potential as BF candidates was further confirmed by Pot Culture and limited field studies. They were found to increase biomass, length of stem and roots of plants. Besides the host plants from which they were isolated, they were equally active on non host plants like cotton and wheat. 18-26% increase in productivity can be expected by their use. *Azospirillum* strains were identified by their morphological, cultural and biochemical characteristics. They match 95% with standard MTCC* 125 culture. They also possess some distinguishing novel features. Giving consideration to agricultural patterns and land usage of the region,
the BF demand of the region is projected which appears to be higher than the existing state BF commercial units can meet.