CHAPTER – V
SUMMARY AND CONCLUSION

Indian fertilizer industry is one industry with immense scopes in future. India is primarily agriculture oriented country and its economy is highly based on the agrarian produce the agricultural sector and its other associated spheres provide employment to a large section at the country’s population and share about 25 per cent to the GDP. The Indian fertilizer industry is one of the allied sectors of the agricultural sphere. India has emerged as the third largest producer of nitrogenous fertilizers. The adoption of book to break five year plan has paved the way for self-sufficiency in the production of food grains. In recently production has gone up to an extent that there is scope for the export at food reins. The surplus has been foliated by the way of chemical fertilizers. The large scale use of chemical fertilizers has been instrumental in bringing about the green revolution in India. The fertilizer industry in India began its journey way back in 1906. During this period the first single super phosphate factory was established in Rani Pat in Chennai.

Since present agricultural scenario is full of challenges and threats of international competition even have in the local markets, one is needed to use some strategies starting from the farm gate to market outlet. Earlier the agricultural system was production based but the modern agricultural sector needs not only enhanced on productivity but also quality of the produce and market considerations.

The commercial history of bio-fertilizers began with the launch of ‘Nitragin’ by Nobbe and Hiltner, a laboratory culture of Rhizobia in 1895, followed by the discovery of Azotobacter and then the blue green algae and a host of other microorganisms. Azospirillum and vesicular-Arbuscular Micorrhizae (VAM) are fairly recent discoveries.

In India the first study on legume Rhizobium symbiosis was conducted by N. V. Joshi and the first commercial production started as early as 1956. However the Ministry of Agriculture under the Ninth Plan initiated the real effort to popularize and promote the input with the setting up of the National project on development and Use of bio-fertilizers (NPDB). Commonly explored bio-fertilizers in India are mentioned below along with some salient features.
Bio-fertilizers have various benefits. Besides accessing nutrients, for current intake as well as residual, different bio fertilizers also provide growth-promoting factors to plants and some have been successfully facilitating composting and effective recycling of solid wastes. By controlling soil borne diseases and improving the soil health and soil properties these organisms help not only in saving, but also in effectively utilising chemical fertilizers and result in higher yield rates.

Those successful farmers are somewhat different from the others farmers in terms of approaches, utilisation of inputs, production, post-harvest technology and marketing strategies etc.

Plant nutrients are important components of crop production. The quantum jump desired to achieve the mounting demands for food in our country requires rationalizing the nutrient application for different crops, particularly paddy and other pulse crops. Efforts have to be made to harvest the benefit of positive interaction among the different fertilizers.

Several research studies have revealed that there was a wide variation among farmers in the awareness of practices in particular. This study was taken up to analyses the main two dimensions namely consumer awareness and pattern of fertilizer factor of NPK liquid bio-fertilizer and the company selling of fertilizer, growth rate and instability, competitive advantage in market by NPK liquid bio-fertilizer.

Therefore, the present study was formulated to assess these aspects in detail with the following specific objectives.

**Objectives:**

5.1 To study the pattern of fertilizer use in major crops
5.2 To study the awareness of farmers about the NPK liquid bio-fertilizers in Amreli District
5.3 To examine the growth rate and instability in selling of major fertilizer in Gujarat state and India
5.4 To identify the factor which are influencing the farmer to use of NPK liquid bio-fertilizer
5.5 To identify competitive advantages and marketing constraints of NPK bio-fertilizer
Two types of data were collected for the study purpose *i.e.* primary data and secondary data. Primary data was collected through the personal interview of farmers using well-structured questionnaires. The other information required for the study regarding company and its product. The secondary data and other relevant information for the study were gathered from the company report, research paper, article, official site and internet.

5.1 MAJOR FINDINGS OF THE STUDY

5.1.1 Fertilizer use pattern used in major crops.

Majority farmers were sowing cotton crops, wheat, coriander and groundnut crops were shows that the soils in the Saurashtra reason in Amreli district.

It was found that the fertilizer used pattern in major crops are ground nut, cotton, wheat and coriander crops. The first specified was farmers were sowing 100 respondents 83.3 per cent used to groundnut crop. While second and third number were indicated sowing by farmers were groundnut crop 78.3 per cent and wheat crops 65.3 per cent. This shows that there is more requirement of NPK liquid bio-fertilizer in the cultivation of cotton than the rest of the crops grown by the sample farmers.

It was observed that the pattern used fertilizer in groundnut crops were accused majority used by farmers were 94 respondent the 78.3 per cent used DAP fertilizer. While the second and third numbers farmers were 32 respondents 26.6 per cent used NPK 12:32:16 fertilizer. Farmers were indicted to respectively phosphorus, Urea and SSP fertilizers. Many farmers use other fertilizers because the NPK liquid bio-fertilizer provides only bio-bacteria other than nitrogen while other fertilizers such as Urea provide 46 per cent nitrogen and NPK 12:32:16 etc.

It was create that the fertilizers used pattern cotton crop. Majority farmers were used Urea and DAP fertilizers. 101 respondent 84, 83 per cent use Urea and DAP fertilizer. Whiles other fertilizers were used NPK 12:32:16, Phosphorus and SSP fertilizers.

It was observed that the fertilizers used pattern in wheat crop. Majority farmers were used Urea and DAP fertilizers its shows the 65, 60.8 per cent use DAP and Urea fertilizers. This is because the soils in the Amreli district are deficient in phosphorus hence the most of the respondents are using DAP which supply 46 per cent phosphorus.
It was observed that the fertilizers used pattern coriander crop. While majority farmers were 35.8 per cent used DAP and 35 per cent used Urea fertilizers than NPK 12:32:16 and SSP fertilizers.

5.1.2 THE AWARENESS OF FARMERS ABOUT THE NPK LIQUID BIO-FERTILIZERS

In case of age and awareness is calculate value is 12.07 and table value is 5.99 of NPK liquid bio-fertilizer, there was a significant difference among the respondent belonging to different age group with regard to awareness about NPK liquid bio-fertilizers.

In case of educational status and awareness of value is 13.75 and table value 9.48 is NPK liquid bio-fertilizer, there was significant difference among the respondent with different educational status with regard to awareness about NPK liquid bio-fertilizers.

It can be seen from Table 4.3 that relationship between size of land holding of the farmers and their awareness about NPK (bio-fertilizer) was negatively non-significant \((-0.1824^{NS})\). The result indicated that the land holding of farmers had least influence on the awareness about NPK (bio-fertilizer). Other way round, it can be said that the awareness about NPK (bio-fertilizer) was more or less similar among the farmers irrespective of their size of land holding.

Farming experience was highly positively significantly correlated \((r = 0.6009^{**})\) with their awareness about NPK (bio-fertilizer) the significant and positively ‘r’ value indicated that awareness about NPK (bio-fertilizer) was better among those farmers, who were more experienced. Considering the results of relationship of awareness with experience and age, it can be said that the farmers with higher farming experience were practical towards awareness about NPK (bio-fertilizer).

5.1.3 TO EXAMINE THE GROWTH RATE AND INSTABILITY IN SELLING OF MAJOR FERTILIZER IN GUJARAT

The annual compound growth rate and instability of selling of fertilizer by KRIBHCO in India. KRIBHCO were majority selling of Urea fertilizer the highly growth rate was 11.9 per cent Punjab state from the year 2007-08 to 2015-16. Than the 7.54 per cent growth rate in Rajasthan state. While the found that growth rate was 5.13, 1.17 per cent Haryana and Gujarat state. Its instability was 18.2 and 9.50 per cent from the year 2007-08 to 2015-16.
Than the normally growth rate and instability was Andhra Pradesh, Bihar, Chhattisgarh, Kerala, Madhya Pradesh, Pondicherry and West Bengal states.

The annual compound growth rates and instability of selling in major fertilizer in Gujarat state. Majority were fertilizer DAP and NPK 12:32:16 highly growth rate was 1.99, 1.62 per cent and variability was 29.9, 24.8 per cent from the year 2012-13 highly increasing selling of DAP fertilizer from the Gujarat state. The selling of NPK 15:15:15, NPK 28:28:0 fertilizer was lowest growth rate 1.43, 1.63 per cent in Gujarat state from the year 2007-08 to 2015-16.

The growth rate and instability of selling in major fertilizer in India from the year 2007-08 to 2015-16. The highly growth rate was 2.99, 0.26 per cent 12:32:16 and 28:28:0 fertilizers. The DAP fertilizer has been highly selling increase from the 2010-11 and variability rate was highly increasing 30.12 per cent in India Major selling of fertilizers.

**5.1.4 FACTORS INFLUENCING THE USE OF NPK LIQUID BIO-FERTILIZER**

The factors affecting the used of NPK liquid bio-fertilizer. The coefficient of determination obtained was 0.9490 it indicated that all the eight explanatory variables included in the model explained the 94.90 per cent variation on the purchased of NPK liquid bio-fertilizer.

The coefficient of land (1.78) was found positive and significant at 5 per cent level of significance. It indicated that with increase in land holding of farmers, the purchased of NPK liquid bio-fertilizer has increased in the study area. The coefficient of quality of NPK liquid bio-fertilizer (1.41799) was found positive and significant at 10 per cent level of significance and hence it indicated that purchased of NPK liquid bio-fertilizer has increased with increase in quality of NPK bio-fertilizer. The coefficient of types of farming was also found positive and significant at 1 per cent level of significance.

It indicated that with increase in irrigated and rain fed farming both, the purchased of NPK liquid bio-fertilizer has increased. It is also to be noted that in the study area, the most of the farmers followed irrigated as well as rain fed farming both.

The coefficient of type’s pear groups (0.7965) was also found positive and 1 per cent level significance it has increase in pear group more than to purchase of NPK liquid bio-fertilizer.
5.1.5 COMPETITIVE ADVANTAGES AND MARKETING CONSTRAINTS OF NPK BIO-FERTILIZER.

The problems of NPK bio-fertilizer marketing were ranked by using garret raking method. Total ten problem were found for the marketing of NPK bio fertilizer during the study. The highest number of dealer face the problem related to Field staff, which was rank first following by low margin at second rank and low of price NPK.

The advantages of NPK liquid bio-fertilizer were rank by using garret ranking method. Total eight advantages were found for the NPK bio-fertilizer during the study. The highest number of dealer faced the Better quality, which was rank first following by brand image at second rank and low price of NPK liquid bio-fertilizer.

5.2 CONCLUSION

Conferring to literature meaning the conclusion summarizes all the evidence presented and shows its significance. It highlights gaps and indicates how previous research leads to research project and chosen methodology. It should suggest any practical applications as well as the implications and possibilities for future research.

The project work has assessed the farmer’s awareness of NPK liquid bio-fertilizer users and factor affecting on use and growth rate and instability and competitive advantage and marketing constrains of NPK liquid bio-fertilizer. One hundred and twenty respondents were selected for the survey.

Majority farmers were using the awareness about age and education NPK liquid bio-fertilizer. Pattern of fertilizers were majority used DAP, Urea and NPK 12:32:16 in 60 above per cent. It was the growth rate and instability in selling of urea fertilizer in highest state by KRBHCO Company the Punjab state is 11.9 per cent growth rate from year 2007-08 to 2015-16 and instability was 12.13 per cent. The Gujarat state selling of fertilizer highly growth rate was 1.99 per cent DAP fertilizer while in India selling of major fertilizer the highest growth rate was 2.99 per cent NPK 28:28:0 and instability was 11.72 per cent.

Field staff and low margin faced by most of dealer with first and second rank respectively marketing of NPK bio-fertilizer. The dealer faced the ten problem to the marketing of NPK bio-fertilizer. The dealers faced eight competitive advantage of the NPK bio-fertilizer. They faced better quality and brand image of NPK bio-fertilizer with first and second rank respectively.