CHAPTER V
SUMMARY OF FINDINGS
SUMMARY OF FINDINGS

- The age and education profile of the sample farmers in Tumkur district: Majority of them (61.33 per cent) were of middle age group (35-44 years) followed by 20 per cent of them falling under the age group of 45 to 54 year. Among the sample farmers no farmer had post graduate education and 35.33 per cent farmers had completed secondary education (5 to 8 years of schooling). But a high percentage of farmers (23.53 per cent) did not have any formal education.

- In Mysore district also 150 farmers were interviewed, of which 40.00 per cent of sample farmers were of age group of 45 to 54 years. Education wise the farmers in Mysore were better-off as 40.00 per cent of farmers had completed their inter PUC schooling i.e. 9 to 12 years.

- From Raichur district, among the sample farmers majority of them fell under an age group of 35 to 44 years. Among the respondents a high percentage of farmers (31.33 per cent) did not have formal education and only a small per cent of respondents (23.33 per cent) had completed their primary education.

- The important crops grown in Tumkur district are Ragi, Paddy, Groundnut and Redgram. The average land holding of sample farmer in Tumkur district is 7.2 acres. Fertilizer application was highest in case of Paddy with the NPK ratio of 85.9:57.8:28.1kgs/acre. The average NPK applied per acre during the study period in Tumkur district was 32.5:24.4:16.8 kgs/acre.

- The important crops grown in Mysore district are Ragi, Paddy, Maize, Sugarcane, Tobacco, Cotton, Turmeric and Horsegram. The average land holding of sample farmer in Mysore district is 3.2 acres. Fertilizer application was highest in case of sugarcane with the NPK ratio of 79.5:65.4:13.5 kgs/acre followed by cotton with the
NPK ratio of 42.8:32.9:7.7 kgs/acre. The average NPK applied per acre during the study period in Mysore district was 27.7:22.3:6.6 kgs/acre.

- The important crops grown in Raichur district are Paddy, Jowar, Onion, Sunflower, Cotton and Ground nut. The average land holding of sample farmer in Raichur is comparatively higher than the other two districts which is 8.1 acres. Fertilizer application was highest in case of cotton with the NPK ratio of 62.5: 43.9: 6.9 kgs/acre followed by paddy with the NPK ratio of 46.0:31.3:18.3 kgs/acre. The average NPK applied per acre during the study period in Raichur district was 40.9: 26.3: 10.6kgs/acre.

- In Tumkur district retailers are the major source of fertilizer purchase (77.30 per cent) followed by wholesalers (22.70 per cent). During the study period in the sample villages there were no cooperative outlets selling fertilizers in Tumkur district. One of the reason as opined by the farmers was most of the cooperatives had been closed as a result of faulty management and poor recovery of loans and so the farmers lost faith in cooperatives, a reliable source of agricultural inputs. This fact in Tumkur district is also supported when we can see that the number of cooperatives in the district have declined from 204 in 2000-2001 to just 86 in 2004-2005. In a period of four years the number of cooperatives in Tumkur district declined by 58 per cent.

- In Mysore district, cooperatives (74.70 per cent) were the important source of fertilizer purchase for the farmers followed by retailers (17.3 per cent) and wholesalers (8.00 per cent). The farmers in Mysore believe that the cooperatives have the largest reach in rural areas and thereby cooperatives are the most preferred sources of fertilizers in Mysore. The results for Mysore district are in total contrast with that of Tumkur, where cooperatives are least preferred.
• In case of Raichur district, retailers (47.30 per cent) are the major source of fertilizer purchase followed by wholesaler (28.70 per cent). Here too cooperatives are not preferred sources (as in Tumkur district) of fertilizers as only 22.70 per cent of sample farmers purchase fertilizers from cooperatives. Only a small number of sample farmers purchased fertilizers directly from dealers (1.30 per cent).

• For Khariff 2006, Mangalore chemicals and fertilizers limited was the major source of supply of Urea fertilizer with supply allocation of 22.56 % of total allocation followed by Rastriya chemicals and fertilizers limited with 20.83 % of allocation share.

• For Rabi 2006, Madras fertilizers limited and Rastriya chemicals and fertilizers limited were the major sources of supply of Urea fertilizer with supply allocation of 21.45 per cent share each of total allocation, followed by Mangalore chemicals and fertilizers limited with a share of 20.53 per cent.

• The analysis of the study showed that among all the marketing channels, Cooperatives was the most efficient marketing channel. The prices paid by the farmers for different fertilizers to cooperatives were on an average Rs. 30 less than what they pay for the retailers.

• Among the sample farmers 210 (46.67 per cent) farmers purchased the fertilizers from retailers. Even though the prices of fertilizers were highest in case of retailers, most of the farmers purchased fertilizers from retailers because they were the most accessible source as it is located in the village itself. The second most popular source was the cooperatives, and wholesalers were not a preferred source of fertilizers as they were located in district and taluk head quarters.
• Only a very few farmers (1.5 per cent) purchased fertilizers from fellow farmers, the farmers opined that this source was an emergency fall back arrangement.

• Soil type, crops grown, amount & pattern of rainfall, availability of credit, were said to be very important factors influencing the fertilizer usage among the farmers. Other factors such as availability of irrigation, timely availability of fertilizer, availability of labor, price of fertilizer and price of produce, non availability of FYM and Bio fertilizers and quick response of crop to chemical fertilizers were considered important but had small impact on usage of fertilizers.

• The study showed that the respondent farmers applied imbalanced NPK dosage compared to the dosage of NPK as recommended in package of practice to the crops. The average quantity of fertilizer applied varied across crops, ranging from as high as 293.8 kgs per acre for sugarcane to as low as 72 kgs per acre for Jowar and 57.7 kgs per acre for Red gram. This clearly indicates that farmers apply heavy dose of fertilizers to commercial crops and compared as subsistence crops.

• Reasons for non adoption of recommended dose of fertilizers were inadequacy of incremental returns, no knowledge of crop wise recommended dose of fertilizer, lack of capital, lack of assured rainfall/irrigation facilities and inadequate availability of fertilizers. As most of the Indian farms are rain fed and thereby the dosage of fertilizers varies from year to year according to the change in the rainfall pattern.

• Among the sample farmers 63.3 per cent of farmers changed the crop in the case of monsoon failure or scanty rain fall and grew hardy crops like horse-gram. Few farmers (26.53 per cent) did not apply the fertilizers but retained same crop. This clearly indicates that
farmers were well aware of the combined positive effect of rain fall with chemical fertilizers and also negative effect of deficiency of rain fall.

- The analysis of the study showed that majority (more than 90 percent) of respondent farmers purchased fertilizers as and when they required and applied almost the entire quantity of fertilizers at a time to avoid the risk of quality and quantity loss during storage.

- Almost all the farmers purchase fertilizers in the month of June and October (sowing time) and August and December (for top dressing).

- Availability of fertilizer on credit basis was the most important factor (71.6 per cent of sample respondent) influencing the farmers to purchase from a specific source. The second most important factor was timeliness (66 per cent), followed by reasonable price of fertilizer (57.1 per cent). The other factors influencing purchase behavior were advertisement, personal relations with the trader, the outlet being closer to the market, trust worthiness of the trader and lack of alternative agency.

- According to the respondent farmers, among the reasons for purchasing a particular brand of fertilizer, the top priority was given to the lower price of the brand (75.8 per cent of farmers) followed by easy availability of the brand (69.3 per cent) and ease to apply (61.1 per cent). Some of the other reasons were better quality of the product, soil fertility.

- Almost all the farmers (72.2 per cent of the sample respondents) got the information on the fertilizers from fellow farmers. The second most important source was the dealers (outlet owners). The other sources of information to the farmers are advertisement through TV and Radio, Advertisement in Newspaper, KVK’s (Agriculture University), Agriculture department, out door advertisement, Field
demonstrations by companies, Exhibitions like Krishi melas and field days, Sales representatives of the company and cooperatives.

- Among the sample farmers, the farmers from Tumkur district were technically sounder as compared to the farmers from Mysore and Raichur district with an average technical knowledge score of 37.81 per cent.

- The analysis of the correlation coefficient between the qualitative variables and fertilizer usage in all the three districts shows that the variable education had positive but not strong correlation with fertilizer application. The variable land holding had negative correlation with the amount of fertilizer application in all the three sample districts. Age as a qualitative factor had positive effect on fertilizer application only in Mysore but in the other two districts namely Tumkur and Raichur age had a negative effect on amount of fertilizer application. Fertilizer technical knowledge is an important factor that influences the amount of fertilizer applied per hectare. The analysis of correlation of technical knowledge with fertilizer application showed that technical knowledge had a positive and strong correlation with the fertilizer application in both Mysore and Raichur districts but had negative correlation in case of Tumkur district.

- Among the respondents, 37.11 per cent of the farmers disagreed that the Government/University recommendations are very high and not economical on farmer field. But, also among the sample farmers majority of the farmers were not applying the recommended doses of the fertilizers in terms of NPK ratio as they were unaware of the package of practices recommended for each crop.

- 30 per cent of the sample farmers disagreed that the Extension staff is effective in fulfilling information needs of farmers and around 29 per cent of the farmers had no opinion on the statement. Only 20 per
cent of the respondents agreed that the extension workers are efficient in fulfilling the information needs of the farmers. This result is also supported by the above findings where most of the farmers are unaware of the recommended doses of fertilizers.

- 44 per cent of the sample farmers had no opinion, on whether All fertilizers of one type ex. Urea have same nutritive value irrespective of manufacturer or bran. But around 25 per cent of farmers did agree with the statement. This is also true from the result that most of the farmers are unaware of the fertilizer composition and apply those fertilizers which the trader/retailer suggested.

- Almost half of the sample farmers (47.56 per cent) agreed that one should use balanced dose of NPK rather than using higher dose of nitrogen. The farmers were also of the opinion that urea gave very quick results in the form of lush green standing crop and thereby most of the farmers used Urea extensively.

- 53 per cent of the sample farmers agreed on the statement that ‘for the prosperity of farmers fertilizer is must’. Farmer believes that increase in yield of the crop is possible by using fertilizers and so fertilizers are responsible for higher returns from the crops.

- Around 49 per cent of the respondents agreed with the fact that the fertilizer returns depends upon method and time of application. Most of the farmers do apply the fertilizer in split doses. Farmers apply complexes during the time of sowing, top dressing. This result was also seen in the findings of technical knowledge of farmers where most of the farmers did know about the method and time of application of fertilizers.

- 51 per cent of the respondents agreed that Complexes are better than straight fertilizers as they supply all nutrients together. Farmers also opined that they are reluctant in using complexes over straight
fertilizer because of the higher prices of complex fertilizers compare to straight fertilizers.

- Around 31 per cent of the sample farmers agreed that, certain fertilizers are suited for certain crops/ Soils. This is also proved with the fact that CAN (Calcium Ammonium Nitrate) is used only in tobacco.

- 38.67 per cent of the sample farmers believed that, for small farmers heavy fertilizer use increases the chance of failure due to vagaries of nature and should be avoided. Also the respondents had a feeling that the small farmers would be at a higher risk by applying heavy doses of fertilizers as it would increase the cost of production.

- 38.44 per cent of the sample farmers had no opinion on the statement that, Cooperatives are in a better situations to reach interior areas and promote fertilizer use, but around 36 per cent of the respondents agreed that cooperatives can promote higher use of fertilizers as they can support farmers in the form of credit at lower rates of interest.

- Among the sample districts of Tumkur, Mysore and Raichur, the maximum number of fertilizer outlets were retailer and wholesalers (43.3 per cent). Cooperatives had a share of 33.3 per cent followed by retailers having a share of just 13 per cent. Among the sample districts wholesalers were not preferred source as most of the wholesalers are located at district or taluk head quarters making them inaccessible to the farmers staying in rural villages.

- In the sample area of the study the major brands of fertilizers marketed by the traders are of the companies like MCF, Coromandal, Zuari, Fact, IPL Mangala, Sujala, IFFCO, RCH and Godawari. Most popular fertilizers that are marketed in the sample areas are straight and complex fertilizers like Urea, DAP, MOP, 19:19:19, 20:20:0,
17:17:17, 10:26:26 and some of the fertilizers like Aluminum sulphate were not so popular.

- Some of the most commonly practice influencing techniques in the order of importance in the study area are credit sales, giving suggestions on crop production techniques and through advertisement. Usually the traders give a three months credit to the farmers on purchase of fertilizers and at the time of crop loss due to pest and diseases suggests the farmer on crop production techniques. Some of the wholesalers also do the advertisement which is mainly through banners and hanging posters in front of their shops.

- Among the sample farmers, 79.6 per cent of the farmers indicated that the most important problem faced was lack of credit and lengthy procedures to get the credit. The second most (73.3 per cent) important problem was higher prices of the fertilizers followed by non-timely availability of fertilizers. Some of the other problems faced by the farmers included non availability of fertilizer (supply shortages at the time of sowing), long distances of the outlets from the farmers location, risk of crop loss due to erratic rainfall, fertilizer adulteration, difficulty in application due to faulty packing and the formation of lumps in the fertilizer bags and lastly the continued degradation of soil year after year due to fertilizer application.
CONCLUSIONS AND SUGGESTIONS

After analyzing the primary and secondary data on fertilizer market structure; components; influencing variables; pertaining to Karnataka State, following are the conclusions and suggestions.

1. It is observed that the type of crop grown and accessibility of credit were the important factors influencing quantum of fertilizer usage. Therefore making credit more accessible to the farmers by simplifying the procedure to obtain it from formal sources and making credit facilities easier and reasonable.

2. The fertilizer usage depends largely on type of crop grown. For cash crops such as sugarcane, the fertilizer is used in large quantities. Cash crops are mostly grown under irrigated conditions. However, in order to increase productivity, there is a need to promote usage of fertilizer even in rain-fed areas.

3. The existing distribution system for fertilizers in Karnataka is dominated by private sectors rather than the cooperatives. The cooperatives can increase their sales by selling different brands of fertilizers and providing better credit facilities through crop production loan scheme, where the fertilizers are given as a kind component of the loan. Providing a major share of loan as kind component will help the farmers in better utilization of loans as compared to cash component.

4. Banks with micro loan scheme and crop insurance scheme should join hand with fertilizer dealers for combating the problem of credit availability to the farmers for effective fertilizer marketing.

5. Although the cooperatives had opened sufficient number of retail outlets throughout the state, they are lagging behind in effective distribution of fertilizers. So the cooperatives must concentrate on effective marketing of fertilizers through increasing the efficiency of
each outlets. One of the many ways of increasing the efficiency of cooperatives is to link the crop loan to marketing.

6. Lack of knowledge about composition of fertilizers is one among the major problems faced by the farmers in the study area. There is an immediate need to educate the farmers in this regard by conducting farmer trainings through Krishi Vigyan Kendras of State Agriculture Universities and Extension Agencies of agriculture Departments.

7. Study on factors influencing consumer preference for fertilizers revealed that, credit facilities available with the private retail outlets defined the preference of farmers towards a particular source of fertilizers. The private retail outlets are facing the problem of lack of distribution credit from the manufacturers. There is a need that the retail outlets get the distribution for at least two months due, to the crop production season.

8. The distributors can increase the sales by adopting farmer’s meeting, campaigning and advertisement through radio as this source of product promotion are influential means of advertisement among the farmers.

9. Easy & timely availability and proper packaging were the major factors considered by the farmers to be brand loyal. Therefore, companies/ manufacturers must be careful in maintaining quality brands and companies must be quick in supply of fertilizers in time and thereby reducing the lead time of supply shortages.

10. From the study it is found that retailer is the main source of information to farmers and also in one or the other way farmer is dependent on retailer for his input requirements. Hence, companies must give more importance to retailer by offering him more and more incentives, gifts, discount offers, trips and also arrange dealer
meeting frequently which will in turn help the companies to build strong dealers network to sell companies fertilizers.

11. Fertilizer companies while releasing new fertilizer brands should rely more on retailer oriented promotion of brands and direct farmer contacting methods, which will be more effective in increasing sales of company brands.