A study on the economics of consumption of fertilizer at a block level is of utmost importance in the present day environment. In this study, an in-depth analysis is done with reference to the consumption pattern of fertilizer at Lalgudi Block in Tiruchirappalli District in the state of Tamil Nadu. Analysis has been done with the crops such as paddy and banana. Various types of consumption pattern are also studied in detail. Major findings of the study are given in the chapter

6.1 MAJOR FINDINGS

6.1.1 Socio-Demography of the Respondents

It is to observe that sample respondents were selected from the ten villages randomly out of 45 villages in the Lalgudi Taluk of Tiruchirappalli District. Each village is represented by 45 respondents. Among the study sample, 14.9 per cent were below 30 years; 21.3 per cent belonged to 31 to 40 years age group; 27.8 per cent were 41 to 50 years; 24.7 per cent were 51.70 years; and 11.3 per cent were 61 years or above.

It is found that a majority of 92.2 per cent of the respondents involved in agriculture are males. This reflects the cultural setup of India.

A majority of 85.1 per cent of the respondents are found to be Hindus, as the practice of Hinduism is the way of life for most of the Indians.
The community wise distribution of ST, SC, BC and FC shows that BC community is the dominant community in the Indian social set up.

It is observed that the educational level of the respondents was studied under five categories, viz. illiterates’ primary, secondary, Higher Secondary (HSC) and Degree. From the related chart, it is known that the educational level follows negatively skewed distribution with major chunk on left side. That is, still most of the people are illiterate and primary level education.

It is found from median, the average size of the family is between 4 and 5.

6.1.2 Economic Status of the Respondents

It is found that 95 per cent of the family had income of less than ₹ 50,000 per year. This indicates that the per capita income of farmers in this region is very low.

It is observed that most of them avail loans from different sources. About a half of the respondents (50%) borrow loan from Cooperative banks, 22.7 per cent through mortgage and the rest from banks and other sources.

6.1.3 Agricultural activities

Irrigation

The channel of irrigation depends on the nature of water table. Since the place of location of the study is on the banks of Coleroon river, Bore wells (49.5 %) and canal irrigation (39.6 %) are dominant than open well (10.9 %)
Fertilizer Usage and Preferences

- It is observed that one third of the respondents were using bio-fertilizer, whereas, two third of the respondents were using chemical fertilizer. However, the above one third, were using bio-fertilizer, also uses chemical fertilizer. The data reveals that no respondent is using only bio-fertilizer.

- A majority of the respondents (84%) agreed that they were motivated to use bio-fertilizers, whereas, the remaining 16 per cent did not get any motivation. Among the motivated only 40 percent actually practicing it. The hesitation for using the bio fertilizer are (i) costly and (ii) shortage

6.1.4 Findings relevant to chemical fertilizers

- Various chemical forms of chemical fertilizers are available in the market. So the researcher is interested to know the most popular chemical component. DAP (di-ammonium phosphate) is preferred as the first preference by a vast majority of the respondents. The second preference is Urea. Potash was the third level of preference. Sulphate as the fourth level of preference. Gypsum in the 5th level and NPK mix was least preferred.

- The researcher is also curious to know the popular brand of manufactured product of chemical fertilizers. It is found that SPIC is more popular brand than all other brands and used by 36.4 per cent of the respondents. The second popular brand was Parry/Corramendal with the usage of 16 per cent of the respondents. The third popular brand was MFL with 11.6 per cent. The fourth was Kothari, the fifth level goes to FACT. The sixth popular brand was IFFCO with 8.4 per cent respondents. The seventh level of popularity went to
Nagarjuna with a 7.6 per cent of the respondents’ usage. The remaining 1.8 per cent of the respondents used some other brands.

With respect to the source of purchasing, a majority of the respondents that is 60.2 per cent purchase from cooperative societies. Another 36.2 per cent purchase from private dealers, and the rest from other sources.

The reasons behind using the chemical fertilizers are (i) high yield (47.8%); (ii) quality of yield (17.1%), (iii) easy availability (16.9%) and (iv) less expensive (about 2.2%). The remaining 16.0 per cent offered some other reasons.

But at the same time they also agree the negative aspects of using chemical fertilizers as (i) deteriorate soil fertility (47.3 per cent of the respondents), (ii) Leads to health hazards (41.3%). About 8.4 per cent claimed that these chemical fertilizers give low quality of yield and 2.9 per cent advocated that the output is low.

About the level of satisfaction using the mixed chemical fertilizers 42 per cent were satisfied, 23 per cent expressed their dissatisfaction, About 35 per cent were neither satisfied nor dissatisfied.

6.1.5 Findings relevant to bio fertilizers

It is found that out of the 450 respondents, 149 were using bio-fertilizers. Five types of bio-fertilizers were found to be used. The preference level of various bio-fertilizers in use was studied by the researcher. First preference went to “Azospirillum” followed by “Veppampunnakku” (Neam cake) as the second preference. “Kuppai” (composed manure) was the third level preference. The
respondents ranked “Green manure” as the fourth level of preference. “Cow dung” was preferred as the 5th level. Sixth level of preference was “Panjakaviyam”.

Though they express their preference in the above said rank order but in reality, it is found contradicting. In the usage ‘kuppai’ takes the first position followed by ‘green manure’. They together form 65 percent. The rest are preferred in the following order as ‘cow dung’, ‘veppam punnakku’ and ‘Azospirillam’.

The major supply source of bio fertilizers is ‘private dealers’ (45%) Cooperative societies are helpful to certain extend (23%). The role of ‘other sources’ are significant (32%).

Regarding the source of information about the usage of bio-fertilizer, almost half of the respondents (80%) came to know from the previous experiences (either by themselves or by their peer). Mere 8.7 per cent came to know from their relatives and 2 per cent through government sources.

About the opinion on the advantages of using bio fertilizers, a good number of the of the respondents agree on (i) it sustains and improves the fertility of soil (ii) environment friendly. The advantageous factors are (iii) the quantity of output was increased (iv) quality of yields and (v) least health hazard.

6.1.6 Method of application of fertilizers

It is found that hand ‘Spray method’ was popular. It is adopted by 67.1 per cent of the respondents. ‘Machine spray method ‘was used by 11.3 per cent and 8.4 per cent used ‘Sprinkler method’. But 13.1 per cent of the respondents use some other methods other than the above three.
6.1.7 Cultivation Practices

The major cultivation practice in the study region is paddy and banana. It may noted that the study gives equal importance to these two crops by selecting equal number of cultivators (225).

From the land holdings, it is observed that majority of the farmers are small farmers and marginal farmers.

6.1.8 Paddy Cultivation

Paddy is cultivated in the three seasons namely ‘Kuruvai’, ‘Samba’ and ‘Thaladi’. It is observed that nearly half (56.4%) of the respondents cultivate during Samba season; 22.7 per cent during Kuruvai season; and 20.9 per cent during ‘Thaladi’ season.

The averages of yield per acre 2142 kg, expenditure for land preparation ₹ 4436. Expenditure on fertilizer ₹ 4191 and net income ₹ 15764 during the Kuruvai seasons.

The averages of yield per acre 2140 kg, expenditure for land preparation ₹ 4649. Expenditure on fertilizer ₹ 4267 and net income ₹ 14417 during the Samba seasons.

The averages of yield per acre 1968 kg expenditure for land preparation ₹ 4106 expenditure on fertilizer ₹ 3882. And net income ₹ 15553 during the Thaladi seasons. From the figure, it is learned that the expenses during Thaladi season is comparatively lower than the other two seasons but the net income is more.
With related to Kuruvai season the expenditures are less but the net income is more than Samba season.

6.1.9 Banana Cultivation

星星 It is found that banana is cultivated between one and six acres in the study group.

星星 The averages of yield per acre 682 thars (bunch of bananas), expenditure for land preparation ₹ 30671. Expenditure on fertilizer ₹ 18346, and net income were calculated ₹ 30688. The figure reveals the fact that banana yields very high income when compared with paddy. The level of consumption of fertilizer is less than the paddy. It is also a reason for the high profit

6.2 FINDINGS WITH REGARD TO RESEARCH HYPOTHESES

✧ Whether the consumption pattern of fertilizer for paddy significantly varies due to the size of the farm during all the three seasons is tested using One-way ANOVA test. 

✧ The test showed that the consumption pattern of fertilizer for paddy do not vary significantly due to the size of the farm in Kuruvai and Thaladi seasons. But it significantly varies in Samba season, the same test was conducted about consumption pattern of fertilizer for banana cultivation. The conclusion drawn is, consumption pattern of fertilizer varies significantly due to land holding.

✧ Chi square test was applied to know whether the size of the land under paddy/banana cultivation influences the respondents’ preference of using bio-fertilizer under the significance level of 0.05. It is revealed through Chi Square test that
the size of the land under paddy/banana do not influence the respondents’ preference of using bio-fertilizer.

- Again, Chi-square test was applied to know whether the age of the respondents influences the fertilizer utilization pattern during all the three seasons of paddy cultivation. The inferences categorically said that the age of the respondents has no say in fertilizer utilization pattern during the three seasons of paddy cultivation and banana cultivation.

- Association between Educational qualification and the usage of different types of fertilizers were studied for both paddy and banana using Chi Square test for independence of attributes. Educational qualification of the cultivators and their application of bio-fertilizer are independent in both the cases. That is educational qualification has no role in the usage of fertilizers.

- The above problem is approached in another angle by considering the educational qualification as a factor which has components and the application of fertilizers. So ‘One way ANOVA’ test was applied. The test explicitly said that all levels of education behave alike in the usage of fertilizers. No educational group has any significant difference of opinion about using fertilizers.

- Kruskal-Wallis test mainly for rank order data which is analogue of one way ANOVA (scale variable) was applied to analyze any significance on the preference pattern (as it is given of rank) of chemical fertilizers due to the various educational levels of respondents. (a) In the case of chemical fertilizers, it was found that educational qualification has statistically significant
association on the preference of Urea and Gypsum but not in the other chemical fertilizers. (b) In the case of bio-fertilizers, a statistically significant association was found with the usage of “Kuppai” only and with all other types of bio-fertilizers, no statistically significant association was found.

6.3 POLICY RECOMMENDATIONS

This section presents the possible directions and suggestions for further research in the area of fertilizer utilization pattern by the farmers. On the basis of the findings of the present study some of the suggestions are presented here below:

1. Manure collected in the village and other areas may be collected and utilized by the localized fertilizer manufacturing companies for effective utilization of bio-technology.

2. The government can think in terms of going in for extensive cultivation instead of practicing intensive cultivation. This may minimize the problems related to fertilizer usage and may also provide employment to millions of rural poor.

3. The government can open some bio-fertilizer factories so that the use of chemical fertilizer is minimized in the present stage.

4. Massive advertisements may be given in villages about the type of mix of chemical and bio-fertilizers according to the cropping pattern so that the farmers are benefited by these advertisements. Also Agricultural officers or block level officers can advice the farmers about the profitability in using the mix of chemical and bio-fertilizers.
5. Farmers need more motivation regarding the usage of bio-fertilizer.

6. The non-availability has been cited as a major reason by the respondents for not using bio-fertilizers. Hence efforts may be taken up to ensure the availability with increased number of outlets.

7. Model farms based on bio-fertilizers and bio-pesticides can be set up to educate and to instill confidence among the potential farmers.

8. The farmers should be sensitized on the optimum level of usage of fertilizers to prevent over and under usage of fertilizer through simple charts to be distributed through fertilizer outlets and agricultural departments.

6.4 CONCLUSION

Agriculture is the primary occupation of majority of the people in India. The productivity in agriculture depends on the social, technological and economic factors. These factors are significantly influenced by the yield of the farmers and their income generating activities. Fertilizer is the prime factor to change the yield and the income level of the farmers. The perfect mix of chemical and bio-fertilizers may change the lifestyle of the farmers. Hence this study has brought to light the consumption pattern of fertilizer at Lalgudi Block. The plight of farmers can be minimized only if the government ensures the availability of required fertilizers, seeds and other input materials in time to the farmers.

The aim of the research was to find out the utilization pattern of fertilizer among the farmers in Lalgudi Block of Tiruchirappalli District in Tamil Nadu State. This dissertation is not the last word. It just unravels a few of the visible and
hidden facets of fertilizer utilization. Overall, the data analysis showed that the results were reliable and indicated a good measure of sampling accuracy.

6.5 SCOPE FOR FURTHER RESEARCH

❖ Further comparative research may be conducted by examining farmers using exclusively bio-fertilizers vs. chemical fertilizers.

❖ It would be feasible to conduct further in-depth research on the consumption pattern of fertilizers in other locations as well.

❖ Similar study may be conducted taking sample at the district and/or state level.