Fertilizer is one of the major inputs in agriculture. The use of organic fertilizer has long been practised by the farmers and it became a part of the system because the farmers have learnt the better use of organic wastes for growing more food. The use of chemical fertilizer is of recent past and it is gaining slowly momentum in some parts of the country. The rationality as to the use of organic manure is hardly a matter of academic interest whereas, the adoption of modern farming techniques including the use of chemical fertilizer to grow more food becomes the nucleus of the subjects concerning economic planners and the scientists alike.

The transition from rural agricultural craft to rural agricultural technology is not an easy task, nevertheless, we have seen that there is a great deal of change in agriculture specially in farming techniques. In the case of application of organic manure, the farmers are well acquainted with the procedures eventhough they may not be literate. The overdose of organic manure may not be hazardous, the potential fertility of soil need not necessarily be tested and also there is possibly no forbidden specific organic manure for any specified criteria of plant growth and yield, whereas, unless the farmers get advisory services
of the experts or agriculture field workers, the use of chemical manures due to the lack of knowledge of potency of chemical manures may prove to be harmful also uneconomical.

In this essay, we are, of course, interested in identifying some of the key determinants of the use of fertilizers. We confine ourselves to two of the numerous socio-economic determinants, namely 'size of holding' and the 'size of family' and the fertilizer includes both the chemical and organic. Our objective is to analyse these two determinants barring all other socio-economic determinants of use of fertilizer, their covariance with respect to the type of fertilizer, equality of their between group mean with respect to the type of fertilizer, their functions as stimuli for the use of fertilizer and by type of fertilizer and finally a specific objective analysis considering one of the determinants say size of holding as "agent" and the other i.e. size of family as 'object' of their resulting function as Reaction Function - the realizable fertilizer matrix.

In chapter 2, we have discussed about the problems and prospects of agriculture in general and of Meghalaya in specific. Therein, we have mentioned about land tenure
system in Meghalaya, the characteristic of soils of
Meghalaya and the popular method of manuring the land
as prevailed in Meghalaya. We have also discussed about
the number of economic, social, demographic and other
determinants which could either promote or hinder the
popularization of use of chemical manures. We have
brought into focus the factors pertinent to Meghalaya
that could be considered responsible to motivate the farmers
to use fertilizers.

In chapter 3, we deal with the sources and problems
of data collection. A brief description of the blocks and
the selected villages therein, are given in this chapter.
We have also mentioned about socio-economic conditions of
the villages, specially as regards employment, education,
transport facilities and market facilities. The data for
the type of analysis mentioned above were collected by the
author herself with the assistance of an interpreter
provided by the Block Development Officers of the respective
Blocks.

Chapter 4, is devoted to methodology and empirical
analysis, we have considered the theoretical framework as
precisely as possible and the justification of the use of
statistical tools, the logical basis of analysis of the estimation. It may be mentioned that we have used
a) Correlation technique using bi-variate frequency table, b) Analysis of variance technique using two way classification table taking 'size of holding' and the 'size of family' as the factors and the cell frequencies happen to be quantum of fertilizer used, c) Probit analysis - by considering 'size of holding' as stimuli and the response as quantum of fertilizer. Again similar analysis is performed by taking the 'size of family' as stimuli, d) Regression analysis - by using the probit as endogeneous variable and the stimuli as exogeneous variable, a regression equations were fitted and finally, e) the Reaction Function Approach as proposed by Bez, where one of the two determinants, i.e. 'size of holding' and the 'size of family' is taken as 'agent' and the other as 'object'. The theoretical basis of this analysis is fundamentally mathematical probability.

All the empirical results are given in this chapter together with appropriate and plausible conclusions. Some of the tables of data also description of statistical techniques are given in the appendices.
Finally, chapter 5 is devoted to conclusions and epilogue. The conclusions succeeding the empirical results are usually the resultant state of the statistical model or theory applied, in practice, these conclusions could have been sufficient. However, in our view in global look at the micro level can transpire new vista of analytical domain which may be left to the author to try in future research. It is sometimes felt that epistemological / boundary of economic corpus is invisible, distinct unlike that of physical sciences, yet our humble but sincere effort could break a way that could be continued further with some lapse of time - a cherished hope of the author.