CHAPTER NINE
MAIN FINDINGS
Main Findings:

The present dissertation "Economics of Farm Production, A study in Rae-Bareli District" was undertaken in February, 1982. The project was undertaken with the main purpose of studying the various aspects of farm economics in Uttar Pradesh particularly the land use, farm holdings, input and equipment, production and disposal of farm produce, income, expenditure and profits, assets and liabilities and viabilities. The study was undertaken in sixteen villages belonging to various four blocks and four tehsils of Raebarali district in Uttar Pradesh. The arrangement of the study was done as under:

Chapter-One: Agricultural economics of Uttar Pradesh

Chapter-Two: Agro-economic features of the study area and sample farm household.

Chapter-Three: Sample farm land use, fragmentation of holdings, tenure status and land reforms.

Chapter-Four: Labour capacity, utilization of family labour and composition of inputs.
Chapter-Five: Production and disposal of farm produce.

Chapter-Six: Income, expenditure and profits of sample households.

Chapter-Seven: Assets and liabilities of sample households.

Chapter-Eight: Viability of sample households.

Chapter-Nine: Main findings of the thesis.

Chapter-Ten: Suggestions.

A brief review of main findings of the different chapters of the thesis is given below:

CHAPTER-ONE: This chapter gives the physical and geographical details of the agricultural economy of Uttar Pradesh.

Uttar Pradesh, a 'land locked state' is the third largest state in India from the point of view of area and first from the point of view of population. The northern boundary of Uttar Pradesh forms international boundary with China and Nepal, Himachal Pradesh in north-west, Haryana in the west, Rajasthan in the south west, Madhya Pradesh
in the south and Bihar in the East. The State has abundant natural resources. The perennial rivers provide huge water resources. Besides, there are sufficient under-ground water resources and the fertile landscape, known as the 'Indo-gangetic Doab'. The State is highly agricultural. Agriculture and its allied sector contributes about 60 per cent of the state income and provide employment to about 75 per cent of the labour force.

Geographically the state has three distinct regions-

(a) Extra peninsular region which comprises of the great Himalayan zone, the lesser Himalayan zone and the foot-hill zone.

(b) Indo-gangetic plain and

(c) Peninsular region.

The State is broadly divided into five economic zones- Northern, Western, Central, Eastern and Bundelkhand. The different economic zones have varying economic characteristics. The State has the largest population in the country. The density of population of the state is 377 per square Km, which varies from one region to another. The highest density of population is in Eastern Uttar Pradesh (484 per square Km.) 86 per cent of the population
lives in rural areas of which 75 per cent is dependent of agriculture.

The state has paucity of mineral wealth. Animal husbandry is one of the primary sectors of State economy. Marginal, small and medium farmers from a huge majority. The State produces 18 per cent of the total food grain production of the country. The contribution of agriculture in the State income is 63 per cent as against 43 per cent for the country as a whole. There has been continuous rise in the net area sown and the area sown more than once in the State. The intensity of cropping has increased from 139.09 in 1979-80 to 145.18 in 1982-83. There has been continuous rise in the gross and net irrigated area. The area under different crops like paddy, wheat, oilseeds and sugarcane has gone up. The electricity in an important infrastructure for agriculture. The percentage of consumption of electricity in agriculture to total consumption is 29.68 in 1981-82.

With the introduction of modern farm technology in agriculture in the recent years, there has been a shift in pattern of agriculture toward commercialization. Use of high yielding varieties of crops calls for an increased use of modern farm inputs like quality seed, chemical fertilizers, assured irrigation
facilities, plant protection measures, increased use of labour etc. The increasing demand for inputs has increased the demand for capital and other agricultural implements manifold the main purpose of present study has been to study the correlation between available inputs and resulting outputs. As said earlier the study was made in Raebareli district of Uttar Pradesh. The main characteristics of Raebareli district, its physical and topographical features, demographic characteristics, agricultural and industrial features etc. has been analysed in detail in this chapter. The method of research etc. has also been analysed in detail in chapter one.

The field survey work for the present research work was undertaken in four block one in each tehsil of the district Raebareli. The blocks were selected according to probability proportionate to marginal farm density. Four villages in each block with over 50 per cent of irrigated area were selected for this survey. Twenty farms were randomly selected and were fully investigated in each village. Thus in all 320 farms were included for the sample. The main purpose of the
study was to test the viability of farms, specially of the marginal farms and to locate the key factors which account for the same.

CHAPTER-TWO: This chapter deals with the Agro-economic features of the study area and sample farm household.

Raebareli district, is situated between 25.49° and 26.36° north latitude. It is situated in central zone of Uttar Pradesh and is one of the constituent district of Lucknow division of Uttar Pradesh. It is surrounded by the district of Lucknow and Barabanki in the north, Pratapgarh and Sultanpur in east, Unnao on the west and Fatehpur in the south.

The district extends over an area of 4582 sq. Km. and 86.8 per cent of population is dependent on agriculture.

According to present administrative set up the district is divided in to six tehsils. (i) Salon (ii) Raebareli (iii) Dalmau (iv) Maharajganj (v) Tiloi and (vi) Lalganj.

Sixteen sampled villages has been selected for the survey under the four selected blocks.
Five out of sixteen villages do not have any primary school; middle school is located in six village and only one out of sixteen villages (Ghurawara) have a higher secondary school. Medical facilities within the village are available only in three village. Veterinary facilities are usually available only at the block head quarters. The growth centre have been formal in eight village out of sixteen villages.

According to our findings marginal farms form the share of 81.87 per cent of all farms and cover 50.85 per cent of the area, the average size for all farms comes to 1.28 hectares in sample villages, 0.78 hectares in selected district and 1.01 hectares in Uttar Pradesh. The average being 0.80, 3.48 and 7.93 for marginal, medium and large farmer respectively. The average size of the family is 6.10. The number of members per hectare declines with an increase in size. The nuclear type of family predominates among marginal farmers while joint family system is more prevalent among medium and large farmers. A majority of marginal farmers belong to so-called scheduled castes, but the medium and large farmers belong to backward and
higher caste groups. The percentage of literacy is low among marginal farmers but rises with size of farms.

85 per cent of the marginal farmers reported that agriculture is the main occupation while almost all medium and large farmers reported it so. 31 per cent of marginal farmers wholly work on their own farm, the remaining 69 per cent taking up off farm work also labour - agricultural and non-agricultural, 84.83 per cent in district and 74.55 per cent in Uttar Pradesh. Such labour is taken up by members of marginal farm families. Service, trade and other professions being more important to other categories on account of their caste, status and education.

The average farm income (including income from livestock) per worker increases with size of holding being Rs 207.6 and Rs 561.08 for marginal and medium farmers. The average for all categories, viz. Rs 283.4 is indeed very low.

The medium and large farmers participate in rural institutions to a much greater extent and this has a favourable effect on their resource supply as well as recoveries of dues.
CHAPTER-THREE: This chapter deals with the land use, fragmentation, tenure status and cropping pattern on sample households.

An attempt has been made in this chapter to analyse the nature of land use, particularly problem of fragmentation of holding, tenure status of the marginal and medium farmers, intensity of cropping and cropping pattern. An attempt has been made in this chapter to study as to how for the farm economics in the sampled villages has been effected by those factors.

Piecing together the essentials of an operational holding described in this chapter, it is clear that despite different characteristics in respect of size of land, ownership etc., The essential factor is that it should be under single management, so that a holding has its own set of facilities and resources both technical and financial for agricultural operations.

With the growth of population, pressure on land has increased both an agricultural and other sectors. Per cultivator net area sown in 1982-83, 0.70 hectare in Raebareli district and 0.92 hectare in Uttar Pradesh. The area available
for cultivation has decreased due to increase in area under forests or under the impact of increasing demand for urbanisation and industrialisation.

Intensity of cropping: Due to availability of reasonably good irrigation facilities, more than 50 per cent of the total land is intensively used for cultivation, the intensity of cropping is found to be 146 per cent in sampled village, 139.13 per cent in district as against 145.18 per cent in Uttar Pradesh. It is still higher for sampled marginal farms (154.6 per cent). Due to better soil, irrigation facilities as well as greater pressure of population. Cultivation standards are higher an farms owned by middle farming caste like Kurmi, etc. than on those owned by Rajputs and Brahman, etc. The phenomenon can be explained by the indifference of two latter castes.

Fragmentation: Fragmentation very much restricts the scope for intensive farming in the district. About 38 per cent of the farms have more than 3 fragments each. The average size of the fragment and number of fragments per farm stand at 0.32 hectare and 4.08 hectare respectively.
This specially handicaps irrigation, growing of vegetables, summer crops, etc. This is specially so far marginal category where the two are 0.25 hectares and 3.60 hectares respectively.

Ownership: Ownership is the main basis of land holdings in the district 86.25 per cent of farms is found to be wholly owned, 13.8 per cent of the farmers who generally lease-in their land, generally do it on crop-sharing basis. By the large, the limited leasing-in is advantageous and no serious handicap appear in this regard. Marginal farmers from 73 per cent of such lessees and this considerable strengthens their economy. In the absence of such an arrangement, their living would have been far more precarious. The area leased-in ranges between 0.5 and 1.00 hectare. Land reforms had benefited marginal farmers to a greater extent (11.8 per cent) than others (5.4 per cent). But the latter had taken greater advantage by effecting permanent improvement on the land thus acquired.

Cropping pattern: A study of crop pattern reveals that food crops predominate on all farms. The share of commercial crops like
groundnut, oilseeds and sugarcane goes up with size of holdings. The percentage of farmers growing such crops also goes up from about 60 for marginal to 100 for large farmers.

The marginal on account of small size of farms, are not able to follow their land or practise rotation, which considerably lowers the fertility from year to year. It is only partly made up by dose of farmyard and manure.

**CHAPTER-FOUR**: This chapter deals with the inputs and equipment. An attempt has been made in this chapter to analyse the nature of inputs and equipment available with the sample household. Inputs for the purpose of this chapter includes, family labour, casual labour and animal labour. Besides, it also includes other source of inputs like source of irrigation, provisions of technical knowledge, chemical fertilizer, green manures and availability of capital.

**Labour Capacity**: Human and Animal power constitute an important source of input on the farm in Uttar Pradesh. Farming is also carried on the basis of "family farming" and is done by family members who form the labour panel and
carry out the major portion of field labour.

Family labour is the main source of labour on sample farms, especially marginal ones. 35.9 per cent of all farms employ hired labour which mostly consists of casual labour employed at seasonal peak load of work. The family labour is utilized to an increasing extent on own farm as the size increases. The percentage rising from 14.7 to 27.47 for the marginal and medium farms respectively. There is a corresponding decline in surplus capacity or under-utilization. The marginal farms use much more human labour per hectare due to lack of resources, fragmentation and to an extent, intensive farming. However, the extent of employment increases with size and a positive correlation revealed in this study.

As regards drought labour, 78.12 per cent of sample farms had bullocks, 25 per cent marginal farmers had no bullocks. The percent going up to 58 for smallest size group (0-5). These farmers use hired drought labour. Like the human labour, bullock-labour is also under-utilized. The percentage of capacity utilized on own farm goes up from 20.4 to 37.2 for the two categories of farms.
Out of 320 sample farms, 12.81 per cent are wholly unirrigated, 35.94 per cent partly irrigated and 51.25 per cent wholly irrigated. The marginal farms are better structured in this regard although a greater percentage of medium farms are wholly or partly irrigated. Wells (own pumpsets) and canal both are the main source of irrigation. The percentage of both are 85% per cent of farms being served by them. Canal irrigation is coming up no and has materially contributed to farm prosperity. As a source it is much cheaper than lift irrigation although it state needs great expansion.

The awareness, belief and use of new inputs such as seed, fertilizer, etc., all increase with size of the farm. The bigger farmers are also more regular in using such inputs. In Rae Bareli district which is socio-economically a backward region, extension has only touched the fringe of the problem and lot of work needs to be done. In fact, what is required is 'intensified extension'. The proportion of marginal farmers who received help from developmental agencies is generally lower for all in inputs. The medium and large farmers have received far more attention. Among the obstacles,
'Not known' response is given by a majority of marginal farmers, followed by difficulties of finance and irrigation. Difficulties about availability and adequacy are mentioned by the two other classes i.e. medium and large farmers.

The average production and use of manure on marginal farms is higher. But the proportion of users and quantity of fertilizers is much larger on medium and large farms which accounts for better yields on the latter class of farms medium farms also undertake more green manuring (summer moong). However, on account of marginal average size, not much area can be devoted to it on the farms.

The fixed investment per farm averages Rs. 7886.19 for all farms and it increases from marginal to large farms, the latter being about four times the farmer. On a per hectare basis, it declines from Rs. 6657.40 to Rs. 5502.05 showing that the burden of fixed capital or overheads declines considerably with an increase in size of holdings. The working capital required per hectare also shows the same trend.
Borrowing is reported by 81.25 per cent of the farmers surveyed. Village money-lenders still account for about 85.38 per cent. Government loans have benefited 5.7 per cent of marginal but 6.92 per cent of medium farmers. Cooperatives have served only 3.07 per cent. The above finding is supported more recent other case study of the author.¹ The proportion of amount borrowed for productive purposes increase with size of farm from 36.32 per cent for marginal to 54.16 per cent medium. The average debt per reporting house hold being Rs. 863.89 and Rs. 1449.16 respectively. The rate of interest varies from four per cent to over 25 per cent per annum.

¹ See Singh Vinai Kumar, "Evaluation of Credit Problems of small and marginal farmers in U.P."

The Banker, A Monthly Economic and Banking Journal Vol. XXVIII, No. 12, Feb., 1982, p. 29. It would be seen that the share of profession money-lenders, on total amount of credit advanced was the highest i.e. 43.10 per cent followed by the co-operative societies, 25.86 per cent. The contribution of government Taccaviloans was 22.41 per cent, whereas commission agents advanced only 8.63 per cent The total quantum of credit."
Agriculture in the district is carried on traditional lines with sporadic signs of using improved inputs here and there. Save a small minority the bulk of farmers have yet to experience the impact of new strategy of agricultural practices.

CHAPTER-FIVE: This chapter deals with the production and disposal of farm produce.

The total output of crop on the farm is a function of area sown and yield per unit of area. The total quantity and value of output per farm increase more than proportionately with size; quantity 11.45 quintals value Rs. 803.13 in marginal farms and quantity 34.97 quintals value Rs. 2998.76 in medium farms. It is due to include more food crops. The average yield of food grains is 12.50 quintals per ha. in district Rae Bareli and 13.23 quintals in Uttar Pradesh in 1982-83.

The percentage of output consumed on the farm declines with increase in farm size from 63.69 to 44.94. After retaining for seed, feed, payment to village functionaries and addition to stock which accounts for 15.46 and 20.17 per cent. The remaining output is sold in the local or nearby market
to dealers, the percentage of marketed surplus increases from 20.85 to 34.89 in case of marginal and medium farms respectively. Marginal farms, therefore, have much less to sell, receive still less cash and are enable to purchase essential inputs on cash basis.

Marketing of the produce is organised on traditional lines and the link with the money-lender-cum-dealer is still quite strong. Market charges abundance in number and the total of such charges and deductions accounts for nothing less than 20.25 per cent of the value. Regulation of markets has been introduced very recently. The total numbers of agricultural marketing centres in district Rae-Bareli is found to be, at the same time it was 289 in Uttar Pradesh in the year 1983-84.

CHAPTER-SIX: This chapter deals with the income expenditure and profits on the sample farms.

The attractiveness of any business ultimately depends upon its profitability. In present study data on gross income and expenditure have been collected and for all items not actually paid for, imputed values calculated. Thus farm business income net profits and family labour income have been arrived at. Net profit has been calculated after
deducting the comprehensive cost 'C' from gross farm income which give an idea about the viability of the farm.

The gross income averages Rs.2405.32 and 1875.91 on per farm and per hectare basis respectively. Considerable inter-category differences are noted. In the composition of income, income from livestock and commercial crops makes significant contribution for marginal and big farms respectively.

The expenditure per hectare declines from Rs.1540.01 to Rs.1277.86 for the marginal and medium farms respectively. Revealing significant economics of scale. The marginal farmer has a greater burden of rent, bullock labour and other equipment.

The farm business income per hectare shows an upward swing with increase in the size of farm, the relevant figures being Rs.553.08 of marginal and Rs.772.49 of large farms with an all farms average of Rs.552.38. When all farms are taken together and comprehensive cost considered, there emerges a net loss of Rs.167.68 per farm and Rs.130.77 per hectare in the reference year (1982-83). The extent of loss per hectare declines from marginal (Rs.250.20) to medium farm (Rs.20.58). The
two large farms show a net profit of Rs. 304.26.

Out of 320 farms 114 or 35.62 per cent are found to be viable. The percentage increases with size from 33.20 for marginal to 46.55 for medium and 100 for large farms. Naturally, percentage of viable farms is much higher in blocks of Deeh and Bachharawan. Livestock enterprises does not make any significant contribution to viability. In fact, losses on this head depress the agricultural economy.

The negative profit on a majority farms depresses the labour earnings and gives a low family labour income of Rs. 71.85 and Rs. 261.28 per hectare for the two categories. The non-farm income losses its importance with increase in farm size. It is, however, an important source for marginal farmers.

The average family income from all sources come to Rs. 988.10 and Rs. 2222.82 for marginal and medium farms respectively. The per capita income comes to Rs. 244.7 and 422.4 for marginal and medium farmers respectively. It is much below the State and national averages where it is seen from the perspective of the reference year. The per capita
income is Rs. 520.00 and Rs. 715.00 in Uttar Pradesh and India respectively (1981-82).

A study of input-output ratios established a high positive correlation between the two ($r = 0.78$). The ratio becomes increasingly favourable with size, the relevant figures being 0.85 and 1.03 respectively.

The average profit per farm reporting profit comes to Rs. 435.20 and Rs. 1386.77 for the marginal and medium households respectively. The rate of return on fixed investment on viable farms averages 8.83 per cent for all farms.

**CHAPTER-SEVEN:** This chapter deals with the assets and liabilities of the sample farms.

While income, expenditure and profits reflect the annual financial results of farm business, the cumulative effect over a period of time is indicated by the sum total assets built up and liabilities incurred.

The average assets per farm comes to Rs. 9834.74. Marginal farmers have a lower percentage of financial and farm assets. The large farmers have more financial and non-financial assets than marginal.
and medium farmers and thus command better resource supply, status, political and administrative patronage. The farm assets have increased at a very low rate for all categories, the average annual addition being Rs. 84.54. Category wise the figures are 52.90 and Rs. 224.11. Capital formation was reported by 75.62 per cent of farms. The percentage was much higher for medium and large farms (86.20) than for marginal farms (73.28). The rate of capital formation expressed as a percentage of total income increases from 3.33 to 7.44 for the marginal and medium households. The rates are not high enough for an early take-off and sustained growth.

Indebtedness is found to be positively correlated with asset holdings and size of farm. Large farms with more assets have greater creditworthiness as well as production and other needs. The average debt per reporting household comes to Rs. 742.82 and Rs. 1183.14 for the two classes with an all-farms figure of Rs. 824.12. The burden of debt is greater on marginal than medium farms for obvious reasons.

While the important role which co-operation can play in rural development is recognised,
although, but Raebareli district is still under-developed in this respect. The number of primary agricultural credit society providing finances to agriculture is 190 in Raebareli, whereas it 8602 in State. The co-operative marketing societies are only 4 in district whereas it is 252 in whole of Uttar Pradesh. The joint agricultural co-operative societies is 21 in Raebareli whereas it is 1331 in Uttar Pradesh (1982-83) only 56 out of 320 sample farmers or about 18 per cent were found to be the members of co-operative societies.

CHAPTER-EIGHT: This chapter deals with the viability of the farms.

The concept of the viability has acquired great importance in recent years. The hypothesis in this regard for this thesis has been that given a certain size, viability depend upon a number of factors such as soil, tenure status, irrigation, crop pattern, literacy, use of inputs, etc. An analysis of farms has, therefore, been attempted to locate the key factors which make for viability.

The findings show that viability has its key determinants in size of farm and the extent of fragmentation, tenure status, irrigation facilities literacy, use of improved inputs and technology and product-mix viability is found to be positively
associated with all these variables. While individually, they may show slight positive association, a combination does show definite performance. The size wise distribution according to above attribution shows that given other things, size below one hectares is a serious handicap. Even some medium farms with a input-mix score ranging above 70 are found to be non-viable. The policy in this district should, therefore, aim at creation of holdings not below 3 hectares. This size could adequately take care of the contingencies imposed by vagaries of nature as well as the failures of human effort.

See B.L. Agarwal, "Basic issues in Rural Employment", Asian Journal of Economics, Vol.1, no.1, 1982. Operational holdings of less than one hectare, whether irrigate or unirrigated, joint or single, after no hope of providing income above the poverty line. Operation holdings 1-2 hectares, (unirrigated both single or joint and irrigated joint holdings) and unirrigated joint holdings footing. Thus, in 1971, of the total 70.5 million holdings with land area of 162.1 million hectares, 45.6 million holding (64.7 per cent) with a land area of 30.4 million hectares (18.8 per cent) seem to be uneconomic holdings.