SUMMARY AND CONCLUSIONS

It was mentioned at the outset that the present study is primarily concerned with the estimation of production functions for West Bengal farms in two different situations. The first situation was the one prevailing before the introduction of what is known as the new agricultural technology in India. In other words, the traditional form of agricultural production was in operation at the time. This period has been designated as Period-I in the present study and comprises the years 1963-64, 1964-65 and 1965-66. The second situation, in contrast, was the one after the introduction of the new agricultural technology. It can be said that in this period agricultural operations were to a considerable extent non-traditional in the sense that modern inputs and modernised techniques of production were in common use. This is Period-II in the present study and this period comprised the years 1972-73, 1973-74 and 1974-75.

It may be recalled that the farmers included in our study in Period-I belonged to two groups, "treated" and "non-treated" (i.e. those receiving different types of assistance from the Government of West Bengal's agriculture Department and those not receiving any such assistance).
The first exercise done was to fit Cobb-Douglas type of production function to the data for these 'treated' and 'non-treated' farms in Period-I. The corresponding production elasticities for 'treated' and 'non-treated' farms were statistically compared and these comparisons showed no significant difference between the \( \beta \) co-efficients for 'treated' and 'non-treated' farms. We are led to conclude that the estimated production functions for 'treated' and 'non-treated' farms were not statistically different in Period-I. This is explained by the fact that although the 'treated' farms in Period-I received certain facilities from the Department of Agriculture of the State Government, the agricultural practices they followed were mostly of the traditional type. In other words, the technology of agricultural production was the same for 'treated' and 'non-treated' farms.

At the next stage of the present study a t-test was undertaken for rigorous interpretation of the sums of elasticities in the case of 'treated' and 'non-treated' farms. The t-test suggests constant returns to scale in operation in the case of 'treated' farms included in the study. On the other hand, the t-test, on the whole, suggests increasing returns to scale in the case of 'non-treated' farms.
The presence of constant returns to scale in the case of 'treated' farms has been explained in the text by the fact that the 'treated' farms had received improved agricultural inputs and applied them in better proportion and as such hardly any slack in the use of inputs remained due to inadequate availability of any particular input. There was not much scope for overcoming indivisibilities and reducing overheads for the 'treated' farms. All these would account for the presence of constant returns to scale in the case of 'treated' farms. On the other hand, the 'non-treated' farms did not receive either improved inputs or technical advice from the relevant government departments and, therefore, they were unable to exhaust all the internal economies of scale. Again, overhead costs had considerable scope to be reduced by means of expansion of scale. This explains why the scale co-efficients are greater than one in the case of 'non-treated' farms.

In the second exercise, the Cobb-Douglas function is fitted to the data for traditional farms of Period-I taken as a whole and for non-traditional farms of Period-II taken as a whole. The corresponding production elasticities estimated for traditional farms of Period-I and for non-traditional farms of Period-II have been statistically compared and comparisons lead us to conclude that the estimated production functions for Period-I and Period-II
are statistically different. Two conclusions are arrived at on the basis of the comparisons of the corresponding production elasticities for Period-I and Period-II.

i) The shares of land in total output were higher and in most cases significantly higher in Period-II compared to Period-I.

ii) The shares of labour, fertilizers and manures, and irrigation water in total output were lower and in many cases significantly lower in Period-II compared to Period-I.

The relatively higher shares of land in total output in Period-II compared to Period-I are explained in the text by the fact that the supply of labour was relatively elastic compared with the supply of land and secondly that the supply of labour was shifting out at a very rapid rate. In other words, labour input per acre had risen significantly over the years of the present study; regardless of technological change owing to the growth of labour force in the agricultural sector. It is, therefore, legitimate to conclude that the hypothesis regarding land share in the period of the new agricultural technology had not been proved correct because of the operation of the forces mentioned above.

In the same way, the lower shares of labour in Period-II compared to Period-I have been explained by the rapid increase in the supply of agricultural labour in Period-II.
Lastly, the lower shares of fertilizers and irrigation water in Period-II compared to Period-I have been explained by the fact that the supply of these input resources was more elastic in Period-II compared to the elasticity of supply of land in the same period.

A t-test has been also undertaken for rigorous interpretation of the sums of elasticities estimated for Period-I and Period-II. Except for 1965-66 in Period-I the t-test suggests constant returns to scale for other cases in both the periods. The t-test suggests increasing returns to scale for 1965-66 in Period-I. The presence of increasing returns to scale in 1965-66 in Period-I is not unexpected as the particular year in Period-I was marked by widespread drought. The failure of the monsoons was a serious constraint and in this case a proportional increase in the use of all inputs, technological and climatic conditions being given, was likely to lead to a more than proportional increase in the output to the extent that these inputs, and particularly irrigation water, were partial substitutes for rainwater. The presence of constant returns to scale in the first two years of Period-I is expected as these years were normal climatically and technology was unchanged. On the other hand, the presence of constant returns to scale in all the years in Period-II is explained in the text by the fact that these farms were all non-traditional and received technical
advise and supply of inputs from the relevant Government Departments enabling them to adjust their scale of production to such a level that the opportunities for realizing internal economies of scale were more or less exhausted. The lumpier factors were combined with other inputs in such a way that indivisibilities no longer existed to any remarkable extent. Overheads were also minimised.

The resource use pattern has been examined next for traditional technology agriculture (i.e. for Period-I) and for new technology agriculture (i.e. for Period-II) on the basis of the marginal return to opportunity cost ratios estimated for Period-I and Period-II. The following results come out:

(a) In traditional technology agriculture (i.e. in Period-I) land was, on the whole, excessively used. On the other hand, in new technology agriculture (i.e. in Period-II) land was on the whole, inadequately used.

(b) In traditional technology agriculture, irrigation water was, on the whole, used less. On the other hand, in new technology agriculture, this input was, on the whole, excessively used.

(c) In traditional technology agriculture as well as in the new technology agriculture (i.e. in Period-I as well as in Period-II) labour was, on the whole, excessively used.
(d) Seeds, and manures and fertilizers were inadequately used in all the years of both traditional technology agriculture and new technology agriculture.

The excessive use of land input in Period-I (i.e. in traditional technology agriculture) is explained by the fact that farming in this Period was basically dominated by traditional agriculture. It is likely that these farmers used insignificant amounts of modern, complementary inputs and had to fall back upon extensive agriculture. On the other hand, the inadequate use of land input in Period-II (i.e. in new technology agriculture) is explained by the fact that the farmers of this period used modern inputs to a greater extent and as such the productivity of land increased compared to the increase in the price of service from land.

The inadequate use of irrigation water in the case of traditional technology agriculture (Period-I) has been explained by the fact that the traditional farmers of this period could not fully utilize this input due to non-availability of complementary inputs in appropriate quantities. On the other hand, the excessive use of irrigation water in new technology agriculture (in Period-II) is explained by the fact that the non-traditional farmers of this
period took the advantage of the new technology and came to utilize irrigation facilities beyond their profitable limit.

The excessive use of labour input in both the periods indicates the predominance of family labour in West Bengal agriculture.

Lastly, the inadequate use of seeds, manures and fertilizers in traditional technology agriculture as well as in new technology agriculture (i.e. in both the periods) is explained in terms of weak financial position of West Bengal farmers. West Bengal farmers, on the average, never had enough cash to purchase improved seeds, manures & fertilizers in adequate quantities resulting in too thin a spread of these inputs.

In the third exercise undertaken in the present study the Cobb-Douglas function has been fitted to the data for small and large farms in both the periods. The corresponding production elasticities for small and large farms have been statistically compared for both the periods and the comparisons lead us to conclude the estimated production functions for small and large farms were not different in almost all the cases in both the periods. The study indicates that the traditional technology of the first period as well as the new technology of the second period were clearly size neutral.
Returns to scale for small and large farms have been statistically examined for both the periods by means of a t-test. The t-test suggests constant returns to scale for both small and large farms in both the periods. The implication of constant returns to scale for both small and large farms is that the enlargement of scale does not produce a resulting increase in efficiency.

The fourth exercise made dealt with the estimation of production functions for 'purely owned' and 'owned-cum-tenanted' farms in the context of Period-I and Period-II. The corresponding production elasticities for 'purely owned' and 'owned-cum-tenanted' farms have been compared in both the periods. These comparisons lead us to conclude that the estimated production functions for 'purely owned' and 'owned-cum-tenanted' farms were not different for Period-I. On the other hand, the estimated production functions for 'purely owned' and 'owned-cum-tenanted' farms are found to be statistically different for each of the cases in Period-II (i.e. in new technology agriculture). It has been found that the production elasticities of land, labour and irrigation water were, on the whole, significantly higher for 'owned-cum-tenanted' farms compared to those for 'purely owned' farms. The elasticities for seeds, fertilizers and manures are higher for 'purely owned' farms compared to those for 'owned-cum-tenanted' farms but higher
in a statistically significant sense only in one case. However, the study suggests that the 'owned-cum-tenanted' farms were relatively more efficient compared to 'purely owned' farms in using the new technology. In other words, the study indicates that the 'owned-cum-tenanted' farms have changed their technology relatively more than 'purely owned' farms.

The sums of production elasticities estimated for 'purely owned' and 'owned-cum-tenanted' farms have been examined for Period-I and Period-II. The t-test, on the whole, suggests constant returns to scale for both 'purely owned' and 'owned-cum-tenanted' farms in Period-I. But this result is somewhat different for Period-II. The t-test suggests constant returns to scale for 'purely owned' farms for each of the cases in Period-II. But the test, on the whole, suggests increasing returns to scale for 'owned-cum-tenanted' farms in Period-II.

The presence of increasing returns to scale in the case of 'owned-cum-tenanted' farms in Period-II can be said to be expected. In Period-II, all farms, to some extent, influenced by the new agricultural technology which needed more improved seeds and more chemical fertilizers. While the 'purely owned' farms were more in a position to use these non-traditional inputs in recommended doses
because of their better financial resources, the 'owned-cum-tenanted' farms were unable to do that due to lack of funds in general. This meant that internal economies were, by no means, exhausted in the case of 'owned-cum-tenanted' farms. This might have led to increasing returns to scale in the case of 'owned-cum-tenanted' farms in Period-II.

Another dimension of the present study, besides the estimation of production functions, has been an examination of the efficiency of farms according to farm size and ownership pattern. The different measures of efficiency e.g. total unit costs and paid out costs have been first examined. But it has been argued that that none of these measures were applicable to Indian conditions. The net income per acre of land is, therefore, used as a measure of farm efficiency under the prevailing Indian conditions. When we examined the efficiency of farms on the basis of farm size, the important result that emerged was that the smaller farms were more efficient compared to larger farms in terms of both gross output and net income per acre in both the periods. In other words, with the exception of the first size group, the values for both gross output and net income per acre decreased with the increase in farm size in traditional technology agriculture (Period-I) and new technology agriculture (Period-II). The existence of the inverse relationship between farm size and per acre productivity in new technology agriculture (Period-II) contradicts the result of
some other investigators. For example, S.C. Kar of the Department of Analytical and Applied Economics, Utkal University, found that the gross revenue per unit of land increased with the increase in farm-size in the case of H.Y.V. paddy in some districts of Orissa.

According to Kar, this might be due to unequal access to the critical inputs or institutional sources of credit with small farms using these inputs less than optimally. But our result for Period-II suggests that in West Bengal there was no such inequality of access to critical inputs and institutional sources of credit and both small and large farms used non-traditional inputs in the same manner in Period-II (i.e. in new technology agriculture). Otherwise, if the large farms had greater access to inputs and credit than small farms, the size-productivity relationship would have been reversed in Period-II (i.e. in new technology agriculture) in West Bengal.

The relatively higher output per acre for small farms compared to large farms in both the periods is explained by the greater use of family labour in the case of small farms compared to large farms. But it is not proper to reach any firm conclusion regarding the comparative efficiency of small and large farms on the basis of the
inverse relationship between size and productivity as the systems of farming are different. The smaller farms are family labour based farms and the larger farms are wage labour farms. Thus, it is concluded in this context that it was not the size that made the crucial differences between small and large farms. It was rather the system of payment of wages which was responsible for the differences in per acre productivity between small and large farms.

The variation in farm costs and in the distribution of net income according to farm size has been examined in the context of traditional technology agriculture (Period-I) and new technology agriculture (Period-II). The important results reached are:

i) In Period-I, the proportions of gross output paid to seeds decreased with the increase in farm size. But in Period-II, the proportions of gross output paid to H.Y.V. seeds were more or less the same as between the different size groups in all the years taken in our study.

ii) The proportions of gross output paid to bullock power and depreciation of tools and implements decreased with the increase in farm size in all the cases of both the periods.

iii) Wages and rents on lands leased-in were the two principal paid out elements in net income in every size group in both the periods.
iv) The shares of wages and rents decreased with the increase in farm-size in both the periods.

v) The shares of farm-business income were generally higher for smaller farms than those for larger farms in both the periods.

The higher costs of seeds as a proportion of gross output for smaller farms compared to larger farms in Period-I has been explained by the fact that the small farms of West Bengal were unable to save a part of their produce for the purposes of seeds and were forced to purchase grains for this purpose at relatively high prices in the sowing season. This very fact would account for relatively higher costs of seeds in the case of smaller farms in traditional technology agriculture (Period-I).

The presence of higher costs of bullock power as a proportion of gross output in the case of smaller farms in both the periods is quite expected and consistent with economic logic. Whatever is the size of the farm, a farmer must maintain at least a pair of bullock in the existing technology or hire them. The small farmers might not be able to maintain bullocks for the entire year and might have to hire them from the neighbours at high prices. This might account for relatively higher costs of bullocks in the case of smaller farms compared to larger farms.
The relatively higher costs of depreciation of tools and implements in the case of smaller farms compared to large farms in both the periods is explained by the fact that the smaller farms also had to maintain a minimum tools and implements for production purposes. The necessary tools and implements normally did not increase with the size of farms up to a certain size. This means that the small farms had relatively more tools and implements per unit of land compared to the larger farms.

The relatively higher shares of wages in the case of larger size-groups compared to smaller size groups in both the periods is expected as increase in farm size would increase the use of hired labour.

The increase in rent output ratios with the increase in farm size indicated that the proportions of the area leased-in increased with the increase in farm size.

Lastly, the relatively higher shares of farm-business income for smaller farms compared to larger farms have been explained by the lower shares of wages and rents in the case of smaller farms compared to larger farms.

Finally, the efficiency of the farms according to ownership pattern has been explained in the context of both new technology
agriculture and traditional technology agriculture. The 'purely owned' farms were, on the whole, found to be more efficient in terms of both gross output and net income per acre in both the periods. This finding supports the traditional conclusion rooted in Marshallian logic. According to Marshall, if output is to be shared then the share cropper will use variable inputs less intensively and hence he will obtain a lower output.

The relatively higher output per acre in the case of 'purely owned' farms compared to 'owned-cum-tenanted' farms in both the periods had been explained in the text by the greater use of hired labour and material inputs per acre. On the other hand, since the 'owned-cum-tenanted' farms paid rent for the land leased-in, the amount of cash at their disposal declined and hence their ability to hire labour from the market and their ability to purchase inputs would be adversely affected.

The comparative efficiency of small 'purely owned' vis-a-vis large 'purely owned' farms had been examined in the context of traditional technology agriculture and new technology agriculture. Also, the comparative efficiency of small 'owned-cum-tenanted' farms vis-a-vis large 'owned-cum-tenanted' farms had been examined. The small 'purely owned' farms were more efficient compared to large 'purely owned' farms in terms of both gross output and net income.
per acre in all the cases in traditional technology agriculture (Period-I) and new technology agriculture (Period-II). Almost the same result is obtained regarding the relative efficiency for small 'owned-cum-tenanted' farms and large 'owned-cum-tenanted' farms. With the exception of three cases (i.e. two exceptions are found for Period-I and one exception is found for Period-II) the small 'owned-cum-tenanted' farms were more efficient compared to large 'owned-cum-tenanted' farms in terms of both gross output and net income per acre. Large 'owned-cum-tenanted' farms were more efficient compared to small 'owned-cum-tenanted' farms in terms of both gross output and net income per acre only in three cases as mentioned above.

The relatively higher per acre productivity in the case of small 'purely owned' farms compared to large 'purely owned' farms was explained by the greater use of family labour for small 'purely owned' farms in both the periods. In the same way, the relatively higher output per acre for small 'owned-cum-tenanted' farms compared to large 'owned-cum-tenanted' farms was explained by the greater use of family labour in the case of small 'owned-cum-tenanted' farms compared to large 'owned-cum-tenanted' farms in both the periods. The greater use of family labour in the case of small 'purely owned' farms and in the case of small 'owned-cum-tenanted' farms was reflected in our data.
We turn now to the final part of our study which sums up the important conclusions arrived at in the preceding Chapters. It might be recalled that some hypotheses have been advanced at the very outset of the present study. These are: (a) that the new agricultural technology introduced in India after the mid-1960s is land-saving and labour-using in nature; (b) that this technology is seed-water-fertilizer based; (c) that the traditional agricultural technology prevailing in what has been described as Period-I in our study as well as the new agricultural technology referred to above and prevalent in Period-II as defined by us is both size-neutral; (d) that the 'owned-cum-tenanted' farms are relatively more efficient than the 'purely owned' farms in using both the traditional and new technologies.

It should be indicated at this stage that the production function exercises undertaken by us as the main part of the present study lend partial support to the above hypotheses. It is clear that the hypotheses (a) and (b) taken together would imply that the shares of total output going to seeds, labour, fertilizers and manures, and irrigation water are higher in the case of the new technology (Period-II) as compared to the traditional technology (Period-I). The first hypothesis would also lead us to expect a lower share of land under conditions of the new technology in comparison with the traditional technology. However, our findings
on the basis of production function exercises do not confirm these hypotheses. A comparison of the corresponding production elasticities of Period-I and Period-II shows that the share of land in total output is higher and in most cases significantly higher in the new technology agriculture (Period-II) compared to Period-I. On the other hand, the shares of labour, fertilizers & manures and irrigation water in total output have been found to be lower and in many cases significantly lower in Period-II compared to Period-I. No firm conclusion is possible in the case of seeds as our test do not indicate any significant difference for the share of this input as between the two periods. These deviation from the first two initial hypotheses require some explanation. A plausible explanation of the relatively higher share of land under conditions of new technology compared to that for traditional technology is that the supply of labour was relatively elastic compared to the supply of land in Period-II and secondly that the supply of labour was shifting out at a very rapid rate in the same period. This also explains the relatively lower share of labour in total output in Period-II compared to Period-I. It should be emphasized here that India, particularly the rural sector of India, experienced a high rate of growth of population in this decades leading to the increased labour supply in villages. West Bengal had been no exception to this development. Moreover, both the periods of our study were marked by high demand for food grains and other agricultural
commodities. This high demand was reflected in high prices of agricultural products and this in turn kept up the price of land services. In the absence of demand factor, the new technology would have considerably lowered the returns to land as it is by nature land saving.

Finally, the lower shares of fertilizers, manures, and irrigation water in Period-II compared to Period-I might be explained by the fact that the supply of these inputs had been more elastic in Period-II compared to the elasticity of supply of land in the same period.

The hypothesis (c) made by us has clearly been supported by our studies. It has been found that the technology was clearly size neutral in Period-I and Period-II. A comparison of corresponding production elasticities in the case of small and large farms shows that the technology used by them did not differ either in Period-I and Period-II. This proves that the small farms included in the present study had not lagged behind large farms in their adoption behaviour in any significant sense. This leads to the conclusion that the adoption of the new agricultural technology was not specific to a particular farm size and that both types of farms studied by us were evenly poised in terms of technology by the middle of 1970s. In other words, this evidence implies that
advantages enjoyed by the large farms in terms of the adoption of the new technology were more or less balanced by other advantages specially enjoyed by small farms in West Bengal.

A t-test has been used to discover the character of returns to scale for small and large farms. The t-test suggests constant returns to scale for both small and large farms for both the periods. It is needless to say the implication of constant returns to scale for both small and large farms is that enlargement of scale does not produce any resulting increase in efficiency.

We now turn to the hypothesis (d) which states that the 'owned-cum-tenanted' farms are relatively more efficient compared to 'purely owned' farms in the use of both traditional and new technologies. This hypothesis is partially supported by our studies. Our exercises show that 'owned-cum-tenanted' farms and 'purely owned' farms were not significantly different from each other in Period-I in the use of traditional technology. But when we come to the Period-II or the period marked by the new technology, we find that the production co-efficients of 'purely owned' and 'owned-cum-tenanted' farms differed significantly in favour of latter. This suggests that 'owned-cum-tenanted' had gone through the relatively greater changes in the production technique used.
Difference in the resource use pattern in the two situations has also been studied by applying the ratio of marginal return to opportunity costs for different inputs. It is found that in the case of land this ratio is, on the whole, less than unity for Period-I signifying that the return to land is less than the cost of land in Period-I. On the other hand, for Period-II this ratio is, on the whole, greater than one signifying that the return to land was greater than its costs.

In traditional agriculture (i.e. in Period-I) the respective ratio for irrigation water is, on the whole, greater than one meaning that irrigation water was used inadequately. On the other hand, for new technology agriculture (i.e. Period-II), the same ratio is, on the whole, less than one signifying an excessive use of this input.

There has been no difference in this ratio for labour between the two periods. The study reveals an excessive use of labour in West Bengal agriculture indicating the scope for some rationalization in the employment of labour. This again reflects the characteristic of peasant agriculture where labour is employed to the point at which its marginal products become low and zero and not to the point where its marginal product equals its wages (i.e. marginal cost of labour).
For fertilizers and manures, and seeds, the respective ratios for both the periods are greater than unity indicating inadequate use of these inputs. A plausible explanation is that the farmers in West Bengal did not have sufficient means to use fertilizers and seeds in technically optimal doses in the periods studied.

We have so far limited ourselves to the conclusions reached on the basis of production function studies. Another part of the present study relates to costs and returns aimed at finding out the efficiency of the farms on the basis of size and ownership pattern. The most important conclusion drawn from this part of the study is that the inverse relationship between farm-size and productivity observed in traditional technology agriculture (Period-I) remained unchanged in new technology agriculture (Period-II). It has been found that the values for gross output as well as for net income per acre declined with the increase in farm size both before and after the introduction of the new technology. The existence of the inverse relationship between farm size and productivity in new technology agriculture suggests that in West Bengal agriculture there has not been an inequality of access to critical inputs and institutional sources of credits and both small and large farms used non-traditional inputs more or less in the same manner. If the large farms had greater access to critical inputs and credit compared to small farms, the size-productivity
relationship would have been reversed in the case of new technology agriculture (Period-II). This result corresponds to the conclusion of the National Council of Applied Economic Research (N.C.A.E.R.). Survey entitled "Additional Rural Income Survey" in which over 5000 rural households all over India were investigated in 1968-69, 1969-70 and 1970-71. The major conclusion of the survey was that the inverse productivity size relationship was still significant after the introduction of the new technology.

The significance of the basic stability of size-productivity relationship in the two periods concerned in the present study is that there has been no technological dualism in West Bengal agriculture in the Pre-Green Revolution period or in the Post Green Revolution period. In other words, the production technology used for small and large farms in Period-I was basically the same. This was also true about Period-II. This means that whatever change in technology had taken place in the early 1970s, both small and large farms were affected in the same way.

* Appendix 'A' - Agrarian Structure And Productivity in Developing Countries - Albert B. Cline. Page 141-144.
Another important conclusion that emerges from the studies of costs and returns is that the 'purely owned' farms were more efficient compared to 'owned-cum-tenanted' farms in terms of both gross output and net income per acre in both the periods. This result, therefore, points to a relationship between the nature of tenure and productivity per acre making the latter greater for 'purely owned' farms compared to 'owned-cum-tenanted' farms. The relatively higher per acre productivity in the case of 'purely owned' farms compared to 'owned-cum-tenanted' farms might be explained by the greater use of hired labour and material inputs per acre in the case of 'purely owned' farms in both the periods.

It has also been found that the small 'purely owned' farms were more efficient compared to large 'purely owned' farms in terms of gross output and net income per acre in both the periods. The same result has been noted in the case small 'owned-cum-tenanted' farms compared to large 'owned-cum-tenanted' farms in both the periods in general. All these might be explained in terms of greater use of family labour made by small owned as well as 'owned-cum-tenanted' farms compared to large 'owned' and 'owned-cum-tenanted' farms.

Again, it has also been found that the small 'purely owned' farms were relatively more efficient compared to small 'owned-cum-tenanted' farms in terms of both gross output and net income per acre in both the periods. But when the comparison was confined
to large farms, it was found that large 'owned-cum-tenanted' farms were relatively more efficient compared to large 'purely owned' farms in terms of both gross output and net income per acre in almost all the cases in both the periods. It was also found that the small 'purely owned' farms were more efficient compared to small 'owned-cum-tenanted' as well as large 'owned-cum-tenanted' farms in both the periods.

The relatively higher per acre productivity in the case of small 'purely owned' farms compared to small 'owned-cum-tenanted' farms is explained by the greater use of family labour in the case of small 'purely owned' farms compared to small 'owned-cum-tenanted' farms. In the same way, the relatively higher per acre productivity of large 'owned-cum-tenanted' farms compared to large 'purely owned' farms is explained in terms of the greater use of family labour in the case of large 'owned-cum-tenanted' farms compared to large 'purely owned' farms. Lastly, the higher per acre productivity of small 'purely owned' farms compared to small and large 'owned-cum-tenanted' farms is also explained in terms of the greater use of family labour for them compared to small and large 'owned-cum-tenanted' farms.

In conclusion, it might be emphasized that the present study has carried out a number of interesting exercises with the primary objective of understanding the nature of changes in production conditions introduced by the new agricultural technology. It is hoped that certain interesting results have been established by the present study regarding this question.