Summary and Conclusion

Rice is an important food crop of Asia as well as India. About 95% of the world rice is being produced and consumed in the South-Asian countries extending from the Indo-Pakistan sub-continent to Japan. India is the largest rice growing country in world covering more that 42 million hectares of the total annual cultivated area. Its cultivation is mostly concentrated in the river valleys, deltas and low lying coastal areas.

In Utter Pradesh, Rice is grown mainly in Eastern and Central parts. Being the most important staple food of teeming million and major source of income of the farmers, rice covered about 28.18% of the annual cropped area in the state during the year 1995-96, and seasonwise data available in this state that the area under Kharif and Rabi rice were about 4581.50 and 3.10 thousand hectares respectively during the year.

The production on kharif and Rabi rice in this state was 9325.90 and 5.7 thousand tonnes respectively which was about 32.38 per cent of the total production of rice during the year. The
production increased to 10195.00 thousand tonnes in 1997-98. Chaudauli one of the major foodgrain producing district of the state could not remain the exception to this. The area under rice in the district during the year 1997-98 was 167325 hectares and productin was 328121 metric tonnes.

In Chaudauli Block of Chaudauli district, selected purposively for the study, rice is one of the most important crop enterprise. The total area of the rice in this block was 6564 hectares in 1996-97.

Marketed surplus in agriculture is the foundation on which the structure of India’s economic development stands. “Marketable surplus” which represents the theoretical surplus available for disposal with the producers, left after meeting his genuine requirements of family consumption, feeds, seed and payment of wages in kind. The marketable surplus may be distinguish from the “Marketed Surplus” which represents only that portion of the marketable surplus which is actually marketed and is placed at the disposal of non-producers mainly. Thus, the quantum of marketed surplus may be less equal or even more than the merketable surplus depending upon the external factors operating around the cultivators.

The present study attempts to examine the various factors influencing the levels of marketed and marketable surplus of rice in Chaudauli Block of Chaudauli district on different categories of farms with the following objectives:

(1) To examine the different factors affecting the marketed and marketable surplus of rice at farm level:-

   (i) volume of production

   (ii) size of farms

   (iii) consumption habit

   (iv) level of prices

   (v) extent of adoption of new technology.

(2) To study the following factors at the farm level in mobilising the surplus:-

   (i) the involvement of different agencies in the disposal of rice,

   (ii) transportation, its mode and cost involved in marketing of rice in relation to the choice of agency and the venue of sale, and,

   (iii) the available storage facilities in the area of study:-
(3) To determine the relationship of marketed and marketable surplus with the help of functional analysis.

On the basis of the review of literature, the following hypotheses have been formulated and are proposed to be tested in the present study under the different category of farms.

(1) Marketed and marketable surplus are positively related to the volume of farm output.

(2) Marketed surplus increases with-
   (i) the increase in size of farm;
   (ii) the higher level of prices;
   (iii) increase in the adoption of new technology;
   (iv) smaller size of farm families;

(3) Marketable surplus is poorly mobilized due to:-
   (i) poor transportation condition, higher costs involved in it;
   (ii) inferior facilities of storage;
   (iii) other marketing facilities like agents, wholesalers, resident agents, co-operative organisations and the facilities of market information at the village level.

In order to present an overall picture of marketable and marketed surplus in the block under study, the multistaged random sampling technique has been adopted for the present study.

There are 11 development Blocks in Chandauli district. The Chandauli block is one the most progressive block. This block was purposely selected because of the fact that rice is one of the most important crop enterprise and the block is equipped with better irrigation and infrastructural network.

A separate list of inhabited villages under the block was prepared as there were 155 village in the block. These villages were stratified into three categories.

The first category was below 25 per cent of gross area sown. The second category of villages were those where the rice occupied 25 to 50 per cent of the gross area sown and the village in third category were those, where the area under rice occupied 50 per cent and above of the gross area sown. Further, sample of minimum 15 per cent of the total villages in each category was selected.
randomly for the present study.

After preparing the list of cultivators from each sample villages, the size of holding of each farmer was arranged in ascending order to their cultivated area. Thus they were classified into three size groups:-

1. Cultivators having an area below 1.00 hectare i.e. small farmers;
2. Cultivators having an area between 1.00 to 2.00 hectare i.e. medium farmers;
and
3. Cultivators having an area of 2.00 hectare and above i.e. large farmers.

15 per cent of the total farmers were selected randomly from each category. The sample, thus selected was comprised of 90 farm households with a distribution of 39 farmers in first, 30 farmers in second and 21 farmers in third size groups.

The present study is based on both the secondary and the primary data. The secondary information related to the study were collected from various published and unpublished sources. For this, different offices and agencies were consulted as and when it was required. However the primary data were collected through the personal interview of the sample farmers with the help of specifically designed survey schedule. The period of enquiry pertains to the year 1998-99.

All available data were checked, tabulated and subjected to tabular as well as functional analysis as a tool for determining surplus of farm produce under study and also to examine the dimension and magnitude of effects of different factors which influence the marketable and marketed surplus.

Chandauli is located in the eastern part of Utter Pradesh with a geographical area of 1889.9 sq.km. and with a population of 12.39 Lakh. The district has 11 development blocks. The block under study has got 20547 hectare as its geographical area with a population of 170635 inhabiting in 155 villages falling under 94 Goan Sabhas of 10 Nay ay Panchayats.

The percentage population of male and female in the block is 52.08 per cent and 47.92 per cent respectively. The density of population in the block has been worked out as 830.47 per sq. km.

The area under cultivation in the block is 81.20 per cent of the geographical area. The intensity of cropping is 170.33 per cent. The important crops grown in the block are rice, wheat gram, pulses, etc. The area under irrigation is 61.88 per cent of the net sown area. The cannal and pumping set are
the main source of irrigation covering about 98 per cent of the total irrigated area.

The area under cultivation, though varies from farm to farm but size group-wise average area per farm under cultivation were 0.69, 1.32 and 4.99 hectare respectively on small, medium and large farms. The average size of holding in the case of all farms was 1.91 hectare. The study further, reveals that 15.32 per cent of the total cultivated area is commanded by small farmers where 23.23 and 61.45 per cent of the area is command by medium and large farmers respectively.

As far as the population on sample farms is concerned, there were an average of 9.14, 10.86 and 13.57 members per household on small, medium and large respectively averaging at 10.74 members per household for all farms. Of the total members in household, 19.61 per cent were literate on small farm whereas on medium and large size groups, the percentage of literates were 38.63 and 64.92 per cent. Based on the sample average it can be generalised for the area that 39.40 per cent of the total members of farming community are literates. Further, all the members, in any household are generally not available for working on the farm. In the sample household, it was observed that only 51.68, 30.08 and 12.97 per cent of the members from small, medium and large farmer’s category respectively, were available in work-force. Availability of members in work-force on per hectare basis depicts decreasing relationship with size of farm. It was least on large farms and highest on small farms. The respective figures for small, medium and large farms are 06.82, 02.47 and 0.35 per cent on per hectare gross area sown.

The sample farmers just like the general farmers in the locality used to grow a number of crops in each season, i.e. kharif and Rabi. Among all the crops, the rice in kharif and wheat in Rabi seasons occupied the largest area on all the size group of farms. Though the actual area under these crops increases with increase in size of farm but, the proportion to net area sown depicts a reverse relationship with the size of farm. Area under foodgrains and other cash crops increased due to improvement in irrigation facilities in the area. Over 55 per cent of the cultivated area enjoys the facility of irrigation in the locality. The intensity of irrigation intensity as well as irrigated area varies from farmer to farmer. The irrigation intensity on small farm was observed to be 189.47 per cent. Depicting a decreasing trend, it was observed to be 159.09 per cent on medium farms and 148.86 per cent on large farms with an overall average of a 156.25 per cent.
Machanisation of farms is a direct measure of improvement in the socio-economic standard of farmers concerned. It was observed that only 11.36 per cent of the small farmers are owning tractors. The number of farmers owning tractors increased from small to large farms, 70.00 percent of the sample large farmers were having tractors of their own. The average yield of rice per hectare for small, medium, large and all forms have been worked out as 34.18, 34.02, 25.30 and 29.05 quintal respectively. The per farm production of this crop for small, medium, large and all farms has been estimated as 10.73, 16.03, 42.76 and 17.97 quintals respectively.

It is evident from the Table 6.3 that the marketed surplus increases with increasing size of farms. It varies from 5.16 quintals in the 1 size group of 9.33 quintals for the medium and 26.67 quintals for the large size group with an overall average of 11.57 quintals. Thus the hypothesis no. 2 (i) that the marketed surplus increases with the increase in the size of farms, is acceptable and valid. The marketed surplus by different size of farms have been worked out as 48.06, 58.19, 62.37 and 57.93 per cent of the total production for small, medium, large and all farms respectively. The percentage contribution of each size of farms in total marketed surplus was 19.31, 26.88 and 53.81 per cent respectively, for small, medium and large size of farms. The proportion of sale to total production has been worked out as 48.06, 58.19, 62.37 and 57.93 per cent for small, medium, large and all farms respectively. As such the hypothesis No 1, i.e. both the marketable and marketed surplus are positively related to the volume of farm output finds its validity and hence may be accepted. It may further be concluded that the volume of production depends on size of farm but the productivity per hectare is primarily dependent on the level of technology and the form of H.Y.V. of seeds, use of fertilizers, insecticides and better farming practices. The level of production and productivity are observed to be higher on larger size of farms. Thus the hypothesis No 2 (iii) that the marketed surplus increases with the increase in the adoption of technology is true and accepted.

The size of family has its influence of marketable and marketed surplus both. A small farmer with a small size of family used to sell 68.59 per cent of his total produce of rice, whereas those with medium and large size of family used to sell 43.23 and 27.27 per cent of it. The medium farmers with small, medium and large size of family used to sell 78.59, 68.00 and 57.97 per cent of total rice
produce of their farms respectively. This depicts a negative relationship with the size of household (family) on each size group of farm it calculated in percentage terms. Thus, the hypothesis No 2 (vi) that the marketed surplus increases with the smaller size of farm families is observed to be valid and acceptable. Further, it is fairly evident from Table 6.10 that the sale of the produce varies from 23.56 per cent for the large size group to 43.55 per cent in the medium size-group to 92.54 per cent in case of small farms with an overall average of 42.26 per cent of the total sale when the prices rule at the lowest. These sale figures for the off-season period are 76.44 per cent, 56.45 per cent, 7.46 per cent and 57.74 per cent respectively when the prices rule the highest and are favourable. Thus the hypothesis No 2 (ii) that the surplus increases with the higher level of prices is observed to be true and valid for the medium, large and all farms and does not hold good for the small size farms because of the high intensity of distress sale.

The marketed surplus per family member has been observed as 0.71, 1.02, 2.44 and 1.32 for small medium, large and all farms respectively.

The level of production has also influenced the marketed and marketable surplus. It has been observed that as the level of production increases, there has been increase in marketable and marketed surplus as well. The percentage of sale for different level of production was worked out as 37.32, 63.56, 58.84, 69.99 and 57.93 per cent for the production levels below 15, 15 to 45, 45 to 75, 75 quintal and above and all farms respectively.

The another factor which influences the marketed and marketable surplus is consumption. As the consumption increases the quantity of marketable surplus decreases. The consumption is closely related to the size of family. So as the size of family increases, the consumption is increased, resulting into a decrease in marketable surplus. It has been observed that at the same level of production, as the size of family increases, the consumption as a per cent to total production increases.

The per farm consumption were 4.86, 5.26, 9.29 and 6.02 quintals for small, medium, large and all farms respectively. A decrease in the percentage of consumption to total production causes an increase in the level of marketed and marketable surplus. The consumption percentage has been worked out as 42.27, 32.80, 21.71 and 30.16 per cent for small, medium, large and all farms respectively whereas the percentage of marketed surplus shows increasing relationship viz. 48.06, 58.19, 62.37, and 57.93 per
cent for small, medium, large and all farms respectively.

The marketable surplus is calculated by deducting family consumption seed, feed and wages in kind from total production. The per farm marketable surplus increases. The percentage contribution of each size group in the form of marketable surplus to gross produce is 35.86, 48.22, 60.78 and 51.63 for small, medium, large and all farms respectively. The per farm wage in kind also increases with the increase in the size of farm i.e., 0.92, 1.30, 5.60 and 2.14 quintal for small, medium, large and all farms respectively.

The magnitude of difference between marketed and marketable surplus is direct measure of distress sale on a farm. Here the difference has always been positive indicating that the marketed surplus on all the farms were greater than the marketable surplus. Though the magnitude of difference was least on large farms, it has no relationship with the size of farms. It was highest on medium farms, on large farms it cannot be reduced that it is due to any pressure or as a result of distress sale.

The study also reveals that small farmers used to dispose off bulk of their surplus during the post-harvest months, i.e. 92.54 per cent of their surplus. The medium farmers sold 43.55 per cent of their marketed surplus during the post harvest months and large farmers only 23.56 per cent of their marketed surplus. Thus, for all farms due to better retention capacity among large farmers and upto some extent with the medium farmers the percentage sale in off-season months was estimated as 57.74 per cent of total sale.

A number of marketing functionaries and channels engaged in movement of produce were identified. To increase the producers share in consumers rupee and to save the producer sellers from undue exploitations, it is recommended that the length of channel of movement and number of intermediaries should be reduced to a reasonable extent. In the present study efforts were made to explore the agencies which have direct interaction with the producer farmers for purchase of the goods. It was observed that most of the produce from small farmers was purchased by village traders and from other two size groups of farms the most of the part was purchased either by wholesalers directly or by their agents.

In computation of marketing cost, the two major aspects, i.e. transportation and storage costs were taken into consideration, which are directly borne by the farmers. The cost of transportation
depends on the mode of transportation, the condition of the road and the distance. Whereas, that of storage depends on the mode, loss during storage, use of pesticides etc. Village traders generally purchase the produce from farmers field that is why there is no cost borne by producers in transportation while that in selling to retailers and wholesalers, the cost of transport is directly borne by producers. The storage cost per quintal was least on large farms. This is because, the large farmers stored relatively a greater volume of produce and as such had the advantage of economy of scale.

It is fairly evident from Table 6.11 regarding the disposals of rice through different agencies that the village traders, consumers and retailers account for nearly fifty per cent of the total sale in the village itself. The village sale varies from 75.19 per cent for the small size group, to 55.31 percent for the medium size group, 35.70 per cent for the large size group. This clearly indicates a very heavy sale in village itself by all the size group of farmers were the prices rule quite low as compared to prices prevailing in the markets. This particular phenomenon is mainly due to high transportation cost, inferior facilities of storage and other marketing facilities, thereby proving the hypothesis No. 3 that the marketable surplus is poorly mobilized due to the aforesaid factors.

Both the marketable and marketed surplus were analysed by using linear as well as the Cob-Douglas production functions. Proportion of area under rice to the net sown area, volume of production, estimated family consumption, and size of family in adult units were considered as explanatory variables with marketable surplus as dependent variable for both the functions. While analysing effects of the factors on marketed surplus (the dependent variable) all the above explanatory variables as such were considered except one i.e. estimated consumption. In place of this variable, the actual consumption was substituted. To judge the relative suitability of the above forms of production function R2 was higher calculated and a function with R2 value was considered best. In both the cases (i.e. marketable and marketed surplus analysis), the linear form of the function gave the best fit on all the size group of farms. Further, 't' test was applied to trace a variable (factor) having significant effect on the above dependent variables. In case of marketable surplus, in linear production function, the volume of production was only the factor whose effect was significant at one percent level for all the size group of farms. It’s effect was positive on small farms, this was only the factor having significant effect but in case of other two size groups, estimated family consumption too had the significant but
negative effects. It was significant at one per cent level for medium and at two per cent level for large farms. In case of marketed surplus, in linear form of function again only volume of production had a significant (at one per cent level) and positive on small and large farms whereas on medium farms the volume of production (at one per cent level) had positive and size of family (at 5 per cent level) had negative and significant effects. The other factors considered under the study had no significant effect on either of the dependent variables.

Marketed surplus is expressed as a function of cropped area under rice, volume of production, consumption and family size in adult units. The regression coefficients are effective and in few cases highly significant. The marketed surplus is, therefore found to be positively related to the cropped area and the volume of production. On the other hand, the marketed surplus is negatively related with the size of family and levels of consumption.

The functional analysis in case of marketable surplus reveals that the regression coefficients for cropped area, volume of production, size of family and level of consumption are effective and highly significant in few cases. Thus it can be concluded that marketable surplus also is positively related to the cropped area and volume of production whereas it has shown inverse relationship with family size and levels of consumption.

The marginal propensity to sale has been observed and found to be significant with desired sign. This indicates that an unit increase in cropped area, volume of production, size of family and level of consumption result in an increase in the first two size groups, increase of 0.73 to 0.94 in all the size groups, decrease of 0.30 and 0.05 in the first and third size-group and decrease of 0.23 to 0.70 per cent in the marketed surplus respectively for all the size-groups.