CHAPTER VI
SUMMARY OF FINDINGS

6.1 Adoption of New Technology and Cropping Pattern:

(1) Because of the availability of canal irrigation in Ganganagar district, a significant number of cultivators in all acreage categories have been able to adopt the new production technology. However, the proportion of adopters is relatively low in the small acreage categories. In general, the higher the size of operational holding, the higher is the percentage of adopters in each category. The initial resource base of big farmers seems to have enabled more of them to adopt the new technology.

(2) Wheat, rice and bajra are the only H.Y.V. crops being cultivated in Ganganagar district. Of these Mexican wheat is the most important in all acreage categories of adopters.

(3) Despite the existence of some erratic patterns in some individual acreage categories, the cropping pattern of adopters and non-adopters is similar. For both, wheat is the dominant crop during Rabi and cotton during Kharif. The new technology has not led to any significant changes in the cropping pattern.
As noted earlier, the proportion of adopters is higher in the large acreage categories. However, the intensity of adoption, i.e. the proportion of area under H.Y.V's is relatively higher in the small acreage categories. Despite this, the total area sown to the H.Y.V's is positively correlated with the size of operational holding.

The study indicates that the economic factors have played an important role in the adoption of new technology. The regression results show that the size of operational holding, access to liquid funds and availability of assured irrigation through tubewells in addition to canals constitutes the set of significant explanatory variables for the adoption of new technology.

6.2 Production Efficiency and Farm Size:

New technology in Ganganagar has helped to increase the output and productivity of all categories of adopters. The output per acre obtained by adopters is significantly greater than their non-adopter counterparts in all acreage categories. This increase in output has been achieved as a result of greater use of scientific inputs.

The analysis of production efficiency on small versus large farms does not support the hypothesis that recent changes in agricultural production technology have been associated with a relative deterioration of crop production.
efficiency on small farm units in Ganganagar district. The small farmers are as efficient as large farmers in converting the inputs into outputs at the given level of technology. Thus, small farmers can be viewed as a potential resource rather than a burden.

6.3 Income Distribution:

(1) The additional increase in the value of output obtained by adopters of new technology is markedly greater than the additional value of inputs used by them. As a result, all categories of adopters are able to increase their profits and also record a much higher household income than their non-adopter counterparts. It is significant that all categories of adopters are able to record a surplus after meeting their consumption expenditure.

(2) The gains of the new technology have been reported by all categories irrespective of the size of their holding. There is no evidence to suggest that these gains have been monopolised by the richest section of cultivators alone. While big peasants have been able to record substantial absolute gains in income, it is notable that it is the adopter cultivators cultivating less than 10 acres of land that have recorded the highest per acre income gains over their non-adopter counterparts.
The 'Gini' coefficient of net household income shows that income distribution is extremely skewed among Ganganagar cultivators. The analysis of the income distribution pattern suggests that the new technology has not created any significant impact on the income distribution position. Income is highly concentrated among adopter as well as non-adopter households and their separate Gini coefficients are virtually the same.

Per capita income concentration follows the same pattern as household income concentration. The concentration of per capita income among adopter and non-adopter households is almost of the same order. It appears that income distribution among cultivators continues to be extremely uneven in rural Ganganagar.

The poverty measure 'P' suggests that with the adoption of new technology, poverty among adopters has decreased very substantially. However, the magnitude of absolute poverty is still considerable among non-adopter cultivators. The contribution of new technology, therefore, lies not so much in reducing income disparities, but in making a significant dent on poverty.

A comparison of concentration ratios shows that although income distribution and land distribution
are closely associated, the concentration ratios for income are greater than those for land. It appears that a high degree of land concentration generates income inequality of an even higher order.

Inequalities in land holdings become a cause of further perpetuation of concentration because of another reason. Due to the relatively inelastic supply of land, increased productivity of land resulting from the introduction of H.Y.V's may be reflected in subsequent years in a rise in land values. This is a windfall gain to the owners of farm land — a gain at almost no cost to the owners. These gains are in addition to gains in net income that result from cultivation of H.Y.V's. As noted earlier, the gains from adoption of new technology have also increased linearly with the amount of land operated. Thus even if the shift in the production functions of H.Y.V's remain neutral in character, the 'effect' of new technology may result in increasing existing inequalities in favour of large land owners.

6.4 Consumption Pattern:

(1) Consumption expenditures of Ganganagar cultivators are highly correlated with income levels. However, there is a minimum consumption level that poor households try to maintain whether they can afford it or not. The adopters of the very small category are
barely breaking-even, whereas non-adopters in the same category incur a small deficit.

(2) Adopter cultivators, by virtue of their high incomes, are able to enjoy higher levels of living than the non-adopters. An average household in each acreage category spends a significantly greater amount than the non-adopter.

(3) As one moves up the income ladder, consumption rises but less steeply than the rise in income. The average propensity to consume (a.p.c.) declines from the lower to the higher acreage categories. It is notable that a.p.c. for adopters is lower than that of non-adopters in each acreage category. Similarly, the marginal propensity to consume for adopters and non-adopters cultivating less than 20 acres of land is significantly higher than that of those who cultivate more than 20 acres.

(4) The consumption pattern of cultivators in Ganganagar is typical of rural societies in underdeveloped countries. Consumption is very much biased towards food items. The rich adopters spend a relatively small proportion of total consumption expenditure on food items. The expenditure elasticities for essential foods is very low. Both the adopter and non-adopter cultivators exhibit relatively much higher elasticities for marriages and social ceremonies, clothing and some services.
The differences in the consumption pattern of adopters and non-adopters and their large and small categories do not differ much in qualitative terms. The rich adopters and non-adopters merely consume greater amounts of much the same bundle of goods. The only significant differences appear in the quantum and proportion of expenditure incurred on education and marriages and social ceremonies and some services. Thus, rural rich appear to be keen to assert their superior status through lavish expenditure on marriages and social ceremonies. However, these cultivators are also showing a greater awareness of the desirability of educating the next generation.

There is a high proportion of home-grown stocks in the consumption budget of adopters and non-adopters in Ganganagar district. This is indicative of the relatively self-sufficient character of our agriculture. It also shows that despite technological change, the village economy is still not fully monetised.

The inequality in consumption expenditures is considerable among the agricultural households in Ganganagar. The new technology has failed to affect the distribution of consumption expenditure. The concentration of consumption expenditures is almost of the same order among adopters and non-adopters. High income
concentration appears to have led to the concentration of consumption expenditure for adopters as well as non-adopters. The income distribution is less skewed than the distribution of consumption expenditure. There is not much difference between the concentration of total household consumption expenditure and per capita expenditure for any group of cultivators.

The 'P' measure calculated on the basis of expenditure level data indicates that the poverty among adopters of new technology has considerably decreased. The 'P' measure calculated on the basis of consumption expenditures is numerically higher than the income 'P' measure for each group of cultivators, but this difference is not significant.

6.5 Fixed Capital Formation:

(1) Adopter cultivators in all acreage categories are investing larger amounts on both farm and non-farm assets compared with non-adopter cultivators. This has opened the possibility of rapid growth and development of agriculture. Further, farm investment is greater than non-farm investment in almost all categories of adopters and non-adopters.

(2) The investment pattern of adopters and non-adopters below 20 acres is more or less the same. In the higher acreage categories, a large share of farm
investment has been allocated to power driven implements by both sets of cultivators. Farmers with a large land base, particularly adopters, are moving towards more capital-intensive techniques of production by investing more in costly farm equipment.

There exists a significant difference between the adopters and non-adopters above 20 acres with respect to their investment in irrigation equipment and farm threshers. The big adopters allocate a higher proportion of total investment to tubewells and farm threshers. Only the non-adopters cultivating above 40 acres have invested some amount in wheat threshers.

Many non-adopter households are also investing in modern farm equipment, particularly in tractors, in order to make use of improved methods of production.

The big adopters and non-adopters are also investing a large proportion of their investment in non-farm investment, especially residential construction.

The level of investment in most of the costly equipment is mainly determined by income, and only partly by the savings of the cultivators in Ganganagar district. The investment pattern of adopters and non-adopters is more or less similar, except for the
fact that it is only the adopter cultivators who have undertaken investment in tubewells.

In general, the investment pattern appears to be of a traditional nature in the lower acreage categories of both adopters and non-adopters. For higher categories, a combination of modern and traditional patterns is observed. The investment pattern on Ganganagar farms seems to be passing through a transitional stage with the big cultivators gradually tending to mechanise their holdings.

The 'Green Revolution' has no doubt brought prosperity to the rural areas of Ganganagar district. Vigorous policy measures are now needed to ensure that the fruits of this prosperity are shared equitably by all the cultivators.