

CHAPTER V

SUMMARY AND CONCLUSIONS

Rural poor constitute the bulk of the rural population and coarsegrains are the staple diet for them. The state of Haryana has experienced green revolution mostly in wheat and rice. Area under wheat and rice has doubled and production has increased four times during the last 15 years i.e. 1966-67 to 1980-81. On the other hand the area and production of coarsegrains and pulses together has declined substantially from 2582 thousand hectares and 1310 thousand tonnes in 1966-67 to 1998 thousand hectares and 1287 thousand tonnes in 1980-81, respectively. The coarsegrains include jowar (sorghum), bajra (pearlmillet), maize and barley. During the last decade the area under bajra and maize fluctuated considerably, whereas the area under jowar started declining since 1966-67. In addition to the coarsegrains, pulses also occupied an important place in cropping pattern of the state and are the major source of protein particularly for the vegetarians. During the last fifteen years, there has been a continuous fall in the area and production of coarsegrains and pulses.

One of the important tasks of the government is to ensure a balance between the demand for and supply of foodgrains. However, it is not merely the overall balance between the demand and supply of foodgrains which is important but equally important is also to maintain the balance between the demand for particular foodgrains and its supply. In view of the above considerations, this study was an attempt

(i) to conduct the trend analysis in production and consumption of selected coarsegrains and pulses in Haryana, (ii) to project the demand for and supply of selected coarse-grains and pulse crops, and (iii) to identify the constraints in the production of selected coarsegrains and pulses.

The present study was based on primary and secondary data. To collect the primary data the sampling procedure consisted of multi stage stratified sampling. Haryana state was divided into two zones viz., dry and wet zones. Ambala and Bhiwani districts from each zone was selected randomly. One tehsil from each district was again selected randomly. One per cent villages from each tehsil making a total number 5 villages (3 from Ambala and 2 from Bhiwani tehsils) were selected randomly. For each selected villages small, semi-medium, medium and large holdings size groups were categorised in accordance with the Agricultural Census in Haryana 1976-77. From each holding size group, 4 per cent of the households were randomly selected. In all 150 farmers were selected for the primary data collection. Time series data were collected for the period 1966-67 to 1980-81. The consumption data were obtained from four rounds of the National Sample Survey (N.S.S.) viz., 22nd round (1967-68), 25th round (1970-71), 28th round (1973-74) and 32nd round (1977-78) from the Department of Economic and Statistical Organisation, Government of Haryana. Compound and linear growth rate were worked out by fitting the exponential and linear function. Double-log function were used to estimate the income elasticities of

demand and Nerlovian Adjusted Lagged Model taking lagged area, lagged price, lagged yield, lagged percentage irrigated area to total cropped area and presowing rainfall as independent variable was used to estimate the acreage response. Tabular analysis were done to see the constraints in the production of coarsegrains and pulse crops.

The study reveals that the area under total coarsegrains and pulse crops show a declining trend during the period 1966-67 to 1980-81. The area under total coarsegrains declined at the rate of 1.37 per cent per annum which was statistically significant. The area under total pulses also declined at the rate of 1.69 per cent per annum which was statistically non-significant. Area in case of jowar and barley declined significantly but the decline in area under bajra and maize was non-significant. The area under greengram and lentil had declined significantly whereas decline in area of gram and blackgram was insignificant.

The production of all the coarsegrains and pulses declined during 1966-67 to 1980-81 at the rate of 2.05 and 1.69 per cent per year, respectively which was statistically non-significant. In case of pulses there had been a declining trend except that of blackgram production. There had been an increase in the yield of jowar and barley at the rate of 1.10 and 1.60 per cent per annum, respectively. However, these rates were statistically non-significant. The decline in yield of maize and bajra was non-significant. The yield of greengram, blackgram and lentil had registered an increase

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at the rate of 6.9, 4.7 and 2.3 per cent per annum, respectively. The decline in yield of gram was non-significant. A zero growth rate in yield of total pulses was observed.*

The per capita consumption of foodgrains was higher in rural areas as compared to urban areas during the year 1967-68. The total consumption of foodgrains per month in rural areas was 16.25 kg and 12.16 kg in urban areas during the same period. The consumption of coarsegrains and pulses was also higher in rural areas as compared to urban areas. The consumption of coarsegrains in rural areas declined from 5.61 kg in 1967-68 to 1.34 kg in 1977-78 and from 0.62 kg to 0.05 kg in urban areas. The consumption of total pulses in rural areas also declined from 1.46 kg in 1967-68 to 1.24 kg in 1977-78. The consumption of total pulses in urban areas declined from 0.88 kg in 1967-68 to 0.83 kg during the same period.

The share of coarsegrains in total consumption declined from 34.51 and 5.14 per cent in 1967-68 to 9.01 and 0.42 per cent in 1977-78 in rural and urban areas, respectively. Similarly consumption of gram during the same period declined from 5.52 to 3.54 per cent in rural areas and from 3.36 to 1.54 per cent in urban areas. However, the share of pulses (except gram) in total consumption had slightly increased from 3.48 and 3.89 per cent in 1967-68 to 4.81 and 3.36 per cent in 1977-78 in rural and urban areas, respectively. The consumption of pulses had increased because people of these areas have become nutrients ^{Consciousmen} ~~consciousness~~ and they are one

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of the important source of protein for vegetarian population.

The per capita expenditure on important food items had increased sizably during the last 11 years (1967-68 to 1977-78) period in both rural and urban areas. This is due to increase in prices of food items. The expenditure for selected foodgrains increased from Rs.14.23 and Rs.11.89 (in 1967-68) to 20.42 and 18.24 (in 1977-78) in rural and urban areas, respectively. The average per capita expenditure on coarsegrains had declined from Rs.3.92 and Rs.0.41 (in 1967-68) to Rs.1.56 and Rs.0.06 (in 1977-78) in the rural and urban areas, respectively. The average per capita expenditure on total pulses had increased from Rs.1.62 and Rs.1.24 (in 1967-68) to Rs.2.96 and Rs.2.53 (in 1977-78) in rural and urban areas, respectively. Thus the consumption of major cereals had increased over time whereas that of the coarsegrains had declined.

Income elasticities (expenditure elasticities) of demand for all food items were higher in rural areas as compared to urban areas, except in case of other pulses. However, there was no significant difference between the two. The income elasticities for gram and other pulses were very high in both the areas. The coarsegrains had a very high negative income elasticities in both the areas. This happened because as income increases households tend to substitute major cereals (wheat and rice) for coarsegrains. That is why the consumption of coarsegrains is declining in rural and urban areas. Maize in rural areas had 0.60 income elasticity.

The elasticity of coarsegrains was -0.4985 in rural areas and -1.3027 in urban areas. The elasticity for total pulses was 0.9128 for rural areas and 0.8315 for urban areas.

The average per capita monthly demand for coarsegrains (bajra, maize and barley) is likely to decrease from an estimated 1.34 kg and 0.04 kg in the base period (1977-78) to about 1.20 kg and 0.03 kg for rural and urban areas, respectively in 1989-90. In case of gram and other pulses, the per capita demand is expected to increase from an estimated of 1.24 kg and 0.83 kg in 1977-78 to about 1.60 kg and 1.03 kg under the situation I and about 1.60 kg and 1.40 kg under the situation II for rural and urban areas, respectively during the same period. On account of negative income elasticities of bajra and barley in rural areas and for maize in urban areas, the demand for these coarsegrains in both the sectors is expected to show a declining trend in contrast to an increasing trend in per capita consumption of major cereals in both the years.

The aggregate demand (human and non-human consumption) for coarsegrains and pulses is expected to increase from 146.72 to 160.02 thousand tonnes in 1977-78 to 172.85 and 276.78 thousand tonnes under the situation I and 164.24 and 274.93 thousand tonnes in situation II, respectively by the end of 1989-90.

In case of bajra no significant relationship was observed. Thus the acreage under the bajra remains insensitive to price/yield movement because bajra is the best dry area

crop. The previous year area and presowing rainfall were highly significant which indicated that the changes in these variables would significantly affect the allocation of land under maize crop. The coefficient of rainfall was negative and significant which revealed that higher the rainfall lower the area under maize crop, because in that case farmers put more area under paddy. It may also be possible due to high rainfall the water logging has rendered the soil unfit for maize cultivation. The lagged farm harvest price of barley and percentage irrigated area to total cropped area lagged were significant. The negative coefficient of percentage irrigated area to total lagged cropped area indicates a downward shift in the allocation of area to barley. The response function for gram showed that rainfall did exercise a significant influence on acreage. The analysis of greengram, blackgram and lentil showed very interesting results contrary to the expectations. The results of the analysis showed that in most of the cases, the impact of price variable had been either too weak or even negative. It is also a fact that the price factor had been almost over-swamped by the non price factors such as technological changes in competing crops influencing shifts in inter crop acreages.

The area under bajra and maize is expected to increase from 922.96 and 86.13 thousand hectares in 1980-81 to 974.96 and 90.77 thousand hectares, respectively by 1989-90. The area under barley, gram, greengram, blackgram and lentil is expected to decline from 93.35, 969.49, 15.62, 9.24 and

30.51 thousand hectares in 1980-81 to 30.70, 961.06, 4.84, 7.93 and 24.34 thousand hectares respectively by the end of 1989-90.

The production of bajra, maize, barley, gram, greengram and lentil is expected to decrease from 430.37, 81.94, 125.91, 673.73, 12.16 and 14.83 thousand tonnes in 1980-81 to 396.88, 77.72, 46.80, 626.11, 5.25 and 13.97 thousand tonnes by the end of 1989-90, respectively. The production of blackgram is expected to remain the same because the expected decrease in area is expected to be nullified by increase in its yield.

In spite of increase in area by 5.58 and 5.59 per cent in bajra and gram the production of these crops is expected to decrease by 7.78 and 5.15 per cent by the year 1989-90 over 1980-81. The decrease in production may be due to increase in the percentage irrigated area to the total cropped area. In such a situation farmers are expected to put more marginal land under these crops.

Haryana will be able to meet the aggregate demand of all the coarsegrains and gram except other pulses (greengram, blackgram and lentil).

If the production level of 638.22, 609.19, 567 and 522 thousand tonnes of coarsegrains in 1980-81, 1983-84, 1986-87 and 1989-90 is reached (though the total production of coarsegrains was declining) there would be a surplus of about 483, 449, 400, 348 thousand tonnes in situation I and 483, 450, 405, 357 thousand tonnes in the situation II. The supply of gram though surplus is expected to deteriorate

marginally. The state is expected to be surplus in the production of gram by 600-91, 574.64, 546.85, 517.5 thousand tonnes in situation I and 600.91, 574.36, 547.83, 519.34 thousand tonnes in situation II. On the other hand the state is expected to be deficit in the production of other pulses by 78.84, 97.64, 118.09, 142.06 thousand tonnes in situation I and 78.85, 97.68, 110.10, 142.03 thousand tonnes in situation II in the years 1980-81, 1983-84, 1986-87, 1989-90 respectively.

The main constraints in the production of coarsegrains and pulses were low fertility of land, use of local or deshi seeds, less use of water and fertilizer, low yield potential of varieties, less remunerative (due to low yield), erratic rainfall and risky nature of the crops. About 49 to 83 per cent of the sample farmers had planted the coarsegrains and pulses on low fertile land. The percentage of the total sample farmers using the seed of improved varieties was the highest in case of bajra followed by maize, gram and other pulses. Only 7 to 28 per cent of the sample farmers irrigated coarsegrains and pulses. The percentage of farmers who irrigated the coarsegrains and pulses were relatively higher on smaller holdings than on larger holdings. The per hectare fertilizer application was relatively higher on larger holdings than on smaller holdings. There was no use of fertilizers on any size of holdings in barley, gram and other pulses. In case of coarsegrains and pulses the attack of insect, pests and diseases was reported by 7 to 36 per cent of the sample farmers. But none of the farmers had used the

plant protection measures. The yield potential of coarse-grains and pulses is much less than that of the major cereals (i.e. rice and wheat). Since the coarsegrains and pulses are generally grown in dry and rainfed areas, the chances of crop failure are high as compared to other cereal and commercial crops as these crops are generally grown, where adequate irrigation facilities are not available. All the concerned sample farmers informed that there were no good facilities for marketing of barley and minor pulses (greengram, blackgram and lentil).

Based on the foregoing discussion the following conclusions emerge for appropriate policy implications:

1. To increase the output of coarsegrains and pulses, it is necessary to raise their productivity by evolving high yielding varieties with stable yield for these crops. This may be followed by appropriate extension education programmes to the farmers, to acquaint them with better and efficient use of resources for producing these crops.
2. Reduction in area under coarsegrains particularly jowar, bajra and maize is adversely affecting the feed and fodder supply for the livestock and prices of feeds and fodders have increased manifold. Any technological break-through which boosts the production of these crops would also help a lot in increasing output of livestock products in the state.
3. Special attention should be given to increase the production of greengram, blackgram and lentil in the state to meet the increasing demand for these pulses.