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**AGRICULTURAL INPUT SUBSIDIES IN INDIA:  
QUANTUM OF SUBSIDIES TO SCHEDULED CASTE  
FARMERS IN HARYANA**



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## FOREWORD

This study focuses on the distributive aspect of subsidies with a special feature of analysis of the flow of benefits to the target group viz. SC farmers. Since the study is based on a farmer level survey, it has the advantage of being able to quantify the benefits, both in absolute and relative terms, to SC and other category of farmers. This aspect is absent in other studies based on secondary data addressing a similar issue.

The study is confined to the state of Haryana. It is part of a larger study being conducted by fourteen other AER Centres/Units in their respective States and coordinated by the AER Centre, Delhi University (Coordinator: Ms. Usha Tuteja).

The accrual of both direct and indirect subsidies has been analyzed. The direct subsidies are specific to crop, machinery and bio-fertilizers, including cash and kind input subsidies, and the indirect subsidies refer to the consumption/use of fertilizer, power and irrigation. The sample of cultivators is spread over different agro-climatic zones of Haryana covering SC and the other (general) categories as well.

Some of the notable findings of this study are: (i) although the average operational holding of SC cultivators (1.6 ha) is much smaller than that of other cultivators (3.52 ha), the proportion of area irrigated is not different for SC and other cultivators; (ii) most of the female workers of SC households are full time workers, while this is not true of the general category of cultivators; (iii) direct subsidies are availed by a quarter of sample farmers. The proportion of direct subsidies in total agricultural input subsidies is very small (1.13 per cent), the proportion being higher in the less irrigated districts (1.38 per cent) than in the high irrigated districts (0.89 per cent); (iv) indirect subsidies i.e. fertilizer, power and irrigation are availed by all farmers. But, non-scheduled caste farmers utilized these worth Rs.16119.69 per farm against Rs.6456.38 by scheduled caste farmers. This differential gets narrow down when these are examined in terms of per unit of land across the social groups; (v) scheduled caste farmers avail only 29 per cent of the input subsidies, the rest of 71 per cent is availed by non-scheduled caste farmers; (vi) all subsidies together reduce cost of cultivation by 33 per cent and raise income by 20.21 per cent in case of scheduled caste farmers and 18.88 per cent in case of other farmers. These results are indicative of their role in raising income from cultivation.

Based on above findings, two of the inferences drawn by the author deserve attention: (a) the targeting of subsidies to SC farmers is not satisfactory in Haryana; and (b) withdrawal of subsidies, particularly the indirect ones is likely to adversely affect the net return to cultivators. Subsidies assume further importance in the context of rising cost of inputs, particularly fertilizer. It is, therefore, argued that a sudden withdrawal of subsidy without appropriate and gradual crop diversification (to reduce area under paddy and wheat as these crops consume most of the fertilizer and irrigation water) is not desirable.

Ms. Usha Tuteja and her team members have done a painstaking and useful piece of research work, which would be of considerable use to policy-makers in the context of targeting of subsidies in agriculture.

## PREFACE

Agricultural subsidies in India are provided to popularise improved technology and to promote growth in agriculture. But, the phenomenal growth in their magnitude during the past decades has become a serious concern. Therefore, focus on better targeting of agricultural subsidies appears an urgent need. This requires evidence on the use of direct and indirect input subsidies by different socio-economic groups of farmers and their implications for the farm economy. This study attempts to answer these questions by an in-depth analysis of utilisation pattern of input subsidies by scheduled caste and non-scheduled caste farmers in Haryana.

The study is based on macro and micro level data, which were obtained from secondary and primary sources. For collection of farm level data, a survey of 200 farmers spread over four districts in various agro-climatic zones of Haryana was carried out in the year 2000. The main findings of the study reveal that farmers in Haryana utilised input subsidies worth Rs.2411 per hectare. Among the scheduled caste and non-scheduled caste farmers, utilization by of latter was found higher (ii) although direct subsidies are targeted and crucial for the resource poor marginal, small, scheduled caste and other farmers, their proportion in total input subsidies used by farmers was merely 1.13 per cent in 1999-00. (iii) The indirect subsidies on fertilizer, power and irrigation were widely used by the farmers irrespective of caste but non-scheduled caste farmers emerged as the greater beneficiaries. (iv) Share of scheduled caste farmers in total input subsidies used by farmers was 29 per cent and the remaining 71 per cent was utilised by non-scheduled caste farmers. However, share of scheduled caste farmers in utilisation of direct subsidies was significantly higher due to implementation of special subsidy schemes for them. (v) The benefits of input subsidies accrued disproportionately to affluent farmers but these helped the lower rung farmers in reducing cost of cultivation and raising their meagre incomes from cultivation. (vi) The impact of subsidy levels on crop pattern, input use and income was found substantially significant.

Given the importance of input subsidies in the farm economy of Haryana farmers, their removal is not advisable. The immediate need is reforms in the subsidy system. These include making agricultural subsidies selective and targeted, increasing

expenditure on direct subsidies and raising user charges to reasonable levels for the bulk consumers of indirect input subsidies. This needs evolving an integrated result oriented reform strategy for input subsidies in Haryana.

In view of the scarce availability of data relating to utilisation pattern of subsidies by scheduled caste and non-scheduled caste farmers in Haryana, the present report would be of immense utility for the policy makers, researchers and professionals dealing in agricultural inputs.

I am thankful to Dr. Prem S. Vashishtha, Director, AER Centre, Delhi for his support and encouragement. Special thanks are due to the study team and others who contributed one way or the other towards the completion of this study.

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## CONTENTS

|         |     | Page No.                                     |
|---------|-----|--|
|         |     | Executive Summary                            |
|         |     | i - x  |
| Chapter | I   | Introduction                                 |
|         |     | 1-4  |
|         |     | Problem                                      |
|         |     | Objectives                                   |
|         |     | Data and Methodology                         |
|         |     | Reference Year                               |
| Chapter | II  | Agricultural Subsidies in Haryana            |
|         |     | Direct Subsidies                             |
|         |     | Indirect Subsidies                           |
| Chapter | III | Agro-Economic Profile of the Selected        |
|         |     | Districts and Sampled Households             |
|         |     | 19-56  |
|         |     | Main Features of Selected Districts          |
|         |     | Socio-Economic Characteristics of Sampled    |
|         |     | Farm Households                              |
| Chapter | IV  | Utilisation of Agricultural Subsidies        |
|         |     | by Farmers                                   |
|         |     | 57-84  |
|         |     | Direct Subsidies                             |
|         |     | Indirect Subsidies                           |
|         |     | Impact of Withdrawal of Input                |
|         |     | Subsidies on Cost and Returns                |
|         |     | Food Subsidies                               |
| Chapter | V   | Impact of Input Subsidies on Farm Economy    |
|         |     | Impact of Subsidy Levels on Crop Pattern     |
|         |     | Impact of Subsidy Levels on Input Use        |
|         |     | Impact of Subsidy Levels on Cost and Returns |
| Chapter | VI  | Summary and Conclusions                      |
|         |     | 97-105                                       |
|         |     | Bibliography                                 |
|         |     | 106-107                                      |

## **'EXECUTIVE SUMMARY'**

### **AGRICULTURAL INPUT SUBSIDIES IN INDIA: QUANTUM OF SUBSIDIES TO SCHEDULED CASTE FARMERS IN HARYANA**

#### **I. Introduction**

Agricultural subsidies in India are provided to popularise improved technology and to promote growth in agriculture. But, the phenomenal growth in their magnitude during the past decades has become a serious concern. Therefore, focus on better targeting of agricultural subsidies appears an urgent need. This requires evidence on the use of direct and indirect input subsidies by different socio-economic groups of farmers and their implications for the farm economy. This study attempts to answer these questions by an in-depth analysis of utilisation pattern of input subsidies by scheduled caste and non-scheduled caste farmers in Haryana.

#### **II. Objectives**

The study has following broad objectives.

- (iv) To examine the utilisation pattern of input subsidies by different categories of farmers.
- (v) To assess the share of SC farmers in total amount of subsidies used.
- (vi) To analyse the overall impact of differences in the level of input subsidies used by various categories of farmers on crop pattern, input use, gross returns, cost and net returns.

#### **III. Data and Methodology:**

This study is based on both macro and micro level data. The relevant information on the state and districts was obtained from the state Department of Agriculture. In addition, secondary sources of data like various issues of Statistical Abstract of Haryana, Fertilizer Statistics and Economic Survey were utilised to compile detailed information on the selected parameters. These included expenditure on various items of direct and indirect input subsidies, usage of crucial inputs like fertilizer, canal water and power for agriculture, cost of supply, share of cost recovered and so on. The district level indicators



on total population, percentage of scheduled caste population, number of scheduled caste cultivators, crop pattern, irrigated area, adoption of HYV seeds for major crops, productivity levels, etc; were compiled from Statistical Abstract of Haryana.

A survey of selected farm households was conducted in order to collect micro level data. The sample of the study is spread over four agro-climate zones of Haryana. One district from each zone was chosen for in-depth study on the basis of percentage of scheduled caste cultivators to total cultivators. The districts of Ambala, Jind, Faridabad and Bhiwani fall in this criterion. Further, blocks and villages from these districts were selected on the basis of the availability of different categories of scheduled caste cultivators. In all, 50 farm households including 25 scheduled caste and 25 non-scheduled caste were interviewed in each of the surveyed districts. Since, the selected districts are four, total sample became 200 farm households. This included 100 scheduled caste and 100 non-scheduled caste households. An effort was made to cover all categories of farmers in both the social groups. We have stratified farmers into four categories as marginal (below 1 ha.), small (1-2 ha.), medium (2-4 ha.) and large (above 4 ha.) according to the size of operational holdings. Haryana does not have scheduled tribe cultivators, therefore, this category is not covered in the study.

The conceptual framework of the study covers both direct and indirect farm subsidies. Among direct subsidies, crop specific, machinery specific and other input subsidies in cash and kind were included while indirect subsidies were restricted to major three namely, fertilizer, irrigation and power. We have worked out these subsidies for the state and for the selected farmers. The reference year of the study is 1999-00.

#### **IV. Main Findings**

##### **(i) Socio-economic Features of the Selected Districts and Farm Households:**

At the outset, we have examined the basic features of the state and the selected districts. Only those indicators, which influence performance of agriculture, are covered. These include rainfall, occupational structure, farm size distribution, status of irrigation, cropping pattern, cropping intensity, productivity of important crops, input use and infrastructural facilities which comprised of electricity, education and roads. Ambala

followed by Jind emerged as relatively more developed districts. But, Faridabad and Bhiwani lagged behind the state and the developed districts.

Agriculture continues to remain the primary source of employment in Haryana. But, the position varies significantly in the selected districts. Faridabad, and Ambala being industrial towns have shown lower degree of dependence on this sector. Among the environmental factors, the intensity of rainfall was analysed and it was observed that Ambala gets more rainfall than rest of the surveyed districts. But, seasonal distribution of rainfall was found uneven in each district. Ambala and Jind get more than the average rainfall of the state while Faridabad and Bhiwani get below the state average.

The distribution of land among different categories of farmers is important in decision making about the use of resources. The average size of holding was 2.13 hectares in Haryana. Ambala and Jind districts had 1.67 hectares and 2.30 hectares as the average size of holding while the same was 1.44 and 2.89 hectares in Faridabad and Bhiwani districts. It was above the state in Jind and Bhiwani while reverse was true in Ambala and Faridabad districts. It could be due to industrial development of these districts. The pattern of land distribution was significantly different across the districts. Consequently, proportion of small, marginal and big farms varied in numbers and area operated in each district. However, marginal and small farmers emerged as the most important group in numbers and big farms though small in proportion, accounted for the largest share of land.

The crop pattern of selected districts was not uniform. In Ambala and Jind districts, wheat followed by paddy are the most important crops. Likewise, wheat is the main crop in Faridabad and Bhiwani districts but bajra, gram, paddy, cotton and mustard covered considerable proportion of cultivated land in these districts. Significant variations were noticed in productivity of important crops across districts. Ambala was ahead of the state and three other districts in yield rates of rice. Jind ranked first in productivity of bajra and wheat. It is essential to mention that Ambala was much ahead of other districts in respect of area under HYV seeds, fertilizer consumption and use of tractors and harvest combines.

The availability of infrastructure played an important role in the growth of agriculture. Ambala is leading other districts in metalled roads and regulated markets per

lakh hectares of net sown area. The high literacy rate in rural areas of Ambala also helped in agricultural development through the adoption of improved technology for different crops. It seems development of infrastructure and natural resource base in Ambala has contributed to the growth of agriculture. As a result, gross value of agriculture output per hectare at current prices was also highest in Ambala.

After presenting the summary of results about the important socio-economic indicators of the surveyed districts, we focus on major characteristics of sampled farmers. According to survey, proportion of working population was large in scheduled caste category of farm households in the selected districts. Most of the scheduled caste workers were dependent on agriculture for employment. But, their holdings were of very small size. The average size of operational holdings of these farmers was 1.64 hectares against 3.52 hectares for the non-scheduled caste farmers. Most of them acquired land through land reform measures. The land obtained through inheritance was found negligible in their case. The practice of leasing in land was common but they rarely leased out land. Fortunately, irrigation status of the holdings of scheduled caste as well as other farmers was found satisfactory. Some of them had access to canal water while others had to make do with tubewell water. The educational status of scheduled caste heads of households was found poor, as 54.96 per cent of them were illiterate. The proportion of full time female workers among scheduled caste farmers was higher in comparison to non-scheduled caste farmers.

The crop pattern followed by scheduled caste and non-scheduled caste farmers did not show wide variations. Wheat and paddy were the major crops grown by both the social groups in Ambala and Jind districts. The crop pattern of farmers in Faridabad and Bhiwani districts was found more diversified as they grew larger variety of crops along with the main crop of wheat. The study revealed that wheat was the main food crop cultivated by surveyed farmers irrespective of caste. The commercial crops raised by the farmers were sugarcane, cotton and mustard. The use of HYV seeds for wheat and paddy was equally common among farmers.

The value of farm assets possessed by scheduled caste farmers was less compared to non-scheduled caste households. It is indicative of the fact that scheduled caste farmers are economically weaker than the other farmers.

**(ii) An Overview of Agricultural Subsidies in Haryana:**

We have observed that agricultural subsidies absorb large financial resources in Haryana because they increased at the compound growth rate of more than 10 per cent per annum during the past two decades. Fertilizer subsidy increased at an increasing rate of 25.76 per cent per annum between 1980-81 and 1999-00. The power and irrigation subsidies also increased from Rs.122.57 crores and Rs.8.04 crores in 1980-81 to Rs.1913.02 crores and Rs.56.75 crores in 1999-00.

An examination of percentage shares of direct and indirect (fertilizer, power and irrigation) subsidies during 1999-00 revealed that direct subsidies though crucial for poor received little attention and had only a marginal share in total agricultural subsidies. The power subsidy formed a substantial part. It seems that it is the pricing policies on fertilizer, irrigation and power, which lead to the present situation. However, total withdrawal of input subsidies does not seem an appropriate policy measure on two counts. First, this would reduce the use of these inputs in turn depressing the growth of yield in the state. Second, it may deprive the small and marginal farmers of using these inputs on account of price factor. Particularly, this is important in present era of liberalisation when output prices are declining and farmer's incomes are dwindling due to large supply of commodities. In addition, influx of cheap imports due to reduced tariffs has aggravated the problem.

The key to reducing the magnitude of input subsidies is through rationalising or making them target oriented. Some economists opine that differential rates of user charges may solve the problem to great extent. The poor farmers (marginal + small) may pay lower charges while user charges for bulk consumers may be increased to a reasonable level. We have observed that the current recovery rates of power and irrigation are extremely low. The low recovery rate results in wastage of scarce resources like water and power. Therefore, rationalising input subsidies is critical for the progress of the state and for the welfare of its people.

**(iii) Utilisation of Agricultural Subsidies:**

The main findings regarding the utilisation of input subsidies by farmers may be summarized as (i) the utilisation of direct subsidies in value terms was found low

by farmers irrespective of social group. This also holds true for resource poor scheduled caste farmers. However, they availed higher direct subsidies per farm and per hectare in comparison to non-scheduled caste farmers due to implementation of specific subsidy schemes for them (ii) farmers utilise fertilizer, irrigation and power subsidies irrespective of caste. However, non-scheduled caste farmers utilise higher subsidies per farm and per hectare in comparison to scheduled caste farmers (iii) variations in utilisation of input subsidies across farm sizes are found substantial. In absolute terms, marginal and small farmers availed lower subsidies due to their small size of holdings. On the contrary, medium and large land owning classes utilised larger chunk of the subsidies. Even the per hectare utilisation of input subsidies in higher categories was significantly higher. It was Rs.2502 in case of large farmers against Rs.1988 in case of marginal farmers (iv) direct subsidies were only 0.89 per cent of total input subsidies in Ambala and Jind districts, 1.38 per cent in Faridabad and Bhiwani districts and 1.13 per cent at the aggregate level. The shares of scheduled caste farmers were much above the non-scheduled caste farmers. Most of the scheduled caste farmers received nominal cash or kind production subsidies for growing wheat, moong and gram under demonstrations and trials. A few farmers availed cash subsidies for buying pesticides for the cultivation of cotton. Only two farmers received subsidy for buying farm equipment. The farmers reported during the survey that there are not adequate direct subsidies to address the two major risks faced by the farming community the yield risk and the price risk. This affects demand for direct subsidies. (v) The share of scheduled caste farmers in total value of input subsidies was 29.21 per cent. Rest of the 70.79 per cent was utilised by other farmers. (vi) The experiences of the farmers across districts and farm sizes were different. They reported that their access to direct subsidies was limited. Around 26.00 per cent of the farmers received direct subsidies. Of them, 15.50 per cent were scheduled caste farmers. (vii) Fertilizer and power subsidies were availed by all the sampled farmers but irrigation subsidy was utilised by those who have access to canal water. It was reported by the farmers that they faced great difficulty in access to canal water. Some of them did not get canal water even once during the crop season. Some of them were tail end users and hence, many times they were deprived of getting canal water. If there is assured supply of water, they were ready to pay little more. (viii) Like irrigation, farmers reported during

the survey that they did not get assured supply of power. They got electricity for some hours and often at night. The fluctuating voltage burnt up their motors and what they save in electricity, they spend on repairing of the motors. If power were available round the clock, farmers would be able to sell surplus water to their neighbours after fulfilling their own demand. This may help in augmenting their income (ix) the gap between estimated subsidies at the state level and actual use by farmers was the highest in case of power followed by fertilizer. Canal subsidy was above the state in these districts because three out of four selected districts have access to canal water. (x) the results regarding gross returns, cost and net returns per hectare and per farm with and without subsidies were indicative of positive impact of subsidies on the net returns/income of the farmers. The withdrawal of input subsidies would affect the income of the scheduled caste as well as non-scheduled caste farmers adversely. The benefits of input subsidies on sampled farmers accrued disproportionately to affluent farmers with large-size of holdings but small and marginal poor farmers also had been benefited by raising their meagre income from cultivation. (xi) the major problems faced by farmers in access to subsidies were high prices and low purchasing power. The small and marginal farmers were found greater suffers in comparison to other categories. Across the social groups, scheduled caste farmers emerged as a disadvantaged group.

**(v) Consumption of Important items bought from PDS:**

Since, farmers not only utilise production subsidies in agriculture, they also utilise food subsidies as consumers, we have covered consumption of four important items (wheat, rice, sugar and kerosene oil) bought from village PDS shops.

Farm households in Haryana do not buy rice and wheat from PDS shops due to availability in the open market at the competitive prices. They mostly buy sugar and kerosene oil. However, average amount per month spent by scheduled caste farmers was Rs.3.48 on sugar and Rs.10.95 on kerosene oil. The other farmers also spent almost same amount. These results are indicative of insignificant food subsidies availed by scheduled caste as well as general farmers in rural Haryana.

**(v) Impact of Subsidy levels on the Farm Economy:**

In order to examine the effects of input subsidies on agriculture, sample farmers were divided into three groups as low, medium and high on the basis of per hectare utilisation of input subsidies. The study reveals that wheat was the preferred crop by all the groups. In addition, high subsidy users devoted a significant proportion of gross cropped area to water intensive, fertilizer-consuming crops like paddy and sugarcane in Ambala and Jind districts and to commercial crops like cotton and mustard in Faridabad and Bhiwani districts. It appeared that level of input subsidies have a significant impact on the crop pattern as higher subsidies were found to induce the farmers to cultivate irrigated and high fertilizer consuming crops using HYV seeds.

The consumption of fertilizer, power and irrigation was found positively related to subsidy levels. The low group used lesser of these inputs irrespective of caste and districts. The reverse was true for high subsidy group. The major proportion of inputs was used for growing of wheat, paddy and sugarcane in Ambala and Jind districts on scheduled caste as well as on other farms. But, in Faridabad and Bhiwani districts, wheat was the main user of these inputs.

Like consumption of inputs, net returns were also found positively related to subsidy levels. The low subsidy users received Rs.33, 888 as net returns per farm against Rs.1, 24, 658 by high subsidy users in Ambala and Jind districts. Similarly, this category reaped Rs.33, 193 per farm in Faridabad and Bhiwani districts against Rs.80, 250 by the latter group. But, non-scheduled caste farmers earned more than scheduled caste farmers in all situations. Thus, subsidy levels affected income of the farmers from crop cultivation.

**(v) Policy Implications:**

The role of input subsidies through cost reduction in the farm economy of Haryana is crucial. These help small and marginal farmers in raising their meagre income from cultivation. These are all the more essential in the present circumstances of dwindling farm incomes due to declining output prices and rising input prices. However, keeping this background in mind and fiscal health of the state government under

consideration, reforms in input subsidies regime are an urgent need to make them effective and meaningful. We offer following policy prescriptions in this regard.

- (vi) The share of direct subsidies, which are targeted and crucial for the poor farmers, in total input subsidies at macro and micro levels, was found marginal. Therefore, expenditure on these should be increased with proper identification of beneficiaries among small, marginal, scheduled caste and other farmers. In addition, introducing a monitoring mechanism with proper management system appears an urgent need.
- (vii) Utilization of direct subsidies was found to be low by farmers. It could be due to lack of awareness. Therefore, information regarding available subsidy programmes must be disseminated well in time through media/gram sabha. In addition, the state government for the smooth flow of direct subsidies should remove procedural bottlenecks.
- (viii) The farmers reported that seeds and other inputs supplied under the subsidy programmes are of sub-standard quality. It is therefore, suggested that government should introduce strict quality control measures.
- (ix) Indirect subsidies are utilised by all farmers irrespective of farm size and social group in Haryana. Given the low income of small/marginal/scheduled caste farmers these should be provided to them with proper targeting.
- (x) In case of irrigation and power, the state government does not recover even the maintenance cost. The suggestions like reasonable increase in tariffs for the bulk users may be reviewed seriously. But their quality should be improved.



The impact of withdrawal of input subsidies on returns at micro level for various categories of farmers was found adverse. The benefits of these accrued disproportionately to affluent farmers but these helped lower rung farmers positively by reducing their cost of cultivation and maintaining their incomes. It is, therefore, recommended that input subsidies should be given to small/marginal/scheduled caste farmers/which will help them as well as encourage the poor to utilise the required quantity of inputs at lower costs resulting in higher income from crop production. To conclude, subsidies in agriculture in Haryana should not be withdrawn suddenly, rather these should be selective and target oriented. This needs evolving an integrated reform strategy for input subsidies in Haryana.

## Chapter I

### Introduction

#### 1. Problem

Subsidies are an integral part of fiscal policy in India. The total quantum of subsidies in India rose from Rs.2,028 crores in 1980-81 to Rs. 22,800 crores in 2000-2001. Out of this amount, agricultural subsidies constitute the major portion. The subsidies to agriculture sector provided by the Government have recorded phenomenal rise during the past two decades. Considering the present position of fiscal deficit of the central and state Governments, it has become difficult to support the ballooning agricultural subsidies. Consequently, their role as an incentive to promote agricultural development has been a subject of debate among economists, policy makers and academia, etc. This matter assumes greater significance in the context of on going economic reforms in India. Those in favour of this policy view subsidies as an instrument of stimulating agricultural production and attaining self-sufficiency. On the contrary, opponents view subsidies as an unnecessary Government intervention, which impairs the efficiency of pricing by the market forces. Not only this, they emphasize that the Government should improve the efficiency of the supply system through investment in irrigation and other support services. Given the high fiscal deficit situation, there is no escape in the long run from cost pricing supplies of the inputs, keeping subsidies selective, limited and specifically targeted for weaker sections only rather en mass per se.

Literature on agricultural subsidies is vast. The analyses of subsidies presented in macro studies<sup>1</sup> at the all India and state levels constrain to address a number of subsidy related issues which come into focus only when detailed data are analysed at the farm level. So far, most<sup>2</sup> of the micro studies focus attention on a particular subsidy and hence, do not give an idea about the overall impact of important agricultural subsidies on different categories of farmers. The SC/ST farmers are by and large ignored and their problems are overlooked. This is also important from the point of view of resource inadequacy of the small, marginal and SC/ST farmers. This underlines the urgency of

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<sup>1</sup> See for details, Gulati and Narayanan (2000, 2002), Alagh (2000), Acharya (2000), Subbarao (1987) Vaidyanathan (2000), Srivastva and Sen (1997) Prasad Kamta (2000).

<sup>2</sup> Joshi and Agnihotri (1982), Elango, Namisivayam and Manoharan (1982), Jagannatharao, Pauer and Sutar (1982), Singh and Sikka (1982), Gupta Rajesh (2000).

ensuring subsidies for the intended groups and making adequate cost recoveries from those with higher purchasing power so that the prevailing levels of social and economic services which are abysmally low can be expanded to satisfactory levels.

Against the backdrop of growing budgetary allocation of providing subsidies to agriculture, an analysis of their implications for different classes of farmers is of crucial importance in order to assess the extent to which they are consistent with the attainment of set objective of stimulating growth with equity. There is a need to know the differential impact of subsidies across different groups of households at the micro level. The adverse effect of such policy, if any, on the small, marginal, SC/ST groups could then be corrected by designing proper compensatory programmes. The non-availability of data pertaining to the pattern of agriculture subsidies used by different socio-economic groups at micro level constrains researchers and policy makers to have a clear understanding of the effect of these policies. With a view to ascertaining the ground reality in the context of agricultural subsidies and its effects, the present study has been undertaken.

## **II Objectives**

The study has following broad objectives

- (i) To examine the utilisation pattern of input subsidies by different categories of farmers.
- (ii) To assess the share of SC farmers in total amount of subsidies used.
- (iii) To analyse the overall impact of differences in the level of input subsidies used by various categories of farmers on crop pattern, input use, gross returns, cost and net returns.

## **III Data and Methodology:**

This study is based on both macro and micro level data. The relevant information on the state and districts was obtained from the state Department of Agriculture. In addition, secondary sources of data like various issues of Statistical Abstract of Haryana, Fertilizer Statistics and Economic Survey were utilised to compile detailed information on the selected parameters. These included expenditure on various items of direct and indirect input subsidies, usage of crucial inputs like fertilizer, canal water and power for

on total population, percentage of scheduled caste population, number of scheduled caste cultivators, crop pattern, irrigated area, adoption of HYV seeds for major crops, productivity levels, etc; were compiled from Statistical Abstract of Haryana.

A survey of selected farm households was conducted in order to collect micro level data. The sample of the study is spread over four agro-climate zones of Haryana. One district from each zone was chosen for in-depth study on the basis of percentage of scheduled caste cultivators to total cultivators. The districts of Ambala, Jind, Faridabad and Bhiwani fall in this criterion. Further, blocks and villages from these districts were selected on the basis of the availability of different categories of scheduled caste cultivators. In all, 50 farm households including 25 scheduled caste and 25 non-scheduled caste were interviewed in each of the surveyed districts. Since, the selected districts are four, total sample became 200 farm households. This included 100 scheduled caste and 100 non-scheduled caste households. An effort was made to cover all categories of farmers in both the social groups. We have stratified farmers into four categories as marginal (below 1 ha.), small (1-2 ha.), medium (2-4 ha.) and large (above 4 ha.) according to the size of operational holdings. Haryana does not have scheduled tribe cultivators, therefore, this category is not covered in the study.

The conceptual framework of the study covers both direct and indirect farm subsidies. Among direct subsidies, crop specific, machinery specific and other input subsidies in cash and kind were included while indirect subsidies were restricted to major three namely, fertilizer, irrigation and power. We have worked out these subsidies for the state and for the selected farmers. The methodology for calculating subsidies is given below:

#### **Direct Subsidies:**

In this case, value of direct subsidy was accounted. When subsidy was in kind, it was converted into value.

- 
- Four agro-climatic Zones  
I - Karnal, Panipat, Kurukshetra, Kaithal, Ambala, Yamunanagar  
II - Rohtak, Zind, Sonapat  
III- Hissar, Sirsa, Bhiwani  
IV- Gurgaon, Faridabad, Mahendergarh, Rewari

## **Indirect Subsidies:**

### **Fertilizer:**

For the state, fertilizer subsidy was calculated by multiplying per unit subsidy at the all India level for NPK to the consumption of each in a particular year and then added for working out the total fertilizer subsidy. The methodology for computing fertilizer subsidy at the farm level was different. The rates of subsidy on fertilizers were taken from Gulati and Narayanan (2000). They have estimated shares of farmers and manufactures in subsidised amount through import parity price route. We have used their estimated rates for urea, MOP and other fertilisers for calculating the amount of fertilizer subsidy availed by the sampled farmers. For this purpose, quantity of different fertilizers consumed by the farmers during the reference year was multiplied by the rate of subsidy for each type of fertilizer and then added together to arrive at the total fertilizer subsidy availed by the farmer.

### **Irrigation:**

We have limited this subsidy to canal irrigation. The canal irrigation is heavily subsidised in Haryana. The irrigation subsidy accrues to the farmers because charges for canal water is significantly lower than cost of supply. This subsidy at the state level was worked out by deducting the amount recovered from the cost of supply based on working expenses. It was also computed after adding interest on capital expenditure. The canal subsidy availed by the farmers was computed through multiplying per hectare subsidy by the number of hectares irrigated by the canal during the reference year.

### **Power:**

The power subsidy for the state was calculated like irrigation subsidy. In case of farmers, power subsidy per unit was defined as the difference between the unit cost of power to the state and the average tariff charged from the farmers. Accordingly, first, we have computed the total units of electricity consumed by the farmer for agricultural purposes during the reference year and then multiplied obtained units by per unit rate of subsidy.

## **IV Reference Year:**

The reference year of the study is 1999-2000.

## Chapter II

### Agricultural Subsidies in Haryana

The progress made by agricultural sector in Haryana is commendable. Agriculture was underdeveloped in the state at the time of creation. However, the state is ranked second in terms of agricultural development after the spread of green revolution in the late sixties. At present, Haryana contributes around 15 per cent of wheat and 3.16 per cent of rice output in India.

Agricultural subsidies played an important role in the growth of agricultural sector in Haryana. The Central government grants subsidy on fertilizer while the state government provides irrigation and power at cheaper rates. Besides, the state Department of Agriculture gives direct subsidies on different items such as seeds, sprinkler sets, gypsum, tractors, farm implements and bio-fertilizers. This chapter presents an overview of agricultural subsidies in Haryana. The direct subsidies examined are crop specific, machinery specific, bio-fertilizers, gypsum and other input subsidies in cash and kind. The indirect subsidies analysed are restricted to three major items, namely fertilizer, power and irrigation.

#### (i) Direct Subsidies:

The State Department of Agriculture provides following direct subsidies to the farmers.

##### Seeds:

The increase in agricultural production depends to some extent on the development of new improved varieties of seed and an efficient system for supply of quality seeds to farmers. The department of agriculture in Haryana provides improved seeds of wheat, paddy, bajra, barley, cotton, oilseeds and pulses (gram, massar, arhar, moong, mash and others) under the various programmes such as Intensive Cereal Development Programme, Intensive Cotton Development Programme, Oilseeds Production Programme and National Pulses Development Programme. Under these programmes, seed minikits of improved varieties are provided to the farmers in packing ranging from 0.5 kg. to 15 kgs. The department of agriculture provides subsidy on seeds at differential rates. The rate of subsidy on seeds of cereals was Rs.200 per qtl. The subsidies on cotton, oilseeds and pulses are higher upto Rs.300 to encourage the use of

**Table 2.1**  
**PATTERN OF DIRECT SUBSIDIES ON VARIOUS COMPONENTS**  
**TO THE FARMERS IN HARYANA, 1999-00 AND 2000-01** (Rs. Lakh)

| Sr. No. | Item   | Scheme                                     | Rate of Subsidy  | Amount Utilised During 1999-00 | % Share | Provision For 2000-01 | % Share |
|---------|--|--|--|--------------------------------|---------|-----------------------|---------|
| 1.      | Subsidy on the Seed of<br>a) Wheat<br>b) Paddy<br>c) Bajra<br>d) Barley  | ICDP<br>Wheat                              | @200-per qtl on varieties less than 10 years.  | 319.11                         | 25.45   | 204.50                | 22.96   |
| 2.      | Cotton   | ICDP<br>Cotton                             | Rs300-per qtl.   | 0.10                           | 0.01    | 3.00                  | 0.34    |
| 3.      | Oilseeds   | OPP  | Rs300-per qtl.   | 4.22                           | 0.34    | 14.00                 | 1.57    |
| 4.      | Pulses (Gram, Massar, Arhar, Moong, Mash And others)   | NPDP                                       | @ 300-per qtl.   | 2.22                           | 0.18    | 13.00                 | 1.46    |
| 5.      | Subsidy on Sprinkler sets  | ICDP-Wheat                                 | @ 10000/-per set to SC,ST & women farmers and Rs.7000 per set to other categories of farmers.  | 341.22                         | 27.22   | 250.00                | 28.06   |
| 6       | Gypsum   | OPP  | @75% of the cost of gypsum applied as a source of sulphur in oilseed crops.<br>@50% of the cost of gypsum applied for reclamation of alkali soils. | 170.44                         | 13.59   | 150.0                 | 16.84   |
|         |  | USAR                                       |  | 260.00                         | 20.74   | 88.0                  | 9.88    |
| 7.      | Implements<br>a) PPE(Spray Pumps)<br><br>b) Bullock drawn (Harrow, Sprayer etc.)<br><br>c) Tractor drawn (Planter, rotovator etc.) | OPP  | @50% of the cost subject to maximum limit of Rs.600/- per unit.  | 8.79                           | 0.70    | 30.0                  | 3.37    |
|         |  | NPDP                                       |  | 0.79                           | 0.06    | 5.0                   | 0.56    |
|         |  | ICDO-cotton                                | 50% cost of equipment Rs600-per unit   | 11.46                          | 0.91    | 24.33                 | 2.73    |
|         |  | SUBACS                                     | @ 50% of the cost subject to a maximum limit of Rs1500/ per unit.  | 3.33                           | 2.66    | 47.00                 | 5.28    |
|         |  | SUBACS                                     | @25% of the cost subject to a maximum limit of Rs10000/per unit.   |                                |         |                       |         |
| 8.      | Tractor  | Promotion of mechanisation in agriculture. | @30% of the cost or Rs.30000-which ever is less  | 97.80                          | 7.80    | 60.00                 | 6.74    |
| 9.      | Bio-fertilisers (Rhizobium Culture)  | NPDP                                       | @ 50% of the cost with a limit of Rs.25/- per hectare.   | 4.22                           | 0.34    | 2.00                  | 0.22    |
|         | Total  |  |  | 1253.70                        | 100.00  | 890.83                | 100.00  |

Source: Department of Agriculture, Haryana Government, Haryana

improved variety seeds of these crops. It may be noted that bulk of the seed subsidy was allocated for cereals. The allocation for cotton, oilseeds and pulses was merely 0.10 lakh, 4.22 lakhs, and 2.22 lakhs, respectively, out of 326 lakhs spent as total direct subsidy on seeds in the state during 1999-00. The allocations for these crops were raised in 2000-01 and consequently, shares of cotton, oilseeds and pulses increased from 0.01, 0.34 and 0.18 per cent, respectively, in 1999-00 to 0.34, 1.57 and 1.46 per cent respectively, in 2000-01. Evidently, looking at the development requirements of cotton, oilseeds and pulses in Haryana, these allocations are inadequate.

#### **Sprinkler Sets:**

The government of Haryana provides subsidy on sprinkler sets to encourage efficiency in water use for irrigation purpose. This is particularly true for those districts where irrigation facilities are limited. Under the Intensive Cereal Development Programme (ICDP), government grants Rs.7,000 per set to general category of farmers. There is a special provision of higher subsidy to SC/ST and women cultivators. They get a higher subsidy of Rs.10,000 for buying a sprinkler set. The share of subsidy on sprinkler sets in total direct subsidies was 27.22 per cent in 1999-00 and it increased to 28.06 per cent in 2000-01. If we examine per cultivator and per hectare subsidy in Haryana, it comes to as low as Rs.11.20 and Rs.5.66 respectively.

#### **Gypsum:**

Gypsum is a mineral chalk like substance and is used as a fertilizer to reclaim the waste lands, viz; 'the Kallar' and alkaline lands and converts them into cultivable pieces. The government of Haryana provided Rs.170.44 lakhs as a subsidy for the gypsum. The problem of alkalinity has increased in the past in Haryana. Therefore, use of gypsum is wide spread to reclaim the sodic and alkaline soils. Off late, there is a spurt in usage of gypsum by farmers to enhance the productivity of soils. The rate of subsidy on gypsum was 75 per cent of the cost as a source of sulphur in oilseeds crops. The rate of subsidy, however, was 50 per cent of the cost incurred for the reclamation of alkali soils. Although, the increased support to the cultivators can be of great help in improving agricultural production in areas facing alkalinity problem, but the allocation to this item



has been reduced to Rs.238.00 lakhs in 2000-01 from Rs.430.44, a year before in 1999-00. When rate of gypsum subsidy is computed per cultivator and per hectare, it amounts to Rs.5.59 and Rs.2.83 respectively, only. Looking at the gravity of the problem, this amount looks very meagre and should be increased to reasonable level.

#### **Implements:**

The government of Haryana grants subsidy on agricultural implements like spray pumps, bullock drawn harrow and sprayers, tractor drawn planters and rotovators, etc. The rate of subsidy is substantially different for the above items. On first item, government grants 50 per cent of the cost as subsidy to a maximum limit of Rs.600 per unit. The proportion of subsidy on second item is the same but the maximum limit is Rs.1,500 per unit. The rate of subsidy on third category of implements is relatively low that is 25 per cent of the cost but the maximum limit is Rs.10,000 per unit. The share of subsidies on implements to the total direct subsidies is, however, marginal. The shares of different categories in 2000-01 have been increased from their levels in 1999-00. The allocation on spray pumps increased from 0.70 per cent to 3.37 per cent. Similarly, the shares of subsidies on bullock and tractor drawn implements have also exhibited increases in the year 2000-01 over 1999-00. When per hectare and per cultivator subsidy on these items was calculated, it was Rs.0.29 and Rs.0.14 respectively, in 2000-01. Hence, it is desirable to increase the rate of subsidy to popularise the use of these implements among the small and medium farmers of general and SC/ST categories that have poor capital base.

#### **Tractor:**

The government of Haryana offers subsidy on tractors to promote mechanisation of agriculture. A special subsidy is provided on small tractors to marginal and small farmers. The tractor subsidy to general category farmers was 30 per cent of the cost or Rs.30,000 which ever was less in 2000-01. The share of tractor subsidy was around 7.30 per cent of the total direct subsidies in 1999-00 and it declined to 6.74 per cent in 2000-01. When per hectare and per cultivator subsidy in the state was examined, it was merely Rs.1.09 and Rs.0.55 respectively. It draws attention towards introducing a targeted

subsidy for small and scheduled caste farmers so that these categories may buy and use tractors.

**Bio-fertilizers:**

This subsidy was introduced to promote a balanced use of NPK fertilizers in conjunction with organic manure, compost, green manure and bio-fertilizers with added emphasis on the use of micro nutrients in high fertilizer consuming intensely cultivated regions of Haryana. In these regions, rhyzobium is being distributed to the farmers under the National Pulses Development Programme at the subsidised rate of 50 per cent of the cost with a limit of Rs.25 per hectare. A subsidy of Rs.4.22 lakhs was earmarked for the year 1999-00 which declined to Rs.2 lakhs in 2000-01. The subsidy on bio-fertilizers indicated a declining share from 0.34 per cent of direct subsidies in 1999-00 to 0.22 per cent in 2000-01 despite its importance in the growth potential of yield for pulses. Not only this, per hectare and per cultivator subsidy on bio-fertilizers in Haryana was only Rs.0.13 and Rs.0.06 respectively.

The preceding analysis of subsidies given to various items for agricultural purposes indicated that sprinkler sets and seeds received the major share of direct farm subsidies in Haryana during 1999-00 and 2000-01.

**(ii) Indirect Subsidies:**

After discussing, direct subsidies provided to farmers by the government of Haryana to augment the production of various agricultural commodities, we have analysed indirect subsidies being offered by the government to the farmers to support and enhance agricultural production in the state. We restrict this analysis to three major indirect subsidies (fertilizer, irrigation and power). At national level, these subsidies form the major part of agricultural subsidies. The results of various studies conducted on this subject show that these subsidies promote agricultural growth and consumer welfare, but at the same time, they are a strain on government exchequer and reduce investible surplus. An analysis of agricultural subsidies on fertilizer, irrigation and power has shown that power followed by irrigation are the major items in total amount of subsidies (Acharya, 2000).

We have estimated fertilizer, irrigation and power subsidy in Haryana for the year 1980-81, 1990-91, 1995-96 and onwards to 1999-00.

### Fertilizer Subsidy:

The data on total and per hectare fertilizer consumption, along with total and per hectare subsidy on fertilizers are presented in Table 2.2. It may be noticed that fertilizer consumption in Haryana has jumped from 2,30,823 tonnes in 1980-81 to 9,01,799 tonnes in 1999-00. Among the three major components, consumption of N occupied the top position through out this period. It increased from 1,87,385 tonnes in 1980-81 to 7,14,308 tonnes in 1999-00. Next was potash (P) whose consumption increased from 31,340 tonnes in 1980-81 to 2,06,319 tonnes in 1999-00. On the contrary, consumption of K has declined over this period. Thus, the state of Haryana has indicated a consistent increasing trend of fertilizer consumption after 1980-81. The growth rate of fertilizer consumption during the past two decades was estimated as high as 7.6 per cent per annum. The major factors attributable to this phenomenal growth are possibly the expansion of area under cultivation, increases in cropping intensity, popularity of HYV seeds of wheat and paddy and the gradual spread of irrigation facilities in the state.

Table 2.2

### Fertilizer Subsidy in Haryana During (1980-81 to 1999-2000)

(Fertiliser consumption in Tonnes, Subsidy in Crores)

|         | Fertilizer Consumption |          |        |          |                      | Fertilizer Subsidy |                |
|---------|------------------------|----------|--------|----------|----------------------|--------------------|----------------|
|         | N                      | P        | K      | Total    | Per Ha. of GCA (Kgs) | Total              | Rs./Ha. Of GCA |
| 1980-81 | 1,87,385               | 31,340   | 12,098 | 2,30,823 | 42.25                | 21.14              | 38.71          |
| 1985-86 | 2,96,394               | 69,639   | 6,154  | 3,72,187 | 66.45                | 87.20              | 155.70         |
| 1990-91 | 4,43,245               | 1,38,005 | 5,042  | 5,86,292 | 99.05                | 222.44             | 375.81         |
| 1995-96 | 5,87,045               | 1,33,582 | 3,160  | 7,23,787 | 121.16               | 332.72             | 556.95         |
| 1996-97 | 6,49,925               | 1,81,801 | 3,799  | 7,61,458 | 125.36               | 366.88             | 604.02         |
| 1997-98 | 6,62,679               | 1,71,768 | 3,950  | 8,35,525 | 136.01               | 435.13             | 708.33         |
| 1998-99 | 6,70,386               | 2,26,206 | 5,207  | 8,38,397 | 132.66               | 423.30             | 669.79         |
| 1999-00 | 7,14,308               | 2,06,319 | 9,668  | 9,01,799 | 149.58               | 484.59             | 803.77         |

Note: Fertilizer subsidy in the state was calculated by multiplying fertilizer consumption in the state by fertilizer subsidy/concession for NPK per tonne at all India level.

Source: Statistical Abstract of Haryana, Government of Haryana, Haryana; Energy, April 2001, CMIE, Bombay

The overall increase in the quantum of fertilizer consumed during the past two decades resulted in increasing consumption of fertilizer per hectare of gross cropped area. The results in table 2.2 show that it has increased from 42.25 kgs/ha. in 1980-81 to 149.58 kgs/ha. in 1999-00.

The above mentioned factors affected the quantum of fertilizer subsidy in Haryana. This has been calculated by multiplying fertilizer consumption in the state with fertilizer subsidy per tonne at all India level. Table 2.2 makes amply clear that fertilizer subsidy in Haryana registered a consistent increase between 1980-81 and 1999-00. In fact, it has indicated a phenomenal rise from Rs.21.14 crores in 1980-81 to Rs.484.59 crores in 1999-00. When fertilizer subsidy per hectare of gross cropped area was calculated, the norm of increasing trend was once again established.

Thus the above findings indicate that fertilizer subsidy in Haryana has risen many folds between 1980-81 and 1999-00. The similar scenario emerged when it was worked out per unit of gross cropped area.

#### **Power Subsidy:**

Power is one of the major subsidies going to Indian agriculture. Provision of power is the responsibility of the state. The State Electricity Board is responsible for generation, maintenance, its transmission and distribution to various end users. They are autonomous institutions and hence are responsible for fixing power tariffs in consultation with the Government. They generally follow cost plus method. Agricultural sector is an exception to this rule and prices of power for this sector are kept nominal. In Haryana, there are fixed tariffs in agriculture. Currently, a flat rate system is used based on the horsepower of the irrigation pump. Besides, the flat rate tariff that farmers have to pay on a monthly basis there is also a one time fixed charge generally called 'Connection Charges' that farmers have to pay while getting their pump sets energised.

**Table 2.3**  
**Power Subsidy in Haryana (1980-81 to 1999-2000)**

| Year    | Power Sold in Million kwh | Power Consumed by Agricultural Sector (Million kwh) | % of Power Consumed by Agricultural Sector | Per Unit cost of Supply<br>Paisa/kwh | Per Unit Realisation |                        | Subsidy to Agricultural Consumers (Rs. crores) |
|---------|---------------------------|---|--|--------------------------------------|----------------------|------------------------|--|
|         |                           |   |  |                                      | All Con-Sumers       | Agricultural Consumers |  |
| 1980-81 | 3867                      | 1442  | 37.3                                       | 110                                  | 70                   | 25                     | 122.57   |
| 1985-86 | 5157                      | 2078  | 40.3                                       | 125                                  | 75                   | 29                     | 119.48   |
| 1990-91 | 7741                      | 3468  | 44.8                                       | 165                                  | 83                   | 46                     | 412.69   |
| 1995-96 | 8745                      | 4084  | 46.7                                       | 209                                  | 133                  | 52                     | 641.18   |
| 1996-97 | 9058                      | 4230  | 46.7                                       | 250                                  | 155                  | 52                     | 837.54   |
| 1997-98 | 8864                      | 4157  | 46.9                                       | 293                                  | 187                  | 61                     | 964.42   |
| 1998-99 | 9290                      | 4218  | 45.4                                       | 336                                  | 203                  | 55                     | 1185.26  |
| 1999-00 | 13087                     | 5941  | 45.4                                       | 377                                  | 215                  | 55                     | 1913.02  |

**Note:**

Power Subsidy to Agr. Sector = Per unit cost of Supply – Per unit revenue realised from Agr. Sector x Number of Units consumed by this Sector

Source: Statistical Abstract of Haryana, Government of Haryana, Haryana and Energy, April 2001, CMIE, Bombay

Table 2.3 presents total power sold, power sold to agricultural sector, share of agricultural sector in total power consumed, per unit cost of supply, per unit revenue realised from all consumers and agricultural consumers and subsidy to agricultural consumers in Haryana at the selected points of time between 1980-81 and 1999-00. It may be noticed that the total power sold and power sold to agricultural sector in Haryana has increased consistently during this period. Moreover, share of power used by agricultural sector has also risen significantly between 1980-81 and 1997-98. Later, it has declined by almost 1 percentage point for unknown reasons. As expected, the per unit cost of supply of power has also risen continuously. It jumped from 110 paisa/kwh in 1980-81 to 377 paisa/kwh in 1999-00. It has grown at the rate of 6.69 per cent per annum during this period. When per unit realisation from all consumers and agricultural sector in Haryana was compared to per unit cost of supply, it was observed that general consumers were paying less than the cost but agricultural consumers were paying a very small amount. They were paying paisa 55 per kwh. against the cost of paisa 377 per kwh in 1999-00. In fact, the per unit realisation from agricultural sector has more than doubled in the past two decades while it has gone up by almost three times in case of all consumers. Evidently, the State Electricity Board of Haryana has been subsidising heavily to consumers in agricultural sector. The estimated power subsidy to agricultural sector jumped from Rs.122.57 crores in 1980-81 to Rs.1913.02 crores in 1999-00. It has exhibited an increase of 6.49 per cent per annum during this period. The main reasons cited for phenomenal increase in the amount of power subsidy during the past two decades include (i) per unit cost of power has always remained higher as compared to per unit realisation from agricultural sector. Not only this, growth rate of per unit cost of power has been higher than that of per unit realisation from agricultural sector (ii) the gap between the percentage realisation from agricultural sector and percentage of power sold to agricultural sector has increased over this period.

After examining Table 2.3, it is clear that the State Electricity Board of Haryana could not recover the cost of supplying power from consumers. This affected financial status of the Board. The main reasons cited for poor and deteriorating financial performance include leakage in transmission, high cost of distribution and increasing cost of subsidy to agricultural consumers. Table 2.3 revealed that cost of supplying power

over this period has increased many folds but recovery has just doubled for agricultural consumers. Since, agricultural sector consumes little less than 50 per cent of power sold in the state, it is imperative to rationalise the power tariffs for this sector.

### **Irrigation Subsidy:**

Water has been an indispensable input for improving agricultural productivity and production in India. It has been responsible for attaining food security through green revolution. Of late, due to commercialization and practice of monoculture, water is emerging as a major constraint. In a welfare state, the government intervention in irrigation development has the objectives of achieving food security, equity in access to irrigation, efficiency in water use and overall sustainability of the irrigation system without posing environmental problems. According to the Indian constitution, irrigation is a state domain and state governments regulate its development, utilisation and management due to huge capital investment requirements and the economies of scale in its operation and utilisation. In this endeavour, the government invests in the construction of reservoirs, canal systems and feeder channels in the state. The State Department of irrigation manages canal net works and the distribution of water based on a warabandi or rotational system. But, the fixation and collection of water tariffs is entrusted to the revenue department. Thus, there are two entities involved one for physical maintenance of the system and another for collection of revenue from the users.

The data on area irrigated by canals, capital expenditure, working expenses, gross receipts and irrigation subsidy based on working expenses as well as after adding interest on capital in Haryana are presented in Table 3.4. It may be noticed that area irrigated by canals in Haryana has increased from 1840 thousand hectares in 1980-81 to 2134 thousand hectares in 1999-00. It has grown at the rate of 7.8 per cent per annum. But, capital expenditure and working expenses have grown at a higher rate during the same period (12.7 per cent and 8.23 per cent). However, gross receipts have become around four times in the same period. When percentage of working expenses to revenue receipts was calculated, it went up from 179.7 per cent in 1980-81 to 248.2 per cent in 1999-00.

**Table 2.4**  
**Irrigation Subsidy in Haryana ( 1980-81 to 1999-2000)**

| Year    | Area Irrigated by canals ('00oha) | Capital Expenditure (Rs. Crores) | Working expenses (Rs. Crores) | Gross receipts (Rs. Crores) | Percentage of working expenses to receipt | Capital expenditure (Rs.per hectare) | Working expenditure (Rs.per hectare) | Receipts (Rs. Per hectare ) | Subsidy based on working expenses. |        | Subsidy after adding Interest on capital expenditure |        |
|---------|-----------------------------------|----------------------------------|-------------------------------|-----------------------------|---|--------------------------------------|--------------------------------------|-----------------------------|------------------------------------|--------|--|--------|
|         |                                   |                                  |                               |                             |   |                                      |                                      |                             | Total (in crores)                  | Rs/ha. | Total (in crores)                                    | Rs./ha |
| 1980-81 | 1840                              | 326.41                           | 18.13                         | 10.09                       | 179.7                                     | 1970                                 | 99                                   | 55                          | 8.04                               | 43.7   | 47.91  | 260    |
| 1985-86 | 1967                              | 729.28                           | 29.40                         | 12.09                       | 243.2                                     | 3708                                 | 149                                  | 61                          | 17.31                              | 88.0   | 88.62  | 451    |
| 1990-91 | 2005                              | 1180.62                          | 44.41                         | 17.31                       | 256.6                                     | 5888                                 | 221                                  | 86                          | 27.10                              | 135.2  | 156.96   | 783    |
| 1995-96 | 2026                              | 1700.31                          | 84.91                         | 21.00                       | 404.3                                     | 8392                                 | 419                                  | 104                         | 63.91                              | 315.4  | 250.94   | 1239   |
| 1996-97 | 2192                              | 1891.61                          | 86.90                         | 24.30                       | 357.6                                     | 8630                                 | 396                                  | 111                         | 62.60                              | 287.0  | 270.67   | 1235   |
| 1997-98 | 2128                              | 2227.77                          | 99.79                         | 27.38                       | 364.5                                     | 10469                                | 469                                  | 129                         | 72.41                              | 340.3  | 317.46   | 1492   |
| 1998-99 | 2131                              | 2489.88                          | 66.84                         | 61.04                       | 109.5                                     | 11684                                | 314                                  | 286                         | 58.00                              | 272.0  | 279.68   | 1312   |
| 1999-00 | 2134                              | 2851.88                          | 95.05                         | 38.30                       | 248.2                                     | 13364                                | 445                                  | 179                         | 56.75                              | 265.9  | 370.46   | 1736   |

Note: Per Hectare Irrigation Subsidy

(a) Based on working expenses =  $\frac{\text{Working Expenses} - \text{Receipts}}{\text{Area irrigated by canal}}$

(b) After adding interest on capital =  $\frac{\text{Amount of Interest} + \text{Working Expenses} - \text{Receipt}}{\text{Area irrigated by canal}}$

Source : Statistical Abstract of Haryana, Government of Haryana , Haryana



The figures of total canal subsidy at working expenses and after adding interest on capital expenditure indicated that former, increased from Rs.8.04 crores in 1980-81 to Rs.56.75 crores in 1999-00 while latter jumped from Rs.47.91 crores to Rs.370.46 crores during the same period. It was found useful to compute per hectare irrigation subsidy based on both the concepts. The per hectare irrigation subsidy based on working expenses increased from Rs.43.7 in 1980-81 to Rs.265.9 in 1999-00. The escalation was much higher for per hectare irrigation subsidy based on the second concept. In a nutshell, these figures reflect the poor cost recovery in irrigation system of the state. The increasing capital expenditure implied the enormous investments on canal irrigation system in the State. But, the wide gap between expenditure and receipts demands setting an appropriate price of irrigation water. In fact, proper price for water reflecting its scarcity value tends to promote irrigation efficient technologies. It may reduce inefficiency in water and a substantial amount of water can be saved. The saved water could be utilized for irrigation of additional area on the same farm or it could be allocated to a greater number of individuals. Moreover, efficient use of water ensures minimisation of the negative effects on the environment, otherwise also, the cost recovery is important for overall efficiency of the system. It could be used as reinvestment for improving the irrigation services to the users. The actual receipts do not cover even the working expenses. It could be an outcome of not increasing water rates due to pressures from both users and politicians. But, the situation demands an in-depth study of problems and their solutions.

**(iii) Share of Various Input Subsidies in total Agricultural Subsidies:**

The overall scenario of agricultural subsidies in Haryana indicated an increasing volume of subsidies between 1980-81 and 1999-00. We have analysed the shares of different subsidies in total agricultural subsidies for the year 1999-00. An examination of percentage shares of direct and indirect subsidies in total agricultural subsidies revealed that direct subsidies though target oriented and crucial for small and marginal farmers, accounted for only 0.51 per cent of agricultural subsidies.

**Table 2.5**  
**Shares of Important Agricultural Subsidies in Haryana (1999-00)**

| Name of Subsidy               | Farm Subsidies*             |                  |               |                         | Farm Subsidies**            |                  |               |                      |
|-------------------------------|-----------------------------|------------------|---------------|-------------------------|-----------------------------|------------------|---------------|----------------------|
|                               | Value of Subsidy Rs. Crores | Percentage Share | Per Ha. (Rs.) | Per Cultivator (Rs.)*** | Value of Subsidy Rs. Crores | Percentage Share | Per Ha. (Rs.) | Per Cultivator (Rs.) |
| <b>I. Direct Subsidy</b>      | 12.54                       | 0.51             | 20.80         | 41.17                   | 12.54                       | 0.45             | 20.80         | 41.17                |
| <b>II. Indirect Subsidies</b> |                             |                  |               |                         |                             |                  |               |                      |
| a) Fertilizer                 | 484.59                      | 19.64            | 803.77        | 1590.86                 | 484.59                      | 17.43            | 803.77        | 1590.86              |
| b) Power                      | 1913.02                     | 77.55            | 3173.03       | 6280.25                 | 1913.02                     | 68.79            | 3173.03       | 6280.25              |
| c) Irrigation                 | 56.75                       | 2.30             | 94.13         | 186.30                  | 370.46                      | 13.33            | 614.46        | 1216.18              |
| <b>Total</b>                  | 2466.90                     | 100.00           | 4091.73       | 8098.58                 | 2780.61                     | 100.00           | 4612.06       | 9128.46              |

\* Irrigation subsidy computed on the basis of working expenses

\*\* Irrigation subsidy computed after adding interest on capital expenditure

\*\*\* Figures for cultivators relate to 2000-01

Source: Statistical Abstract of Haryana, Agriculture Department, Government of Haryana, Haryana, Census of India, 2001, Series 7, Haryana.

Power subsidy formed the largest proportion (77.55 per cent). Next was fertilizer subsidy, which accounted for 19.64 per cent. Among the three referred indirect subsidies, irrigation formed the lowest proportion i.e. 2.30 per cent. Thus, the distribution of agricultural subsidies in Haryana was found highly skewed towards indirect subsidies, which do not reach directly to intended beneficiaries. It would be better if more emphasis is given to direct subsidies. This seems necessary to achieve the objectives of adoption of technology for lagging crops. It is essential for increasing the growth in yield too.

In a nutshell, the scenario of agricultural subsidies in Haryana was found totally dominated by indirect subsidies. Power followed by fertilizer constituted more than 95 per cent of total agricultural subsidies during 1999-00.

### **Chapter III**

#### **Agro-Economic Profile of the Selected Districts and Sampled Households in Haryana**

This chapter presents an analysis of the agro-economic characteristics of the districts and the sampled farmers. It is divided into two sections. Section first is based on secondary data and it analyses the basic features of the selected districts such as rainfall, population, agricultural workers, average size of holding, farm size distribution, land use pattern, crop pattern, irrigated area, yield per hectare, consumption of fertilizers, and use of tractors and pump-sets, etc. In section second, socio-economic characteristics of sampled farmers are analysed. These include population, average size of family, part-time and full-time farm workers, educational status of head of the household, ownership of land, average size of holding, crop pattern, area under high yielding variety seeds, productivity of important crops and value of farm assets.

#### **Section I**

##### **I Main Features of Selected Districts**

For the present study, four districts were selected from four agro-climatic zones of Haryana. These were Ambala, Jind, Bhiwani and Faridabad. The first two are agriculturally developed districts. These are well endowed with favourable natural resource base. The remaining two districts i.e. Bhiwani and Faridabad are agriculturally less developed, due to inadequate irrigation and other facilities.

##### **Rainfall:**

Several factors influence the agricultural growth of the region, but rainfall is most important among them. It is widely accepted that our agricultural performance depends to a great extent on the arrival, spread and quantity of rainfall. Timely, widespread and adequate rain results in a good harvest and yield while scanty and inadequate rain brings drought and crop failure. The rainy season in Haryana sets in the first week of July and continues till the end of September. It may be observed from the rainfall data presented for the selected districts in Table 3.1 that the average rainfall during 1995-99 was the maximum in Ambala (1345.3 millimetres) and the minimum in Bhiwani (410.2 millimetres).

**Table 3.1**  
**Quinquinial Average Monthly Rainfall in the Selected Districts: (1995-99)**  
(Millimetres)

| Month        | Ambala | Jind  | Faridabad | Bhiwani |
|--------------|--------|-------|-----------|---------|
| January      | 41.2   | 15.6  | 13.3      | 12.7    |
| February     | 44.6   | 15.7  | 13.5      | 13.2    |
| March        | 22.4   | 12.6  | 3.1       | 6.8     |
| April        | 17.2   | 3.5   | 1.1       | 1.0     |
| May          | 8.3    | 6.0   | 1.0       | 4.2     |
| June         | 127.4  | 54.7  | 24.2      | 46.3    |
| July         | 375.5  | 124.7 | 114.4     | 78.9    |
| August       | 439.2  | 179.6 | 242.0     | 141.8   |
| September    | 234.6  | 154.8 | 112.3     | 189.6   |
| October      | 26.5   | 27.7  | 9.4       | 14.8    |
| November     | 2.4    | 3.9   | 2.3       | 0.6     |
| December     | 6.0    | 0.2   | 0.5       | 0.3     |
| Total Annual | 1345.3 | 599.0 | 537.1     | 410.2   |

Source: Statistical Abstract of Haryana, Government of Haryana, Chandigarh, 2000-01.

The remaining two districts, Jind and Faridabad indicated an average rainfall of 599.0 millimetres and 537.1 millimetres respectively during the same period. It may be noticed that the larger proportion of rainfall occurred in the months of July, August and September in all the selected districts.

**Population and workers:**

It was noticed that most of the population lived in rural areas of the selected districts. The district of Bhiwani indicated 81.03 per cent of population inhabited in rural areas. Faridabad was the most urbanized district among the selected districts with 44.37 per cent of population living in rural areas. The demography of the state indicated that Haryana has 20 per cent of scheduled caste population. Ambala exhibited the largest proportion of scheduled caste population (25.18 per cent) and Faridabad the least (16 per cent). The density of population was the highest in Faridabad by virtue of its close proximity to Delhi. The decennial growth of population during the past decade was also the highest in Faridabad. But, its urbanisation did not make any impact on literacy rate as it had lower proportion of literate population in comparison to Ambala, which has also indicated the highest literacy rate among the scheduled caste population (50.36 per cent). The district of Jind was lagging behind by indicating the lowest literates among the scheduled caste population (30.36 per cent)

**Table 3.2**  
**Geographical Area, Population, Agricultural Workers and Other Development Indicators in Selected Districts and Haryana**

| Item  | Year    | Ambala  | Jind    | Faridabad | Bhiwani | Haryana |
|---|---------|---------|---------|-----------|---------|---------|
| <b>I Population</b>   |         |         |         |           |         |         |
| Rural Population as Percentage to Total Population                        | 2001    | 64.81   | 79.66   | 44.37     | 81.03   | 75.37   |
| Scheduled Caste Population as Percentage to Total Population              | 1991    | 25.18   | 19.56   | 16.06     | 18.97   | 19.75   |
| Density of Population (Rural)   | 1991    | 340     | 295     | 397       | 185     | 287     |
| Decennial Growth in Population (Rural)                                    | 1981-91 | 23.32   | 19.40   | 30.36     | 18.74   | 22.92   |
| Percentage of Literate Population (Rural) to Total Population             | 2001    | 66.47   | 53.06   | 58.70     | 57.60   | 57.98   |
| Percentage of SC Literate Population (Rural)                              | 1991    | 50.36   | 30.36   | 41.94     | 39.96   | 39.22   |
| <b>II Occupational Structure</b>  |         |         |         |           |         |         |
| Percentage of Workers to Total Population (Rural)                         | 1991    | 28.60   | 33.57   | 30.68     | 33.71   | 31.87   |
| Percentage of SC Workers to Total SC Population (Rural)                   | 1991    | 36.33   | 32.78   | 29.56     | 31.51   | 30.97   |
| Percentage of SC Agricultural to Total Agricultural Workers?              | 1991    | 36.73   | 21.17   | 16.58     | 19.00   | 21.57   |
| Percentage of SC Agricultural Workers to Total Workers (Rural)            | 1991    | 40.64   | 63.21   | 35.91     | 58.10   | 53.42   |
| Percentage of SC Agricultural Workers to Total SC Workers (Rural)         | 1991    | 45.60   | 67.64   | 38.01     | 59.98   | 58.39   |
| Percentage of SC Cultivators to Total Cultivators (Rural)                 | 1991    | 8.49    | 2.64    | 4.09      | 7.63    | 4.10    |
| Percentage of SC Agricultural Labourers to Total Agril. Labourers (Rural) | 1991    | 68.23   | 69.59   | 44.85     | 67.21   | 57.19   |
| <b>III Other Development Indicators</b>                                   |         |         |         |           |         |         |
| Gross value of Agricultural Output per Capita (Rural) at Current Prices   | 1999-00 | 11, 480 | 12, 552 | 7, 746    | 8, 523  | 10, 937 |
| Gross Value from Agriculture per Hectare at Current Prices                | 1999-00 | 53, 207 | 42, 347 | 37, 264   | 20, 121 | 38, 208 |
| Metalled Roads per 100 Square Kms. of Area                                | 2000-01 | 69.44   | 42.52   | 56.21     | 41.54   | 51.93   |
| Regulated Markets per Lakh Hectares of Net Sown Area                      | 2000-01 | 6       | 3       | 3         | 2       | 3       |

Source: Ibid

The work participation rate is defined as the percentage of workers to total population. In selected districts, this ranged between 28.60 per cent and 33.71 per cent respectively. Jind and Bhiwani districts had a higher work participation rate than Haryana while Ambala and Faridabad edged lower than the state average. This could be the reflection of higher rural based population in Jind and Bhiwani where agriculture is the major source of employment and disguised employment is common phenomenon. It may be noted that the proportion of workers among the scheduled caste population was around 31 per cent in Haryana. Ambala was an exception in the selected districts by indicating 36.33 per cent of scheduled caste population as workers. Out of the four selected districts, employment of scheduled caste population in Jind and Bhiwani was agriculture based (67.64 per cent and 59.98 per cent). But proportion of scheduled caste agricultural workers in total scheduled caste workers was 45.60 per cent in Ambala. Faridabad had the least share with 38.01 per cent. Although, proportion of scheduled caste workers among the total agricultural workers was the highest in Jind but the share of scheduled caste cultivators in total cultivators in this district was as low as 2.64 per cent only. It implies that most of the scheduled caste agricultural workers are labourers in Jind. The highest share of around 70 per cent of scheduled caste agricultural labourers reiterates the hypothesis that scheduled caste workers in Jind are predominantly agricultural labourers.

When we compare the other development indicators across the selected districts, Jind was ahead of other districts in the gross value of agricultural output per capita. It was Rs.12,552 in Jind against Rs.7,746 in Faridabad and Rs. 10,937 in Haryana. However, Ambala was ahead of other districts in gross value from agriculture per hectare at current prices and its value was higher than the state average by Rs. 15,000. Similarly, Ambala was ahead of other districts in metalled roads per 100 square kilometres of area and regulated markets per lakh hectares of net sown area. The regulated markets in Ambala were reported 5 against 3 in Haryana.

#### **Land Use Pattern:**

Land use pattern plays a crucial role in agricultural development of an area. We have presented data on various aspects of the land use pattern in Table 3.3. The reported area in the selected districts ranged between the lowest of 148 thousand hectares in

Ambala to the highest of 466 thousand hectares in Bhiwani. These are 3.36 per cent and 10.13 per cent of the total reported area of the state. Unfortunately, only 2.61 per cent of the total area in Haryana was under forest in 1999-00 as against the ideal norm of one third forest area prescribed by the environmentalists. Among the sampled districts, Ambala and Jind had higher proportion of forest area in comparison to the remaining two districts. This could be the outcome of higher rainfall. It may be noted that the forest area in all the four selected districts was lower than the state average.

Land put to non-agricultural uses as a proportion (17.78 per cent) of total area, had a profound influence. Faridabad had the highest area under this category due to increasing urbanization, which augments demand for the alternative uses of land as a result of growth of non-farm activities. On the contrary, it was as low as 4.08 per cent in Bhiwani. However, the proportion of land put to non-agricultural uses in Ambala and Jind was 7.43 per cent and 3.96 per cent respectively. The uncultivated barren land was the highest in Ambala (7.43 per cent) due to rocky and stony soil.

The another disappointing characteristic of land use pattern in Haryana is the very low proportion of land under permanent pastures and other grazing lands despite owning a very high population of livestock. It was as low as 0.50 per cent in Haryana. Ambala district had more grazing coverage to the tune of 2.02 per cent of area. It is even amazing that this type of land was altogether non-existent in Jind and Bhiwani.

The cultivable waste land, which can be brought under the plough after some investment in its improvement was almost negligible in the state as well as in the selected districts. However, Ambala had a negligible share of 0.67 per cent of land under this category.

The proportion of area under fallow land was minimal in the state. However, the share of area under current fallows was 4.97 per cent during 1999-00. Surprisingly, this type of area had a larger share (8.63 and 6.75 percent) in Ambala and Jind districts in comparison to Bhiwani (3.43 per cent) and Faridabad (0.48 per cent) districts.



Table 3.3

## Details of Area in Selected Districts and Haryana

(' 000 hectares)

| Items                                      | Ambala |        | Jind |        | Faridabad |        | Bhiwani |        | Haryana |        |
|--|--------|--------|------|--------|-----------|--------|---------|--------|---------|--------|
|  | Area   | % *    | Area | % *    | Area      | % *    | Area    | % *    | Area    | % *    |
| Total Area according to Village Papers     | 148    | 100.00 | 278  | 100.00 | 208       | 100.00 | 466     | 100.00 | 4400    | 100.00 |
| Forest                                     | 3      | 2.02   | 6    | 2.16   | 3         | 1.44   | 9       | 1.93   | 115     | 2.61   |
| Land put to Non-agricultural uses          | 11     | 7.43   | 11   | 3.96   | 37        | 17.78  | 19      | 4.08   | 368     | 8.36   |
| Barren and Uncultivable Land               | 11     | 7.43   | -    | -      | 7         | 3.36   | 23      | 4.94   | 96      | 2.18   |
| Permanent Pastures and other Grazing Lands | 2      | 2.02   | -    | -      | 2         | 0.96   | -       | -      | 22      | 0.50   |
| Land under miscellaneous Tree Crops        | -      | -      | -    | -      | 2         | 0.96   | -       | -      | 5       | 0.11   |
| Cultivable Wastes                          | 1      | 0.67   | -    | -      | -         | -      | -       | -      | 23      | 0.52   |
| Follow Lands                               | -      | -      | -    | -      | -         | -      | -       | -      | @       | @      |
| Current Fallows                            | 10     | 6.75   | 24   | 8.63   | 1         | 0.48   | 16      | 3.43   | 219     | 4.97   |
| Net Area Sown                              | 110    | 74.32  | 236  | 84.89  | 158       | 75.96  | 399     | 85.62  | 3552    | 80.72  |
| Area Sown more than once                   | 91     | -      | 222  | -      | 104       | -      | 222     | -      | 2477    | -      |
| Gross Cropped Area                         | 201    | -      | 458  | -      | 262       | -      | 621     | -      | 6029    | -      |
| Percentage of Area sown, more than once    | -      | 82.73  | -    | 94.06  | -         | 65.82  | -       | 55.64  | -       | 69.74  |

- Percentage of Total Area

Source: Ibid

The figures related to net sown area, and gross cropped area throw some useful insights. The net sown area was the highest in Bhiwani followed by Jind. In addition, percentage of area sown more than once was also higher in Jind (94.06 per cent of net sown area) in comparison to other three districts. This was lowest in Bhiwani and can be attributed to inadequate rainfall and low availability of irrigation water through canals and tube-wells. Even the district of Faridabad had a low percentage; and it seemed to be linked to increasing urbanization, development of non-farm activities, soil degradation and topographical reasons like rocky and stony soil.

### **Cropping Intensity and Sources of Irrigation:**

It was noted (Table 3.3) that area sown more than once in Haryana as well as in the selected districts was significantly high. Jind indicated exceptionally higher cropping intensity (94.06 per cent). This could be the outcome of increasing irrigational facilities in the district. On the other hand, cropping intensity was the lowest in Bhiwani i.e. 55.64 per cent because of uncertain, scanty rainfall and lower availability of canal and tubewell water. When we compare cropping intensity in these districts and that of the state as a whole, it was observed that Jind and Ambala had shown higher cropping intensity than the state while Bhiwani and Faridabad districts had lower cropping intensity than the state average.

The high cropping intensity in the state and the selected districts could be possible due to high-irrigated area. The proportion of irrigated area to net sown area was 81.3 per cent in Haryana. Among the selected districts, Jind had the highest share of irrigated area (93.7 per cent). On the other hand, Bhiwani had lowest percentage of irrigated area around 52.1 per cent of the net sown area and lagged behind the other three districts. The pattern of gross irrigated area as percentage of gross cropped area in the state and the selected districts was more or less similar (table 3.4).

**Table 3.4**  
**Area Irrigated in Selected Districts and Haryana During 1999-00**  
(000 hectare)

| Source        | Ambala |                  | Jind |                  | Faridabad |                  | Bhiwani |                  | Haryana |                  |
|---------------|--------|------------------|------|------------------|-----------|------------------|---------|------------------|---------|------------------|
|               | Area   | % of Irrig. Area | Area | % of Irrig. Area | Area      | % of Irrig. Area | Area    | % of Irrig. Area | Area    | % of Irrig. Area |
| Government    | 14     | 14.73            | 133  | 60.45            | 27        | 23.28            | 124     | 59.62            | 1441    | 49.89            |
| Tanks         | 1      | 1.05             | -    | -                | -         | -                | -       | -                | 1       | 0.05             |
| Wells         | -      | -                | -    | -                | -         | -                | -       | -                | @       | @                |
| Tubewells     | 79     | 83.16            | 87   | 39.55            | 89        | 76.72            | 84      | 40.38            | 1432    | 49.58            |
| Other Sources | 1      | 1.06             | -    | -                | -         | -                | -       | -                | 14      | 0.48             |
| Total         | 95     | 100.00           | 220  | 100.00           | 116       | 100.00           | 208     | 100.00           | 2888    | 100.00           |
| % of NAS as   | 95     | 86.4             | 220  | 93.2             | 116       | 73.4             | 208     | 52.1             | 2888    | 81.3             |
| % of GIA to   | 175    | 87.1             | 429  | 93.7             | 220       | 84.0             | 363     | 58.5             | 5124    | 85.0             |

Source: Ibid

The main sources of irrigation in Haryana are government canals and tubewells, which irrigate almost equal proportion of area i.e. (50 per cent) (Table 3.4). But, district wise variations were wide in this regard. In Ambala and Faridabad, 83.16 per cent and 76.72 per cent of area was irrigated by tubewells. Here, Government canals were a minor source of irrigation. On the other hand, Jind and Bhiwani were highly dependent on government canals and 60.45 per cent and 59.62 per cent of area was irrigated by this source in 1999-00. But, the role of tubewells was also found significant in these districts as almost 40 per cent of area was irrigated by this source. Surprisingly, tanks, wells and other sources as a means of irrigation were almost non-existent in the State as well as in the selected districts.

#### **Farm Size Distribution:**

Farm size plays an important role in decision making about the crop pattern, input use and adoption of technology. It may be observed (Table 3.5) that average size of holding in Haryana was 2.13 hectares during 1995-96. It was higher than the state in Jind and Bhiwani while vice versa was true for the remaining two districts. It may be noted that majority of the holdings were marginal and small in size. Surprisingly, the share of these farms in total farms was around 77.32 per cent in Faridabad. It could be due to fragmentation of land holdings and increasing pressure on the land for non-farm sector. On the contrary, the share of marginal and small farms in Bhiwani was found the lowest among the referred districts. The share of large farms in Bhiwani was 22.09 per cent against 14.26 per cent in the state.

Table 3.5

Farm Size Distribution in the Selected Districts and Haryana in 1995-96

| Items                               | Ambala | Jind  | Faridabad | Bhiwani | Haryana |
|-------------------------------------|--------|-------|-----------|---------|---------|
| <b>I. Number of Farms</b>           |        |       |           |         |         |
| Percentage of Marginal Farms        | 53.11  | 44.72 | 57.48     | 34.86   | 47.14   |
| Percentage of Small Farms           | 17.73  | 20.63 | 19.84     | 22.36   | 19.59   |
| Percentage of Medium Farms          | 18.98  | 19.33 | 14.44     | 20.69   | 19.01   |
| Percentage of Large Farms           | 10.18  | 15.32 | 8.24      | 22.09   | 14.26   |
| <b>II. Area of Farms</b>            |        |       |           |         |         |
| Percentage of Marginal Farms        | 12.34  | 11.24 | 17.91     | 6.08    | 10.99   |
| Percentage of Small Farms           | 15.45  | 12.74 | 17.41     | 9.23    | 12.87   |
| Percentage of Medium Farms          | 31.61  | 23.45 | 26.21     | 20.31   | 24.91   |
| Percentage of Large Farms           | 40.60  | 52.57 | 38.46     | 64.38   | 51.23   |
| Average Size of Holdings (Hectares) | 1.67   | 2.30  | 1.44      | 2.89    | 2.13    |

Source: Ibid

### **Crop Pattern:**

Cropping pattern signifies proportion of cultivated area under the different crops in a given year. It normally depends on the soil, water, temperature and status of technological adoption in the region. There are two important harvests (rabi and kharif) in the state of Haryana. The rabi consists mainly wheat, gram, barley and mustard which are sown in October-November and are harvested during April-May. The kharif consists of bajra, jower, moong, cotton, sugarcane and some fodder crops. These crops are generally sown in July and reaped in November-December. Some short duration crops are also taken in zaid.

The data presented in Table 3.6 provide details of acreage, irrigated area and area under HYV seeds in Haryana as well as in the selected districts during the triennium ending 1999-00. In Haryana, wheat acreage accounted for 33.78 per cent of GCA. In addition, paddy (15.26 per cent) and cotton (10.07 per cent) were the major crops. These together occupied around 60 per cent of the cultivated area. The irrigation coverage of these crops was exceptionally high and more than 95 per cent of the cropped area was found irrigated. In addition, 97.60 per cent of cropped area of wheat was under HYV seeds. The cultivated area of paddy under improved variety seeds was found lower (62.10 per cent). The other important crops of the state were bajra (9.54 per cent of GCA), rape and mustard (8.99 per cent of GCA), and gram (5.70 per cent of GCA). The irrigated area of these crops was observed much lower in comparison to superior cereals and the commercial crop like sugarcane.

Among the selected districts, crop pattern in Ambala was dominated by wheat (36.85 per cent of GCA) and paddy (33.68 per cent of GCA). More than 90 per cent cultivated area of these crops was irrigated. Furthermore, entire area of wheat and 80.30 per cent of paddy was sown under improved variety seeds. The other important crops of the district were sugarcane (6.49 per cent of GCA), oilseeds (4.25 per cent of GCA) and maize (3.61 per cent of GCA). The data on irrigation status were available only for sugarcane, which indicated 97.62 per cent of area as irrigated.

The district of Jind indicated more or less similar crop pattern like that of Ambala. Here, wheat (44.39 per cent) followed by paddy (25.44 per cent) were the major crops. But, Cotton (8.01 per cent) and bajra (7.51 per cent) were also important crops.

**Table 3.6**  
**Crop Pattern, Irrigated Area and Area Under HYV Seeds in the Selected Districts and Haryana (1999-2000)**

| Crop            | Ambala   |          |        | Jind     |          |        | Faridabad |          |       | Bhiwani  |          |       | Haryana  |          |       |
|-----------------|----------|----------|--------|----------|----------|--------|-----------|----------|-------|----------|----------|-------|----------|----------|-------|
|                 | % of GCA | % Irrig. | % HYV  | % of GCA | % Irrig. | % HYV  | % of GCA  | % Irrig. | % HYV | % of GCA | % Irrig. | % HYV | % of GCA | % Irrig. | % HYV |
| Rice            | 33.68    | 99.64    | 80.30  | 25.44    | 99.66    | 59.50  | 8.80      | 97.16    | 73.30 | 0.40     | 96.38    | N.A   | 15.26    | 99.71    | 62.10 |
| Wheat           | 36.85    | 92.94    | 100.00 | 44.34    | 99.91    | 100.00 | 48.54     | 98.94    | 97.70 | 13.46    | 99.39    | 92.00 | 33.78    | 98.26    | 97.60 |
| Maize           | 3.61     | N.A      | 66.70  | @        | 83.33    | 91.90  | 0.19      | 66.67    | 75.00 | 0.04     | N.A      | N.A   | 0.39     | 15.81    | 50.00 |
| Bajra           | 0.24     | N.A      | N.A    | 7.51     | 42.70    | N.A    | 7.05      | 18.66    | N.A   | 27.72    | 7.06     | 53.10 | 9.54     | 17.19    | 75.20 |
| Gram            | 0.08     | N.A      | N.A    | 0.44     | 33.22    | -      | 0.09      | 46.15    | -     | 24.28    | 14.76    | -     | 5.70     | 15.81    | -     |
| Mash            | 0.24     | N.A      | N.A    | -        | N.A      | -      | 0.02      | N.A      | -     | N.A      | N.A      | -     | 0.04     | N.A      | -     |
| Moong           | -        | N.A      | N.A    | @        | N.A      | -      | 0.10      | N.A      | -     | 0.80     | N.A      | -     | 0.26     | N.A      | -     |
| Massar          | 1.33     | N.A      | N.A    | .02      | N.A      | -      | 0.09      | N.A      | -     | 0.00     | N.A      | -     | 0.15     | N.A      | -     |
| Other Pulses    | 0.11     | N.A      | N.A    | 0.48     | N.A      | -      | 2.56      | N.A      | -     | 0.24     | N.A      | -     | 0.63     | N.A      | -     |
| Total Pulses    | 1.95     | N.A      | N.A    | 1.27     | 34.22    | -      | 2.88      | 41.09    | -     | 25.32    | 15.66    | -     | 6.79     | 22.07    | -     |
| Rape & Mustard  | 1.40     | N.A      | N.A    | 1.31     | N.A      | -      | 3.06      | N.A      | -     | 16.98    | N.A      | -     | 8.99     | N.A      | -     |
| Total Oilseeds  | 4.25     | N.A      | N.A    | 5.06     | N.A      | -      | 3.39      | N.A      | -     | 17.00    | N.A      | -     | 9.79     | N.A      | -     |
| American Cotton | -        | N.A      | N.A    | 2.95     | N.A      | -      | 0.06      | N.A      | -     | 6.37     | N.A      | -     | 7.18     | N.A      | -     |
| Desi Cotton     | 0.05     | N.A      | N.A    | 8.01     | N.A      | -      | N.A       | N.A      | -     | 1.58     | N.A      | -     | 2.89     | N.A      | -     |
| Total Cotton    | 0.05     | N.A      | N.A    |          | N.A      | -      | 0.06      | N.A      | -     | 7.96     | 70.83    | -     | 10.07    | N.A      | -     |
| Sugarcane       | 6.49     | 97.62    | N.A    |          | 100.00   | -      | 3.34      | 98.42    | -     | 0.25     | 56.60    | -     | 2.33     | 98.07    | -     |
| Potato          | 1.33     | N.A      | N.A    | -        | N.A      | -      | 0.26      | N.A      | -     | N.A      | N.A      | -     | 0.19     | N.A      | -     |

Source: Ibid

The entire area under wheat and paddy was irrigated. Although, adoption of HYV seeds for wheat was 100 per cent but it was 59.50 per cent for paddy.

The crop pattern in Faridabad was found little different from the earlier discussed districts. Here, paddy was lesser important in terms of acreage (8.80 per cent of GCA). Wheat occupied 48.54 per cent of gross cropped area. The irrigation status of both the superior cereals was impressive and indicated more than 95 per cent of cultivated area as irrigated. The area under HYV seeds for wheat was 97.70 per cent. Paddy exhibited around 73 per cent of cropped area under this category. The other crops of the district were bajra (7.05 per cent of GCA), oilseeds (3.39 per cent of GCA), sugarcane (3.34 per cent of GCA) and pulses (2.56 per cent of GCA). Among other crops, irrigation coverage of sugarcane was comparable (98.42 per cent) with the main crops of rice and wheat

Bhiwani, being a deficient district in rainfall and irrigation exhibited deviations in crop pattern from the Ambala and Jind districts. Here, paddy was the marginal crop (0.40 per cent of GCA). The crop pattern in Bhiwani was dominated by the rainfed crops such as bajra (27.72 per cent of GCA), gram (24.28 per cent of GCA) and rape and mustard (16.98 per cent of GCA). Wheat was the best-irrigated crop of the district. It occupied 13.46 per cent of GCA. The irrigation status of wheat in Bhiwani was as good as in other sampled districts. Cotton also found an important place (7.96 per cent of GCA) in the crop pattern of this district.

### **Production and Productivity of Important Crops:**

It is evident from the crop pattern that wheat, paddy followed by sugarcane are the major crops in Ambala and Jind districts while bajra, pulses, rape and mustard and cotton dominated the crop pattern in Bhiwani. In Faridabad, wheat, rice, bajra, were the major crops. An analysis of the shares of different districts in total production of the state for important crops indicated that Ambala and Jind together produced around 18 per cent of the total paddy. Although, wheat was produced in all the selected districts but shares of Jind, Faridabad and Bhiwani were higher than Ambala. The district of Bhiwani was unique by indicating 47.96 per cent share in gram production, 26.29 per cent in bajra production, 21.51 per cent in rape and mustard production and 9.35 per cent in cotton production. In relative terms, Ambala and Jind

**Table 3.7**  
**Production of Important Crops in Selected Districts and Haryana During 1999-2000**

(in '000 Tonnes)

| Crops            |        |       |           |         |         | Share in state's Production |      |           |         |
|------------------|--------|-------|-----------|---------|---------|-----------------------------|------|-----------|---------|
|                  | Ambala | Jind  | Faridabad | Bhiwani | Haryana | Ambala                      | Jind | Faridabad | Bhiwani |
| Rice             | 20.60  | 205.0 | 58.0      | 17.0    | 2583.0  | 7.97                        | 7.94 | 2.24      | 0.66    |
| Bajra            | -      | 47.0  | 15.0      | 153.0   | 582.0   | -                           | 8.07 | 2.58      | 26.29   |
| Maize            | 14.0   | -     | 2.0       | -       | 48.0    | 29.17                       | -    | 4.17      | -       |
| Wheat            | 325.0  | 860.0 | 545.0     | 465.0   | 9650.0  | 3.37                        | 8.91 | 5.65      | 4.82    |
| Gram             | -      | -     | 4.0       | 141.0   | 294.0   | -                           | -    | 1.36      | 47.96   |
| Rape and Mustard | 2.0    | 6.0   | 10.0      | 128.0   | 595.0   | 0.34                        | 1.00 | 1.68      | 21.51   |
| Cotton           | -      | 82.0  | 121.0     | 122.0   | 1304.0  | -                           | 6.29 | 9.28      | 9.35    |
| Sugarcane        | 90.0   | 31.0  | 41.0      | 5.0     | 764.0   | 11.78                       | 4.06 | 5.37      | 0.65    |
| Potato           | 40.2   | -     | 0.1       | 0.1     | 199.8   | 20.12                       | -    | 0.05      | 0.05    |

Source: I bid

**Table 3.8**  
**Productivity of Important Crops in Selected Districts and Haryana During 1999-2000**

(In Kgs./ha.)

| Crops            | Ambala | Jind | Faridabad | Bhiwani | Haryana |
|------------------|--------|------|-----------|---------|---------|
| Rice             | 2863   | 1767 | 2003      | 2385    | 2385    |
| Bajra            | -      | 1385 | 973       | 775     | 991     |
| Maize            | 2315   | -    | -         | -       | 2400    |
| Wheat            | 4171   | 4234 | 4161      | 3323    | 4165    |
| Gram             | -      | 582  | -         | 492     | 577     |
| Rape and Mustard | 1248   | 1024 | 1401      | 1171    | 1322    |
| Cotton           | -      | 386  | 245       | 409     | 408     |
| Sugarcane        | 5973   | 5201 | 5112      | 4800    | 5577    |
| Potato           | 15736  | -    | 15692     | 13333   | 15771   |

Cotton: Yield in thousand bales of 170 Kg. each

Source: I bid



districts were ahead of other two districts in paddy production while Faridabad and Bhiwani in cotton production.

When we compare productivity levels of important crops across the selected districts, it was observed that yield of rice (2863 Kgs/ha.) in Ambala was higher than the remaining three districts and the state. The next superior cereal, wheat, had the highest productivity in Jind (4234 Kgs/ha.). The productivity of sugarcane as well as potato was the highest in Ambala and it was found above the state average (Table 3.8).

Although bajra, gram, rape and mustard are the major crops in Bhiwani, but their yield levels were found relatively lower than other districts. It is essential to mention that yield gap was more than 25 per cent for bajra and gram. The productivity of rape and mustard was the highest in Faridabad. Bhiwani was ahead of others in cotton (Table 3.8).

In brief, the productivity levels of important crops in Ambala and Jind districts were found much better in comparison to Faridabad and Bhiwani districts.

#### **Use of Important Inputs:**

The utilization of fertilizer, pesticides, tractor, harvest combines and tubewells played an important role in agricultural development of Haryana. The consumption of chemical fertilizers in Haryana during 1999-00 was 262 Kgs./ha. The per unit fertilizer use was the maximum in Ambala (357 Kgs/ha.) and the minimum in Bhiwani (84.02 Kgs/ha.). Nitrogen was the most important and preferred fertilizer. Among the selected districts, Ambala ranked first in Nitrogen consumption, with 277 Kgs/ha. followed by Jind with 217 Kgs/ha. Bhiwani had the lowest consumption (62 Kgs/ha). The phosphatic and potassic fertilizers were consumed in lower quantities. However, Ambala indicated the highest consumption of these nutrients. The pesticides were consumed in all the four districts but once again, their consumption was found higher in Ambala than other districts.

**Table 3.9**

**Details of Fertilizer Consumption, Tractors, Tubewells and Harvest Combines  
in Selected Districts and Haryana During 1999-2000**

| Items   | Ambala | Jind  | Faridabad | Bhiwani | Haryana |
|---|--------|-------|-----------|---------|---------|
| <b>I. Consumption of Fertilizers (Tonnes)</b> |        |       |           |         |         |
| N (Kgs per hectare)                           | 277    | 217   | 164       | 62      | 201     |
| P (Kgs per hectare)                           | 73     | 62    | 53        | 22      | 58      |
| K (Kgs per hectare)                           | 7      | 1     | 3         | 0.02    | 3       |
| Total (Kgs./ha.)                              | 357    | 280   | 220       | 84.02   | 262     |
| <b>II. Consumption of Pesticides</b>          | 3.29   | 1.29  | 2.0       | 0.71    | 1.41    |
| <b>III. Tractors per 'ooo Ha.</b>             | 16.33  | 89    | 145       | 28      | 74      |
| <b>IV. Tubewells per 'ooo Ha.</b>             | 247    | 173   | 145       | 98      | 200     |
| <b>V. Harvesters per 'ooo Ha.</b>             | 0.38   | 16.07 | 0.03      | 2.62    | 2.30    |

T.W., Tractors Combines: Data relate to 1997

Source: Ibid

The state of Haryana has moved towards agricultural mechanization after the green revolution. Consequent to this, Haryana indicated 74 tractors, 200 tubewells and 2.30 harvesters per thousand hectares of net sown area. The number of tractors was observed highest (145 per thousand) in Faridabad while Ambala was ahead of other districts with regard to tubewells. Jind ranked first in terms of harvesters.

**Section II**

**Socio-Economic Characteristics of Sampled Farm Households**

The efficiency and success of any economic enterprise including farming is influenced to a significant degree by the socio-economic background of the households. In addition, these characteristics influence the adoption of improved technology in farming.

**Population and Size of Family**

The population details presented in Table 3.10 indicate that the total population of the scheduled caste farmers in Ambala and Jind districts was 352 persons. It included 141 males, 102 females and 109 children. In Faridabad and Bhiwani districts, the total population of these households was 365 persons comprising of 110 males, 98 females and 157 children. After combining four selected districts, total population of scheduled caste farm households became 717 persons, which included 251 males, 200 females and 266

children. The size class variations were evident and the highest population was found in marginal category of the Ambala and Jind districts.

**Table 3. 10**  
**Population Details of Sampled Farms in Selected districts (1999-00)**

| Farm Size/District                   | Male | Female | Children | Total | Average Size of Family |
|--------------------------------------|------|--------|----------|-------|------------------------|
| <b>Scheduled Caste</b>               |      |        |          |       |                        |
| <b>Ambala+Jind</b>                   |      |        |          |       |                        |
| Marginal                             | 60   | 54     | 46       | 160   | 6.96                   |
| Small                                | 29   | 22     | 31       | 92    | 7.67                   |
| Medium                               | 34   | 22     | 27       | 83    | 6.92                   |
| Large                                | 8    | 4      | 5        | 17    | 5.67                   |
| All                                  | 141  | 102    | 109      | 352   | 7.04                   |
| <b>Faridabad+Bhiwani</b>             |      |        |          |       |                        |
| Marginal                             | 25   | 28     | 50       | 103   | 7.36                   |
| Small                                | 40   | 32     | 52       | 124   | 7.29                   |
| Medium                               | 30   | 25     | 34       | 89    | 6.84                   |
| Large                                | 15   | 13     | 21       | 49    | 8.17                   |
| All                                  | 110  | 98     | 157      | 365   | 7.30                   |
| <b>Ambala+Jind+Faridabad+Bhiwani</b> |      |        |          |       |                        |
| Marginal                             | 85   | 82     | 96       | 263   | 7.11                   |
| Small                                | 69   | 54     | 83       | 216   | 7.45                   |
| Medium                               | 64   | 47     | 61       | 172   | 6.88                   |
| Large                                | 23   | 17     | 26       | 66    | 7.33                   |
| All                                  | 251  | 200    | 266      | 717   | 7.17                   |

**Table 3.10 Contd.....**

| Farm Size/District                   | Male | Female | Children | Total | Average Size of Family |
|--------------------------------------|------|--------|----------|-------|------------------------|
| <b>Non Scheduled Caste</b>           |      |        |          |       |                        |
| <b>Ambala+Jind</b>                   |      |        |          |       |                        |
| Marginal                             | 17   | 13     | 25       | 55    | 6.11                   |
| Small                                | 21   | 19     | 22       | 62    | 7.75                   |
| Medium                               | 26   | 28     | 37       | 91    | 6.50                   |
| Large                                | 39   | 40     | 40       | 125   | 6.94                   |
| All                                  | 103  | 100    | 130      | 333   | 6.66                   |
| <b>Faridabad+Bhiwani</b>             |      |        |          |       |                        |
| Marginal                             | 29   | 24     | 46       | 99    | 12.37                  |
| Small                                | 25   | 24     | 47       | 96    | 9.60                   |
| Medium                               | 25   | 21     | 45       | 91    | 7.58                   |
| Large                                | 42   | 38     | 58       | 138   | 6.90                   |
| All                                  | 121  | 107    | 196      | 424   | 8.48                   |
| <b>Ambala+Jind+Faridabad+Bhiwani</b> |      |        |          |       |                        |
| Marginal                             | 46   | 37     | 71       | 154   | 9.06                   |
| Small                                | 46   | 43     | 69       | 158   | 8.31                   |
| Medium                               | 51   | 49     | 82       | 182   | 7.00                   |
| Large                                | 81   | 78     | 104      | 263   | 6.92                   |
| All                                  | 224  | 207    | 326      | 757   | 7.57                   |

**Scheduled Caste + Non Scheduled Caste**

|                                       |     |     |     |      |      |
|---------------------------------------|-----|-----|-----|------|------|
| <b>Ambala+Jind</b>                    |     |     |     |      |      |
| Marginal                              | 77  | 67  | 71  | 215  | 6.72 |
| Small                                 | 50  | 41  | 53  | 154  | 7.70 |
| Medium                                | 60  | 50  | 64  | 174  | 6.69 |
| Large                                 | 47  | 44  | 45  | 142  | 6.76 |
| All                                   | 244 | 202 | 239 | 685  | 6.85 |
| <b>Faridabad+Bhiwani</b>              |     |     |     |      |      |
| Marginal                              | 54  | 52  | 96  | 202  | 9.18 |
| Small                                 | 65  | 56  | 99  | 220  | 8.15 |
| Medium                                | 55  | 46  | 79  | 180  | 7.20 |
| Large                                 | 57  | 51  | 79  | 187  | 7.19 |
| All                                   | 231 | 205 | 353 | 789  | 7.89 |
| <b>Ambala+Jind+ Faridabad+Bhiwani</b> |     |     |     |      |      |
| Marginal                              | 131 | 119 | 167 | 417  | 7.72 |
| Small                                 | 115 | 97  | 152 | 374  | 7.79 |
| Medium                                | 115 | 96  | 143 | 354  | 6.94 |
| Large                                 | 104 | 95  | 130 | 329  | 7.00 |
| All                                   | 475 | 407 | 592 | 1474 | 7.37 |

The non-scheduled caste farm households in Ambala and Jind districts indicated a total population of 333 persons comprising of 103 males, 100 females and 130 children. The total population of these households in Faridabad and Bhiwani districts was observed higher by almost 100 persons. It included 121 males, 107 females and 196 children. The overall population of non-scheduled caste farm households was 757 persons including 224 males, 207 females and 326 children.

At the aggregate level, the total population of farm households in Ambala and Jind districts was 685 persons, which included 244 males, 202 females and 239 children. Like non-scheduled caste farm households, the total population of farm households in Faridabad and Bhiwani districts was found higher in comparison to first group of districts. It was 789 persons comprising of 251 males, 205 females and 353 children. After combining four districts, the total population became 1474 persons. It comprised of 475 males, 407 females and 592 children.

The average size of family was 7.37 persons for the selected farm households. In Ambala and Jind districts, it was 6.85 persons against 7.89 persons in Faridabad and Bhiwani districts. Among scheduled caste households, it was 7.77 persons against 7.57 persons among the non-scheduled caste households. It may be noticed that average size of family varied significantly in different categories of farmers among scheduled caste as well as among non-scheduled caste farmers. It varied from a minimum of 6.11 persons in marginal group of non-scheduled caste farmers in the first group of districts and to a maximum of 12.37 persons in the same category in the second group of districts. There was no correlation between farm size and average size of family. Surprisingly, non-scheduled caste farm households exhibited higher population and larger family size than scheduled caste farm households at the aggregate level.

### **Work Participation**

Table 3.11 presents work participation rate (percentage of workers to total population in the age group 15 to 59 years) of population and the proportion of farm workers to total workers on the sampled households. Out of the total scheduled caste population in Ambala and Jind districts, 47.16 per cent were workers. The scenario was totally different in the Faridabad and Bhiwani districts. Here, around 80.29 per cent of

population participated in economic activities. After combining both types of districts, proportion of workers in scheduled caste population was worked out to be around 59.46 per cent. The corresponding figures for marginal, small, medium and large schedule caste households were 54.92 per cent, 66.46 per cent, 57.97 per cent and 62.79 per cent respectively. The proportion of workers to total population had shown significant variations with changing farm size. The proportion of farm workers to total workers was 85.54 per cent among the scheduled caste households of Ambala and Jind districts and 88.62 per cent in Faridabad and Bhiwani districts. When we look at the status of farm workers in employment, it was observed that 54.64 per cent of full time farm workers were males. The share of female workers was very low in full time workers. It was only 10.36 per cent. It was reported during the survey that it was primarily due to the limitations of time. Most of them preferred to work as part time workers with shouldering the family responsibilities.

**Table 3.11**

**Occupational Structure of Sampled Farms in Selected Districts (1999-00)**

| Farm Size/District                   | No. of Farm Workers | No. of Non farm Workers | Total Workers | % of Workers to Total Population | % of Farm Workers to Total Workers |
|--------------------------------------|---------------------|-------------------------|---------------|----------------------------------|------------------------------------|
| <b>Scheduled Caste</b>               |                     |                         |               |                                  |                                    |
| <b>Ambala+Jind</b>                   |                     |                         |               |                                  |                                    |
| Marginal                             | 67                  | 9                       | 76            | 47.50                            | 88.16                              |
| Small                                | 36                  | 9                       | 45            | 48.91                            | 80.00                              |
| Medium                               | 33                  | 5                       | 38            | 45.78                            | 86.84                              |
| Large                                | 6                   | 1                       | 7             | 41.18                            | 85.71                              |
| All                                  | 142                 | 24                      | 166           | 47.16                            | 85.54                              |
| <b>Faridabad+Bhiwani</b>             |                     |                         |               |                                  |                                    |
| Marginal                             | 36                  | 5                       | 41            | 78.85                            | 87.80                              |
| Small                                | 56                  | 8                       | 64            | 88.89                            | 87.50                              |
| Medium                               | 39                  | 3                       | 42            | 76.36                            | 92.86                              |
| Large                                | 17                  | 3                       | 20            | 71.43                            | 85.00                              |
| All                                  | 148                 | 19                      | 167           | 80.29                            | 88.62                              |
| <b>Ambala+Jind+Faridabad+Bhiwani</b> |                     |                         |               |                                  |                                    |
| Marginal                             | 103                 | 14                      | 117           | 54.92                            | 88.03                              |
| Small                                | 92                  | 17                      | 109           | 66.46                            | 84.40                              |
| Medium                               | 72                  | 8                       | 80            | 57.97                            | 90.00                              |
| Large                                | 23                  | 4                       | 27            | 62.79                            | 85.18                              |
| All                                  | 290                 | 43                      | 333           | 59.46                            | 87.09                              |

**Table 3.11 Contd.....**

| Farm Size/District                   | No. of Farm Workers | No. of Non farm Workers | Total Workers | % of Workers to Total Population | % of Farm Workers to Total Workers |
|--------------------------------------|---------------------|-------------------------|---------------|----------------------------------|------------------------------------|
| <b>Non Scheduled Casts</b>           |                     |                         |               |                                  |                                    |
| <b>Ambala+Jind</b>                   |                     |                         |               |                                  |                                    |
| Marginal                             | 20                  | 2                       | 22            | 40.00                            | 90.91                              |
| Small                                | 23                  | 6                       | 29            | 46.77                            | 79.31                              |
| Medium                               | 31                  | 3                       | 34            | 37.36                            | 91.18                              |
| Large                                | 40                  | 0                       | 40            | 32.00                            | 100.00                             |
| All                                  | 114                 | 11                      | 125           | 37.54                            | 91.20                              |
| <b>Faridabad+Bhiwani</b>             |                     |                         |               |                                  |                                    |
| Marginal                             | 22                  | 14                      | 36            | 67.92                            | 61.11                              |
| Small                                | 26                  | 2                       | 28            | 57.14                            | 92.86                              |
| Medium                               | 25                  | 5                       | 30            | 65.22                            | 83.33                              |
| Large                                | 55                  | 1                       | 56            | 70.00                            | 98.21                              |
| All                                  | 128                 | 22                      | 150           | 65.79                            | 85.33                              |
| <b>Ambala+Jind+Faridabad+Bhiwani</b> |                     |                         |               |                                  |                                    |
| Marginal                             | 42                  | 16                      | 58            | 53.70                            | 72.41                              |
| Small                                | 49                  | 8                       | 57            | 51.35                            | 85.96                              |
| Medium                               | 56                  | 8                       | 64            | 46.71                            | 87.50                              |
| Large                                | 95                  | 1                       | 96            | 46.83                            | 98.96                              |
| All                                  | 242                 | 133                     | 275           | 49.02                            | 88.00                              |

**Scheduled Caste + Non Scheduled Caste**

|                                      |     |     |     |       |       |
|--------------------------------------|-----|-----|-----|-------|-------|
| <b>Ambala+Jind</b>                   |     |     |     |       |       |
| Marginal                             | 87  | 11  | 98  | 45.58 | 88.77 |
| Small                                | 59  | 15  | 74  | 48.05 | 79.73 |
| Medium                               | 64  | 8   | 72  | 41.38 | 88.89 |
| Large                                | 46  | 1   | 47  | 33.09 | 97.87 |
| All                                  | 256 | 35  | 291 | 42.48 | 87.97 |
| <b>Faridabad+Bhiwani</b>             |     |     |     |       |       |
| Marginal                             | 58  | 19  | 77  | 73.33 | 75.32 |
| Small                                | 82  | 10  | 92  | 76.03 | 89.13 |
| Medium                               | 64  | 8   | 72  | 71.29 | 88.89 |
| Large                                | 72  | 4   | 76  | 70.37 | 94.74 |
| All                                  | 276 | 41  | 317 | 72.71 | 87.07 |
| <b>Ambala+Jind+Faridabad+Bhiwani</b> |     |     |     |       |       |
| Marginal                             | 145 | 30  | 175 | 54.52 | 82.86 |
| Small                                | 141 | 25  | 166 | 60.36 | 84.94 |
| Medium                               | 128 | 16  | 144 | 52.36 | 88.89 |
| Large                                | 118 | 5   | 123 | 49.60 | 95.93 |
| All                                  | 532 | 176 | 608 | 54.24 | 87.50 |

**Table 3.12**  
**Percentage of Full Time and Part Time Farm Workers on Sample Farms in Selected**  
**Districts During 1999-00**

| Farm Size/<br>Districts                    | Male      |           | Female    |           | Male + Female |           |
|--|-----------|-----------|-----------|-----------|---------------|-----------|
|  | Full Time | Part Time | Full Time | Part Time | Full Time     | Part Time |
| <b>Scheduled Caste</b>                     |           |           |           |           |               |           |
| <b>Ambala + Jind</b>                       |           |           |           |           |               |           |
| Marginal                                   | 49.25     | 8.95      | 10.45     | 31.34     | 59.70         | 40.30     |
| Small                                      | 73.53     | 8.82      | 14.70     | 8.82      | 83.33         | 16.67     |
| Medium                                     | 51.51     | 21.21     | 6.06      | 21.21     | 57.67         | 42.43     |
| Large                                      | 50.00     | 50.50     | -         | -         | 50.00         | 50.00     |
| All  | 54.93     | 13.38     | 9.86      | 21.83     | 64.79         | 35.21     |
| <b>Faridabad + Bhiwani</b>                 |           |           |           |           |               |           |
| Marginal                                   | 43.59     | 12.82     | 15.38     | 28.20     | 58.97         | 41.03     |
| Small                                      | 48.21     | 7.14      | 5.36      | 39.28     | 53.57         | 46.43     |
| Medium                                     | 75.86     | 3.45      | 13.79     | 41.38     | 55.17         | 44.83     |
| Large                                      | 52.94     | 5.88      | 11.76     | 29.41     | 64.70         | 35.30     |
| All  | 53.19     | 7.80      | 10.64     | 35.46     | 56.74         | 43.26     |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |           |           |           |           |               |           |
| Marginal                                   | 47.17     | 10.38     | 12.26     | 30.19     | 59.43         | 40.57     |
| Small                                      | 57.78     | 7.78      | 8.89      | 27.78     | 65.22         | 34.78     |
| Medium                                     | 62.90     | 12.90     | 9.68      | 30.64     | 56.45         | 43.55     |
| Large                                      | 52.17     | 17.39     | 8.69      | 21.74     | 60.87         | 39.13     |
| All  | 54.64     | 10.71     | 10.36     | 28.93     | 60.78         | 39.22     |
| <b>Non Scheduled Caste</b>                 |           |           |           |           |               |           |
| <b>Ambala + Jind</b>                       |           |           |           |           |               |           |
| Marginal                                   | 70.00     | 5.00      | -         | 25.00     | 70.00         | 30.00     |
| Small                                      | 56.52     | -         | 8.69      | 34.78     | 65.22         | 34.78     |
| Medium                                     | 48.39     | 19.35     | 6.45      | 25.81     | 54.84         | 45.16     |
| Large                                      | 70.00     | 5.00      | 2.50      | 22.50     | 72.50         | 27.50     |
| All  | 61.40     | 7.89      | 4.38      | 26.32     | 65.79         | 34.21     |
| <b>Faridabad + Bhiwani</b>                 |           |           |           |           |               |           |
| Marginal                                   | 41.67     | 20.83     | 12.50     | 25.00     | 54.17         | 45.83     |
| Small                                      | 43.33     | 23.33     | 6.67      | 26.67     | 50.00         | 50.00     |
| Medium                                     | 52.17     | 8.69      | 13.04     | 26.09     | 65.22         | 34.78     |
| Large                                      | 56.14     | 10.53     | 1.75      | 31.58     | 57.89         | 42.10     |
| All  | 50.00     | 14.92     | 6.72      | 28.36     | 56.72         | 43.28     |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |           |           |           |           |               |           |
| Marginal                                   | 54.54     | 13.64     | 6.82      | 25.00     | 61.36         | 38.64     |
| Small                                      | 49.06     | 13.21     | 7.55      | 30.19     | 56.60         | 43.40     |
| Medium                                     | 50.00     | 14.81     | 9.26      | 25.92     | 59.26         | 40.74     |
| Large                                      | 61.85     | 8.25      | 2.06      | 27.83     | 63.92         | 36.08     |
| All  | 55.24     | 11.69     | 5.64      | 27.42     | 60.89         | 39.11     |



Table 3.12 Contd.....

| Farm Size/<br>District                       | Male      |           | Female    |           | Male + Female |           |
|--|-----------|-----------|-----------|-----------|---------------|-----------|
|  | Full Time | Part Time | Full Time | Part Time | Full Time     | Part Time |
| <b>Scheduled Caste + Non Scheduled Caste</b> |           |           |           |           |               |           |
| <b>Ambala + Jind</b>                         |           |           |           |           |               |           |
| Marginal                                     | 54.02     | 8.05      | 8.05      | 29.88     | 62.07         | 37.93     |
| Small  | 64.41     | 5.08      | 11.86     | 18.64     | 76.27         | 23.73     |
| Medium                                       | 50.00     | 20.31     | 6.25      | 23.44     | 56.25         | 43.75     |
| Large  | 67.39     | 10.87     | 2.17      | 19.56     | 69.56         | 30.44     |
| All  | 57.81     | 10.94     | 7.42      | 23.83     | 65.23         | 34.77     |
| <b>Faridabad + Bhiwani</b>                   |           |           |           |           |               |           |
| Marginal                                     | 42.86     | 15.87     | 14.28     | 26.98     | 57.14         | 42.86     |
| Small  | 46.51     | 12.79     | 5.81      | 34.88     | 52.32         | 47.68     |
| Medium                                       | 54.84     | 4.84      | 11.29     | 29.03     | 66.13         | 33.87     |
| Large  | 55.40     | 9.46      | 4.06      | 31.08     | 59.46         | 40.54     |
| All  | 49.82     | 10.88     | 8.42      | 30.88     | 58.25         | 41.75     |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |           |           |           |           |               |           |
| Marginal                                     | 49.33     | 11.33     | 10.67     | 28.67     | 60.00         | 40.00     |
| Small  | 53.79     | 9.66      | 8.28      | 28.28     | 62.07         | 37.93     |
| Medium                                       | 52.38     | 12.70     | 8.73      | 26.19     | 61.11         | 38.89     |
| Large  | 60.00     | 10.00     | 3.33      | 26.67     | 63.33         | 36.67     |
| All  | 53.60     | 10.90     | 7.95      | 27.54     | 61.55         | 38.45     |

For non-scheduled caste farm households, work participation rate was 37.54 per cent in Ambala and Jind districts, 65.79 per cent in Faridabad and Bhiwani districts and 49.02 per cent for the entire sample. The corresponding figures for marginal, small, medium and large farmers were 53.70 per cent, 51.35 per cent, 46.71 per cent and 46.83 per cent, respectively. Once again, the proportion of workers was found higher in the first group of districts. Like scheduled caste farmers, agriculture was their major occupation. Therefore, proportion of farm workers was above 80 per cent in total workers. The male workers were full time farm workers where as females involved in agriculture among non-scheduled caste farm households worked part-time due to the above cited reasons. The situation was almost identical in each one of the selected districts.

At the aggregate level, work participation rate of entire population was 42.48 per cent in Ambala and Jind districts, 72.71 per cent in Faridabad and Bhiwani districts and 54.24 per cent at the combined level. Although, proportion of workers to total population varied with the farm size but any type of relationship between the two was not observed.

The proportion of farm workers to total workers was as high as 87.50 per cent. Only marginal difference was noticed across the chosen districts. Farm size variations were significant in this regard. Once again, most of the female farm workers worked as part time workers. The full-time farm work was observed more or less male's domain.

A comparative analysis of scheduled caste and non-scheduled caste farm households indicated that the work participation rate was higher in the case of scheduled caste farm households due to their meagre income which forced the maximum number of family members to participate in productive work to augment income. The proportion of farm workers was almost equal on scheduled caste as well as on non-scheduled caste farm households. The similar was found true with regard to high proportion of full time male farm workers among total farm workers.

### **Educational Level**

We have collected information on educational status of heads of households during the survey because it influences farmer's efficiency in farming through the adoption of improved technology. It may be observed from the data presented in Table 3.13 that the proportion of literate among scheduled caste heads of farm households was 42.03 per cent in Ambala and Jind districts. Out of the total literates, 37.68 per cent had education below matric level. Only 2.90 per cent among them attained education above matriculation. Unfortunately, 57.97 per cent of scheduled caste heads of households in these districts were found illiterate. The proportion of illiterates and literates varied across different farm sizes but no relationship was observed between the two. The scenario of literacy level of scheduled caste heads of households was slightly different in Faridabad and Bhiwani districts. Here, proportion of illiterates was comparatively lower while the share of above matriculate heads was higher by 3 percentage points. At the overall level, 45.04 per cent of scheduled caste heads of farm households were literate. It is depressing to note that 54.96 per cent among them were illiterate.

**Table 3.13**  
**Educational Status of Heads of the Households on Sampled Farms in Selected**  
**Districts during 1999-00**

(in Percentage)

| Farm Size/District                         | Illiterate | Upto Matric | Above Matric | Total literate |
|--|------------|-------------|--------------|----------------|
| <b>Scheduled Caste</b>                     |            |             |              |                |
| <b>Ambala + Jind</b>                       |            |             |              |                |
| Marginal                                   | 39.13      | 56.52       | 4.34         | 60.87          |
| Small                                      | 58.33      | 41.67       | -            | 41.67          |
| Medium                                     | 25.00      | 66.67       | 8.33         | 75.00          |
| Large                                      | 95.45      | 4.55        | -            | 4.55           |
| All  | 57.97      | 37.68       | 2.90         | 42.03          |
| <b>Faridabad + Bhiwani</b>                 |            |             |              |                |
| Marginal                                   | 42.86      | 50.00       | 7.14         | 57.14          |
| Small                                      | 41.18      | 52.94       | 5.88         | 58.82          |
| Medium                                     | 46.15      | 46.15       | 7.69         | 53.85          |
| Large                                      | 72.22      | 11.11       | 11.11        | 27.78          |
| All  | 51.61      | 38.71       | 8.06         | 48.39          |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |            |             |              |                |
| Marginal                                   | 40.54      | 54.05       | 5.40         | 59.46          |
| Small                                      | 48.27      | 48.27       | 3.45         | 51.73          |
| Medium                                     | 36.00      | 56.00       | 8.00         | 64.00          |
| Large                                      | 85.00      | 5.00        | 5.00         | 15.00          |
| All  | 54.96      | 38.17       | 5.34         | 45.04          |

**Non Scheduled Caste**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| <b>Ambala + Jind</b>                       |       |       |       |       |
| Marginal                                   | 44.44 | 55.55 | -     | 55.55 |
| Small                                      | 77.78 | 22.22 | -     | 22.22 |
| Medium                                     | 14.28 | 78.57 | 7.14  | 85.71 |
| Large                                      | 16.67 | 55.55 | 27.78 | 83.33 |
| All  | 32.00 | 56.00 | 12.00 | 68.00 |
| <b>Faridabad + Bhiwani</b>                 |       |       |       |       |
| Marginal                                   | 50.00 | 50.00 | -     | 50.00 |
| Small                                      | 40.00 | 50.00 | 10.00 | 60.00 |
| Medium                                     | 8.33  | 83.33 | 8.33  | 91.67 |
| Large                                      | 10.00 | 80.00 | 10.00 | 90.00 |
| All  | 22.00 | 70.00 | 8.00  | 78.00 |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |       |       |       |       |
| Marginal                                   | 47.06 | 52.94 | -     | 52.94 |
| Small                                      | 57.89 | 36.84 | 5.26  | 42.11 |
| Medium                                     | 11.54 | 80.77 | 7.69  | 88.46 |
| Large                                      | 13.16 | 68.42 | 18.42 | 86.84 |
| All  | 27.00 | 63.00 | 10.00 | 73.00 |

Table 3.13 Contd.....

| Farm Size/District                           | Illiterate | Upto Matric | Above Matric | Total literate |
|--|------------|-------------|--------------|----------------|
| <b>Scheduled Caste + Non Scheduled Caste</b> |            |             |              |                |
| <b>Ambala + Jind</b>                         |            |             |              |                |
| Marginal                                     | 40.63      | 56.25       | 3.12         | 59.37          |
| Small  | 66.67      | 33.33       | -            | 33.33          |
| Medium                                       | 19.24      | 73.07       | 7.69         | 80.76          |
| Large  | 23.81      | 47.62       | 23.81        | 76.19          |
| All  | 37.00      | 54.00       | 8.00         | 63.00          |
| <b>Faridabad + Bhiwani</b>                   |            |             |              |                |
| Marginal                                     | 45.45      | 50.00       | 4.54         | 54.54          |
| Small  | 40.74      | 51.85       | 7.41         | 59.26          |
| Medium                                       | 28.00      | 64.00       | 8.00         | 72.00          |
| Large  | 11.54      | 69.23       | 15.38        | 88.46          |
| All  | 31.00      | 59.00       | 9.00         | 69.00          |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |            |             |              |                |
| Marginal                                     | 42.59      | 53.70       | 3.70         | 57.41          |
| Small  | 52.08      | 43.75       | 4.17         | 47.92          |
| Medium                                       | 23.53      | 68.63       | 7.84         | 76.47          |
| Large  | 17.02      | 59.57       | 19.15        | 82.98          |
| All  | 34.00      | 56.50       | 8.50         | 66.00          |

As expected, the educational status of the non-scheduled caste heads of households was found much better in comparison to scheduled caste heads of households. Their literacy rate was 68.00 per cent in Ambala and Jind districts. Out of the total literates, 56 per cent attained educational level below matriculation. Only 12 per cent had an educational level above matriculation. The variations across different categories of farms were found glaring as none of the marginal and small farmers studied above matriculation. The situation improved in Faridabad and Bhiwani districts in terms of overall literacy rate but the proportion of heads of households having attained educational level above matriculation had declined. After combining all the four districts, the literacy rate of the non-scheduled caste heads of households was found 73.00 per cent. However, 27.00 per cent remained illiterate

The literacy rate among the heads of households at the aggregate level was 63 per cent in Ambala and Jind districts. Out of total literates, 54 per cent had educational level below the matriculation. Only 8 per cent attained educational level above matriculation. Unfortunately, the proportion of illiterate heads was 37 per cent. An improvement in the levels of literacy among the heads of households was observed in Faridabad and Bhiwani

districts by indicating the lower percentage of illiterate heads. At the aggregate level, 66 per cent of them were literate of which 56.50 per cent studied below the matriculation. Unfortunately, 34 per cent among them were illiterate in advanced state like Haryana.

In brief, the educational status of heads of households among the non-scheduled caste farmers was found little better than the scheduled caste farmers but the overall scenario indicated backwardness in terms of educational status in the selected districts.

#### **Nature of Land Ownership:**

The type of ownership of land often influences crop pattern and adoption of technology. Therefore, it is essential to look into the nature of ownership of land before analysing its use. We have classified land details into four categories (i) land owned (ii) land leased in (iii) land leased out (iv) land operated. Although, it is believed that scheduled caste farmers are mostly share croppers. But, we may observe that the operational holdings of sample scheduled caste farmers are mostly owned and self operated.

The land holding position of the sampled households of various size classes of scheduled caste and other farmers presented in Table 3.14 reveals that scheduled caste farmers owned 49.1 hectares in Ambala and Jind districts, 68.93 hectares in Faridabad and Bhiwani districts and 118.04 hectares at the aggregated level. It was reported during the survey that most of them acquired land through land reform measures. The land obtained through inheritance was found negligible in their case. The practice of leasing in land was common but they rarely leased out land. That is why only one scheduled caste farmer in entire sample leased out land. A look at the operational holdings within the scheduled caste farmers revealed that landholders of this community mostly belong to the small and marginal group. The number of large holders is negligible among scheduled caste farmers due to the allotment of small size of land through land reform measures. As a result, the number of large holders was found negligible in the selected districts. The average size of holding of scheduled caste farmers was 1.47 hectares in Ambala and Jind districts, 1.80 hectares in Faridabad and Bhiwani districts and 1.64 hectares at the aggregate level. It varied from a minimum 0.53 hectares in marginal category of first group of districts to a maximum of 4.62 hectares in large category of the same districts. It

is commendable that around 80.07 per cent of operated area by scheduled caste farmers was irrigated.

**Table 3.14**  
**Area Owned, Leased in, Leased Out, Land Operated and Average Size of Holding On Sampled Farms (1999-00)**

| (in Hectares)                              |            |                |                       |               |  |                               |
|--|------------|----------------|-----------------------|---------------|--|-------------------------------|
| Farm Size/<br>District                     | Land Owned | Land Leased in | Land<br>Leased<br>Out | Land Operated | % of<br>Operated<br>Area as<br>Irrigated | Average<br>Size of<br>Holding |
| <b>Scheduled Caste</b>                     |            |                |                       |               |  |                               |
| <b>Ambala + Jind</b>                       |            |                |                       |               |  |                               |
| Marginal                                   | 12.27      | -              | -                     | 12.26         | 87.62                                    | 0.53                          |
| Small                                      | 12.04      | 3.24           | -                     | 15.28         | 93.38                                    | 1.27                          |
| Medium                                     | 15.79      | 16.50          | -                     | 32.29         | 94.98                                    | 2.69                          |
| Large                                      | 9.00       | 4.86           | -                     | 13.87         | 80.00                                    | 4.62                          |
| All  | 49.11      | 24.59          | -                     | 73.70         | 84.37                                    | 1.47                          |
| <b>Faridabad + Bhiwani</b>                 |            |                |                       |               |  |                               |
| Marginal                                   | 8.40       | 0.40           | -                     | 8.80          | 64.25                                    | 0.63                          |
| Small                                      | 19.53      | 3.44           | -                     | 22.97         | 76.47                                    | 1.35                          |
| Medium                                     | 29.86      | 5.87           | 3.14                  | 32.59         | 73.17                                    | 2.51                          |
| Large                                      | 11.13      | 14.57          | -                     | 25.71         | 72.02                                    | 4.28                          |
| All  | 68.93      | 24.29          | 3.14                  | 90.08         | 72.11                                    | 1.80                          |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |            |                |                       |               |  |                               |
| Marginal                                   | 20.67      | 0.40           | -                     | 21.07         | 72.39                                    | 0.56                          |
| Small                                      | 31.58      | 6.68           | -                     | 38.26         | 85.24                                    | 1.32                          |
| Medium                                     | 45.65      | 22.37          | 3.14                  | 64.88         | 83.07                                    | 2.59                          |
| Large                                      | 20.14      | 19.43          | -                     | 39.57         | 76.88                                    | 4.40                          |
| All  | 118.04     | 8.40           | 3.14                  | 163.78        | 80.07                                    | 1.64                          |
| <b>Non Scheduled Caste</b>                 |            |                |                       |               |  |                               |
| <b>Ambala + Jind</b>                       |            |                |                       |               |  |                               |
| Marginal                                   | 4.86       | 0.40           | -                     | 5.26          | 94.23                                    | 0.58                          |
| Small                                      | 10.02      | 3.04           | -                     | 13.06         | 87.60                                    | 1.45                          |
| Medium                                     | 25.91      | 13.51          | -                     | 39.42         | 94.35                                    | 2.85                          |
| Large                                      | 75.71      | 38.06          | -                     | 113.76        | 84.00                                    | 6.32                          |
| All  | 116.50     | 55.01          | -                     | 171.51        | 89.58                                    | 3.43                          |
| <b>Faridabad + Bhiwani</b>                 |            |                |                       |               |  |                               |
| Marginal                                   | 3.85       | 0.40           | -                     | 4.25          | 80.00                                    | 0.53                          |
| Small                                      | 12.75      | 1.82           | -                     | 14.57         | 78.11                                    | 1.47                          |
| Medium                                     | 30.77      | 1.82           | -                     | 32.59         | 85.65                                    | 2.71                          |
| Large                                      | 99.59      | 31.98          | 2.43                  | 129.15        | 86.86                                    | 6.46                          |
| All  | 146.96     | 36.03          | 2.43                  | 180.57        | 85.97                                    | 3.61                          |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |            |                |                       |               |  |                               |
| Marginal                                   | 8.70       | 0.80           | -                     | 9.51          | 86.81                                    | 0.56                          |
| Small                                      | 22.77      | 4.86           | -                     | 27.63         | 82.14                                    | 1.45                          |
| Medium                                     | 56.68      | 15.33          | -                     | 72.01         | 87.91                                    | 2.77                          |
| Large                                      | 175.30     | 70.00          | 2.43                  | 242.91        | 85.33                                    | 6.39                          |
| All  | 263.46     | 91.04          | 2.43                  | 352.07        | 84.27                                    | 3.52                          |

**Table 3.14 Contd.....**

| Farm Size/<br>District                       | Land Owned | Land Leased in | Land<br>Leased<br>Out | Land Operated | % of<br>Operated<br>Area as<br>Irrigated | Average<br>Size of<br>Holding |
|--|------------|----------------|-----------------------|---------------|--|-------------------------------|
| <b>Scheduled Caste + Non Scheduled Caste</b> |            |                |                       |               |  |                               |
| <b>Ambala + Jind</b>                         |            |                |                       |               |  |                               |
| Marginal                                     | 17.13      | 0.40           | -                     | 17.53         | 89.61                                    | 0.55                          |
| Small  | 22.07      | 6.27           | -                     | 28.34         | 90.71                                    | 1.35                          |
| Medium                                       | 41.07      | 30.00          | -                     | 71.71         | 94.64                                    | 2.76                          |
| Large  | 84.22      | 42.91          | -                     | 127.63        | 83.00                                    | 6.08                          |
| All  | 165.61     | 79.60          | -                     | 245.21        | 86.01                                    | 2.45                          |
| <b>Faridabad + Bhiwani</b>                   |            |                |                       |               |  |                               |
| Marginal                                     | 12.25      | 0.81           | -                     | 13.06         | 76.12                                    | 0.59                          |
| Small  | 32.29      | 5.26           | -                     | 37.55         | 77.84                                    | 1.39                          |
| Medium                                       | 60.63      | 7.69           | 3.14                  | 65.18         | 84.41                                    | 2.61                          |
| Large  | 110.73     | 46.56          | 2.43                  | 154.86        | 80.08                                    | 5.96                          |
| All  | 215.89     | 60.32          | 5.57                  | 270.65        | 77.69                                    | 2.71                          |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |            |                |                       |               |  |                               |
| Marginal                                     | 29.37      | 1.21           | -                     | 30.59         | 82.39                                    | 0.57                          |
| Small  | 54.35      | 11.54          | -                     | 65.89         | 84.78                                    | 1.37                          |
| Medium                                       | 102.33     | 37.70          | 3.14                  | 136.89        | 89.53                                    | 2.68                          |
| Large  | 195.44     | 89.47          | 2.43                  | 282.49        | 81.85                                    | 6.01                          |
| All  | 381.50     | 139.93         | 5.57                  | 515.86        | 83.25                                    | 2.58                          |

The non-scheduled caste farmers owned 116.50 hectares in Ambala and Jind districts, 99.59 hectares in Faridabad and Bhiwani districts and 263.46 hectares at the aggregate level. The total area owned by them was higher than the scheduled caste farmers. Surprisingly, leasing in land was common in this category too. The leasing out of land was almost non-existent and that is why only one farmer leased out land. The distribution of land indicated a higher proportion of medium and large farmers among the non-scheduled caste category. The average size of holding in their case was 3.53 hectares in Ambala and Jind districts, 3.61 hectares in Faridabad and Bhiwani districts and 3.53 hectares at the aggregate level. The variations across farm size classes were significant. The average operated land ranged between a minimum of 0.53 hectares in marginal category to a maximum of 6.46 hectares in large category of the highly irrigated districts. It may be noticed that the average size of holding here was much higher in comparison to scheduled caste farmers in Ambala and Jind districts as well as in Faridabad and Bhiwani districts. The irrigation status of land holdings was appreciable, as around 84.27 per cent of operated land holdings by non-scheduled caste farmers were found irrigated.

The analysis of land holding structure of total sample farmers revealed that they owned 165.61 hectares in Ambala and Jind districts, 215.89 hectares in Faridabad and Bhiwani districts and 381.50 hectares at the aggregate level. The practice of leasing in land was wide prevalent but leasing out of land was a rare phenomenon. The average size of holding was 2.45 hectares in first group of districts, 2.71 hectares in second group of districts and 2.58 hectares at the aggregate level. Farm size variations in this respect were found glaring. The minimum of 0.55 hectares was operated by marginal category against a maximum of 6.08 hectares by large category in Ambala and Jind districts. The irrigation status of land holdings was commendable, as 83.25 per cent of the operated area was found irrigated. The main sources of irrigation were the Government canals and private tubewells.

The scheduled caste farmers are historically disadvantaged community in Haryana as elsewhere in the country. The poor status of scheduled caste farmers in owning as well as operating land was found true in this case also. The share of scheduled caste farmers in total operated land was 28.29 per cent in Ambala and Jind districts, 38.74 per cent in Faridabad and Bhiwani districts and 32.56 per cent at the aggregated level. Out of total scheduled caste farmers, 80 per cent were small and marginal farmers operating less than 2 hectares of land.

### **Crop Pattern**

Crop pattern signifies the proportion of cultivated area under different crops during a particular year. It depends on the soil, water and temperature of the area. The details of principal crops grown by sampled farmers are presented in Table 3.15. It may be observed that wheat (39.03 per cent of GCA) and paddy (17.96 per cent of GCA) were the major crops on scheduled caste farms in Ambala and Jind districts. Apart from these crops, bajra (8.64 per cent of GCA), sugarcane (2.20 per cent of GCA), cotton (9.31 per cent of GCA) and mustard (0.22 per cent of GCA) were also grown by them. The highest proportion of area was devoted to wheat by small category of scheduled caste farmers. The residual area was devoted to vegetable and fodder crops. None of the farmers allocated less than 18.73 per cent of GCA to these crops. The crop pattern of scheduled caste farm households in Faridabad and Bhiwani districts was found relatively



diversified. Although, wheat (42.44 per cent of GCA) was the dominant crop but other crops also received significant shares in GCA of scheduled caste farms. Paddy is lesser grown due to scarcity of water. The rainfed crops such as bajra, cotton and mustard are popularly grown by scheduled caste farmers. At the overall level, scheduled caste farmers devoted 40.87 per cent of GCA to wheat. Next was bajra with 12.81 per cent of GCA. Paddy received third rank by indicating 10.68 per cent of GCA. Around 10 per cent of GCA was devoted to cotton. Mustard and sugarcane occupied 1.32 and 1.01 per cent of GCA.

**Table 3.15**  
**Percentage of GCA under Important Crops on Sampled Farms in Haryana (1999-00)**

| Farm Size/<br>District                     | Wheat<br>% | Paddy<br>% | Maize<br>% | Pulses<br>% | Bajra<br>% | Cotton<br>% | Mustard<br>% | Sugar<br>Cane % | Other<br>crops % |
|--|------------|------------|------------|-------------|------------|-------------|--------------|-----------------|------------------|
| <b>Scheduled Caste</b>                     |            |            |            |             |            |             |              |                 |                  |
| <b>Ambala + Jind</b>                       |            |            |            |             |            |             |              |                 |                  |
| Marginal                                   | 40.53      | 15.44      | 1.29       | -           | 10.24      | 5.14        | 0.43         | -               | 26.93            |
| Small                                      | 42.23      | 23.31      | 4.05       | 0.67        | 4.19       | 0.67        | 0.67         | -               | 24.21            |
| Medium                                     | 38.53      | 15.75      | 0.34       | 0.34        | 9.59       | 12.50       | -            | 0.34            | 22.61            |
| Large                                      | 35.06      | 19.12      | -          | -           | -          | 15.94       | -            | 11.15           | 18.73            |
| All  | 39.03      | 17.96      | 1.25       | 0.29        | 8.64       | 9.31        | 0.22         | 2.20            | 19.10            |
| <b>Faridabad + Bhiwani</b>                 |            |            |            |             |            |             |              |                 |                  |
| Marginal                                   | 43.79      | 5.92       | -          | -           | 16.57      | 5.32        | -            | -               | 28.40            |
| Small                                      | 41.72      | 0.93       | -          | -           | 19.58      | 11.19       | 2.33         | -               | 24.25            |
| Medium                                     | 39.49      | 3.59       | -          | -           | 17.43      | 10.60       | 4.44         | -               | 28.04            |
| Large                                      | 50.73      | 8.74       | -          | 1.94        | 14.85      | 9.04        | -            | -               | 24.70            |
| All  | 42.44      | 4.45       | -          | 0.50        | 14.67      | 9.79        | 2.26         | -               | 25.89            |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |            |            |            |             |            |             |              |                 |                  |
| Marginal                                   | 41.90      | 11.44      | 0.74       | 0.50        | 12.70      | 5.22        | 0.25         | -               | 21.25            |
| Small                                      | 41.93      | 10.07      | 1.65       | 0.27        | 17.38      | 6.90        | 1.65         | -               | 20.15            |
| Medium                                     | 39.01      | 9.67       | 0.17       | -           | 13.51      | 11.55       | 2.22         | 0.17            | 23.70            |
| Large                                      | 44.40      | 12.67      | -          | 1.21        | 8.02       | 11.65       | -            | 4.22            | 22.43            |
| All  | 40.87      | 10.68      | 0.57       | 0.40        | 12.81      | 9.57        | 1.32         | 1.01            | 22.77            |

Table 3.15 Contd.....

| Farm Size/<br>District                       | Wheat<br>% | Paddy<br>% | Maize<br>% | Pulses<br>% | Bajra<br>% | Cotton<br>% | Mustard<br>% | Sugar<br>Cane<br>% | Other<br>crops<br>% |
|--|------------|------------|------------|-------------|------------|-------------|--------------|--------------------|---------------------|
| <b>Non Scheduled Caste</b>                   |            |            |            |             |            |             |              |                    |                     |
| <b>Ambala + Jind</b>                         |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 41.67      | 11.46      | -          | 0.54        | 3.96       | -           | -            | -                  | 22.37               |
| Small  | 36.50      | 5.91       | -          | -           | 7.85       | 9.28        | -            | -                  | 20.46               |
| Medium                                       | 39.65      | 18.31      | -          | -           | 6.41       | 6.34        | 0.56         | 2.25               | 16.48               |
| Large  | 31.60      | 26.86      | -          | 0.74        | 6.32       | 0.74        | 0.18         | 9.94               | 23.62               |
| All  | 34.05      | 22.94      | -          | 0.52        | 5.51       | 2.60        | 0.25         | 7.20               | 23.93               |
| <b>Faridabad + Bhiwani</b>                   |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 62.50      | -          | -          | -           | 16.25      | -           | -            | -                  | 31.25               |
| Small  | 49.63      | 5.88       | -          | -           | 18.82      | 3.68        | -            | -                  | 31.99               |
| Medium                                       | 42.99      | 8.56       | -          | -           | 14.01      | 17.85       | 4.73         | 4.92               | 16.94               |
| Large  | 37.37      | 2.24       | -          | -           | 14.74      | 31.29       | 5.17         | 2.76               | 16.43               |
| All  | 39.87      | 3.59       | -          | -           | 14.99      | 26.02       | 4.55         | 2.84               | 18.14               |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 50.00      | 6.87       | -          | 0.32        | 19.87      | -           | -            | -                  | 25.94               |
| Small  | 43.52      | 5.89       | -          | -           | 10.68      | -           | -            | -                  | 32.91               |
| Medium                                       | 41.10      | 14.06      | -          | 1.27        | 11.00      | 11.36       | 2.38         | 3.41               | 15.42               |
| Large  | 34.59      | 14.09      | -          | -           | 9.50       | 16.59       | 2.79         | 6.22               | 20.22               |
| All  | 36.97      | 13.25      | -          | 0.26        | 9.75       | 14.33       | 2.41         | 5.01               | 21.28               |
| <b>Scheduled Caste + Non Scheduled Caste</b> |            |            |            |             |            |             |              |                    |                     |
| <b>Ambala + Jind</b>                         |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 40.86      | 14.28      | 0.64       | 0.16        | 7.21       | 3.64        | 0.30         | -                  | 40.76               |
| Small  | 39.68      | 15.57      | 2.02       | 0.37        | 6.02       | 4.50        | 0.37         | -                  | 39.51               |
| Medium                                       | 39.14      | 17.16      | 0.17       | 0.15        | 8.10       | 9.12        | 0.31         | 1.39               | 41.85               |
| Large  | 31.96      | 26.05      | -          | 0.66        | 3.45       | 2.33        | 0.17         | 10.07              | 28.76               |
| All  | 35.54      | 21.45      | 0.62       | 0.45        | 7.07       | 4.61        | 0.24         | 5.70               | 34.94               |
| <b>Faridabad + Bhiwani</b>                   |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 48.93      | 4.29       | -          | -           | 16.41      | 3.86        | -            | -                  | 26.51               |
| Small  | 42.51      | 2.85       | -          | -           | 18.90      | 8.27        | 1.43         | -                  | 26.04               |
| Medium                                       | 41.25      | 6.01       | -          | -           | 16.31      | 14.13       | 4.59         | 2.38               | 27.33               |
| Large  | 39.62      | 3.24       | -          | 0.29        | 9.71       | 28.10       | 4.42         | 2.36               | 12.26               |
| All  | 40.88      | 3.89       | -          | 0.17        | 14.01      | 20.17       | 3.80         | 1.90               | 14.64               |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |            |            |            |             |            |             |              |                    |                     |
| Marginal                                     | 44.20      | 10.14      | 0.37       | 0.09        | 11.23      | 3.73        | 0.18         | -                  | 30.43               |
| Small  | 41.29      | 8.35       | 0.83       | 0.16        | 12.41      | 6.64        | 0.97         | -                  | 30.25               |
| Medium                                       | 40.13      | 11.95      | 0.09       | 0.08        | 12.32      | 11.46       | 2.31         | 1.85               | 19.99               |
| Large  | 36.02      | 13.95      | -          | 0.47        | 6.52       | 16.00       | 2.44         | 5.98               | 18.67               |
| All  | 38.28      | 12.46      | 0.29       | 0.30        | 10.21      | 12.85       | 2.08         | 3.76               | 20.06               |

The non-scheduled caste farm households followed more or less the same crop pattern. Wheat (34.05 per cent of GCA) followed by paddy (22.94 per cent of GCA) were the main crops grown by these farmers in Ambala and Jind districts. The other important crops grown by them were sugarcane, bajra, cotton and mustard. A sizeable proportion of GCA was occupied by vegetable and fodder crops. In Faridabad and Bhiwani districts, the non-scheduled caste farmers showed overwhelming preference for wheat and 39.87 per cent of GCA was allocated to this crop only. Cotton (26.02 per cent of GCA) and bajra (14.99 per cent of GCA) were also largely grown by these farmers. They had also cultivated mustard (4.55 per cent of GCA) and sugarcane (2.84 per cent of GCA). At the combined level, wheat and paddy together covered almost 50 per cent of GCA of the non-scheduled caste farms. The second and third ranking crops were cotton (14.33 per cent of GCA) and bajra (9.75 per cent of GCA) Sugarcane also emerged as significant crop by indicating coverage of 5.01 per cent of GCA. Rest of the 21.28 per cent of GCA was allocated to vegetable, fodder and other miscellaneous crops.

The crop pattern of the all farm households was dominated by wheat (35.54 per cent of GCA) followed by paddy (21.45 per cent of GCA) in Ambala and Jind districts. The other important crops grown in these areas were bajra (7.07 per cent of GCA), sugarcane (5.70 per cent of GCA) and cotton (4.61 per cent of GCA). As expected, crop pattern of selected farm households in Faridabad and Bhiwani districts was dominated by wheat (40.88 per cent of GCA). However, farmers also largely grew cotton (20.71 per cent of GCA) and bajra (14.01 per cent of GCA). Marginal farmers devoted the maximum area to wheat (48.93 per cent of GCA). At the aggregate level, wheat (38.28 per cent of GCA) and paddy (12.46 per cent of GCA) accounted for almost 50 per cent of total cropped area. However, cotton (12.85 per cent of GCA) and bajra (10.21 per cent of GAC) also occupied an important place in the crop pattern of sampled farmers. The place of pride received by vegetable and fodder crops was visible from the area devoted to them (20 per cent of GCA).

It may be inferred from the above analysis that most of the scheduled caste as well as non-scheduled caste farmers follow wheat and paddy rotation in Ambala and Jind districts. However, farmers in Faridabad and Bhiwani districts rely more on crops like wheat, bajra, mustard and cotton. To conclude, the crop pattern in second group of

districts was found more diversified than in the first group of districts on scheduled caste as well as on non-scheduled caste farms.

### Productivity of Important Crops:

The levels of productivity of different crops grown round the year by the farmers have direct bearing on family income. Therefore, it is imperative to examine comparative scenario of scheduled caste and non-scheduled caste farm households regarding this aspect.

**Table 3.16**  
**Productivity of Important Crops on Sampled Farms (1999-00)**

| Farm Size/<br>District                     | (Kgs/Ha.) |       |       |         |           |        |
|--|-----------|-------|-------|---------|-----------|--------|
|  | Wheat     | Paddy | Bajra | Mustard | Sugarcane | Cotton |
| <b>Scheduled Caste</b>                     |           |       |       |         |           |        |
| <b>Ambala + Jind</b>                       |           |       |       |         |           |        |
| Marginal                                   | 3450      | 4061  | 1119  | 1778    | -         | 790    |
| Small                                      | 3572      | 4325  | 813   | 1235    | -         | -      |
| Medium                                     | 3720      | 4629  | 1499  | -       | 49400     | 724    |
| Large                                      | 3705      | 4219  | -     | -       | 59986     | 1013   |
| All  | 3633      | 4379  | 1425  | 1415    | 59280     | 810    |
| <b>Faridabad + Bhiwani</b>                 |           |       |       |         |           |        |
| Marginal                                   | 3547      | 2964  | 1410  | -       | -         | 768    |
| Small                                      | 3327      | 2964  | 1341  | 741     | -         | 1069   |
| Medium                                     | 3433      | 3105  | 1230  | 958     | -         | 1163   |
| Large                                      | 3715      | 2744  | 2174  | -       | -         | 1909   |
| All  | 3586      | 2895  | 1371  | 897     | -         | 1289   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |           |       |       |         |           |        |
| Marginal                                   | 3492      | 3823  | 1223  | 1778    | -         | 790    |
| Small                                      | 3428      | 4248  | 1166  | 822     | -         | 1027   |
| Medium                                     | 3574      | 4345  | 1326  | 958     | 49400     | 926    |
| Large                                      | 3712      | 3586  | 2174  | -       | 59986     | 1445   |
| All  | 3609      | 4046  | 1393  | 936     | 59280     | 1074   |

**Table 3.16 Contd...**

| Farm Size/<br>District                       | Wheat | Paddy | Bajra | Mustard | Sugarcane | Cotton |
|--|-------|-------|-------|---------|-----------|--------|
| <b>Non Scheduled Caste</b>                   |       |       |       |         |           |        |
| <b>Ambala + Jind</b>                         |       |       |       |         |           |        |
| Marginal                                     | 3090  | 4760  | 1099  | -       | -         | -      |
| Small  | 3495  | 4940  | 1161  | -       | -         | 830    |
| Medium                                       | 3651  | 3609  | 1111  | 1235    | 47856     | 798    |
| Large  | 3779  | 3367  | 1161  | 988     | 37628     | 803    |
| All  | 3697  | 3460  | 1430  | 1111    | 41130     | 832    |
| <b>Faridabad + Bhiwani</b>                   |       |       |       |         |           |        |
| Marginal                                     | 3334  | -     | 864   | -       | -         | -      |
| Small  | 3307  | 2902  | 1358  | -       | -         | 968    |
| Medium                                       | 3495  | 3152  | 1393  | 2052    | 51230     | 1003   |
| Large  | 3816  | 3952  | 1410  | 1465    | 49400     | 1013   |
| All  | 3688  | 3480  | 1386  | 1571    | 49943     | 961    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |       |       |       |         |           |        |
| Marginal                                     | 3211  | 4760  | 1064  | -       | -         | -      |
| Small  | 3381  | 3853  | 1213  | -       | -         | 874    |
| Medium                                       | 3581  | 3488  | 1156  | 1944    | 49973     | 939    |
| Large  | 3801  | 3413  | 1272  | 1437    | 42647     | 1008   |
| All  | 3693  | 3463  | 1413  | 1546    | 43628     | 948    |
| <b>Scheduled Caste + Non Scheduled Caste</b> |       |       |       |         |           |        |
| <b>Ambala + Jind</b>                         |       |       |       |         |           |        |
| Marginal                                     | 3344  | 4226  | 1104  | 1778    | -         | 790    |
| Small  | 3539  | 4429  | 1620  | 1235    | -         | 761    |
| Medium                                       | 3683  | 4031  | 1492  | 1235    | 48027     | 748    |
| Large  | 3772  | 3431  | 1161  | 988     | 42867     | 953    |
| All  | 3678  | 3690  | 1344  | 1195    | 43225     | 810    |
| <b>Faridabad + Bhiwani</b>                   |       |       |       |         |           |        |
| Marginal                                     | 3470  | 2964  | 1344  | -       | -         | 768    |
| Small  | 3497  | 2915  | 1344  | 741     | -         | 1052   |
| Medium                                       | 3465  | 3137  | 1482  | 1504    | 51228     | 1064   |
| Large  | 3796  | 3458  | 1526  | 1465    | 49400     | 1003   |
| All  | 3653  | 3255  | 1376  | 1437    | 49943     | 1013   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |       |       |       |         |           |        |
| Marginal                                     | 3401  | 4004  | 1178  | 1778    | -         | 780    |
| Small  | 3515  | 4135  | 1452  | 822     | -         | 968    |
| Medium                                       | 3579  | 3821  | 1383  | 1484    | 49948     | 931    |
| Large  | 3786  | 3433  | 1341  | 1437    | 44233     | 998    |
| All  | 3665  | 3621  | 1358  | 1415    | 44966     | 976    |

It may be observed from Table 3.16 that productivity of wheat on scheduled caste farms was 3633 Kg/ha. in Ambala and Jind districts, 3586 Kg/ha. in Faridabad and Bhiwani districts and 3609 Kg/ha. at the aggregate level. The highest yield rate was realised by medium scheduled caste farmers (3720 Kg/ha.) in the first group of districts

while small farmers in the second group of districts indicated lowest productivity of wheat (3327 Kg/ha.). Paddy, a second important crop in the crop pattern showed an average yield of 4379 Kg/ha. in Ambala and Jind districts, 2895 Kg/ha. in Faridabad and Bhiwani districts and 4046 at the overall level on scheduled caste farms. Farm size variations in yield rate of paddy were significant in the selected districts. The same situation emerged in the case of bajra, mustard, sugarcane and cotton. In some cases, productivity gap was found to be more than double.

The productivity of wheat on non-scheduled caste farms was 3697 Kg/ha in Ambala and Jind districts, 3688 Kg/ha in Faridabad and Bhiwani districts and 3693 Kg/ha at the aggregate level. It was found marginally higher than the scheduled caste farms across different farm sizes. The gap in the productivity was found quite substantial. Similarly, productivity of mustard was also higher on non-scheduled caste farms but vice versa was true for paddy and sugarcane, which indicated higher level of productivity on scheduled caste farms.

When we examine productivity levels for the entire sample, it may be observed that productivity of wheat was 3678 Kg/ha. in Ambala and Jind districts, 3653 Kg/ha. in Faridabad and Bhiwani districts and 3665 Kg/ha at the aggregate level. The yield rates of wheat across farm sizes indicated a significant gap. This was also true for other important crops such as paddy, bajra, mustard, sugarcane and cotton.

#### **Farm Assets:**

The efficient and optimal use of agricultural land depends on the availability of appropriate farm assets. In our sampled households, the scheduled caste and general category farm households possessed various inventories like milch/draught animals, sprinkler sets, tractors, pumpsets and other minor farm assets. The data on farm assets are presented in Table 3.17. The scheduled caste farm households on an average possessed assets worth Rs.64,625 in Ambala and Jind districts, Rs.56,736 in Faridabad and Bhiwani districts and Rs.60,680 at overall level. The district wise disparities were very wide. The scheduled caste farm households in the first group of districts owned farm assets worth Rs.64,625 against Rs.56,736 in the second group of districts. It may be highlighted that the value of farm assets increased with the increasing size of holding and indicated a

positive relationship. The scheduled caste farm households of marginal category in Ambala and Jind districts possessed the minimum assets (Rs.23,493) while scheduled caste farm households of large category owned the maximum by indicating the value of assets around Rs.2,73,366 per family.

**Table 3.17**  
**Value of Farm Assets of Sampled Households in Selected Districts (1999-00)**

| Farm Size/<br>District                     | Total Value of Assets (Rs.) | Per Farm Value of Assets (Rs.) | % Share of Each Category |
|--|-----------------------------|--------------------------------|--------------------------|
| <b>Scheduled Caste</b>                     |                             |                                |                          |
| <b>Ambala + Jind</b>                       |                             |                                |                          |
| Marginal                                   | 5,40,350                    | 23,493                         | 1.32                     |
| Small                                      | 4,62,350                    | 38,529                         | 7.96                     |
| Medium                                     | 14,07,250                   | 1,17,270                       | 51.15                    |
| Large                                      | 8,21,300                    | 2,73,366                       | 39.56                    |
| All  | 32,31,250                   | 64,625                         | 100.00                   |
| <b>Faridabad + Bhiwani</b>                 |                             |                                |                          |
| Marginal                                   | 3,73,600                    | 26,685                         | 6.48                     |
| Small                                      | 5,98,975                    | 35,233                         | 16.13                    |
| Medium                                     | 7,14,100                    | 54,930                         | 27.07                    |
| Large                                      | 11,50,125                   | 1,91,687                       | 50.32                    |
| All  | 28,36,800                   | 56,736                         | 100.00                   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                             |                                |                          |
| Marginal                                   | 9,13,950                    | 24,701                         | 3.83                     |
| Small                                      | 10,61,325                   | 36,597                         | 11.94                    |
| Medium                                     | 21,21,350                   | 84,854                         | 39.44                    |
| Large                                      | 19,71,425                   | 2,19,047                       | 44.79                    |
| All  | 60,68,050                   | 60,680                         | 100.00                   |
| <b>Non Scheduled Caste</b>                 |                             |                                |                          |
| <b>Ambala + Jind</b>                       |                             |                                |                          |
| Marginal                                   | 2,08,600                    | 23,177                         | 0.13                     |
| Small                                      | 3,82,500                    | 42,500                         | 0.99                     |
| Medium                                     | 24,44,250                   | 1,74,589                       | 27.37                    |
| Large                                      | 63,11,100                   | 3,50,616                       | 71.50                    |
| All  | 93,46,450                   | 1,86,929                       | 100.00                   |
| <b>Faridabad + Bhiwani</b>                 |                             |                                |                          |
| Marginal                                   | 2,32,450                    | 29,056                         | 1.82                     |
| Small                                      | 7,64,833                    | 78,483                         | 18.32                    |
| Medium                                     | 12,67,510                   | 1,05,625                       | 34.48                    |
| Large                                      | 19,06,900                   | 95,345                         | 45.38                    |
| All  | 41,71,693                   | 83,433                         | 100.00                   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                             |                                |                          |
| Marginal                                   | 4,41,050                    | 25,944                         | 0.56                     |
| Small                                      | 11,47,333                   | 60,385                         | 5.39                     |
| Medium                                     | 37,11,760                   | 1,42,760                       | 29.17                    |
| Large                                      | 82,18,000                   | 2,16,263                       | 64.87                    |
| All  | 1,35,18,143                 | 1,35,18                        | 100.00                   |

**Table 3.17 Contd....**

| Farm Size/<br>District                       | Total Value of Assets<br>(Rs.) | Per Farm Value of<br>Assets (Rs.) | % Share of Each<br>Category |
|--|--------------------------------|-----------------------------------|-----------------------------|
| <b>Scheduled Caste + Non Scheduled Caste</b> |                                |                                   |                             |
| <b>Ambala + Jind</b>                         |                                |                                   |                             |
| Marginal                                     | 7,48,950                       | 23,405                            | 0.37                        |
| Small  | 8,44,850                       | 40,231                            | 2.36                        |
| Medium                                       | 38,51,500                      | 1,48,135                          | 32.05                       |
| Large  | 71,32,400                      | 3,39,638                          | 65.22                       |
| All  | 1,25,77,700                    | 1,25,777                          | 100.00                      |
| <b>Faridabad + Bhiwani</b>                   |                                |                                   |                             |
| Marginal                                     | 6,06,050                       | 27,548                            | 3.71                        |
| Small  | 13,63,808                      | 50,511                            | 17.43                       |
| Medium                                       | 19,81,610                      | 79,264                            | 31.48                       |
| Large  | 30,57,025                      | 1,17,578                          | 47.38                       |
| All  | 70,08,493                      | 70,085                            | 100.00                      |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                                |                                   |                             |
| Marginal                                     | 13,55,000                      | 25,092                            | 1.42                        |
| Small  | 22,08,658                      | 46,014                            | 7.11                        |
| Medium                                       | 58,33,110                      | 1,14,375                          | 31.87                       |
| Large  | 1,01,89,425                    | 2,16,796                          | 59.60                       |
| All  | 1,95,86,193                    | 99,931                            | 100.00                      |

The non-scheduled caste farm households possessed farm assets worth Rs.1, 86,929 in Ambala and Jind districts, Rs.83,433 in Faridabad and Bhiwani districts and Rs.1,35,181 at the overall level. Like scheduled caste farmers, district wise variations were a common phenomenon and farmers in the first group of districts possessed more assets in value terms. Once again a positive relationship was observed between the farm size and value of farm assets. As expected, the highest value of farm assets was noticed in large size category of Ambala and Jind districts. The small and marginal farmers remained disadvantaged groups. They owned assets worth Rs.25,944 and Rs.60,385 respectively.

The results about the ownership of farm assets for the entire sample covering scheduled caste and non-scheduled caste farmers were more or less on the same pattern. The large farmers possessed farm assets worth Rs.3,39,638 against Rs.23,495 by marginal farm households in Ambala and Jind districts. Similarly, the glaring gap was observed in the Faridabad and Bhiwani districts and at the aggregate level.



A comparative analysis of farm assets possessed by scheduled caste and non-scheduled caste farm households revealed that latter owned a larger share of productive farm assets. Although scheduled caste sample households constitute 50 per cent of the sample size in the first and second group of districts, their proportion in ownership of farm assets was 25.69 and 30.98 per cent respectively. These results are indicative of the fact that scheduled caste farmers are economically weaker than the other farmers.

## Chapter IV

### Utilisation of Agricultural Subsidies by Farmers

Recently, a large number of studies on agricultural subsidies in India (Gulati and Naraynan, 2002; Chopra, 2000; Gulati and Sharma, 1999; Gulati and Kalra, Alagh, 2000; Vaidyanathan, 2000; Deshpande, 1992; Acharya, 2000; Srivastva and Sen, 1997) have been under taken. These are mostly based on secondary data and focus attention on issues related to the growing magnitude of agricultural subsidies and relate their findings to economic liberalisation. Since India signed the World Trade Organisation's agreement in 1995, the question of aggregate support to agriculture has also occupied the minds of some scholars (Kelly and Gulati, 2000). However, the distributive aspects of agricultural subsidies across different farm sizes has received scant attention, despite being a major unanswered question in the minds of policy makers. In this context, the most important question to be asked is who benefits from them. The answer to this question depends on the evidence relating to the utilisation of subsidies across farm sizes. This chapter aims to provide the current evidence for scheduled caste vis-à-vis non-scheduled caste farmers in Haryana.

To be specific, this chapter will address the following broad issues:

- (i) What is the magnitude of per farm and per hectare direct and indirect subsidies across different farm sizes of scheduled caste and non-scheduled caste farmers.
- (ii) What is the share of scheduled caste farmers in total utilisation of agricultural subsidies. ?
- (iii) What is the gap between the actual use and estimated use of input subsidies. ?
- (iv) What is the impact of withdrawing subsidies on cost and returns (income) of scheduled caste vis-à-vis non-scheduled caste farmers.

This chapter is divided into two sections. Section one examines the quantum of direct and indirect subsidies utilised by farmers during the reference year 1999-00. In addition, it also highlights the share of scheduled caste farmers in agricultural subsidies used by both groups of farmers. We have also measured the gap between the actual and estimated use based on secondary data. Section two deals with the impact of withdrawing subsidies on the cost and returns for the two categories. Since, farmers not only utilise

production subsidies in agriculture, they also utilise food subsidies as consumers, this section will also deal with this aspect.

## Section I

### Direct Subsidies:

The estimates of agricultural subsidies in value terms in Haryana (Chapter II) indicate that direct subsidies formed a very small fraction of total agricultural subsidies during 1999-00. These are implemented through various schemes by the state Government for the agricultural sector. The direct subsidies available to farmers are classified as (a) crop specific (b) machinery specific (c) for land improvement, which include land reclamation, bunding, levelling and construction of irrigation channels, boring, & tree planting. A fraction of these subsidies is specifically earmarked for target groups such as small and marginal farmers and scheduled caste farmers. The computed values of these subsidies utilised by sampled farm households during the reference year are presented in Table 4.1.

**Table 4.1**  
**Utilisation of Direct Subsidies on Sampled Farms in Selected Districts (1999-00)**

| District/<br>Farm Size                     | Scheduled Caste |          |                         | Non-Scheduled Caste |          |                         | Scheduled Caste + Non-Scheduled Caste |          |                         |
|--|-----------------|----------|-------------------------|---------------------|----------|-------------------------|---------------------------------------|----------|-------------------------|
|  | Per Farm        | Per Hec. | % of Farmers Subsidised | Per Farm            | Per Hec. | % of Farmers Subsidised | Per Farm                              | Per Hec. | % of Farmers Subsidised |
| <b>Ambala + Jind</b>                       |                 |          |                         |                     |          |                         |                                       |          |                         |
| Marginal                                   | 16.13           | 15.71    | 21.74                   | 17.78               | 16.47    | 11.11                   | 16.59                                 | 15.93    | 18.75                   |
| Small                                      | 36.00           | 14.42    | 25.00                   | 26.67               | 10.00    | 11.11                   | 32.00                                 | 12.45    | 19.05                   |
| Medium                                     | 639.08          | 129.72   | 25.00                   | 17.14               | 3.33     | 7.14                    | 304.19                                | 60.56    | 15.38                   |
| Large                                      | -               | -        | 0.00                    | 84.50               | 6.99     | 27.78                   | 72.43                                 | 6.25     | 23.81                   |
| All  | 169.44          | 61.35    | 22.00                   | 43.22               | 6.67     | 16.00                   | 106.33                                | 23.02    | 19.00                   |
| <b>Faridabad + Bhiwani</b>                 |                 |          |                         |                     |          |                         |                                       |          |                         |
| Marginal                                   | 19.57           | 16.00    | 42.86                   | 20.00               | 24.70    | 12.50                   | 19.73                                 | 18.40    | 31.82                   |
| Small                                      | 50.59           | 19.78    | 47.06                   | 15.00               | 5.43     | 10.00                   | 37.41                                 | 14.23    | 33.33                   |
| Medium                                     | 898.92          | 197.35   | 41.67                   | 84.83               | 18.33    | 41.67                   | 508.16                                | 110.68   | 41.67                   |
| Large                                      | -               | -        | 0.00                    | 50.95               | 4.35     | 35.00                   | 39.19                                 | 3.68     | 25.92                   |
| All  | 256.40          | 79.41    | 38.00                   | 46.94               | 7.24     | 28.00                   | 151.67                                | 31.22    | 33.00                   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |          |                         |                     |          |                         |                                       |          |                         |
| Marginal                                   | 17.43           | 15.83    | 29.73                   | 18.82               | 19.76    | 11.76                   | 17.87                                 | 16.94    | 24.07                   |
| Small                                      | 44.55           | 17.61    | 37.93                   | 20.53               | 7.56     | 10.53                   | 35.04                                 | 13.46    | 27.08                   |
| Medium                                     | 774.20          | 163.59   | 33.33                   | 48.38               | 9.85     | 23.08                   | 404.18                                | 83.88    | 28.00                   |
| Large                                      | -               | -        | 0.00                    | 66.84               | 5.61     | 31.58                   | 54.04                                 | 4.89     | 25.00                   |
| All  | 212.92          | 71.09    | 30.00                   | 45.08               | 6.96     | 22.00                   | 129.00                                | 27.24    | 26.00                   |

The information on direct subsidies utilised by the sample farmers indicates that scheduled caste farmers on an average utilised direct subsidies worth Rs.169.44 in Ambala and Jind districts, Rs.256.4 in Faridabad and Bhiwani districts and Rs.212.92 at the aggregate level during 1999-00. The medium scheduled caste farm households received higher benefits in comparison to other categories. Most of the subsidies were availed for wheat, moong and bajra production under the demonstration trials. However, one scheduled caste farmer in the medium category in the first group of districts received a subsidy for the installation of a tube-well and another in the second group of districts to buy a sprinkler set. There were others who received subsidies to buy pesticides for cotton crop in Ambala.

The per hectare use of direct subsidies by scheduled caste farmers in the selected districts was very low except for medium farmers who utilised direct subsidy worth Rs.163.59 against Rs.15.83 and Rs.17.61 by marginal and small scheduled caste categories. This could be result of a failure of either the demand side or the supply side or both.

The utilisation of direct subsidies by non-scheduled caste farmers in the selected districts was found to be very low and lesser than scheduled caste farmers and was valued at merely Rs.43.22 in Ambala and Jind districts and Rs.46.94 in Faridabad and Bhiwani districts. The per hectare use of direct subsidies by these farmers fell to a negligible amount at Rs.6.67 and Rs.7.24 in the first and second group of districts. Large non-scheduled caste farmers in Ambala and Jind districts and medium farmers in Faridabad and Bhiwani districts availed higher direct subsidies than others.

The results regarding the utilisation of direct subsidies by all farmers also reflect the same position. Significantly, farmers in Faridabad and Bhiwani districts utilised higher direct subsidies (Rs.151.61) than their counterparts in Ambala and Jind districts (Rs.106.33). The medium farm households reaped higher benefits than other categories. The per hectare use of direct subsidies amounted to merely Rs.27.24 at the aggregate level. Surprisingly, per hectare value of direct subsidies availed by large farmers was only Rs.4.89 during the reference year.

The share of scheduled caste farmers in the total value of direct subsidies used by sample farmers at the aggregate level was 82.23 per cent. In Ambala and Jind districts, this proportion was 79.68 per cent while in Faridabad and Bhiwani districts, it was 84.52

per cent. The medium category scheduled caste farmers indicated 93.89 per cent share (Table 4.7). It may be noted that the shares of marginal and small farmers all through were lower in comparison to medium farmers.

The experiences of the farmers across districts and farm size groups were different. They reported that their access to direct subsidies was limited. In fact, direct subsidies were utilised by less than half of the farmers. Around 19 per cent of farmers in Ambala and jind districts, 33 per cent in Faridabad and Bhiwani districts utilised direct subsidies. Of them, 57.69 per cent were scheduled caste farmers.

The major conclusions drawn from the analysis of farm level data on direct subsidies are (i) the absolute value of direct subsidies availed by farm households was very meagre. This holds true even for scheduled caste farmers who are poor and starved of capital. However, two medium category scheduled caste farmers received direct subsidy for buying farm equipment. All others availed little amount under the Production Programmes. (ii) farmers reported during the survey that there are not adequate direct subsidies to address the two major risks faced by the farming community i.e. the yield risk and the price risk. This affects the demand for direct subsidies (iii) the percentage of farmers receiving direct subsidies was only 30 per cent among scheduled caste and 22 per cent among non-scheduled caste farmers. The overall percentage was around 26 per cent. It may be highlighted that amount received as the direct subsidy was Rs.212.92 by scheduled caste farmers and Rs.45.08 by others. (iv) Farmers experienced difficulties in access to direct subsidies due to cumbersome procedures. The state government for the smooth flow of direct subsidies should remove these bottlenecks.

### **Indirect subsidies:**

The main objective of indirect subsidies is to make available essential inputs to farmers at affordable prices by lowering their cost through administered prices. The nature of indirect subsidies is such that they benefit the farmers across all sections depending on the usage of these inputs. Among indirect subsidies, we have considered fertiliser, irrigation (Canal) and power.

## Fertilizer:

Fertilizer is one of the important inputs subsidised by the Government. The Central Government provides subsidy to manufacturers of urea through the Retention Price Subsidy Scheme (RPS) which was introduced in 1977. In addition, government provides concession on decontrolled phosphatic and potassic fertilisers. In case of imported fertilisers, the Government directs importers to sell them at a pre-determined price that is invariably lower than the cost and the difference between the cost and sale price is paid by the Government as subsidy. The basic objective of these subsidies is to insulate farmers from rising trend in prices of fertilisers.

Table 4.2

Utilisation of Fertilizer Subsidy on Sampled Farms in Selected Districts (1999-00)

| District/<br>Farm Size                     | Scheduled Caste |          | Non-Scheduled Caste |          | Scheduled Caste + Non-Scheduled Caste |          |
|--|-----------------|----------|---------------------|----------|---------------------------------------|----------|
|  | Per Farm        | Per Hec. | Per Farm            | Per Hec. | Per Farm                              | Per Hec. |
| <b>Ambala + Jind</b>                       |                 |          |                     |          |                                       |          |
| Marginal                                   | 457.02          | 445.34   | 390.78              | 361.95   | 438.39                                | 421.01   |
| Small                                      | 1079.58         | 432.42   | 887.89              | 333.18   | 997.43                                | 388.28   |
| Medium                                     | 2077.44         | 421.75   | 2928.46             | 414.68   | 2194.91                               | 417.87   |
| Large                                      | 3739.07         | 441.53   | 6301.05             | 520.70   | 5935.05                               | 512.45   |
| All  | 1992.26         | 431.73   | 3094.52             | 478.46   | 2493.38                               | 464.48   |
| <b>Faridabad + Bhiwani</b>                 |                 |          |                     |          |                                       |          |
| Marginal                                   | 446.29          | 365.26   | 661.50              | 816.95   | 524.55                                | 489.33   |
| Small                                      | 959.33          | 375.59   | 1174.20             | 426.52   | 1038.91                               | 395.35   |
| Medium                                     | 1820.27         | 399.65   | 2488.37             | 537.37   | 2140.96                               | 466.34   |
| Large                                      | 2281.00         | 470.09   | 5122.11             | 436.25   | 4697.24                               | 441.66   |
| All  | 1018.12         | 408.24   | 2086.79             | 460.35   | 2052.44                               | 443.04   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |          |                     |          |                                       |          |
| Marginal                                   | 452.96          | 411.70   | 518.23              | 544.01   | 473.51                                | 449.34   |
| Small                                      | 1009.09         | 398.78   | 1038.58             | 383.05   | 1020.76                               | 392.31   |
| Medium                                     | 1943.71         | 410.69   | 2294.58             | 468.19   | 2122.58                               | 440.50   |
| Large                                      | 3433.69         | 460.51   | 5680.55             | 486.91   | 5250.30                               | 474.78   |
| All  | 1255.16         | 419.08   | 3040.64             | 469.39   | 2147.92                               | 453.49   |

It has been a debatable issue who benefits from fertiliser subsidy. Gulati and Narayanan (2000) in their paper have estimated the shares of farmers and manufacturers in subsidised amount through import parity price route. We have used their estimated rates for urea, MOP and other fertilisers for calculating the amount of fertiliser subsidy availed by the sampled farmers. For this purpose, the quantity of different fertilisers consumed by the farmers during the reference year was multiplied by the rate of subsidy

for each type of fertiliser and then all of them were added together to arrive at the total fertiliser subsidy availed by the farmer.

The data on amount of fertiliser subsidy availed by the sampled farmers are presented in Table 4.2. It may be noted that scheduled caste farmers on an average utilised fertiliser subsidy worth Rs.1992.26 in Ambala and Jind districts, Rs.1018.12 in Faridabad and Bhiwani districts and Rs.1255.16 at the overall level during 1999-00. Wide disparities were observed across farm sizes. As expected, large scheduled caste farmers availed higher fertiliser subsidy than other scheduled caste farmers. The findings regarding per hectare fertiliser subsidy used by scheduled caste farmers indicated lower variations because all farmers in Haryana use fertilisers. The large category of scheduled caste farmers in Faridabad and Bhiwani districts utilised the highest subsidy while marginal category of the same group in these districts availed lowest subsidy.

The non-scheduled caste farmers utilised more than double the amount of fertiliser subsidy availed by their scheduled caste counterparts. They utilised fertiliser subsidy worth Rs.3040.64 per farm against Rs.1255.16 by scheduled caste farmers. Like scheduled caste farmers, non-scheduled caste farmers in Ambala and Jind districts utilised higher subsidy in comparison to farmers in Faridabad and Bhiwani districts. The highest per farm subsidy among non-scheduled caste farmers was availed by large farmers. But, per hectare fertiliser subsidy at the aggregate level was found higher on small farms than other categories. It could be due to higher cropping intensity on their farms.

When scheduled caste and non-scheduled caste farmers were clubbed together, the results obtained are on the expected lines. First, large farm households utilised higher fertiliser subsidy per farm due to their larger size of holdings. Second, the findings on per hectare fertiliser subsidy utilisation are also similar in nature at the aggregate level and indicate higher amount of subsidy availed by large farmers. Third, Ambala and Jind districts utilised higher subsidy than Faridabad and Bhiwani districts due to dominance of wheat/rice rotation in the farming system. Fourth, non-scheduled caste farmers are the greater beneficiaries of fertiliser subsidy in terms of per farm as well as per hectare.

### Power Subsidy:

In the power sector, Haryana government directs the State Electricity Board (SEB) to supply electricity to farmers at a rate lower than the cost of generation, transmission and distribution. The difference is paid by the government. For this study, we have defined power subsidy per unit as the difference between the unit cost of power supplied to the state and the average tariff charged from farmers. Accordingly, first, we have computed total units of electricity consumed by the farmer for agricultural purposes during the reference year and then multiplied the obtained units by per unit rate of subsidy.

**Table 4.3**  
**Utilisation of Power Subsidy on Sampled Farms in Selected Districts (1999-00)**  
(Rs.)

| District/<br>Farm Size                     | Scheduled Caste |          | Non-Scheduled Caste |          | Scheduled Caste +<br>Non-Scheduled Caste |          |
|--|-----------------|----------|---------------------|----------|--|----------|
|  | Per Farm        | Per Hec. | Per Farm            | Per Hec. | Per Farm                                 | Per Hec. |
| <b>Ambala + Jind</b>                       |                 |          |                     |          |  |          |
| Marginal                                   | 1362.62         | 1327.80  | 1695.86             | 1570.79  | 1456.34                                  | 1398.66  |
| Small                                      | 4506.70         | 1805.12  | 1951.72             | 1832.37  | 3411.71                                  | 1828.17  |
| Medium                                     | 8140.82         | 1652.70  | 10301.01            | 2006.92  | 9304.00                                  | 1847.04  |
| Large                                      | 15513.18        | 1831.92  | 28830.62            | 2382.31  | 26928.12                                 | 2325.03  |
| All  | 4993.00         | 1663.20  | 13919.85            | 2152.28  | 9256.42                                  | 2005.94  |
| <b>Faridabad + Bhiwani</b>                 |                 |          |                     |          |  |          |
| Marginal                                   | 1806.07         | 1478.20  | 1135.87             | 1402.00  | 1562.36                                  | 1457.50  |
| Small                                      | 3347.76         | 1310.70  | 4202.80             | 1426.95  | 3664.81                                  | 1364.61  |
| Medium                                     | 6892.00         | 1513.17  | 6512.41             | 1406.39  | 6709.80                                  | 1461.47  |
| Large                                      | 11814.00        | 1699.83  | 17706.45            | 1508.10  | 16346.65                                 | 1537.00  |
| All  | 4053.52         | 1303.22  | 9668.06             | 1590.17  | 7260.79                                  | 1494.50  |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |          |                     |          |  |          |
| Marginal                                   | 1530.41         | 1390.98  | 1432.34             | 1503.58  | 1499.54                                  | 1423.04  |
| Small                                      | 3827.32         | 1512.55  | 3137.03             | 1657.02  | 3554.08                                  | 1565.91  |
| Medium                                     | 7491.43         | 1582.87  | 8552.43             | 1745.03  | 8032.33                                  | 1666.95  |
| Large                                      | 13047.06        | 1749.85  | 22975.79            | 1928.89  | 21074.54                                 | 1905.78  |
| All  | 4723.26         | 1576.97  | 11793.95            | 1820.71  | 8258.61                                  | 1743.56  |

In the absence of any perennial river, except Yamuna, Haryana is heavily dependent on ground water for meeting its irrigation needs for the major crops such as wheat and paddy. Therefore, utilisation of power for the agricultural purpose is significant.

The data presented on utilisation of power subsidy in value terms by the farmers indicate that scheduled caste farmers availed power subsidy per farm worth Rs.4,993 in



Ambala and Jind districts, Rs.4,054 in Faridabad and Bhiwani districts and Rs.4,723 at the aggregate level during 1999-00 (Table 4.3). Evidently, scheduled caste farmers in the first group of districts availed higher power subsidy. The gap between the farm size categories was found glaring as large scheduled caste farmers utilised power subsidy worth Rs.13,047 against Rs.1,530 by marginal scheduled caste farmers. A positive relationship emerged between farm size and utilisation of power subsidy. An examination of figures related to per hectare utilisation of power subsidy support the same finding i.e. higher subsidy in Ambala and Jind districts and that to on large farms. The utilisation of power subsidy per hectare also reveals wide disparities across farm sizes and districts. But, it does not show any pattern.

The information on per farm utilisation of power subsidy by non-scheduled caste farmers highlights that these farmers were greater beneficiaries of power subsidy in the selected districts. In comparison to scheduled caste farmers, the utilisation of power subsidy by non-scheduled farmers was much higher in most categories. However, this did not hold true for per hectare utilisation, which was highest on large farms followed by medium farms at the aggregate level.

The results obtained for all the farmers in connection with the utilisation of power subsidy exhibit a similar pattern for per farm as well as for the per hectare. The farmers in Ambala and Jind districts utilised higher amount of power subsidy than their counterparts in Faridabad and Bhiwani districts. The second observation that large farmers utilise higher power subsidy was also found true.

The lowest power subsidy of Rs.1,500 was estimated for marginal farms while the highest of Rs.21,075 for large farms. The quantum of power subsidy indicates that it exceeded both fertilizer and irrigation. In fact, water in Haryana is being over drawn due to factors like low rate of power supply and practice of wheat/paddy rotation in the crop pattern and scarcity of canal water.

The sampled farmers reported during the survey that they did not get assured supply of power. They got electricity for some hours and often at night. To add to their woes, the fluctuating voltage burnt up their motors and what ever saved in electricity was spent on repairing motors. If power was available round the clock, farmers would be able to sell surplus water to their neighbours after fulfilling their own demand. This may help in augmenting their income.

### Irrigation Subsidy:

Irrigation subsidies play a key role in policies and strategy for growth and development of agriculture. Here, we refer to canal irrigation, which is heavily subsidised by the Government of Haryana. The cost of irrigation is irrigation cess. The irrigation subsidy accrues to the farmers because charges for irrigation are significantly lower than the cost of supply. The shortfall is met from the state budget.

**Table 4.4**  
**Utilisation of Irrigation Subsidy on Sampled Farms in Selected Districts (1999-00)**  
(Rs.)

| District/<br>Farm Size                     | Scheduled Caste |          | Non-Scheduled Caste |          | Scheduled Caste +<br>Non-Scheduled Caste |          |
|--|-----------------|----------|---------------------|----------|--|----------|
|  | Per Farm        | Per Hec. | Per Farm            | Per Hec. | Per Farm                                 | Per Hec. |
| <b>Ambala + Jind</b>                       |                 |          |                     |          |  |          |
| Marginal                                   | 100.74          | 98.60    | 75.44               | 69.87    | 93.65                                    | 89.91    |
| Small                                      | 169.67          | 67.95    | 477.67              | 179.24   | 301.67                                   | 117.42   |
| Medium                                     | 554.33          | 112.53   | 536.50              | 104.53   | 544.73                                   | 108.14   |
| Large                                      | 603.33          | 71.23    | 367.05              | 30.33    | 400.81                                   | 34.60    |
| All  | 256.30          | 92.80    | 381.90              | 59.05    | 319.10                                   | 69.16    |
| <b>Faridabad + Bhiwani</b>                 |                 |          |                     |          |  |          |
| Marginal                                   | 45.27           | 37.05    | 248.94              | 307.44   | 119.33                                   | 111.32   |
| Small                                      | 673.44          | 263.65   | 995.50              | 361.61   | 792.72                                   | 301.66   |
| Medium                                     | 800.61          | 175.76   | 916.33              | 197.89   | 856.16                                   | 186.48   |
| Large                                      | 2081.50         | 299.49   | 4323.64             | 368.25   | 3806.22                                  | 357.88   |
| All  | 699.56          | 216.67   | 2188.28             | 337.28   | 1443.92                                  | 297.21   |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |          |                     |          |  |          |
| Marginal                                   | 79.75           | 72.49    | 157.09              | 164.89   | 104.09                                   | 98.77    |
| Small                                      | 464.98          | 183.77   | 750.21              | 276.68   | 577.88                                   | 222.10   |
| Medium                                     | 682.40          | 144.17   | 711.81              | 145.23   | 697.39                                   | 144.72   |
| Large                                      | 1588.78         | 213.60   | 2449.47             | 205.62   | 2284.65                                  | 206.59   |
| All  | 477.93          | 159.56   | 1285.09             | 198.34   | 881.51                                   | 186.11   |

The estimated amount of irrigation subsidy utilised by sample farmers demonstrated in Table 4.4 indicates that scheduled caste farmers on an average utilised irrigation subsidy worth Rs.256.30 in Ambala and Jind districts, Rs.699.56 in Faridabad and Bhiwani districts and Rs.477.93 at the aggregate level during 1999-00. Among different categories of scheduled caste farmers, large farmers were greater beneficiaries. The per hectare irrigation subsidy availed by scheduled caste farmers revealed that these farmers in the first group of districts availed lower canal subsidy per unit of land due to heavy dependence on tubewell irrigation. The supplementary reason could be absence of

canal net work in selected villages of district Ambala. On the other hand, canal irrigation plays an important role in Faridabad and Bhiwani districts where rainfall is low and number of tubewells per unit of land is also lower.

Like scheduled caste farmers, non- scheduled caste farmers also availed higher canal subsidy in Faridabad and Bhiwani districts. Although, large farmers were the greater beneficiaries at the aggregate level, medium farmers had an advantage over others in Ambala and Jind districts. The figures related to canal subsidy per hectare for non-scheduled caste farmers have shown that small farmers in the first group of districts, large farmers in the second group of districts and again small farmers at aggregate level had greater advantage over other categories of farmers.

The combined results of irrigation subsidy for scheduled caste plus non-scheduled caste sampled farmers are once again in favour of large farmers. They availed irrigation subsidy worth Rs.2284.65 against Rs.104.09 by marginal and Rs.577.88 by small farmers.

The data on canal subsidy per unit of land revealed that small farmers in Ambala and Jind districts, large farmers in Faridabad and Bhiwani districts and again small farmers at the overall level were greater beneficiaries than other categories of farmers.

The farmers during the survey reported that farmers faced great difficulty in access to canal water. Some of the sample farmers reported that they did not get canal water even once during the crop season. Some of them were tail end users and hence, many times they were deprived of canal water. If there is assured supply of water, they are ready to pay even a little more.

#### **Indirect Subsidies:**

The data related to utilisation of indirect subsidies on sampled farms indicated that scheduled caste farmers consumed these subsidies worth Rs.7241.55 per farm in Ambala and Jind districts, Rs.5770.84 in Faridabad and Bhiwani districts and Rs.6456.38 at the overall level during 1999-00 (Table 4.5). The range of utilisation varied between a minimum of Rs.1920.38 by marginal and a maximum of Rs.19855.58 by large scheduled caste farmers in the first group of districts. This gap is around Rs.18000 per farm. The results of per hectare utilisation of indirect subsidies also indicate disparities across farm sizes among scheduled caste farm households. The large scheduled caste farmers

consumed indirect subsidies worth Rs.2423.44 against Rs.1875.15 by marginal scheduled caste farmers. The largest share of total indirect subsidies has gone to medium scheduled caste farm households followed by big scheduled caste farm households.

**Table 4.5**  
**Indirect Subsidies Per Farms and Per Hectare on Sampled Farms in Selected Districts (1999-00)**

| District/<br>Farm Size                     | Scheduled Caste    |          |         | Non-Scheduled Caste |          |         | Scheduled Caste + Non-Scheduled Caste |          |         |
|--|--------------------|----------|---------|---------------------|----------|---------|---------------------------------------|----------|---------|
|  | Indirect Subsidies |          |         | Indirect Subsidies  |          |         | Indirect Subsidies                    |          |         |
|  | Per Farm           | Per Hec. | % Share | Per Farm            | Per Hec. | % Share | Per Farm                              | Per Hec. | % Share |
| <b>Ambala + Jind</b>                       |                    |          |         |                     |          |         |                                       |          |         |
| Marginal                                   | 1920.38            | 1881.74  | 14.62   | 2162.08             | 2000.61  | 2.24    | 1988.36                               | 1909.61  | 5.43    |
| Small                                      | 5755.95            | 2305.50  | 22.86   | 3317.28             | 2344.79  | 3.46    | 4710.81                               | 2333.87  | 8.44    |
| Medium                                     | 10772.58           | 2186.99  | 42.79   | 12965.98            | 2526.14  | 20.87   | 11953.64                              | 2373.05  | 26.52   |
| Large                                      | 19855.58           | 2344.70  | 19.73   | 35498.72            | 2933.59  | 73.46   | 33263.99                              | 2872.09  | 59.61   |
| All  | 7241.55            | 2187.53  | 100.00  | 17396.27            | 2689.80  | 100.00  | 11718.91                              | 2539.58  | 100.00  |
| <b>Faridabad + Bhiwani</b>                 |                    |          |         |                     |          |         |                                       |          |         |
| Marginal                                   | 2297.56            | 1880.46  | 9.36    | 2046.25             | 2526.39  | 2.20    | 2206.18                               | 2058.08  | 4.47    |
| Small                                      | 4980.48            | 1949.94  | 24.64   | 6373.60             | 2215.08  | 8.59    | 5496.45                               | 2061.62  | 13.67   |
| Medium                                     | 9512.88            | 2088.61  | 36.00   | 9917.12             | 2141.65  | 16.03   | 9706.92                               | 2114.29  | 22.35   |
| Large                                      | 17176.50           | 2471.41  | 30.00   | 27152.19            | 2312.61  | 73.18   | 24850.11                              | 2336.57  | 59.51   |
| All  | 5770.84            | 1928.13  | 100.00  | 14843.11            | 2387.80  | 100.00  | 10857.15                              | 2234.75  | 100.00  |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                    |          |         |                     |          |         |                                       |          |         |
| Marginal                                   | 2063.09            | 1875.15  | 11.82   | 2107.60             | 2212.45  | 2.22    | 2077.11                               | 1971.30  | 4.96    |
| Small                                      | 5301.36            | 2095.15  | 23.81   | 4925.81             | 2316.78  | 5.81    | 5152.71                               | 2180.32  | 10.96   |
| Medium                                     | 10117.54           | 2137.76  | 39.18   | 11558.81            | 2358.48  | 18.64   | 10852.31                              | 2252.19  | 24.52   |
| Large                                      | 18069.53           | 2423.44  | 25.19   | 31105.81            | 2621.42  | 73.33   | 28609.50                              | 2587.18  | 59.56   |
| All  | 6456.38            | 2155.62  | 100.00  | 16119.69            | 2488.50  | 100.00  | 11288.04                              | 2383.25  | 100.00  |

Evidently, non-scheduled caste farmers utilised higher indirect subsidies per farm in the selected districts. It was more than double in each case. When judged on per hectare basis, this gap gets reduced to around 20 per cent. It is essential to note that the share of large farmers was as high as 73.33 per cent of the total indirect subsidies utilised.

The information on utilisation of indirect subsidies for the entire sample supported the above findings. First, farmers in Ambala and Jind districts utilised higher subsidies than their counterparts in Faridabad and Bhiwani districts. Second, the large farmers were the greater beneficiaries in all situations due to their bigger size of holdings. Third, the share of large farmers in total utilisation of indirect subsidies was around 60 per cent against 5 per cent in case of marginal farmers and 11 per cent in case of small farmers.

#### **Total Agricultural Subsidies:**

Table 4.6 presents information on per farm and per hectare utilisation of direct plus indirect subsidies in value terms across farm sizes in the selected districts. It may be observed that scheduled caste farmers utilised on an average agricultural subsidies worth Rs.7410.99 in Ambala and Jind districts, Rs.6022.24 in Faridabad and Bhiwani districts and Rs.6669.30 at the aggregate level during 1999-00. The large scheduled caste farmers in the first group of districts availed the highest subsidy (Rs.19855.58). The non-scheduled caste farmers were the greater beneficiaries of subsidies as they utilised input subsidies worth Rs.17439.53 in Ambala and Jind districts, Rs.14890.05 in Faridabad and Bhiwani districts and Rs.16164.70 at the aggregate level. As expected, large farmers in the first group of districts were the greatest beneficiaries. When we examine the utilisation of agricultural subsidies for the entire sample, it was noticed that the amount of subsidies used by farmers in agriculturally developed districts of Ambala and Jind was higher than the lesser-developed districts of Faridabad and Bhiwani.

**Table 4.6**  
**Direct + Indirect Subsidies on Sampled Farms in Selected Districts (1999-00)**  
**(Rs.)**

| District/<br>Farm Size                     | Scheduled Caste   |          | Non-Scheduled Caste |          | SC + NSC          |          |
|--|-------------------|----------|---------------------|----------|-------------------|----------|
|  | Direct + Indirect |          | Direct + Indirect   |          | Direct + Indirect |          |
|  | Per Farm          | Per Hec. | Per Farm            | Per Hec. | Per Farm          | Per Hec. |
| <b>Ambala + Jind</b>                       |                   |          |                     |          |                   |          |
| Marginal                                   | 1936.51           | 1897.00  | 2179.92             | 2019.15  | 2004.97           | 1925.54  |
| Small                                      | 5791.95           | 2319.89  | 3343.94             | 2354.79  | 4742.81           | 2346.32  |
| Medium                                     | 11411.67          | 2316.71  | 12983.12            | 2529.48  | 12257.84          | 2433.61  |
| Large                                      | 19855.58          | 2344.70  | 35583.22            | 2940.58  | 33336.42          | 2878.34  |
| All  | 7410.99           | 2248.88  | 17439.53            | 2696.50  | 11825.26          | 2562.62  |
| <b>Faridabad + Bhiwani</b>                 |                   |          |                     |          |                   |          |
| Marginal                                   | 2317.13           | 1896.49  | 2066.25             | 2551.09  | 2225.90           | 2076.558 |
| Small                                      | 5031.07           | 1969.73  | 6388.60             | 2220.51  | 5533.86           | 2075.85  |
| Medium                                     | 10411.81          | 2285.96  | 10001.96            | 2159.99  | 10215.08          | 2224.98  |
| Large                                      | 17176.50          | 2471.41  | 27203.15            | 2316.96  | 24889.30          | 2340.25  |
| All  | 6022.24           | 2007.54  | 14890.05            | 2395.04  | 11008.82          | 2265.97  |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                   |          |                     |          |                   |          |
| Marginal                                   | 2080.53           | 1890.98  | 2126.43             | 2232.21  | 2095.01           | 1988.10  |
| Small                                      | 5345.92           | 2112.71  | 4946.35             | 2324.31  | 5187.77           | 2293.78  |
| Medium                                     | 10891.74          | 2301.32  | 11607.20            | 2368.36  | 11256.48          | 2336.08  |
| Large                                      | 18069.53          | 2423.44  | 31172.66            | 2627.03  | 28663.55          | 2502.04  |
| All  | 6669.30           | 2126.70  | 16164.70            | 2495.46  | 11417.04          | 2410.50  |

The per hectare utilisation of agricultural subsidies in value terms by scheduled caste farmers was Rs.2248.88 in Ambala and Jind districts, Rs.2007.54 in Faridabad and Bhiwani districts and Rs.2126.70 at the aggregate level. The non-scheduled caste farmers consumed higher subsidies per unit of land in comparison to scheduled caste farmers. The amount of subsidies availed per hectare at the overall level was found higher in the first group of districts. Farm size variations are significant for scheduled caste as well as for non-scheduled caste farmers. Large farmers in both the categories used the highest amount of subsidies.

To conclude, medium and large farmers with better resource base largely enjoy benefits of indirect subsidies. However, per hectare subsidies accrued to marginal and small farmers were also found substantial. But, across the social groups, scheduled caste farmers received lower benefit as reflected from their lower per hectare value of indirect subsidies. When direct and indirect subsidies are taken together results are more or less

the same. Furthermore, Ambala and Jind districts turned out to be the greater beneficiaries of agricultural subsidies in comparison to Faridabad and Bhiwani districts.

#### **Share of Scheduled Caste Farmers in Utilisation of Subsidies:**

We have observed in the preceding analysis that scheduled caste farmers emerged as the greater beneficiaries of direct subsidies due to implementation of specific subsidy schemes for them. It may be observed from Table 4.7 that they received 79.68 per cent of direct subsidies in Ambala and Jind districts, 84.52 per cent in Faridabad and Bhiwani districts and 82.53 per cent at the aggregate level during the reference year. However, they emerged as a disadvantaged group in the utilisation of indirect subsidies (fertilizer, power and irrigation). Although, they constituted 50 per cent of the sampled households, their share was found much below this proportion. They availed 25.78 per cent of indirect subsidies in the first group of districts, 31.64 per cent in the second group of districts and 28.60 per cent at the aggregate level. This was primarily due to their small size of holdings, which required lower quantities of these inputs. Sometimes, less than the recommended use is also responsible for lower consumption. When direct and indirect subsidies are added together, the share of scheduled caste farmers becomes 26.26 per cent in Ambala and Jind districts, 32.37 per cent in Faridabad and Bhiwani and 29.21 per cent at the aggregate level. The remaining two third share of agricultural subsidies is utilised by non-scheduled caste farmers.

**Table 4.7**

**Share of Scheduled Caste Farmers in Direct, Indirect and Total Agricultural Subsidies Utilised by Sample Farmers (1999-00)**

| Farm Size                                  | (Per cent)       |  |                   |
|--|------------------|--|-------------------|
|  | Direct Subsidies | Indirect Subsidies<br>(Fertilizer + Irrigation +<br>Power) | Direct + Indirect |
| <b>Ambala + Jind</b>                       |                  |  |                   |
| Marginal                                   | 69.87            | 69.42  | 69.49             |
| Small                                      | 64.28            | 69.82  | 69.78             |
| Medium                                     | 96.96            | 41.59  | 42.97             |
| Large                                      | 0.00             | 8.53   | 8.52              |
| All  | 79.68            | 25.78  | 26.26             |
| <b>Faridabad + Bhiwani</b>                 |                  |  |                   |
| Marginal                                   | 63.13            | 66.27  | 66.24             |
| Small                                      | 85.15            | 57.05  | 57.24             |
| Medium                                     | 91.98            | 50.97  | 53.00             |
| Large                                      | 0.00             | 15.95  | 15.92             |
| All  | 84.52            | 31.64  | 32.37             |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                  |  |                   |
| Marginal                                   | 66.84            | 68.06  | 68.04             |
| Small                                      | 76.81            | 62.16  | 62.26             |
| Medium                                     | 93.89            | 45.70  | 47.43             |
| Large                                      | 0.00             | 12.09  | 12.07             |
| All  | 82.53            | 28.60  | 29.21             |

Farm size variations in this regard are found glaring. The share of scheduled caste farmers in utilisation of input subsidies varied from a minimum of 8.51 per cent in large category in Ambala and Jind districts to a maximum of 69.78 per cent in small category of these districts. These findings indicate the extreme disparities in utilisation of agricultural subsidies, which need reforms to correct the imbalance.

**Gap Between Projected and Actual Utilisation of Fertiliser, Power and Irrigation Subsidies:**

The poor performance of farm subsidies has been reported in a plethora of studies. It is often contended that there is a huge gap between the projected and actual utilisation of farm subsidies. In case of fertiliser, a major portion goes to industry, while for power, a major portion is accounted for losses in transmission. Similarly, the actual subsidy in irrigation is over estimated due to high maintenance cost. There is continuing concern



about the share of farm subsidies accruing to farmers. Therefore, we propose to examine the gap between the estimated fertiliser, power and irrigation subsidies (Chapter II) in Haryana and the actual utilisation per hectare on the sampled farms during the year 1999-00.

It is shown in Table 4.8 that the gap between the estimated and actual use of fertilizer, power and irrigation subsidies per hectare in value terms in Ambala and Jind districts for scheduled caste farmers was 86.11 per cent, 90.80 per cent and 1.07 per cent respectively. The districts of Faridabad and Bhiwani indicated higher gap regarding fertiliser and power. But, in case of irrigation, farmers utilised 56.68 per cent higher subsidy than the estimated use because these districts are well linked to canals. At the overall level, maximum negative gap was observed for power (101.20 per cent) followed by fertiliser (91.89 per cent). On the other hand, farmers were using irrigation subsidy higher than the estimated from secondary data in the selected districts because three districts out of four surveyed districts have canals.

The non-scheduled caste farmers have shown lower gap in actual use and projected use in comparison to scheduled caste farmers except for power on medium farms in Faridabad and Bhiwani. The findings for the entire sample corroborated the same results. The gap in the case of power was the highest. On the contrary, irrigation subsidy has exhibited positive gap because three sampled districts out of four have canal net work.

In a nutshell, a negative gap was observed in the estimated use and actual use of fertiliser and power subsidies while irrigation was on the positive side.

Given the present situation, reforms are needed to correct the imbalances. These should be aimed at improving the lot of the farming community. Opponents of reform fear price increases as an outcome of it. That would indeed be the case if monopolies continue to rule the roost. For example, there have been demand for an increase in power tariffs for the agricultural consumer. On the other hand, little is being done to reduce transmission and distribution losses. In fact, tariff hikes should be commensurate with an improvement in services. However, lower rung small and marginal farmers should continue to be subsidised, though with sharp targeting.

**Table 4.8**  
**Gap Between the Estimated and Actual Utilisation of Farm Subsidies**

| Item                                       | (Per cent)      |                     |                                       |
|--|-----------------|---------------------|---------------------------------------|
|  | Scheduled Caste | Non-Scheduled Caste | Scheduled Caste + Non-Scheduled Caste |
| <b>Ambala + Jind</b>                       |                 |                     |                                       |
| Fertiliser                                 | -86.11          | -68.20              | -73.27                                |
| Power                                      | -90.80          | -47.44              | -58.18                                |
| Irrigation                                 | -1.07           | +59.32              | +36.23                                |
| <b>Faridabad + Bhiwani</b>                 |                 |                     |                                       |
| Fertiliser                                 | -97.05          | -74.82              | -81.49                                |
| Power                                      | -116.88         | -112.92             | -116.59                               |
| Irrigation                                 | +56.68          | +72.11              | +68.35                                |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |                     |                                       |
| Fertiliser                                 | -91.89          | -71.43              | -77.48                                |
| Power                                      | -101.20         | -74.24              | -81.94                                |
| Irrigation                                 | +41.25          | +52.53              | +49.46                                |

## Section II

### Impact of Withdrawal of Input Subsidies on Cost and Returns:

India signed the WTO agreement on agriculture in 1995. It required that subsidies should be removed or reduced within the agreed limits and if the need be, replaced by the bound tariffs with commitments to lower these gradually. As a result, agricultural policies in India have undergone major changes during the past few years. The implications of these policies are that cost of production has risen due to increase in input prices and hit many of the farmers specially small and marginal farmers adversely (Bhupal, 2002). Realising this, proponents of farm subsidies often argue that more input subsidies should be given to small/marginal farmers because provision of subsidies by the Government enhances their welfare by increasing incomes through reducing cost of production. In addition, farm subsidies encourage and help the poor farmers to apply the recommended quantity of expensive inputs at lower costs, resulting in higher crop productivity.

For understanding the impact of withdrawal of farm subsidies, we have calculated cost of cultivation and net returns per farm and per hectare with and without subsidies for our sampled farmers during the reference year. These are demonstrated in Table 4.9 and 4.10.

**Table 4.9**  
**Gross Returns, Cost and Net Returns Per Farm with and Without Subsidies on**  
**Sampled Farms in Selected Districts (1999-00)**

(Rs.)

| District/<br>Farm Size                     | With Subsidies |        |             | Without Subsidies |        |             | Percentage Change |             |
|--|----------------|--------|-------------|-------------------|--------|-------------|-------------------|-------------|
|  | Gross Returns  | Cost   | Net Returns | Gross Returns     | Cost   | Net Returns | Cost              | Net Returns |
| <b>Scheduled Caste</b>                     |                |        |             |                   |        |             |                   |             |
| <b>Ambala + Jind</b>                       |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 17205          | 7129   | 10076       | 17205             | 9848   | 7357        | 38.14             | -26.98      |
| Small                                      | 47436          | 17573  | 29863       | 47436             | 25365  | 22071       | 44.34             | -26.09      |
| Medium                                     | 111882         | 41345  | 70537       | 111882            | 52757  | 59125       | 27.60             | -16.18      |
| Large                                      | 185917         | 66218  | 119699      | 185917            | 86074  | 99843       | 29.58             | -16.59      |
| All  | 57306          | 21393  | 35913       | 57306             | 28444  | 28862       | 34.91             | -19.62      |
| <b>Faridabad + Bhiwani</b>                 |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 17122          | 6569   | 10553       | 17122             | 8887   | 8235        | 35.29             | -21.96      |
| Small                                      | 39350          | 15450  | 24000       | 39350             | 20410  | 18940       | 32.10             | -20.96      |
| Medium                                     | 72674          | 31367  | 41307       | 72674             | 41772  | 30902       | 33.17             | -25.19      |
| Large                                      | 144961         | 50687  | 94274       | 144961            | 67864  | 77097       | 33.89             | -18.22      |
| All  | 44464          | 21296  | 23168       | 44464             | 28432  | 16032       | 33.51             | -20.80      |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 17173          | 6917   | 10256       | 17173             | 9484   | 7689        | 37.11             | -23.03      |
| Small                                      | 42696          | 16270  | 26426       | 42696             | 22460  | 20236       | 38.04             | -23.36      |
| Medium                                     | 91494          | 36157  | 55337       | 91494             | 47044  | 44450       | 30.11             | -19.67      |
| Large                                      | 158613         | 55864  | 102749      | 158613            | 73934  | 84679       | 32.35             | -17.59      |
| All  | 51884          | 21344  | 30540       | 51884             | 28437  | 23447       | 33.23             | -20.21      |
| <b>Non Scheduled Caste</b>                 |                |        |             |                   |        |             |                   |             |
| <b>Ambala + Jind</b>                       |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 18009          | 7171   | 10838       | 18009             | 9351   | 8658        | 30.40             | -20.11      |
| Small                                      | 41200          | 12207  | 28993       | 41200             | 15551  | 25649       | 27.39             | -11.53      |
| Medium                                     | 94836          | 42066  | 52770       | 94836             | 55050  | 39786       | 30.86             | -24.60      |
| Large                                      | 277646         | 102658 | 174988      | 277647            | 138242 | 139405      | 34.66             | -20.33      |
| All  | 167165         | 52224  | 114941      | 167165            | 69663  | 97502       | 33.39             | -20.33      |
| <b>Faridabad + Bhiwani</b>                 |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 11938          | 4064   | 7874        | 11938             | 6131   | 5807        | 50.86             | -26.25      |
| Small                                      | 40705          | 15647  | 25058       | 40705             | 22035  | 18670       | 40.82             | -25.49      |
| Medium                                     | 91781          | 32683  | 59098       | 91781             | 42685  | 49096       | 30.60             | -16.92      |
| Large                                      | 246879         | 82201  | 164678      | 246879            | 109404 | 137475      | 33.09             | -16.52      |
| All  | 130830         | 44504  | 86326       | 130830            | 59394  | 71436       | 33.46             | -17.25      |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                |        |             |                   |        |             |                   |             |
| Marginal                                   | 15152          | 5709   | 9443        | 15152             | 7835   | 7317        | 37.24             | -22.51      |
| Small                                      | 40939          | 14017  | 26922       | 40939             | 18963  | 21976       | 35.28             | -18.37      |
| Medium                                     | 93426          | 37736  | 55690       | 93426             | 49343  | 44083       | 30.76             | -20.84      |
| Large                                      | 261435         | 91891  | 169544      | 261453            | 123064 | 138389      | 33.92             | -18.38      |
| All  | 133997         | 48333  | 85633       | 133997            | 64529  | 69468       | 33.42             | -18.88      |

**Table Contd...4.9**  
**Scheduled Caste + Non Scheduled Caste**

| District/<br>Farm Size                     | With Subsidies   |       |                | Without Subsidies |        |                | Percentage Change |                |
|--|------------------|-------|----------------|-------------------|--------|----------------|-------------------|----------------|
|  | Gross<br>Returns | Cost  | Net<br>Returns | Gross<br>Returns  | Cost   | Net<br>Returns | Cost              | Net<br>Returns |
| <b>Ambala + Jind</b>                       |                  |       |                |                   |        |                |                   |                |
| Marginal                                   | 17431            | 7141  | 10290          | 17431             | 9708   | 7723           | 35.95             | -24.96         |
| Small                                      | 44763            | 15273 | 29490          | 44763             | 21159  | 23604          | 38.54             | -10.96         |
| Medium                                     | 102703           | 41733 | 60970          | 102703            | 53991  | 48712          | 29.37             | -20.10         |
| Large                                      | 264542           | 97452 | 167090         | 264542            | 130789 | 133753         | 34.21             | -19.95         |
| All  | 97235            | 36808 | 60427          | 97235             | 49053  | 48182          | 33.27             | -20.26         |
| <b>Faridabad + Bhiwani</b>                 |                  |       |                |                   |        |                |                   |                |
| Marginal                                   | 15237            | 5658  | 9579           | 15237             | 7884   | 7353           | 39.34             | -23.24         |
| Small                                      | 39852            | 15459 | 24393          | 39852             | 21012  | 18840          | 35.92             | -22.69         |
| Medium                                     | 81846            | 31999 | 49847          | 81846             | 42210  | 39636          | 31.91             | -20.48         |
| Large                                      | 223359           | 74929 | 148430         | 223359            | 99818  | 123541         | 33.22             | -16.77         |
| All  | 72647            | 32900 | 39747          | 72647             | 43913  | 28734          | 33.47             | -18.51         |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                  |       |                |                   |        |                |                   |                |
| Marginal                                   | 16537            | 6537  | 10000          | 16537             | 8965   | 7572           | 37.14             | -24.28         |
| Small                                      | 42001            | 15378 | 26623          | 42001             | 21076  | 20925          | 37.05             | -21.36         |
| Medium                                     | 92479            | 36962 | 55517          | 92479             | 48216  | 44263          | 30.45             | -20.27         |
| Large                                      | 241760           | 84992 | 156768         | 241760            | 113656 | 128104         | 33.72             | -18.28         |
| All  | 84941            | 34854 | 50087          | 84941             | 46483  | 38458          | 33.36             | -19.35         |

**Table 4.10**  
**Gross Returns, Cost and Net Returns Per Hectare with and Without Subsidies on**  
**Sampled Farms in Selected Districts (1999-00)**

(Rs.)

**Scheduled Caste**

| District/<br>Farm Size                     | With Subsidies |      |             | Without Subsidies |       |             |
|--|----------------|------|-------------|-------------------|-------|-------------|
|  | Gross Returns  | Cost | Net Returns | Gross Returns     | Cost  | Net Returns |
| <b>Ambala + Jind</b>                       |                |      |             |                   |       |             |
| Marginal                                   | 16765          | 6947 | 9818        | 16765             | 9596  | 7169        |
| Small                                      | 19000          | 7039 | 11961       | 19000             | 10160 | 8840        |
| Medium                                     | 22714          | 8394 | 14320       | 22714             | 10710 | 8496        |
| Large                                      | 21954          | 7820 | 14134       | 21954             | 10164 | 11790       |
| All  | 20051          | 7747 | 12304       | 20051             | 10300 | 9751        |
| <b>Faridabad + Bhiwani</b>                 |                |      |             |                   |       |             |
| Marginal                                   | 14014          | 5377 | 8637        | 14014             | 7273  | 6741        |
| Small                                      | 15406          | 6010 | 9396        | 15406             | 7991  | 7415        |
| Medium                                     | 15956          | 6887 | 9069        | 15956             | 9171  | 6785        |
| Large                                      | 20857          | 7293 | 13564       | 20857             | 9764  | 11093       |
| All  | 16868          | 6596 | 10272       | 16868             | 8805  | 8063        |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                |      |             |                   |       |             |
| Marginal                                   | 15609          | 6287 | 9322        | 15609             | 8620  | 6989        |
| Small                                      | 16873          | 6430 | 10443       | 16873             | 8876  | 7997        |
| Medium                                     | 19332          | 7640 | 11692       | 19332             | 9940  | 9392        |
| Large                                      | 21273          | 7492 | 13781       | 21273             | 9916  | 11357       |
| All  | 18658          | 7126 | 11532       | 18658             | 9495  | 9163        |

**Non Scheduled Caste**

|  |       |      |       |       |       |       |
|--|-------|------|-------|-------|-------|-------|
| <b>Ambala + Jind</b>                       |       |      |       |       |       |       |
| Marginal                                   | 16681 | 6642 | 10039 | 16681 | 8661  | 8020  |
| Small                                      | 15460 | 4581 | 10879 | 15460 | 5836  | 9624  |
| Medium                                     | 18477 | 8196 | 10281 | 18477 | 10725 | 7752  |
| Large                                      | 22945 | 8484 | 14461 | 22945 | 11424 | 11521 |
| All  | 21208 | 8075 | 13133 | 21208 | 10771 | 10437 |
| <b>Faridabad + Bhiwani</b>                 |       |      |       |       |       |       |
| Marginal                                   | 14744 | 5020 | 9724  | 14744 | 7571  | 7173  |
| Small                                      | 14785 | 5683 | 9102  | 14785 | 7510  | 7275  |
| Medium                                     | 19821 | 7058 | 12763 | 19821 | 9218  | 10603 |
| Large                                      | 21027 | 7001 | 14026 | 21027 | 9318  | 11709 |
| All  | 20165 | 6860 | 13305 | 20165 | 9155  | 11010 |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |       |      |       |       |       |       |
| Marginal                                   | 15906 | 5993 | 9913  | 15906 | 8225  | 7681  |
| Small                                      | 15100 | 5170 | 9930  | 15100 | 6994  | 8106  |
| Medium                                     | 19063 | 7700 | 11363 | 19063 | 10068 | 8995  |
| Large                                      | 21950 | 7715 | 14235 | 21950 | 10332 | 11618 |
| All  | 20686 | 7466 | 13220 | 20686 | 9962  | 10724 |

Table Contd. ....4.10

## Scheduled Caste + Non Scheduled Caste

| District/<br>Farm Size                     | With Subsidies |      |             | Without Subsidies |       |             |
|--|----------------|------|-------------|-------------------|-------|-------------|
|  | Gross Returns  | Cost | Net Returns | Gross Returns     | Cost  | Net Returns |
| <b>Ambala + Jind</b>                       |                |      |             |                   |       |             |
| Marginal                                   | 16740          | 6858 | 9883        | 16740             | 9324  | 7417        |
| Small                                      | 17426          | 5946 | 11480       | 17426             | 8237  | 9189        |
| Medium                                     | 20389          | 8285 | 12104       | 20389             | 10718 | 9670        |
| Large                                      | 22841          | 8414 | 14427       | 22841             | 11292 | 11548       |
| All  | 21072          | 7977 | 13050       | 21072             | 9441  | 11631       |
| <b>Faridabad + Bhiwani</b>                 |                |      |             |                   |       |             |
| Marginal                                   | 14214          | 5279 | 8935        | 14214             | 7355  | 6859        |
| Small                                      | 15165          | 5883 | 9282        | 15165             | 8243  | 7176        |
| Medium                                     | 17827          | 6969 | 10857       | 17827             | 9194  | 8633        |
| Large                                      | 21002          | 7045 | 13956       | 21002             | 9385  | 11616       |
| All  | 19069          | 6772 | 12298       | 19069             | 9039  | 10022       |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                |      |             |                   |       |             |
| Marginal                                   | 15699          | 6206 | 9493        | 15699             | 8511  | 7188        |
| Small                                      | 16142          | 5910 | 10232       | 16142             | 8100  | 8046        |
| Medium                                     | 19192          | 7671 | 11522       | 19192             | 10006 | 9186        |
| Large                                      | 21862          | 7686 | 14176       | 21862             | 10278 | 11584       |
| All  | 20045          | 7359 | 11679       | 20045             | 9814  | 10226       |

Here, gross returns refer to value of output and by product of all crops grown by the farmer during the reference year. The paid out costs include cost of human labour, bullock labour, machine labour, seeds, fertilizer, irrigation, pesticides and miscellaneous items. The net returns are calculated by deducting cost from gross returns.

An examination of the data revealed that gross returns per farm in case of scheduled caste farmers were Rs.57,306 in Ambala and Jind districts, Rs.44,464 in Faridabad and Bhiwani districts and Rs.51,884 at the aggregate level during 1999-00. The highest gross returns were realised by large scheduled caste farmers in the first group of districts. The corresponding cost of cultivation with farm subsidies was Rs.21,393, Rs.21,296 and Rs.21,344 respectively. After deducting cost from gross returns, scheduled caste farmers received Rs.35,913 in the first group of districts, Rs.23,167 in the second groups and Rs.30,540 as net returns at the overall level. If farm subsidies were non-existent, the cost of cultivation of scheduled caste farmers in the above mentioned group of districts would have increased by 34.91 per cent, 33.51 per cent and 33.23 per cent

respectively. The escalated cost of cultivation without subsidies would have reduced returns by 19.62 per cent in Ambala and Jind districts, 20.80 per cent in Faridabad and Bhiwani districts and 20.21 per cent at the aggregate level. The worst affected groups by withdrawal of farm subsidies had been marginal and small scheduled caste farmers in the first group of districts. The findings about the per hectare cost of cultivation and net returns in case of scheduled caste farmers are of the same nature.

The non-scheduled caste farmers indicated higher gross returns per farm than scheduled caste farmers. The gross returns per farm on these farms were Rs.1,67, 165 in Ambala and Jind districts, Rs.1,30, 830 in Faridabad and Bhiwani districts and Rs.1,33,997 at the aggregate level. With subsidies, the corresponding cost of cultivation was Rs.52,224, Rs.44,504 and Rs.48,333 respectively. If there were no subsidies, the cost of cultivation on non-scheduled caste farms would have increased by 33.39 percent in the first group of districts, 33.46 per cent in the second group of districts and 33.42 per cent at the overall level. The escalated cost as a result of removal of farm subsidies in turn would have reduced net returns per farm by 20.33 per cent, 17.25 per cent and 18.88 per cent in the corresponding group of districts. The worst affected non-scheduled caste farmers would have been marginal and small farmers in Faridabad and Bhiwani districts. The scenario is more or less the same when we calculate these indicators at per hectare level.

For the entire sample, withdrawal of subsidies would have increased cost and reduced net returns per farm as well as per hectare. The net returns of farmers will come down by 20.26 per cent in Ambala and Jind districts and by 18.51 per cent in Faridabad and Bhiwani districts and by 19.35 per cent at the aggregate level.

The above results make amply clear that utilisation of input subsidies by farmers has reduced their cost of production in Haryana. Without subsidies, the input prices would have been market prices and therefore, would have been higher than the subsidised prices. In fact, farm subsidies helped in keeping input prices low, which in turn enabled farmers to grow crops at lower cost.

As far as the equity effects of input subsidies were concerned, the benefits of input subsidies went largely to big and medium farmers, however, these subsidies affected the incomes of lower rung marginal and small scheduled caste and non-scheduled caste farmers positively by reducing the cost of cultivation. In a nutshell,

benefits of input subsidies on sampled farms accrued disproportionately to affluent farmers with large size of holdings but small and marginal poor farmers also had been at an advantage by raising their meagre income from cultivation.

In fact, small and marginal farmers have not been benefited much from input subsidies on sampled farms due to their smallholdings. But, certainly these helped them in maintaining their incomes at the higher level and in sustenance of their livelihood. The provision of input subsidies by the Government helped farmers to reduce cost of production and enabled them to obtain a reasonable amount of income from agriculture. The findings of survey suggest that subsidy programmes must be selective and target oriented. Particularly, subsidy programme for irrigation by canal should be intensified. But, proper identification of beneficiaries must be given due importance to check the misuse of funds.

#### **Food Subsidy:**

Public distribution system (PDS) in India played an important role in improving the nutritional levels of poor by providing food grains and other essential items at lower than market prices. Running PDS involves cost on account of consumer subsidy borne by the government. This is equal to the difference between the cost incurred by the government (purchase costs and distribution costs) and the sales revenue realised. The magnitude of the subsidy, therefore, is affected by the levels of purchase prices, the issue prices and the cost of distribution. The cost of food subsidy in the country has risen manifold during the past two decades. It jumped from Rs.6500 million in 1981 to Rs.24,500 million in 1991 and Rs.1, 21,250 million in 2001 (Fertilizer Statistics. 2001-02).



**Table 4.11**  
**Sugar and Kerocene Subsidy (Per Household) Availed by Sampled Farmers in**  
**Selected districts (Rs. Per month)**

| District/<br>Farm Size                     | Scheduled Caste |          | Non-Scheduled Caste |          | Scheduled Caste + Non-Scheduled Caste |          |
|--|-----------------|----------|---------------------|----------|---------------------------------------|----------|
|  | Sugar           | Kerocene | Sugar               | Kerocene | Sugar                                 | Kerocene |
| <b>Ambala + Jind</b>                       |                 |          |                     |          |                                       |          |
| Marginal                                   | 3.62            | 12.65    | 5.24                | 11.33    | 4.08                                  | 12.04    |
| Small                                      | -               | 16.50    | 1.11                | 11.50    | 0.48                                  | 14.33    |
| Medium                                     | 1.33            | 12.50    | -                   | 16.50    | 0.61                                  | 14.65    |
| Large                                      | 3.73            | 10.00    | 1.11                | 9.33     | 1.49                                  | 9.42     |
| All  | 2.21            | 13.38    | 1.54                | 12.45    | 1.88                                  | 12.92    |
| <b>Faridabad + Bhiwani</b>                 |                 |          |                     |          |                                       |          |
| Marginal                                   | 9.68            | 8.14     | 25.00               | 24.94    | 15.25                                 | 14.25    |
| Small                                      | 3.76            | 7.41     | 8.04                | 13.80    | 5.34                                  | 9.78     |
| Medium                                     | 2.03            | 6.23     | 3.00                | 5.00     | 2.50                                  | 5.64     |
| Large                                      | 2.00            | 17.50    | -                   | 0.00     | 0.46                                  | 4.04     |
| All  | 4.76            | 8.52     | 6.32                | 7.95     | 5.54                                  | 8.23     |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |          |                     |          |                                       |          |
| Marginal                                   | 5.92            | 10.94    | 14.54               | 18.79    | 8.63                                  | 13.42    |
| Small                                      | 2.20            | 11.17    | 4.76                | 12.71    | 3.22                                  | 11.78    |
| Medium                                     | 1.70            | 9.24     | 1.38                | 11.19    | 1.53                                  | 10.24    |
| Large                                      | 2.58            | 15.00    | 0.53                | 4.42     | 0.91                                  | 6.45     |
| All  | 3.48            | 10.95    | 3.94                | 10.20    | 3.71                                  | 10.58    |

Till the late seventies, PDS in India covered urban population only. But, the situation has changed altogether now when most of the states have extended the scheme to the rural areas on a regular basis and also introduced targeting it to certain vulnerable groups.

From the viewpoint of the consumer, food subsidy or income transfer realised through PDS is equal to the difference between free market (retail) price of the commodities and the ration prices multiplied by the quantities of the commodities bought from PDS. Details of the per household food subsidy in rural and urban areas of different parts of the country are not available. However, this computation is possible if information on quantities of commodities bought from PDS is available. We have worked out this for our sampled households on the basis of information regarding households procurement of PDS items from the village ration shops for the last two months from the date of inquiry.

It would be useful to know about the items bought from PDS by the rural households in Haryana. Often, here farm households do not buy wheat and rice from

ration shops. They mostly buy sugar and kerosene oil. It may be observed from Table 4.11 that scheduled caste farmers on an average bought sugar worth Rs.2.21 in Ambala and Jind districts, Rs.4.76 in Faridabad and Bhiwani districts and Rs. 3.48 per month at the aggregate level. The marginal farmers in the second group of districts spent the highest amount for buying sugar from PDS. It may be noted that the amount spent on kerosene oil by the same group of farmers was almost three folds. The large scheduled caste farmers in the second group of districts spent more than others.

The non-scheduled caste farmers spent a negligible amount of Rs.1.54 in Ambala and Jind districts, Rs.6.32 in Faridabad and Bhiwani districts and Rs.3.94 per month at the overall level for buying sugar from PDS. The medium farmers in the first group of districts and large farmers in the second group of districts did not buy sugar. However, all the categories of farmers bought kerosene oil from this source and the average amount spent was Rs.10.20 per month.

The total sample farmers bought sugar worth Rs.3.71 per month from PDS. The expenditure on kerosene oil per household was almost three times. The reason for buying low quantity of sugar from PDS was small gap between the market and PDS price. It was reported during the survey that more families bought kerosene oil from PDS shop due to limited availability in the open market and high price gap.

#### **Problems in Access to Subsidies:**

We have observed earlier that farmers utilise direct and indirect input subsidies in Haryana. It was reported that they faced umpteen number of problems in availing subsidies provided by the Government. It was reported that their access to direct subsidies was limited but indirect subsidies particularly, fertilizer and power were used by most of them. The major problems faced by the farmers are highlighted in Table 4.12. These are classified as high prices of inputs, low capacity to buy, long distance and other problems which include cumbersome procedure, non-availability of required brand, poor quality of inputs and lack of required quantity at the time of need.

At the aggregate level, nearly 94 per cent of farmers reported that problem of high prices of inputs is very acute because market prices of output, even the main crops like wheat and paddy are declining continuously for the past few years and yield rates are also almost stable. In this scenario, farmers earn less from cultivation. This affects their

capacity to buy expensive inputs. Some farmers illustrated that they could buy two bags of fertiliser by selling a bag of wheat but now, they cannot buy even one bag of DAP by selling two bags of wheat. This phenomenon of falling market prices of farm produce and upward moving prices of inputs has reduced the purchasing power of the farmers. As a result, 95.50 per cent farmers indicated lower capacity to buy key inputs required for cultivation. The problem of long distance was relatively minor in Haryana because road transport is well developed and linking of villages to main roads has further reduced the problem of long distance in procuring of inputs by the farmers. However, other problems such as time consuming procedures, etc. were found severe and were indicated by 88.50 per cent of the interviewed farmers.

A comparison of scheduled caste and non-scheduled caste farmers in facing the above problems clearly indicated that the intensity of problems faced by the first group was quite severe. Each one of them felt the pinch of high prices of inputs in the selected districts. The results also reflected their low capacity to buy the expensive inputs. The distance was not a major constraint as 26 per cent of scheduled caste farmers in Ambala and Jind districts and 30 per cent in Faridabad and Bhiwani districts experienced this problem. Once again the findings of the study revealed that scheduled caste farmers felt deprived of full subsidies and faced procedural bottlenecks in obtaining subsidies. Consequently, around 83 per cent of scheduled caste farmers faced these problems. In a nutshell, a large majority of surveyed scheduled caste farmers were found victims of low capacity to buy required inputs in time because of their tiny land holdings which generate meagre income. In addition, the weaknesses in implementation of subsidies increased their deprivation.

The non-scheduled caste farmers faced the mentioned problems like their scheduled caste counterparts but their accessibility was found little better. The intensity of first three problems, namely, high prices of inputs, low capacity to buy and long distance was found lower than scheduled caste farmers. These problems were reported by 87 per cent, 91 per cent and 20 per cent of them. The percentage of non-scheduled caste farmers facing other problems was around 94 per cent, significantly, higher than the scheduled caste farmers because they are bulk users of inputs due to their large size of holdings and they have to manage huge quantities of inputs which increase their managerial problems.

**Table 4.12**  
**Problems of Farmers in Access to Subsidies**

**(Per cent of Farmers)**

| Farm Size | High Price                                 | Low Capacity To Buy | Long Distance | Other Problems | High Price                 | Low Capacity to Buy | Long Distance | Other Problems | High Price | Low Capacity to Buy | Long Distance | Other Problems |
|-----------|--|---------------------|---------------|----------------|----------------------------|---------------------|---------------|----------------|------------|---------------------|---------------|----------------|
|           | <b>Scheduled Caste</b>                     |                     |               |                | <b>Non-Scheduled Caste</b> |                     |               |                |            |                     |               |                |
|           | <b>Ambala + Jind</b>                       |                     |               |                |                            |                     |               |                |            |                     |               |                |
| Marginal  | 100.00                                     | 100.00              | 26.09         | 86.95          | 88.89                      | 100.00              | 22.22         | 100.00         | 96.88      | 100.00              | 75.00         | 90.63          |
| Small     | 100.00                                     | 100.00              | 25.00         | 83.33          | 88.89                      | 100.00              | 22.22         | 100.00         | 95.24      | 100.00              | 23.81         | 90.48          |
| Medium    | 100.00                                     | 100.00              | 25.00         | 83.33          | 85.71                      | 85.71               | 21.42         | 92.85          | 92.31      | 92.30               | 23.08         | 88.46          |
| Large     | 100.00                                     | 100.00              | 33.33         | 66.67          | 83.33                      | 77.77               | 5.55          | 88.89          | 85.71      | 80.93               | 9.52          | 85.71          |
| All       | 100.00                                     | 100.00              | 26.00         | 84.00          | 86.00                      | 88.00               | 16.00         | 94.00          | 93.00      | 94.00               | 21.00         | 89.00          |
|           | <b>Faridabad + Bhiwani</b>                 |                     |               |                |                            |                     |               |                |            |                     |               |                |
| Marginal  | 100.00                                     | 100.00              | 28.57         | 85.71          | 100.00                     | 100.00              | 37.50         | 100.00         | 100.00     | 100.00              | 31.82         | 90.91          |
| Small     | 100.00                                     | 100.00              | 41.18         | 88.23          | 90.00                      | 100.00              | 40.00         | 100.00         | 96.29      | 100.00              | 40.74         | 92.59          |
| Medium    | 100.00                                     | 100.00              | 15.58         | 76.92          | 83.33                      | 91.66               | 75.00         | 83.33          | 92.00      | 96.00               | 20.00         | 80.00          |
| Large     | 100.00                                     | 100.00              | 33.33         | 66.67          | 85.00                      | 90.00               | 10.00         | 95.00          | 88.46      | 92.30               | 15.38         | 88.46          |
| All       | 100.00                                     | 100.00              | 30.00         | 82.00          | 88.00                      | 94.00               | 24.00         | 94.00          | 94.00      | 97.00               | 27.00         | 88.00          |
|           | <b>Ambala + Jind + Faridabad + Bhiwani</b> |                     |               |                |                            |                     |               |                |            |                     |               |                |
| Marginal  | 100.00                                     | 100.00              | 27.02         | 86.49          | 94.11                      | 100.00              | 29.41         | 100.00         | 98.15      | 100.00              | 27.78         | 90.74          |
| Small     | 100.00                                     | 100.00              | 34.48         | 86.21          | 89.49                      | 100.00              | 31.57         | 100.00         | 95.83      | 100.00              | 33.33         | 91.67          |
| Medium    | 100.00                                     | 100.00              | 20.00         | 80.00          | 84.61                      | 88.46               | 23.08         | 88.46          | 92.16      | 94.12               | 21.57         | 84.31          |
| Large     | 100.00                                     | 100.00              | 33.33         | 66.67          | 84.21                      | 84.21               | 7.89          | 92.11          | 87.23      | 87.23               | 12.77         | 87.23          |
| All       | 100.00                                     | 100.00              | 28.00         | 83.00          | 87.00                      | 91.00               | 20.00         | 94.00          | 93.50      | 95.50               | 24.00         | 88.50          |

The analysis of the problems faced by farmers in the selected two groups of districts exhibited almost similar results regarding the access of the farmers to the farm subsidies. However, long distance was not a serious problem. A comparison of different categories of scheduled caste and non-scheduled caste farmers indicated that almost every one suffered due to erratic supply of inputs arising out of bottlenecks in the delivery system. This could be the result of demand supply gap of key inputs or the poor implementation of farm subsidies.

## Chapter V

### Impact of Input Subsidies on Farm Economy

In the previous chapter, we have analysed utilisation of agricultural subsidies across different farm sizes in the selected districts. It was highlighted that withdrawal of subsidies would reduce income of the farmers. But, it did not give any clue about the impact of subsidy levels on agriculture which is restricted to crop cultivation in this study. Now, we would examine the impact of subsidy levels on area allocation to various crops, consumption of fertilizers, power and irrigation, share of inputs going to superior cereals and commercial crops and finally on gross returns, cost and net returns of the farmers. For analysing the impact, we have divided sample farmers into low, medium and high input subsidies availing groups on the basis of per hectare utilisation in value terms. Now, we will present the main findings related to important aspects of farm economy in the new groups of scheduled caste vis-à-vis non-scheduled caste farmers in the selected districts.

#### Impact of Subsidy Levels on Crop Pattern:

Table 5.1 provides information on proportion of GCA devoted to important crops by the sampled farmers in different subsidy groups during the year 1999-00. It may be noted that low, medium and high subsidy groups of scheduled caste farmers allocated 26.31 per cent, 42.73 per cent and 36.73 per cent of GCA to wheat in Ambala and Jind districts. Although, low subsidy group did not cultivate paddy, medium and high subsidy groups devoted 8.59 per cent and 23.57 per cent of GCA to this water intensive crop. In addition, high subsidy group cultivated sugarcane on 5.03 per cent of GCA. Around 3.78 per cent of GCA was devoted to cotton. Like above districts, wheat was the dominant crop for scheduled caste farmers in Faridabad and Bhiwani districts but they also grew commercial crops like cotton and mustard. The three subsidy groups of scheduled caste farmers devoted 3.73 per cent, 14.09 per cent and 16.92 per cent of GCA to cotton. When all the districts were combined, wheat emerged as the dominant crop and more than 40 per cent of GCA was allotted to this crop by each category. Paddy, mustard and cotton were the other important crops. Some high subsidy group scheduled caste farmers also grew sugarcane.

**Table-5.1**  
**Percentage of GCA under Wheat, Paddy, Sugarcane, Cotton and Mustard on Sampled Farms by Subsidy Level in Selected Districts (1999-00)**

| Subsidy level/<br>District                 | Percentage of GCA |       |            |        |         | Percentage of GCA |       |            |        |         | Percentage of GCA |       |            |        |         |
|--|-------------------|-------|------------|--------|---------|-------------------|-------|------------|--------|---------|-------------------|-------|------------|--------|---------|
|  | SC                |       |            |        |         | NSC               |       |            |        |         | SC+NSC            |       |            |        |         |
|  | Wheat             | Paddy | Sugar-cane | Cotton | Mustard | Wheat             | Paddy | Sugar-cane | Cotton | Mustard | Wheat             | Paddy | Sugar-cane | Cotton | Mustard |
| <b>Ambala + Jind</b>                       |                   |       |            |        |         |                   |       |            |        |         |                   |       |            |        |         |
| Low  | 26.31             | -     | -          | 8.24   | -       | 24.62             | 0.60  | -          | 1.50   | -       | 25.14             | 0.42  | -          | 2.51   | -       |
| Medium                                     | 42.73             | 8.59  | -          | 20.14  | 0.74    | 37.12             | 16.08 | 6.29       | 5.68   | 0.48    | 39.88             | 13.61 | 4.21       | 10.45  | 0.57    |
| High                                       | 36.73             | 23.57 | 5.03       | 3.78   | -       | 32.62             | 28.01 | 17.47      | 1.71   | 0.19    | 33.82             | 26.71 | 13.82      | 2.31   | 0.13    |
| <b>Faridabad + Bhiwani</b>                 |                   |       |            |        |         |                   |       |            |        |         |                   |       |            |        |         |
| Low  | 45.47             | 4.29  | -          | 3.73   | 0.56    | 52.83             | 7.72  | 10.22      | 5.22   | -       | 48.87             | 5.88  | 4.72       | 4.42   | 0.30    |
| Medium                                     | 49.40             | 1.36  | -          | 14.09  | 5.09    | 46.41             | 8.66  | 8.86       | 19.32  | 2.19    | 47.52             | 5.96  | 5.59       | 17.39  | 3.26    |
| High                                       | 48.65             | 13.65 | -          | 16.89  | -       | 37.55             | 2.64  | 2.74       | 30.08  | 6.35    | 39.85             | 4.94  | 2.17       | 21.98  | 5.02    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                   |       |            |        |         |                   |       |            |        |         |                   |       |            |        |         |
| Low  | 43.18             | 3.78  | -          | 4.27   | 0.49    | 45.33             | 5.83  | 7.50       | 3.83   | -       | 44.27             | 4.82  | 3.81       | 4.05   | 0.24    |
| Medium                                     | 46.68             | 4.32  | -          | 16.56  | 3.31    | 42.22             | 12.01 | 7.70       | 13.16  | 1.42    | 44.18             | 9.30  | 4.99       | 14.36  | 2.09    |
| High                                       | 41.18             | 19.87 | 3.16       | 8.67   | -       | 35.00             | 15.76 | 10.36      | 15.41  | 3.17    | 36.57             | 16.80 | 8.52       | 13.69  | 2.36    |

Like scheduled caste farmers, wheat dominated the scenario in crop pattern of non-scheduled caste farmers in the selected districts. However, these farmers devoted lower proportion of GCA to wheat in comparison to the scheduled caste farmers. The second most important crop was paddy by indicating 16.08 per cent and 28.01 per cent of GCA devoted to this crop by medium and high subsidy users in Ambala and Jind districts. In addition, sugarcane with 6.29 and 17.47 per cent of GCA was found an important crop for medium and high subsidy users. All the groups grew Cotton but medium subsidy group devoted around 5.68 per cent of GCA to this crop. Mustard with less than 1 per cent of GCA was a minor crop in these districts. Most of the farmers grew diversified crops in Faridabad and Bhiwani districts. Although, wheat was the preferred crop, they also allocated substantial area to cotton and mustard on their farms in addition to paddy and sugarcane. Particularly, sugarcane for low, cotton for medium and high subsidy group farmers were other important crops. When we combine all the four districts, wheat followed by paddy, cotton, sugarcane and mustard were important crops for low, medium and high subsidy user among non-scheduled caste farmers.

At the aggregate level, wheat was the most important crop. The percentage of GCA devoted to wheat was more than 25 per cent in each subsidy group. However, it crosses 45 per cent in case of low and medium subsidy users in Faridabad and Bhiwani districts. But, high subsidy group also cultivated paddy (26.71 per cent) and sugarcane (13.82 per cent) in Ambala and Jind districts. The same group grew cotton (27.32 per cent) and mustard (7.35 per cent) in Faridabad and Bhiwani districts. Thus, wheat was a preferred crop but paddy, sugarcane, cotton and mustard were also found important for high subsidy group non-scheduled caste farmers.

In a nutshell, subsidy level appeared to have significant impact on the area allocated to different crops by scheduled caste as well as non-scheduled caste farmers in the selected districts. The high subsidy users in Ambala and Jind districts devoted comparatively higher proportion of GCA to paddy and sugarcane, which are water intensive crops and also require high doses of fertilizers. The same group gave priority to wheat along with cotton and mustard in Faridabad and Bhiwani districts. On the other hand, low subsidy users preferred subsistence crop like wheat and grew little of paddy (0.42 per cent of GCA) in Ambala and Jind districts. However, they devoted around 15



per cent of GCA to other crops in Faridabad and Bhiwani districts. The similar type of pattern may be observed at the overall level.

### **Impact of Subsidy Levels on Consumption of Inputs:**

#### **Fertilizer Consumption:**

We have earlier discussed that most of the farmers irrespective of caste utilize fertilizer in Haryana. Even, marginal and small farmers are intensive users of chemical fertilisers. When we examine consumption of fertiliser in value terms across the three subsidy levels, it was observed that low subsidy group of scheduled farmers consumed fertilizers per hectare of land worth Rs.940 in Ambala and Jind districts, Rs.921 per hectare in Faridabad and Bhiwani districts and Rs.923 at the aggregate level during 1999-00. On the other hand, high subsidy group of scheduled caste farmers utilised fertiliser worth Rs.1,731, Rs.1,407 and Rs.1,517 per hectare in the corresponding districts. Thus, high subsidy class of scheduled caste farmers utilized more than double fertilizers in value terms (table 5.2).

The non-scheduled caste farmers were found relatively higher users of fertilizers in value terms except for low group. This could be due to intensive cultivation. Like scheduled caste farmers, variations in fertilizer use across low, medium and high groups are significant. The fertilizer consumption of low subsidy level non-scheduled caste farmers was Rs.778 per hectare against Rs.1,832 by high subsidy group of the same farmers at the aggregate level. After, combining the scheduled and non-scheduled caste farmers, the similar type of disparities may be noticed across subsidy levels and districts. In all situations, the gap between the fertilizer consumption among the low, medium and high subsidy classes was found substantial. Normally, increased subsidy level indicated higher consumption of fertilizers in the selected districts for scheduled caste, non-scheduled caste and entire sample of the farmers. Thus, impact of subsidy levels on fertilizer consumption was found significant in our study.

An examination of results regarding the share of fertilizers going to important crops across subsidy levels makes clear that wheat occupied the prime position irrespective of subsidy levels, social groups and districts. It may be highlighted that low,

medium and high subsidy groups at aggregate level utilized 67.15, 54.72 and 52.71 per cent of total fertilizers for wheat cultivation. Next was paddy, which indicated 27.09 per

**Table - 5.2**  
**Per Hectare Use of Fertilizer and Proportion Going to Important Crops on Sampled Farms in Selected Districts (1999-00)**

| Subsidy Level/<br>District                   | Per Hectare<br>Use in Rs. | Proportion to |       |           |        |         |
|--|---------------------------|---------------|-------|-----------|--------|---------|
|  |                           | Wheat         | Paddy | Sugarcane | Cotton | Mustard |
| <b>Scheduled Caste</b>                       |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 940.11                    | 67.49         | -     | -         | 3.90   | -       |
| Medium                                       | 1310.95                   | 56.91         | 10.06 | -         | 13.27  | 0.08    |
| High   | 1731.02                   | 42.78         | 31.53 | 7.63      | 1.42   | -       |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 921.06                    | 65.98         | 5.22  | -         | 4.60   | 0.34    |
| Medium                                       | 1244.09                   | 53.49         | 9.63  | -         | 13.79  | 1.35    |
| High   | 1407.53                   | 60.22         | 1.38  | -         | 24.26  | -       |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 923.36                    | 66.17         | 4.58  | -         | 4.04   | 0.30    |
| Medium                                       | 1271.41                   | 54.93         | 9.81  | -         | 13.57  | 0.81    |
| High   | 1517.96                   | 47.76         | 22.92 | 5.45      | 7.94   | -       |
| <b>Non-Scheduled Caste</b>                   |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 684.19                    | 73.76         | 3.86  | -         | 1.43   | -       |
| Medium                                       | 1446.09                   | 53.25         | 19.95 | 6.69      | 4.79   | 0.21    |
| High   | 2391.58                   | 40.68         | 38.99 | 13.14     | 0.64   | 0.04    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 813.27                    | 66.61         | 10.55 | 3.99      | 7.94   | -       |
| Medium                                       | 1323.77                   | 55.83         | 10.76 | 9.51      | 13.85  | 0.64    |
| High   | 1728.88                   | 51.64         | 1.03  | 3.92      | 28.61  | 2.85    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 778.96                    | 68.28         | 8.99  | 3.06      | 6.42   | -       |
| Medium                                       | 1379.02                   | 54.61         | 15.11 | 8.17      | 9.56   | 0.34    |
| High   | 1832.81                   | 44.25         | 26.63 | 8.86      | 9.74   | 0.96    |
| <b>Scheduled Caste + Non-Scheduled Caste</b> |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 762.04                    | 71.41         | 2.41  | -         | 0.89   | -       |
| Medium                                       | 1401.50                   | 54.38         | 16.90 | 4.63      | 7.41   | 0.02    |
| High   | 2197.83                   | 41.17         | 37.27 | 11.87     | 0.82   | 0.03    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 871.24                    | 66.25         | 7.52  | 1.72      | 6.04   | 0.18    |
| Medium                                       | 1294.30                   | 55.00         | 10.36 | 6.13      | 13.83  | 1.20    |
| High   | 1466.31                   | 77.61         | 5.12  | 2.10      | 27.74  | 0.01    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 850.10                    | 67.15         | 6.63  | 1.42      | 5.24   | 0.08    |
| Medium                                       | 1341.11                   | 54.72         | 13.34 | 2.90      | 10.90  | 0.09    |
| High   | 1752.51                   | 52.71         | 27.09 | 8.10      | 9.34   | 0.02    |

cent of total fertilizer consumed by high subsidy group of farmers. Sugarcane and cotton provided mixed results. Mustard utilized less than 1 per cent of total fertilizer in all cases.

### **Power Consumption:**

An examination of data on power consumption per hectare in value terms across low, medium and high groups of scheduled caste farmers indicates that they consumed power worth Rs.112.23, Rs.278.70 and Rs.287.26 at the aggregate level during 1999-00. Evidently, differentials in power consumption across the three subsidy groups were quite significant. The low subsidy group of scheduled caste farmers used around 50 per cent of power in comparison to high group. The power consumption per hectare in Ambala and Jind districts was found higher than in Faridabad and Bhiwani districts due to large number of tubewells and high demand of power resulting from a preference for wheat/paddy rotation in the crop pattern.

Like fertilizer consumption, non-scheduled caste farmers consumed higher power in comparison to scheduled caste farmers. Furthermore, wide disparities are noticed across the subsidy groups amongst the farmers. The low subsidy users consumed power worth Rs.146.95 per hectare in Ambala and Jind districts, Rs.137.76 in Faridabad and Bhiwani districts and Rs.142.78 at the aggregate level. On the contrary, high subsidy group used power worth Rs.370.29, Rs.240.97 and Rs.307.82 in the corresponding situations. It is evident that subsidy level and power consumption are positively related for non-scheduled caste farmers in Ambala and Jind districts. But, no definite pattern was observed in Faridabad and Bhiwani districts where medium group of farmers used higher power per unit of land in comparison high subsidy group.

After combining scheduled caste and non-scheduled caste farmers, the results emerged are on the similar lines. The power consumption per hectare by low group amounted to Rs.92.57 in Ambala and Jind districts, Rs.144.87 in Faridabad and Bhiwani districts and Rs.134.71 at the aggregate level. On the contrary, high group utilised power worth Rs.354.99, Rs.240.00 and Rs.302.62 in the corresponding districts. Once again, the large variations in power consumption across three subsidy groups were found significant and the positive relationship between subsidy level and power consumption was visible except for medium subsidy group in Faridabad and Bhiwani districts.

**Table- 5.3**  
**Per Hectare Use of Power and Proportion Going to Important Crops on Sampled**  
**Farms in Selected Districts (1999-00)**

| Subsidy Level/<br>District                   | Per Hectare<br>Use in Rs. | Proportion to |       |           |        |         |
|--|---------------------------|---------------|-------|-----------|--------|---------|
|  |                           | Wheat         | Paddy | Sugarcane | Cotton | Mustard |
| <b>Scheduled Caste</b>                       |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 79.35                     | 50.97         | -     | -         | 7.96   | -       |
| Medium                                       | 272.55                    | 38.15         | 10.29 | -         | 8.88   | 0.05    |
| High   | 318.05                    | 32.52         | 40.24 | 4.26      | 2.50   | -       |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 151.01                    | 52.84         | 14.05 | -         | 0.37   | 0.20    |
| Medium                                       | 282.96                    | 43.12         | 26.81 | -         | 8.96   | 3.76    |
| High   | 236.47                    | 60.79         | 3.27  | -         | 17.17  | -       |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 112.23                    | 52.63         | 12.48 | -         | 1.21   | 0.10    |
| Medium                                       | 278.70                    | 41.14         | 20.20 | -         | 8.93   | 2.28    |
| High   | 287.26                    | 41.20         | 28.89 | 2.95      | 7.01   | -       |
| <b>Non-Scheduled Caste</b>                   |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 146.95                    | 63.44         | 4.32  | -         | 3.98   | -       |
| Medium                                       | 292.88                    | 42.06         | 18.51 | 3.53      | 5.89   | 0.22    |
| High   | 370.29                    | 23.20         | 44.47 | 15.33     | 1.40   | 0.02    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 137.76                    | 52.04         | 16.78 | 3.33      | 1.24   | -       |
| Medium                                       | 282.21                    | 37.46         | 26.88 | 10.86     | 7.24   | 1.66    |
| High   | 240.97                    | 52.39         | 9.74  | 5.20      | 14.27  | 2.34    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 142.78                    | 53.56         | 15.12 | 2.89      | 1.61   | -       |
| Medium                                       | 290.64                    | 39.27         | 23.59 | 7.98      | 6.71   | 1.10    |
| High   | 307.82                    | 36.16         | 29.03 | 8.52      | 7.12   | 1.05    |
| <b>Scheduled Caste + Non-Scheduled Caste</b> |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 92.57                     | 63.44         | 4.32  | -         | 3.98   | -       |
| Medium                                       | 280.93                    | 42.06         | 18.51 | 3.53      | 5.89   | 0.22    |
| High   | 354.99                    | 23.20         | 44.43 | 15.33     | 1.40   | 0.02    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 144.87                    | 52.04         | 17.78 | 3.33      | 1.24   | 0.10    |
| Medium                                       | 282.51                    | 37.46         | 26.88 | 10.86     | 7.24   | 1.66    |
| High   | 240.00                    | 52.39         | 9.74  | 2.36      | 14.27  | 2.34    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 134.71                    | 53.56         | 15.12 | 2.89      | 1.61   | 0.05    |
| Medium                                       | 285.56                    | 39.27         | 23.59 | 7.98      | 6.71   | 1.10    |
| High   | 302.62                    | 36.16         | 29.03 | 8.52      | 7.12   | 1.05    |

Crop wise utilisation of power in value terms indicated that a substantial proportion of this input was also absorbed by wheat and paddy in Ambala and Jind districts and by wheat in Faridabad and Bhiwani districts. However, variations across different subsidy groups were evidenced. For example, in low subsidy group of first districts, major portion around 63.44 per cent went to wheat. But, in the high subsidy class, paddy, wheat and sugarcane shared the kitty. It may be noticed that share of power going to wheat, paddy and sugarcane is always higher than their proportion in GCA. As less irrigation is applied to mustard and cotton, their shares in power consumption are also lower than their share in GCA.

#### **Irrigation Use:**

Here we refer to total irrigation, which includes tubewell, canal and any other source. It may be noticed from Table 5.4 that irrigation use per hectare in terms of value for the low, subsidy group of scheduled caste category was worked out Rs.1,438 in Ambala and Jind districts, Rs.1,043 in Faridabad and Bhiwani districts and Rs.1,090 at the aggregate level of districts during 1999-00. Like consumption of fertiliser and power, high and medium subsidy groups in former districts used irrigation more. The high group used irrigation per hectare in value terms around Rs.1,733 against Rs.1,438 by low and Rs.1,480 by medium categories in these districts. But medium subsidy group utilized highest irrigation in latter group of districts. However, positive relationship emerged between the subsidy level and irrigation use at the aggregate level.

When we review utilisation of irrigation by non-scheduled caste farmers, the above findings were true for Ambala and Jind districts only. Here, high subsidy group utilised irrigation worth Rs.2,109 per hectare against Rs.840 by low and Rs.1,547 by medium groups. But, this does not hold true for Faridabad and Bhiwani where medium group was ahead of high group. Here, high group farmers used irrigation worth Rs.1,247 against Rs.1,560 by medium group. When districts were aggregated, medium and high group non-scheduled caste farmers utilised more of this input than their counterparts in low group.

After clubbing scheduled caste and non-scheduled caste farmers together, the higher use of irrigation by high and medium groups in comparison to low group was

**Table – 5.4**  
**Per Hectare Use of Irrigation and Proportion Going to Important Crops on**  
**Sampled Farms in Selected Districts (1999-00)**

| Subsidy Level/<br>District                   | Per Hectare<br>Use in Rs. | Proportion to |       |           |        |         |
|--|---------------------------|---------------|-------|-----------|--------|---------|
|  |                           | Wheat         | Paddy | Sugarcane | Cotton | Mustard |
| <b>Scheduled Caste</b>                       |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 1437.77                   | 71.00         | -     | -         | 6.85   | -       |
| Medium                                       | 1479.73                   | 53.86         | 12.71 | -         | 10.62  | 0.22    |
| High   | 1732.56                   | 40.48         | 40.25 | 1.29      | 2.61   | -       |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 1043.06                   | 57.29         | 10.06 | -         | 1.71   | 0.35    |
| Medium                                       | 1570.03                   | 48.33         | 11.97 | -         | 10.19  | 1.54    |
| High   | 1338.74                   | 60.24         | 1.90  | -         | 19.10  | -       |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 1089.96                   | 59.42         | 8.47  | -         | 2.52   | 0.30    |
| Medium                                       | 1533.10                   | 50.51         | 12.26 | -         | 10.36  | 1.02    |
| High   | 1585.47                   | 46.71         | 28.16 | 0.89      | 7.81   | -       |
| <b>Non-Scheduled Caste</b>                   |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 840.39                    | 77.49         | 4.68  | -         | 0.46   | -       |
| Medium                                       | 1547.21                   | 52.56         | 20.12 | 0.83      | 5.28   | 0.31    |
| High   | 2108.56                   | 24.44         | 35.78 | 24.89     | 1.41   | 0.03    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 919.90                    | 55.31         | 12.44 | 10.27     | 5.04   | -       |
| Medium                                       | 1560.55                   | 37.37         | 20.49 | 20.39     | 6.75   | 0.41    |
| High   | 1246.51                   | 46.53         | 2.50  | 4.20      | 24.94  | 4.15    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 897.76                    | 60.82         | 10.51 | 7.72      | 3.90   | -       |
| Medium                                       | 1554.52                   | 44.20         | 20.32 | 11.60     | 6.09   | 0.36    |
| High   | 1692.12                   | 32.30         | 23.94 | 16.03     | 9.78   | 1.50    |
| <b>Scheduled Caste + Non-Scheduled Caste</b> |                           |               |       |           |        |         |
| <b>Ambala + Jind</b>                         |                           |               |       |           |        |         |
| Low  | 1021.24                   | 74.72         | 2.68  | -         | 3.19   | -       |
| Medium                                       | 1524.95                   | 52.97         | 17.74 | 0.57      | 6.99   | 0.28    |
| High   | 1998.95                   | 28.51         | 36.91 | 18.88     | 1.71   | 0.02    |
| <b>Faridabad + Bhiwani</b>                   |                           |               |       |           |        |         |
| Low  | 986.15                    | 56.42         | 11.08 | 4.43      | 3.14   | 0.20    |
| Medium                                       | 1564.05                   | 41.44         | 17.33 | 12.82     | 8.03   | 0.83    |
| High   | 1265.81                   | 49.57         | 2.37  | 4.32      | 23.65  | 3.23    |
| <b>Ambala + Jind + Faridabad + Bhiwani</b>   |                           |               |       |           |        |         |
| Low  | 992.94                    | 60.07         | 9.41  | 3.54      | 3.15   | 0.16    |
| Medium                                       | 1546.98                   | 46.40         | 17.51 | 7.55      | 7.58   | 0.59    |
| High   | 1665.29                   | 44.55         | 27.41 | 12.35     | 9.30   | 1.13    |

noticed in Ambala and Jind districts. But, medium group used higher irrigation per hectare in Faridabad and Bhiwani districts. But, a clear positive relationship between subsidy level and irrigation use was noticed at the aggregate level.

The data on percentage of irrigation going to important crops reveal that like fertilizer and power, share of irrigation going to wheat was found the highest except for high group in Ambala and Jind districts. Here, paddy predominated wheat and around 37 per cent of irrigation was used for its cultivation. In addition 18.88 per cent of this input was devoted to sugarcane in Ambala and Jind districts. In Faridabad and Bhiwani districts, cotton replaced sugarcane. Mustard received marginal share in all situations.

### **Impact of Subsidy Levels on Gross Returns, Cost and Net Returns:**

We have worked out gross returns, cost and net returns per farm of three subsidy groups for understanding the impact of input subsidies utilisation on the income of the farmers in the selected districts (Table 5.5). It may be noticed that gross returns of low subsidy group scheduled caste farmers were Rs.42,842 in Ambala and Jind districts, Rs.26,198 in Faridabad and Bhiwani districts and Rs.39,815 at the aggregate level during 1999-00. The corresponding cost of cultivation of this group was Rs.16,322, Rs.9,650 and Rs.15,109 respectively. After deducting cost, they received Rs.26,520, Rs.16,548 and Rs.24,706 as income. On the other hand, gross returns of high subsidy group scheduled caste farmers were Rs.81,153 in Ambala and Jind districts, Rs.60,766 in Faridabad and Bhiwani districts and Rs.66,276 at the aggregate level. Their cost of cultivation in these situations was Rs.35,377, Rs.27,338 and Rs.29,511 respectively. After netting out cost, they received Rs.45,776, Rs.33,428 and Rs.36,765 as income. Evidently, gap between the net returns of low and high subsidy group scheduled caste farmers was found significant. Thus, income and subsidy levels are found positively related in this case except for medium subsidy group in Faridabad and Bhiwani districts as they earned higher income than high subsidy users.

The gross returns of non-scheduled caste farmers were substantially higher in comparison to the scheduled caste farmers in Ambala and Jind districts, Faridabad and Bhiwani districts and at the aggregate level. The cost of cultivation also moved upward in the same direction. Consequently, net returns/income of non-scheduled caste farmers was

**Table 5.5**  
**Gross Returns, Cost and Net Returns Per Farms on Sampled Farms by Subsidy**  
**Levels in Selected Districts (1999-00)**

| District/Subsidy Levels                    | Scheduled Caste |        |             | Non-Scheduled Caste |        |             | Scheduled Caste + Non-Scheduled Caste |        |             |
|--|-----------------|--------|-------------|---------------------|--------|-------------|---------------------------------------|--------|-------------|
|  | Gross Returns   | Cost   | Net Returns | Gross Returns       | Cost   | Net Returns | Gross Returns                         | Cost   | Net Returns |
| <b>Ambala + Jind</b>                       |                 |        |             |                     |        |             |                                       |        |             |
| Low  | 42,842          | 16,322 | 26,520      | 63,934              | 18,996 | 44,938      | 51,279                                | 17,391 | 33,888      |
| Medium                                     | 71,160          | 25,861 | 45,299      | 1,22,795            | 41,340 | 81,455      | 97,934                                | 33,887 | 64,047      |
| High                                       | 81,153          | 35,377 | 45,776      | 2,93,180            | 75,810 | 2,17,370    | 1,86,028                              | 61,370 | 1,24,658    |
| <b>Faridabad + Bhiwani</b>                 |                 |        |             |                     |        |             |                                       |        |             |
| Low  | 26,198          | 9,650  | 16,548      | 59,010              | 11,549 | 47,461      | 43,866                                | 10,673 | 33,193      |
| Medium                                     | 61,509          | 16,368 | 45,141      | 71,364              | 29,067 | 42,297      | 66,955                                | 23,386 | 43,569      |
| High                                       | 60,766          | 27,338 | 33,428      | 2,24,859            | 87,147 | 1,37,712    | 1,34,441                              | 54,191 | 80,250      |
| <b>Ambala + Jind + Faridabad + Bhiwani</b> |                 |        |             |                     |        |             |                                       |        |             |
| Low  | 39,815          | 15,109 | 24,706      | 62,555              | 16,911 | 45,644      | 49,617                                | 15,885 | 33,732      |
| Medium                                     | 65,691          | 20,481 | 45,210      | 91,937              | 33,976 | 57,961      | 79,823                                | 27,748 | 52,075      |
| High                                       | 66,276          | 29,511 | 36,765      | 2,49,604            | 82,045 | 1,67,559    | 1,45,927                              | 56,801 | 89,126      |

significantly higher than the scheduled caste farmers in all the three subsidy groups. But, the gap between the incomes of low and high subsidy groups was equally glaring. The low subsidy users earned Rs.44,938 in Ambala and Jind districts, Rs.47461 in Faridabad and Bhiwani districts and Rs.45,644 at the aggregate level. On the other hand, high subsidy class of the same social group earned Rs.2,17,370, Rs.1,37,712 and Rs.1,67,559 in corresponding situations. Only medium group in Faridabad and Bhiwani districts emerged as an exception to this pattern by indicating lesser income in comparison to low subsidy class due to higher cost incurred in cultivation.

For the entire sample, gross returns per farm in the low subsidy group of farmers were Rs.51,279 in Ambala and Jind districts, Rs.43,866 in Faridabad and Bhiwani districts and Rs.49,617 at the aggregate level. Their corresponding cost of cultivation was Rs.17,391, Rs.10673 and Rs.15,885 respectively. After netting out the cost, this group earned Rs.33,888, Rs.33,193 and Rs.33,732 in the above mentioned situations. But, the high group indicated significantly higher income of Rs.1,24,658, Rs.80,250 and Rs.89,126 respectively. Clearly, high subsidy group earned more than double income at the all levels.



Thus, income of the scheduled caste as well as non-scheduled caste farmers reflects upward movement with the rising subsidy levels. These results indicate positive correlation between the subsidy levels and income of the farmers.

## Chapter VI

### Summary and Conclusions.

The basic objective of this chapter is to present the main findings of the study and to draw policy implications in order to make input subsidy programmes more effective and meaningful in the state of Haryana. The study is a departure from earlier literature in terms of its focus on distributive aspects of input subsidies across scheduled caste vis-à-vis non-scheduled caste farmers. The broad objectives of the study are to examine the utilisation pattern of input subsidies by different categories of farm households, to assess the share of scheduled caste farmers in total utilisation and to gauge the overall impact of differential levels of subsidy utilisation on farm economy of the households.

The study is based on both macro and micro level data. For the state and district level analysis, relevant information was obtained from the secondary sources. The micro level data were collected by conducting a survey of the selected farm households. The sample is spread over four agro-climatic zones of Haryana. One district from each zone was selected on the basis of percentage of scheduled caste cultivators to total cultivators. The districts of Ambala, Jind, Faridabad and Bhiwani fall in this criterion. Further, representative blocks and villages were chosen from these districts. Twenty-five households of scheduled caste and twenty-five households of non-scheduled caste farmers were selected from each district for in-depth study. In all, information from 200 farm households on relevant aspects was obtained by filling a schedule during the year 2000. The reference year for the study is 1999-00. The direct subsidies examined are crop specific, machinery specific, bio-fertilisers and other input subsidies in cash and kind and the indirect subsidies analysed are fertiliser, power and irrigation.

#### **(i) Socio-economic Features of the Selected Districts and Farm Households:**

At the outset, we have examined the basic features of the state and the selected districts. Only those indicators, which influence performance of agriculture, are covered. These include rainfall, occupational structure, farm size distribution, status of irrigation, cropping pattern, cropping intensity, productivity of important crops, input use and infrastructural facilities which comprised of electricity, education and roads. Ambala

followed by Jind emerged as relatively more developed districts. But, Faridabad and Bhiwani lagged behind the state and the developed districts.

Agriculture continues to remain the primary source of employment in Haryana. But, the position varies significantly in the selected districts. Faridabad, and Ambala being industrial towns have shown lower degree of dependence on this sector. Among the environmental factors, the intensity of rainfall was analysed and it was observed that Ambala gets more rainfall than rest of the surveyed districts. But, seasonal distribution of rainfall was found uneven in each district. Ambala and Jind get more than the average rainfall of the state while Faridabad and Bhiwani get below the state average.

The distribution of land among different categories of farmers is important in decision making about the use of resources. The average size of holding was 2.13 hectares in Haryana. Ambala and Jind districts had 1.67 hectares and 2.30 hectares as the average size of holding while the same was 1.44 and 2.89 hectares in Faridabad and Bhiwani districts. It was above the state in Jind and Bhiwani while reverse was true in Ambala and Faridabad districts. It could be due to industrial development of these districts. The pattern of land distribution was significantly different across the districts. Consequently, proportion of small, marginal and big farms varied in numbers and area operated in each district. However, marginal and small farmers emerged as the most important group in numbers and big farms though small in proportion, accounted for the largest share of land.

The crop pattern of selected districts was not uniform. In Ambala and Jind, wheat followed by paddy are the most important crops. Likewise, wheat is the main crop in Faridabad and Bhiwani but bajra, gram, paddy, cotton and mustard covered considerable proportion of cultivated land in these districts. Significant variations were noticed in productivity of important crops across districts. Ambala was ahead of the state and three other districts in yield rates of rice. Jind ranked first in productivity of bajra and wheat. It is essential to mention that Ambala was much ahead of other districts in respect of area under HYV seeds, fertilizer consumption and use of tractors and harvest combines.

The availability of infrastructure played an important role in the growth of agriculture. Ambala is leading other districts in metalled roads and regulated markets per lakh hectares of net sown area. The high literacy rate in rural areas of Ambala also helped

in agricultural development through the adoption of improved technology for different crops. It seems development of infrastructure and natural resource base in Ambala has contributed to the growth of agriculture. As a result, gross value of agriculture output per hectare at current prices was also highest in Ambala.

After presenting the summary of results about the important socio-economic indicators of the surveyed districts, we focus on major characteristics of sampled farmers. According to survey, proportion of working population was large in scheduled caste category of farm households in the selected districts. Most of the scheduled caste workers were dependent on agriculture for employment. But, their holdings were of very small size. The average size of operational holdings of these farmers was 1.64 hectares against 3.52 hectares for the non-scheduled caste farmers. Most of them acquired land through land reform measures. The land obtained through inheritance was found negligible in their case. The practice of leasing in land was common but they rarely leased out land. Fortunately, irrigation status of the holdings of scheduled caste as well as other farmers was found satisfactory. Some of them had access to canal water while others had to make do with tubewell water. The educational status of scheduled caste heads of households was found poor, as 54.96 per cent of them were illiterate. The proportion of full time female workers among scheduled caste farmers was higher in comparison to non-scheduled caste farmers.

The crop pattern followed by scheduled caste and non-scheduled caste farmers did not show wide variations. Wheat and paddy were the major crops grown by both the social groups in Ambala and Jind. The crop pattern of farmers in Faridabad and Bhiwani was found more diversified as they grew larger variety of crops along with the main crop of wheat. The study revealed that wheat was the main food crop cultivated by surveyed farmers irrespective of caste. The commercial crops raised by the farmers were sugarcane, cotton and mustard. The use of HYV seeds for wheat and paddy was equally common among farmers.

The value of farm assets possessed by scheduled caste farmers was less compared to non-scheduled caste households. It is indicative of the fact that scheduled caste farmers are economically weaker than the other farmers.

**(ii) An Overview of Agricultural Subsidies in Haryana:**

We have observed that agricultural subsidies absorb large financial resources in Haryana because they increased at the compound growth rate of more than 10 per cent per annum during the past two decades. Fertilizer subsidy increased at an increasing rate of 25.76 per cent per annum between 1980-81 and 1999-00. The power and irrigation subsidies also increased from Rs.122.57 crores and Rs.8.04 crores in 1980-81 to Rs.1913.02 crores and Rs.56.75 crores in 1999-00.

An examination of percentage shares of direct and indirect (fertilizer, power and irrigation) subsidies during 1999-00 revealed that direct subsidies though crucial for poor received little attention and had only a marginal share in total agricultural subsidies. The power subsidy formed a substantial part. It seems that it is the pricing policies on fertilizer, irrigation and power, which lead to the present situation. However, total withdrawal of input subsidies does not seem an appropriate policy measure on two counts. First, this would reduce the use of these inputs in turn depressing the growth of yield in the state. Second, it may deprive the small and marginal farmers of using these inputs on account of price factor. Particularly, this is important in present era of liberalisation when output prices are declining and farmers' incomes are dwindling due to large supply of commodities. In addition, influx of cheap imports due to reduced tariffs has aggravated the problem.

The key to reducing the magnitude of input subsidies is through rationalising or making them target oriented. Some economists opine that differential rates of user charges may solve the problem to great extent. The poor farmers (marginal + small) may pay lower charges while user charges for bulk consumers may be increased to a reasonable level. We have observed that the current recovery rates of power and irrigation are extremely low. The low recovery rate results in wastage of scarce resources like water and power. Therefore, rationalising input subsidies is critical for the progress of the state and for the welfare of its people.

**(iii) Utilisation of Agricultural Subsidies:**

The main findings regarding the utilisation of input subsidies by farmers may be summarized as (i) the utilisation of direct subsidies in value terms was found low

by farmers irrespective of social group. This also holds true for resource poor scheduled caste farmers. However, they availed higher direct subsidies per farm and per hectare in comparison to non-scheduled caste farmers due to implementation of specific subsidy schemes for them (ii) farmers utilise fertilizer, irrigation and power subsidies irrespective of caste. However, non-scheduled caste farmers utilise higher subsidies per farm and per hectare in comparison to scheduled caste farmers (iii) variations in utilisation of input subsidies across farm sizes are found substantial. In absolute terms, marginal and small farmers availed lower subsidies due to their small size of holdings. On the contrary, medium and large land owning classes utilised larger chunk of the subsidies. Even the per hectare utilisation of input subsidies in higher categories was significantly higher. It was Rs.2502 in case of large farmers against Rs.1988 in case of marginal farmers (iv) direct subsidies were only 0.89 per cent of total input subsidies in Ambala and Jind districts, 1.38 per cent in Faridabad and Bhiwani districts and 1.13 per cent at the aggregate level. The shares of scheduled caste farmers were much above the non-scheduled caste farmers. Most of the scheduled caste farmers received nominal cash or kind production subsidies for growing wheat, moong and gram under demonstrations and trials. A few farmers availed cash subsidies for buying pesticides for the cultivation of cotton. Only two farmers received subsidy for buying farm equipment. The farmers reported during the survey that there are not adequate direct subsidies to address the two major risks faced by the farming community the yield risk and the price risk. This affects demand for direct subsidies. (v) The share of scheduled caste farmers in total value of input subsidies was 29.21 per cent. Rest of the 70.79 per cent was utilised by other farmers. (vi) The experiences of the farmers across districts and farm sizes were different. They reported that their access to direct subsidies was limited. Around 26.00 per cent of the farmers received direct subsidies. Of them, 15.50 per cent were scheduled caste farmers. (vii) Fertilizer and power subsidies were availed by all the sampled farmers but irrigation subsidy was utilised by those who have access to canal water. The findings of the survey suggest that farmers faced great difficulty in access to canal water. Some of the sampled farmers reported that they did not get canal water even once during the crop season. Some of them were tail end users and hence, many times they were deprived of getting canal water. If there is assured supply of water, they were ready to pay little more. (viii)



Like irrigation, farmers reported during the survey that they did not get assured supply of power. They got electricity for some hours and often at night. The fluctuating voltage burnt up their motors and what they save in electricity, they spend on repairing of the motors. If power were available round the clock, farmers would be able to sell surplus water to their neighbours after fulfilling their own demand. This may help in augmenting their income (ix) the gap between projected subsidies at the state level and actual use by farmers was the highest in case of power followed by fertilizer. Canal subsidy was above the state in these districts because three out of four selected districts have access to canal water. (x) the results regarding gross returns, cost and net returns per hectare and per farm with and without subsidies were indicative of positive impact of subsidies on the net returns/income of the farmers. The withdrawal of input subsidies would affect the income of the scheduled caste as well as non-scheduled caste farmers adversely. The benefits of input subsidies on sampled farmers accrued disproportionately to affluent farmers with large-size of holdings but small and marginal poor farmers also had been benefited by raising their meagre income from cultivation. (xi) the major problems faced by farmers in access to subsidies were high prices and low purchasing power. The small and marginal farmers were found greater suffers in comparison to other categories. Across the social groups, scheduled caste farmers emerged as a disadvantaged group.

**(iv) Consumption of Important items bought from PDS:**

Since, farmers not only utilise production subsidies in agriculture, they also utilise food subsidies as consumers, we have covered consumption of four important items (wheat, rice, sugar and kerosene oil) bought from village PDS shops.

Farm households in Haryana do not buy rice and wheat from PDS shops due to availability in the open market at the competitive prices. They mostly buy sugar and kerosene oil due to limited availability in the open market and high price gap. However, average amount per month spent by scheduled caste farmers was Rs.3.48 on sugar and Rs.10.95 on kerosene oil. The other farmers also spent almost same amount. These results are indicative of insignificant food subsidies availed by scheduled caste as well as general farmers in rural Haryana

**(v) Impact of Subsidy levels on the Farm Economy:**

In order to examine the effects of input subsidies on agriculture, sample farmers were divided into three groups as low, medium and high on the basis of per hectare utilisation of input subsidies. The study reveals that wheat was the preferred crop by all the groups. In addition, high subsidy users devoted a significant proportion of gross cropped area to water intensive, fertilizer-consuming crops like paddy and sugarcane in Ambala and Jind districts and to commercial crops like cotton and mustard in Faridabad and Bhiwani districts. It appeared that level of input subsidies have a significant impact on the crop pattern as higher subsidies were found to induce the farmers to cultivate irrigated and high fertilizer consuming crops using HYV seeds.

The consumption of fertilizer, power and irrigation was found positively related to subsidy levels. The low group used lesser of these inputs irrespective of caste and districts. The reverse was true for high subsidy group. The major proportion of inputs was used for growing of wheat, paddy and sugarcane in Ambala and Jind on scheduled caste as well as on other farms. But, in Faridabad and Bhiwani, wheat was the main user of these inputs.

Like consumption of inputs, net returns were also found positively related to subsidy levels. The low subsidy users received Rs.33, 888 as net returns per farm against Rs.1, 24, 658 by high subsidy users in Ambala and Jind districts. Similarly, this category reaped Rs.33, 193 per farm in Faridabad and Bhiwani districts against Rs.80, 250 by the latter group. But, non-scheduled caste farmers earned more than scheduled caste farmers in all situations. Thus, subsidy levels affected income of the farmers from crop cultivation.

**Policy Implications:**

The role of input subsidies through cost reduction in the farm economy of Haryana is crucial. These help small and marginal farmers in raising their meagre income from cultivation. These are all the more essential in the present circumstances of dwindling farm incomes due to declining output prices and rising input prices. However, keeping this background in mind and fiscal health of the state government under



consideration, reforms in input subsidies regime are an urgent need to make them effective and meaningful. We offer following policy prescriptions in this regard.

- (i) The share of direct subsidies, which are targeted and crucial for the poor farmers, in total input subsidies at macro and micro levels, was found marginal. Therefore, expenditure on these should be increased with proper identification of beneficiaries among small, marginal, scheduled caste and other farmers. In addition, introducing a monitoring mechanism with proper management system appears an urgent need.
- (ii) Utilization of direct subsidies was found to be low by farmers. It could be due to lack of awareness. Therefore, information regarding available subsidy programmes must be disseminated well in time through media/gram sabha. In addition, the state government for the smooth flow of direct subsidies should remove procedural bottlenecks.
- (iii) The farmers reported that seeds and other inputs supplied under the subsidy programmes are of sub-standard quality. It is therefore, suggested that government should introduce strict quality control measures.
- (iv) Indirect subsidies are utilised by all farmers irrespective of farm size and social group in Haryana. Given the low income of small/marginal/scheduled caste farmers these should be provided to them with proper targeting.
- (v) In case of irrigation and power, the state government does not recover even the maintenance cost. The suggestions like reasonable increase in tariffs for the bulk users may be reviewed seriously. But their quality should be improved.

The impact of withdrawal of input subsidies on returns at micro level for various categories of farmers was found adverse. The benefits of these accrued disproportionately to affluent farmers but these helped lower rung farmers positively by reducing their cost of cultivation and maintaining their incomes. It is, therefore, recommended that input subsidies should be given to small/marginal/scheduled caste farmers/which will help them as well as encourage the poor to utilise the required quantity of inputs at lower costs resulting in higher income from crop production. To conclude, subsidies in agriculture in Haryana should not be withdrawn suddenly, rather these should be selective and target oriented. This needs evolving an integrated reform strategy for input subsidies in Haryana.

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