



Major constraints and utilization pattern of groundnut under rainfed conditions in Punjab

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ABSTRACT

The groundnut cultivation has almost disappeared from the irrigated areas of the Punjab state over the years and is now largely confined to sub mountainous region adjoining Himachal Pradesh. The groundnut is mostly grown as rainfed crop by majority of the farmers in the *Kandi area* of Punjab. The present study was undertaken to identify various abiotic constraints confronted by groundnut growers and to analyze the production and utilization pattern of the produce. Drought, lack of quality seeds, poor irrigation facilities, price variability, storage losses due to rodent attack and shortage of labour were the major abiotic constraints. Incidences of diseases and insect-pests attack were the major problems. The marketed surplus was 88.85, per cent. out of which 84.8 per cent was sold immediately after digging in the local market at the price of Rs. 15.28 per kg and 3.68 per cent was sold in future at the price of Rs. 17.61 per kg. There is an urgent need to develop necessary infrastructure for storage so that farmers can sell their produce in future at remunerative prices. Quality seed should be made available along with development of irrigation facilities. In order to stop distress sale and price variability government agencies should come forward to ensure good returns to the growers. The researchers should develop high yielding varieties resistant to drought, diseases and insect pests.

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INTRODUCTION

Punjab is known as the food basket of the country because of presence of considerable area under paddy-wheat crop rotation which owes to the availability of assured irrigation facilities and good marketing infrastructure in the state. In pre-Green Revolution era, there was considerable area under oilseeds and pulses in the state. The area under these crops declined over time due to better productivity and assured marketing/ price support for rice and wheat crops. Farming in Punjab had reached at a critical juncture due to the monoculture practices of paddy-wheat cropping system resulting in various ecological, hydrological, environmental problems and micronutrient soil deficiencies. But still there are some areas in Punjab which are lacking in assured irrigation facilities due to its topography. This area falls in Gurdaspur, Hoshiarpur, Shaheed Bhagat Singh Nagar and Ropar districts of Punjab locally known as *Kandi Belt* of Punjab where large area is rainfed and *Kharif* season maize, groundnut, pulses and

fodder crops are grown.

Owing to various biotic and abiotic constraints, the groundnut cultivation has almost disappeared from the cropping scene of the state over the years. The area under groundnut that was as large as 222 thousands hectares in the beginning year of green revolution *i.e.* 1967-68, reduced to only 83 thousand hectares in 1980-81. It faced another drastic decline to merely 11 thousand hectares in 1990-91 and during the last about one and a half decade; the groundnut cultivation has touched its flooring level of 3.2 thousand hectares in 2007-08 (Anonymous, 2008).

Oilseeds are generally grown as rainfed crops and the proportion of irrigated area under these crops is very low. Main constraints in oilseed production were lack of high yielding varieties for dry land conditions, risk of crop failure due to erratic rainfall, lack of institutional credit facilities, less remunerative prices and lack of institutional mechanism for integrating production, processing and marketing of oilseeds. These constraints were

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identified as responsible for stagnation of oilseeds economy (Mundinamani *et al.*, 1993).

In view of this, the present study was planned to identify various abiotic constraints confronted by groundnut growers preferably in rainfed conditions with possible solution to these constraints. An attempt has also been made to peep into the production and utilization pattern along with marketed surplus of the groundnut produced on the farms.

METHODOLOGY

To identify the major abiotic constraints confronted by groundnut growers in rainfed conditions in Punjab, field survey was conducted. Multistage random sampling technique was used to select the ultimate respondents for data collection. In the first stage, district Hoshiarpur with maximum concentration of area under groundnut crop was selected. Secondly, from the selected district, one block namely, Mahilpur with having maximum area under rainfed groundnut crop was selected. Thirdly, a cluster of six villages was selected from this block and finally 50 groundnut growers were selected randomly. From the selected respondents the information pertaining to input availability, marketing and environmental constraints faced by groundnut growers in rainfed conditions was collected on a specially designed schedule. Simple tabular analysis was undertaken to arrive at the results.

RESULTS AND DISCUSSION

The findings of the study have been discussed in detail as under:

Land holding status of the sample groundnut growers:

The average farm size of the sample groundnut growers was found out to be 4.90 hectares. The share of owned land came out to be 4.19 hectares which was 85.51

Table 1: Land holding details of sample farmers

Particulars	Area (Hectares/ farm)	Per cent
Land owned	4.19	85.51
Land leased-in	0.76	15.51
Land leased-out	0.05	1.02
Average farm size	4.90	100

per cent in relative terms while the share of leased in land was only 0.76 hectare which worked out to be 15.51 per cent of the average farm size (Table 1).

The constraints faced by farmers in rainfed conditions have been discussed under various heads:

Abiotic constraints:

Abiotic constraints in groundnut cultivation in rainfed conditions were related to input availability, marketing and environmental impact.

Input constraints:

The input constraints faced by farmers are shown in Table 2. Although groundnut is grown in sub-mountainous area in Punjab which is largely rainfed yet there were 20 per cent affluent farmers in the sample who were having their own irrigation facilities and they applied irrigation to groundnut crop in case of irrigation stress. Most of the area under groundnut cultivation was rainfed on the sample farms. Hence, the lack of irrigation was the major abiotic constraint followed by shortage of labor and availability of quality seeds. Regarding irrigation, 30, 22 and 12 per cent farmers faced moderate, severe and very severe problem, respectively. Similarly, regarding availability of quality seeds, 24 and 10 per cent farmers faced moderate and severe problem, respectively. Problem of shortage of labour at peak periods such as digging and cleaning the produce was severe to 16 per cent and moderate to 18 per cent of farmers. The availability of

Table 2: Input availability constraints in groundnut production (Number of farmers)

Input	No occurrence	Occurrence, but no loss	Slight problem	Moderate problem	Severe problem	Very severe problem
Irrigation	10 (20.00)	4 (8.00)	4 (8.00)	15 (30.00)	11 (22.00)	6 (12.00)
Labour shortage	10 (20.00)	13 (26.00)	9 (18.00)	10 (20.00)	8 (16.00)	-
Quality seeds	12 (24.00)	13 (26.00)	8 (16.00)	12 (24.00)	5 (10.00)	-
Fertilizers availability	36 (72.00)	6 (12.00)	5 (10.00)	3 (6.00)	-	-
Insecticides/ pesticides	32 (64.00)	8 (16.00)	7 (14.00)	3 (6.00)	-	-
Machinery	22 (44.00)	8 (16.00)	13 (26.00)	7 (14.00)	-	-
Credit	26 (52.00)	6 (12.00)	5 (10.00)	13 (26.00)	-	-

Figures in parentheses indicate per cent of farmers

Particulars	No occurrence	Occurrence, but no loss	Slight problem	Moderate problem	Severe problem	Very severe problem
Lack of price information	10 (20.00)	5 (10.00)	12 (24.00)	17 (34.00)	6 (12.00)	-
Price variability	4 (8.00)	6 (12.00)	15 (30.00)	14 (28.00)	8 (16.00)	3 (6.00)
Storage losses	36 (72.00)	8 (16.00)	-	6 (12.00)	-	-
High labor needs	6 (12.00)	7 (14.00)	20 (40.00)	12 (24.00)	5 (10.00)	-
Transport	33 (66.00)	5 (10.00)	10 (20.00)	2 (4.00)	-	-
Low market demand	22 (44.00)	10 (20.00)	8 (16.00)	10 (20.00)	-	-

Figures in parentheses indicate per cent of farmers

Particulars	No occurrence	Occurrence, but no loss	Slight problem	Moderate problem	Severe problem	Very severe problem
Drought	2 (4.00)	8 (16.00)	12 (24.00)	16 (32.00)	10 (20.00)	2 (4.00)
Untimely Rain	39 (78.00)	6 (12.00)	5 (10.00)	-	-	-
High temperature	10 (20.00)	8 (16.00)	16 (32.00)	14 (28.00)	2 (4.00)	-

Figures in parentheses indicate per cent of farmers

fertilizers, insecticide/pesticide, machinery and credit was not a serious problem on the sample farms. However 26 and 14 per cent farmers were found to be facing moderate problem in the case of availability of credit and machinery, respectively (Table 2).

Marketing constraints:

Marketing is a major component after production process. So, sample farmers were asked to give their opinion about the various marketing related constraints confronted during groundnut disposal in the market. Price variability, lack of price information and high labour needs as shown in Table 3 were the major marketing constraints highlighted by the groundnut growers. Price variability was reported by 28 per cent farmers as moderate, 16 per cent as severe and 6 per cent as very severe. Lack of price information was reported by 34 and 12 per cent farmers as moderate and severe problem, respectively. High labour needs were highlighted as moderate to severe problem by 34 per cent farmers. Low market demand, storage losses and transport to the market were reported by 20, 12 and 4 per cent farmers, respectively as moderate problems. Thus, price variability, lack of price information and high labour needs for cleaning and sorting were found to be major marketing related constraints on the sample farms (Table 3).

Environmental constraints:

Environmental constraints such as drought, untimely rain and high temperature intensity in groundnut production on sample farms are depicted in Table 4.

The intensity of drought and high temperature varied

from, moderate to severe. Drought was the major environmental constraint which was reported by 32 per cent farmers as moderate, 20 per cent farmers as severe and 4 per cent farmers as very severe. High temperature during initial stages of plant growth which results in the burning of plants was reported by 28 per cent farmers as moderate and 4 per cent as severe. It reflects that drought and high temperature were the major environmental constraints which resulted in 3.56 and 1.60 per cent reduction in groundnut yield, respectively on sample farms (Table 5). However, rain was not perceived as constraint due to run off of excessive rain due to sub-mountainous topography of the studied area.

Table 5: Effect of environmental constraints on groundnut yield

Constraint	Per cent yield loss
Drought	3.56
Untimely rain	0.50
High temperature	1.60

Problems and their solutions: Farmers' point of view

It was felt necessary to study the main problems faced in groundnut cultivation and to know the farmers viewpoint on possible solution since farmers are the pioneer judges of the latest technology developed. The various options were offered to respondents such as diseases, insect/pests attack, weeds, environmental problems, non-availability of inputs and marketing problem. From the farmers point of view, the incidence of disease was identified as most severe problem which was reported by 62 per cent of farmers followed by insect pests attack

Table 6: Major problems faced in groundnut production on the sample farms

Rank	Problems	Per cent sample farmers
I	Diseases incidence	62.00
II	Insect/ pest incidence	58.00
III	Environmental problems	26.00

(58 per cent) and environmental problem (26%) such as drought and untimely rain (Table 6).

Desired farm practices to increase yield:

The various options offered to respondents were increase in seed rate/plants, timely sowing, high yielding varieties, use of more fertilizer, use of more chemicals, timely weeding, providing irrigation at right time and use of proper plant protection measures (Table 7). Timely sowing, timely weed control and availability of high yielding varieties were the most desired practices to increase the groundnut yield as reported by 74, 60 and 50 per cent groundnut growers, respectively.

Table 7: Major practices required to increase the yield of groundnut on the sample farms

Rank	Practice	Per cent sample farmers
I	Timely sowing	74.00
II	Timely weed control	64.00
III	Availability of high yielding varieties	50.00

Desired research areas to increase the yield of groundnut:

The major desired areas of research from scientists to increase the yield of groundnut as perceived by sample farmers from various options *viz.*, development of disease resistant varieties, insect/pest resistant varieties, increased number of pods per plant, fertilizer responsive varieties and development of short duration varieties. The results presented in Table 8 revealed that 66 per cent farmers wanted the development of disease resistant varieties, followed by insect/pest resistant varieties (60%). As many as 52 per cent farmers responded to have varieties with

Table 8: Desired research area to increase the yield of groundnut on the sample farms

Rank	Research area	Per cent farmers
I	Disease resistant variety	66.00
II	Insect/ pest resistant variety	60.00
III	Increase number of pods per plant	52.00

increased number of pods per plant so that groundnut yield can be improved in rainfed conditions.

Production and utilization pattern of groundnut produce:

The analysis of production and utilization pattern of groundnut depicted that 88.85 per cent of the produce was sold and 11.15 per cent of the produce was consumed/ utilized by the farmers. The results further revealed that 84.80 per cent of the produce was sold immediately after digging and 10.65 per cent was kept for seed (Table 9). The reason behind quantity sold immediately after digging was severe rodent attack if stored for longer periods for its sale in future. Some farmers with some storage facilities kept 3.68 per cent the produce for sale in future at higher prices even though the total production per farm was not high. The quantity sold as seed was a meagre

Table 9: Disposal and utilization pattern of groundnut produce on an average sample farm

Particulars	Groundnut utilization/ disposal pattern	
	Kgs/ farm	Per cent
Total production	1630.4	100.00
Disposal pattern		
Quantity sold after harvesting	1382.5	84.80
Quantity kept for future sale	60.0	3.68
Quantity sold as seeds	6.1	0.37
Total quantity sold	1448.6	88.85
Utilization pattern		
Household consumption	4.8	0.30
Quantity kept for seed	173.6	10.65
Gift and donation	3.4	0.20
Total quantity consumed/utilized at home	181.8	11.15

(0.37 per cent). Some of the quantity was also kept for home consumption and for gift and donation purpose which was observed as 0.30 and 0.20 per cent, respectively.

The important sales places of groundnut were local market and at own farm while important buyer was private trader and direct to consumer. The average price received was Rs. 15.28 per kg for the produce sold immediately after sale. The farmers who sold their produce in future received Rs. 17.61 per kg while the produce sold as seed to other farmers fetched a price of Rs. 25 per kg (Table 10).

The quantity sold in future received 8.7 per cent more price than quantity sold immediately after harvesting while

Table 10: Marketing pattern of groundnut in Punjab

Method of Sale	Place of sale	Qty sold (kg/farm)	Price received (Rs./kg)	Total amount received (Rs./farm)	Per cent increase in price*
Sold immediate after digging	Local market and at own farm	1382.5	15.28	21124	-
Sold in future	Local market and at own farm	60.0	17.61	1056.6	8.70 %
Sold as seed	At own farm	6.1	25.00	152.5	63.36 %

* Per cent increase in price w.r.t. quantity sold immediately after digging

this increase was huge (63.36 per cent) when sold as seed (Table 10). However, it is pertinent to mention here that volume of the quantity kept for future sale and sold as seed was just 3.68 per cent and 0.37 per cent, respectively on the sample farms.

Conclusion:

Drought was the major environmental constraint resulting in 3.56 per cent yield loss on sample farms. Problem of irrigation and shortage of labour were major input constraints while lack of price information and price variability were the major marketing constraints. About 62 and 58 per cent farmers reported diseases and insect/pests as main problems in groundnut cultivation, respectively. The analysis of production and utilization pattern of groundnut produced revealed that marketed surplus was 88.48 per cent of the total produce out of which 84.8 per cent was sold immediately after digging and cleaning in the local market and 3.68 per cent was kept for future sale. Major buyer was private trader while some part of produce was sold directly to the consumer. The quantity sold in future received 8.7 per cent increase in price than quantity sold immediately after harvesting. The study concluded that there is urgent need to develop

necessary infrastructure for storage which will help groundnut growers to get remunerative price for their produce resulting in increase in their income. Quality seed should be made available to the growers along with development of irrigation facilities. In order to stop distress sale and price variability government agencies should come forward to ensure good returns to the growers.

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REFERENCES

- Anonymous (2008)**. Government of Punjab, *Statistical Abstract of Punjab*. Economic and Statistical Organisation, Punjab, Chandigarh (Various Issues).
- Mundinamani, S.M.**, Sastry, K.N.R. and Mahajanashetti, S.B. (1993). Oilseeds in the Indian economy. *Yojana*, **37**: 24-25.

