



# **Current Status of farmers in Kharar, Punjab: An Economic Approach**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

An important segment of the population relies on agriculture for their living, and it has long been a key contributor to the GDP of India. Because it is one of the country's largest private industries and is connected to a variety of production and market sectors, agriculture holds the most significant place in the Indian economy (Sengupta, n.d.). The projections from the Ministry of Statistics & Programme Implementation (MoSPI) indicate that the GVA of agricultural and related sectors was 20.1% in 2020–21, 19% in 2021–22, and again 18.3% in 2022–23 (Singh, 2023). India is a big producer of crops like rice and wheat due to its diversified agro-climatic conditions and fertile soil. In addition to helping to ensure the nation's food security, agriculture is essential for the employment market. While growing a crop, farmers strive for the best possible outcome. This paper deals with the economic aspect of the farmers that is his return on investment. A survey was conducted in five villages viz Shakrullapur, Rora, Batta, Bibipur and Theri; where 125 farmers information was gathered regarding their land holdings, cost of cultivation and yield to determine the profit earn by them in a season. The total input cost is calculated on the basis of total amount of

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money invest per hectare by the farmers. In average a farmer spends around Rs. 38,000 per hectare as total input cost and in return they get around Rs. 4,17,800 per hectare which makes them a profit of Rs. 3,79,800. This price includes the cultivation of rice as well as wheat crop.

*Keywords: Economics; agriculture; farmers; crops; profit.*

## 1. INTRODUCTION

India is regarded as a global agricultural powerhouse, and agriculture is important to the country's economy [1]. Agriculture is the most important aspect and is the biggest contributor in the Indian economy. Agriculture is a crucial component of the Indian economy, contributing 20.19 percent of GDP [2]. States like Punjab, Haryana and Uttar Pradesh are known as the "Agricultural Hub of India". Agriculture, which employs half of all workers worldwide, is the primary source of employment in rural India [3]. Indians rely on agriculture for almost 58% of their income, and their population is still growing rapidly [4]. India's economy receives \$400 billion from agriculture, which ranks second behind China [3]. The most significant cereal crop in the world is wheat (*Triticum aestivum* L.), which is a staple diet for around one-third of the world's population [5]. Around 35% of the nation's total food production—98.38 million tonnes—and 21% of all cultivated land—30.597 million hectares—come from it (2016–17) [6]. Rice (*Oryza sativa*), a staple crop, is crucial to India's food security and economic development [7]. It supplies more than one-fourth of all calories consumed and is grown on more than one-fifth of all gross cropped land [8]. This paper deals with these two major crops- wheat and rice. The survey was conducted on 125 famers from five villages in Kharar, Punjab. These farmers mostly grow these major crops.

The main objective of this paper is to learn the current status of farmers from Kharar, Punjab. To get knowledge about the land holdings, total

input cost, total yield produced and the profits earned.

## 2. MATERIALS AND METHODS

This study was conducted in five villages viz. Shakrullapur, Rora, Batta, Bibipur and Fatehpur theri (also known as theri) which are located in Kharar Block, Mohali district (Punjab). This paper focuses on the two major crops grown in these villages- wheat and rice.

In total 125 farmers were selected randomly from these villages for interview. The total number of respondents for each village is mentioned in Table 1. A detailed interaction was conducted with the farmers where they were asked about the land holdings, cost of seeds/fertilizers/machineries, wages given to labours and the total yield produced by them. This helped to analyse the current status of the farmers and the profits earned by them.

### 2.1 Analytical Tools Used

Total input cost = wages (if present) +cost of seed+ mechanical cost+ cost of fertilizers+ miscellaneous cost

Gross Return= Total production of crop+ Average price received by the producer for the crop

Cost A: Material cost + bullock/ tractor charges + interest on working capital.

Cost B: Cost A + interest on fixed capital + rental value of owned land.

Cost C: Cost B + imputed value of family labour.

Cost D: Cost C + 10 per cent of Cost C.

**Table 1. Name of the villages and the total number of Respondents from each village**

Name of the Village	Number of Respondents
Shakrullapur	26
Rora	27
Batta	27
Bibipur	26
Theri	19

### 3. RESULTS AND DISCUSSION

Rice and wheat play an important role for feeding the mass population in India and also is stated as the staple food of India. These crops are considered to be the leading food crops in the world and are important source of carbohydrates.

In this section we will discuss about the cost that is required cultivate these crops and also estimate the profitability of them for small to medium range farmers

#### 3.1 Area under Wheat and Rice Cultivation

The 125 farmers that were interviewed in this survey, almost all of them cultivate wheat and rice. In order to estimate their production its important to know about the area they cultivate the crops solely.

**Area under wheat cultivation:** The data from the interview of 125 farmers shows that (Table 2): around 38% farmers cultivate wheat in land less than 1 hectares, 39% grow wheat in land between 1-2 hectares, 18% grow wheat in land between 2-10 hectares while 4% farmers grow wheat in land more than 10 hectares.

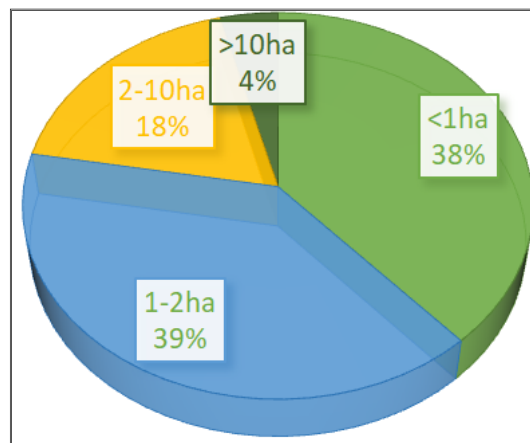
Most popular variety of wheat grown were PBW 725 and PBW 760.

**Area under rice cultivation:** According to Table 3: Around 47% farmers cultivate rice in land less than 1 hectares, 35% grow rice in land between 1-2 hectares, 14% grow rice in land between 2-10 hectares while 3% farmers grow rice in land more than 10 hectares.

Most popular variety of rice grown were PR130, PR131, PR127 and PR126.

**Table 2. Area under Wheat cultivation**

Area (ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1ha	14(54%)	9(33%)	7(26%)	9(34%)	9(53%)	48(38%)
1-2ha	9(34%)	11(41%)	14(52%)	9(34%)	6(26%)	49(39%)
2-10ha	2(8%)	5(19%)	5(18%)	7(27%)	4(21%)	23(18%)
>10ha	1(4%)	2(7%)	1(4%)	1(4%)	0(0%)	5(4%)



**Fig. 1. Area under wheat cultivation**

**Table 3. Area under Rice cultivation**

Area (ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1ha	15(58%)	9(33%)	11(41%)	12(46%)	12(63%)	59(47%)
1-2ha	8(31%)	14(52%)	9(33%)	8(31%)	5(26%)	44(35%)
2-10ha	2(8%)	3(11%)	6(22%)	5(19%)	2(11%)	18(14%)
>10ha	1(4%)	1(4%)	1(4%)	1(4%)	0(0%)	4(3%)

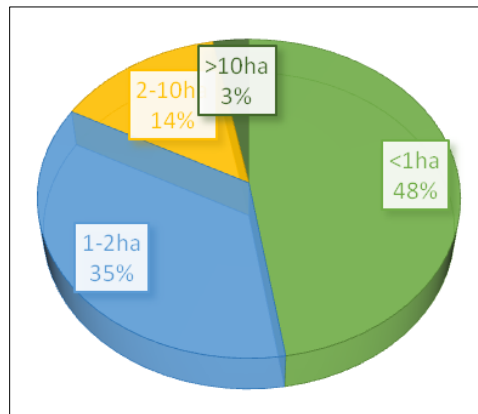


Fig. 2. Area under rice cultivation

### 3.2 Total Input Cost

The total input cost includes the cash cost, variable cost and cash cost. This is also called the cost of production. Variable cost included the cost of human labour, mechanical power, seed, manure, fertilizers, insecticides, irrigation, and machine charge [9].

**Human labour:** In the Table 4 we found that out of 125 farmers that we interviewed -77% of farmers did work in their own field and didn't hire anyone while 23% farmers hired skilled/unskilled workers.

Minimum wage for workers: 1. Unskilled: Rs. 411  
2. Skilled: Rs. 488 [as per link mentioned in reference 10].

For this paper we have considered the wage to be rs.450 per day. And labours are required during land preparation, sowing, application of fertilizers, manures, pesticide, insecticide; irrigation, harvesting and post harvesting practices. Total wages from each village are mention in Tables 5 and 6.

Total no. of days labours is required in wheat cultivation=70

Table 4. Human labour

Human labour	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
Own	21(81%)	20(74%)	21(78%)	19(73%)	15(79%)	96(77%)
Hired	5(19%)	7(26%)	6(22%)	7(27%)	4(21%)	29(23%)

Table 5. Average wages given to labours working in wheat field from each village

Average Wages (Rs/village)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)
Total no. of labour	5	7	6	7	4
Wages (Rs.)	1,57,500	2,20,500	1,89,000	2,20,500	1,26,000

Total no. of days labours is required in rice field=110

Table 6. Average wages given to labours working in Rice field from each village

Average Wages (Rs/village)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)
Total no. of labour	5	7	6	7	4
Wages (Rs.)	2,47,500	3,46,500	2,97,000	3,46,500	1,98,000

**Cost of seed:** Most of the farmers purchase the seeds from the market or the private company. The total cost of the seeds on an average is between Rs. 100-1000 depending upon the land holdings.

**Wheat:****Table 7. Cost of wheat seeds**

Cost of total seed (Rs.)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
100-500	21(81%)	19(70%)	15(56%)	16(62%)	15(79%)	86(69%)
500-1000	5(19%)	8(30%)	11(41%)	9(35%)	4(21%)	37(30%)
>1000	0(0%)	0(0%)	1(4%)	1(4%)	0(0%)	2(2%)

**Rice:****Table 8. Cost of Rice seeds**

Cost of total seed (Rs.)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
100-500	20(77%)	19(70%)	15(56%)	16(62%)	15(79%)	85(68%)
500-1000	6(23%)	8(30%)	12(44%)	8(31%)	4(21%)	38(30%)
>1000	0(0%)	0(0%)	0(0%)	2(8%)	0(0%)	2(2%)

**Mechanical cost:** Most of the farmers already own the major machineries like tractor, ploughs, disk harrow etc. Table 9 includes any maintenance cost, cost of diesel and other cost related to equipments.

**Table 9. Mechanical cost from each village**

Mechanical cost (Rs.)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<10,000	24(92%)	20(74%)	21(78%)	19(73%)	12(63%)	96(77%)
10,000-20,000	2(8%)	5(19%)	5(19%)	6(23%)	7(37%)	25(20%)
>20,000	0(0%)	2(7%)	1(4%)	1(4%)	0(0%)	4(3%)

**Fertilizer cost:** Major Fertilizers used by farmers includes urea, MOP and DAP. The Table 10 includes the total cost of fertilizers used by farmers.

**Table 10. Total Fertilizer cost from each village**

Total Fertilizer cost (Rs.)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1000	4(15%)	1(4%)	2(7%)	0(0%)	1(5%)	8(6%)
1000-5000	20(77%)	20(74%)	21(78%)	18(69%)	15(79%)	94(75%)
>5000	2(8%)	6(22%)	4(15%)	8(31%)	3(16%)	23(18%)

**Miscellaneous cost:** It includes cost of irrigation, intercultural practices and transportation charges.

**Table 11. Total Miscellaneous cost**

Total miscellaneous cost (Rs.)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<5000	4(15%)	1(4%)	2(7%)	1(4%)	1(5%)	9(7%)
5000-10,000	20(77%)	20(74%)	21(78%)	19(73%)	15(79%)	95(76%)
>10,000	2(8%)	6(22%)	4(15%)	6(23%)	3(16%)	21(17%)

**Overall: total input cost:** The total input cost is based on the total amount of money spend by the farmer on their land holdings in per hectare.

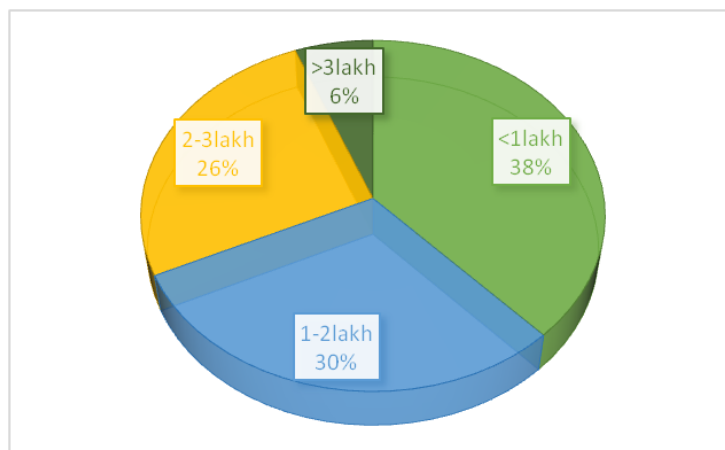
According to Table 12: Out of 125 farmers interviewed from the 5 villages: 38% farmers spend less than 1 lakh, 30% farmers spend 1-2 lakh, 26% farmers spend 2-3 lakh and 6% farmers spend more than 3 lakhs in total input cost.

Total input cost = wages (if present) +cost of seed+ mechanical cost+ cost of fertilizers+ miscellaneous cost. The Table 12 is same for both rice as well as wheat. The average total input cost comes out to be Rs. 19,000 per hectare. This is calculated twice (once for wheat and once for rice), this comes to a total of Rs. 38,000.

**Total yield produce:** The Table 13 and 14 includes the total yield produced by the farmers from the five villages [11,12].

**Table 12. Total input cost**

Total input cost (Rs/ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<10,000	10(38%)	11(41%)	9(33%)	8(31%)	9(47%)	47(38%)
10,000-20,000	10(38%)	5(19%)	8(30%)	10(38%)	5(26%)	38(30%)
20,000-30,000	4(15%)	10(37%)	9(33%)	6(23%)	4(21%)	33(26%)
>30000	2(8%)	1(4%)	1(4%)	2(8%)	1(5%)	7(6%)



**Fig. 3. Total input cost**

**Wheat:**

**Table 13. Total yield produced in Wheat**

Total yield produced (kg/ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1000kg	3(12%)	5(19%)	2(7%)	1(4%)	2(11%)	13(10%)
1000-2500kg	10(38%)	12(44%)	9(33%)	10(38%)	8(42%)	49(39%)
2500-5000kg	12(46%)	8(30%)	14(52%)	12(46%)	8(42%)	54(43%)
>5000kg	1(4%)	2(7%)	2(7%)	3(12%)	1(5%)	9(7%)

**Rice:**

**Table 14. Total yield produced in Rice**

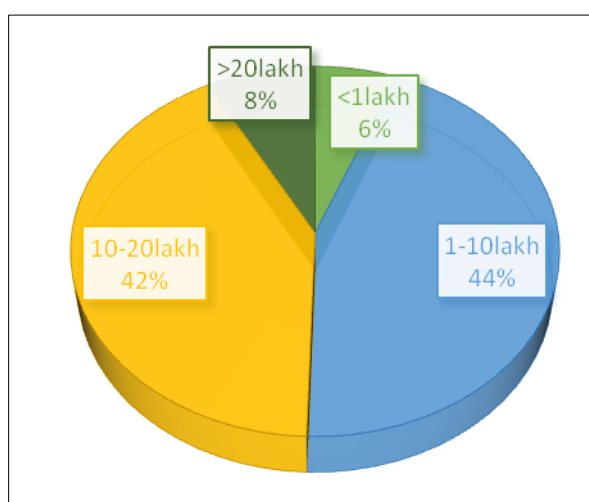
Total yield produced (kg/ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1000kg	1(4%)	2(7%)	1(4%)	1(4%)	2(11%)	7(6%)
1000-2500kg	9(35%)	9(33%)	10(37%)	9(35%)	7(37%)	44(35%)
2500-5000kg	14(54%)	14(52%)	14(52%)	12(46%)	9(47%)	63(50%)
>5000kg	2(8%)	2(7%)	2(7%)	4(15%)	1(5%)	11(9%)

**Gross returns:** The gross return of the farmers are calculated on the basis of their total production (rice+ wheat). The selling price depends upon the variety of rice and wheat produced.

Gross Return= Total production of crop+ Average price received by the producer for the crop.

**Table 15. Gross returns**

Gross Returns (Rs/ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1lakh	2(8%)	1(4%)	2(7%)	1(4%)	1(5%)	7(6%)
1-5lakh	12(46%)	11(41%)	11(41%)	12(46%)	10(53%)	56(50%)
5-10 lakh	10(38%)	12(44%)	12(44%)	11(42%)	7(37%)	52(39%)
>10 lakh	2(8%)	3(11%)	2(7%)	2(8%)	1(5%)	10(6%)
Average net returns	<b>5,35,000</b>	<b>5,55,000</b>	<b>6,50,000</b>	<b>4,35,000</b>	<b>4,40,000</b>	5,23,000



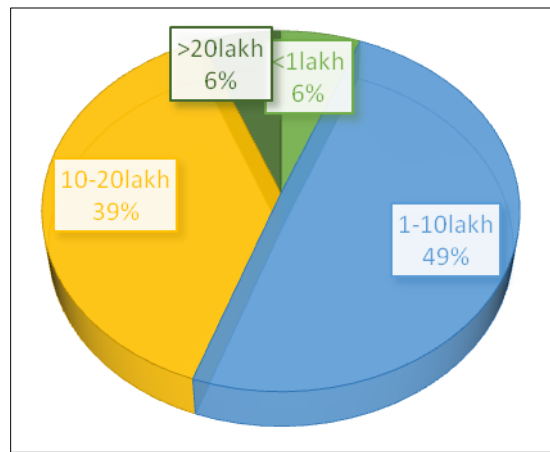
**Fig. 4. Gross returns**

**Net returns:** The net return calculated is based on the total input cost per hectare subtracted with gross return (Table 16).

Net Return= Total Input cost – Gross Returns

**Table 16. Net returns**

Net Returns (Rs/ha)	Shakrullapur (n=26)	Rora (n=27)	Batta (n=27)	Bibipur (n=26)	Theri (n=19)	Overall N=125
<1lakh	2(8%)	1(4%)	2(7%)	1(4%)	1(5%)	7(6%)
1-5lakh	12(46%)	14(52%)	12(44%)	12(46%)	12(63%)	62(50%)
5-10 lakh	11(42%)	10(37%)	12(44%)	11(42%)	5(26%)	49(39%)
>10 lakh	1(4%)	2(7%)	1(4%)	2(8%)	1(5%)	7(6%)
Average net returns	3,40,000	4,30,000	5,45,000	4,34,000	3,40,000	4,17,800



**Fig. 5. Net Returns**

**4. CONCLUSION**

On the basis of this study, it is concluded that the major crops grown in these villages (wheat and rice) actually is highly profitable crops. As for most of the farmers the return to investment is quite high. The total input cost consists of total cost of seed, human labour, cost of pesticide, mechanical cost and the miscellaneous cost. The total input cost is calculated on the basis of total amount of money invest per hectare by the farmers. In average a farmer spends around Rs. 38,000 per hectare as total input cost and in return they get around Rs. 4,17,800 per hectare which makes them a profit of Rs. 3,79,800. This price includes the cultivation of rice as well as wheat crop.

**COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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