*Plant Archives* Vol. 26, Supplement 1, 2026 pp. 1806-1815 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org
DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2026.v26.supplement-1.243

# COSTS AND PROFITABILITY ANALYSIS OF WHEAT IN MID HILLS OF KANGRA VALLEY IN HIMACHAL PRADESH INDIA

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(Date of Receiving : 01-10-2025; Date of Acceptance : 13-12-2025)

**ABSTRACT**

The study examined the economic assessment and profitability analysis of wheat cultivation on Kangra farms where Kangra district of Himachal Pradesh was chosen for the study. For this study, 80 wheat farmers were selected through multistage random sampling process across selected villages of the two randomly selected blocks of Kangra district. Both primary and secondary data were collected. Primary data on various aspects of resources used and their costs and returns were collected using well-designed and pretested schedule by personal interaction with the selected respondents. Secondary data were collected from government publications and Statistical Abstracts of Himachal Pradesh. The data were analyzed using appropriate statistical tools. Simple averages, percentages, and ratios were employed for calculating various applied cost concepts which were applied to calculate the farm-level economics. The study highlighted that Kangra valley emerged as the leading district, with an area of 86,493 hectares under wheat cultivation and a total production of 192,804 MT, contributing substantially to the state's overall wheat output. In context with the objective of the study, the results revealed that the total cost of cultivation (Cost $C_3$) was Rs. 71,496.46 for small farmers, Rs. 77,510.80 for large farmers, with an overall average of Rs. 74,278.09 per hectare. At overall level, cost $A_1$ was found to be Rs. 43854.31 per hectare, whereas Cost $B_2$ amounted to Rs. 59740.48 per hectare. Production of wheat per hectare at overall farm situation was found to be 38.35 quintals with gross returns of Rs. 115735.95 per ha. Gross returns were highest (Rs. 121718.00/ha) in large category followed by small (Rs. 110588.61/ha). To evaluate the efficiency of wheat production on the sample farms, various measures of farm efficiency, including farm business income, farm labour income and farm investment income were estimated. Farm Business income, farm labor income, net farm income, farm Investment income for wheat were recorded highest in case of large farm category. The overall output-input ratio was resulted to be 1.56 while the overall break-even yield and break-even returns were found 30.95 quintals per hectare and Rs. 52968.26 per hectare. The results thus, suggested that large farms earn slightly higher profitability and efficiency in wheat cultivation than small farms.

***Keywords***: wheat, costs, returns, income, area, production, productivity.

## Introduction

India has an extensive agriculture landscape, with wheat considered as a major Rabi crop. It forms a key component of the country's food grain basket and is extensively grown across the Indo-Gangetic plains, which include major states like Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, and Bihar. Area under wheat cultivation in India is 32.8 million hectares, yielding a total production of 113.3 million tonnes (USDA, 2024). The average yield has been reported 3.56 tonnes per hectare, with variations across states depending on soil quality, irrigation access, input use and climate conditions (DAC&FW, 2024).

In Himachal Pradesh, wheat is grown predominantly during the Rabi season. Due to the state's varied agro-climatic zones, wheat is cultivated across mid-hills, low-hill sub-tropical, and high-hill temperate regions. The major wheat-producing districts include Kangra, Mandi, Hamirpur, Una, and Bilaspur. Among these, Kangra has consistently ranked first in

both area and production of wheat. Wheat was cultivated over 314.28 thousand hectares in the state during 2022–23, producing 688.92 thousand metric tonnes (Department of Economics and Statistics Himachal Pradesh, 2023). The average yield across the state was around 2.19 tonnes per hectare, lower than the national average due to terrain-related constraints and limited mechanization (Agricultural Statistics at a Glance, 2023). In Kangra district alone, wheat production reached around 1,31,200 metric tonnes over 56,553 hectares in 2022–23, accounting for nearly one-fifth of the state's total output (Department of Economics and Statistics Himachal Pradesh, 2023). The dominance of wheat in the cropping pattern is largely due to its compatibility with the local climate, soil fertility, and availability of assured irrigation from canal and groundwater sources. With this background in view, the present study was under taken with the objective of examining the cost of cultivation and efficiency of wheat production in mid hills of kangra district.

## Materials and Methods

### Selection of the study area

The study was purposely conducted in Kangra district of Himachal Pradesh, as it occupies the foremost position in wheat production within the state. As per the Statistical Abstract of Himachal Pradesh (2022–23), the district produced about 1,92,804 metric tonnes of wheat. This made it a suitable region for examining costs, returns and profitability of wheat cultivation. Fig.1 shows the geographical map of the Kangra district with two randomly selected blocks namely Indora and Nurpur.

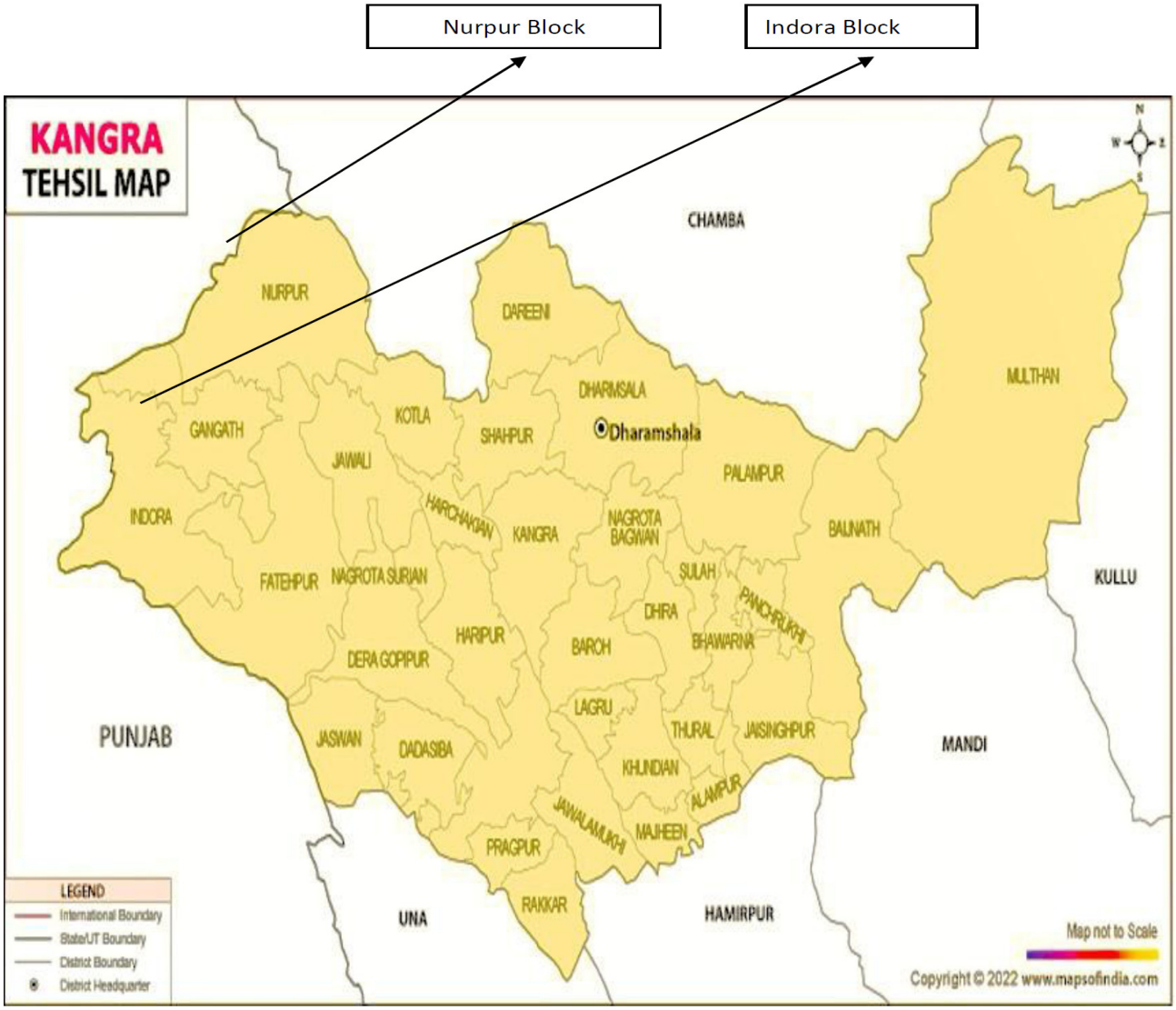


**Fig. 1:** Map showing Kangra district of Himachal Pradesh and the study blocks

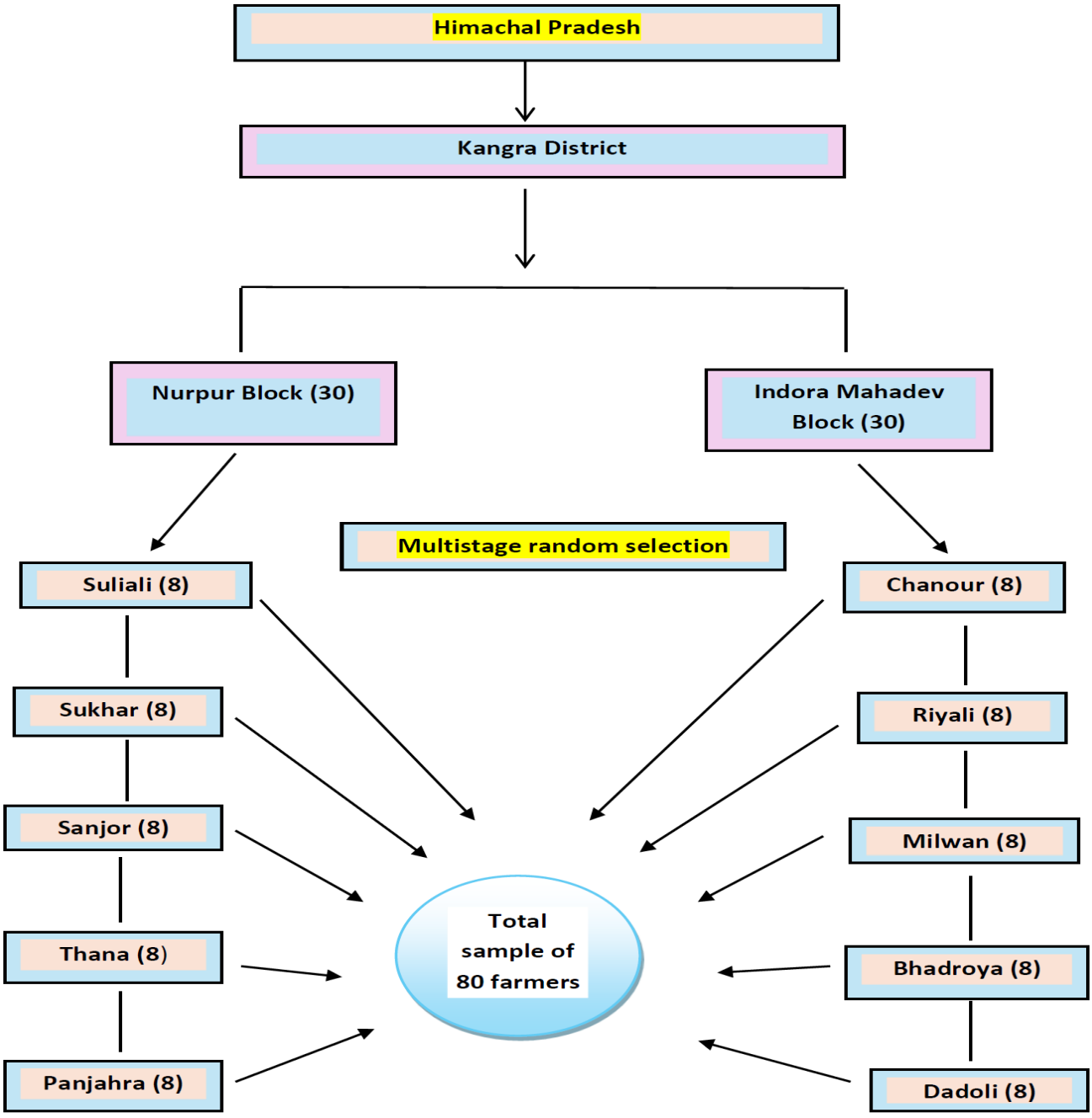


**Fig. 2:** Sampling Design showing multistage random sampling.

## Sampling Design

### Selection of blocks

Multistage random sampling (Fig. 2) was followed for the selection of the sample for this study. Firstly, list of wheat growing blocks of the Kangra district was prepared and two blocks Indora and Nurpur were randomly selected in the first stage.

### Selection of the villages

In the second stage, list of the wheat growing villages in the selected blocks were prepared in consultation with the officials of the Agricultural Department. Then five villages in each block were selected randomly.

### Selection of the wheat growers

In the third stage, list of wheat growing farmers in each selected village in the previous stage was prepared and eight farmers were selected randomly from each village. Therefore, a total sample of 80 farmers was selected for this study.

**Categorization of wheat growers**

A complete list of wheat growing farmers under open field condition was prepared from Indora block and Nurpur block. For the analysis of data, the total respondents were divided according to the size of their land holdings into two categories, viz., Small (<1 ha) and Large (1-3 ha). The distribution of the sampled farmers is presented in Table 1.

**Table 1:** Distribution of sampled households according to their size of land holding

| S.No. | Category of farmers | No. of Farmers |
|---|---|---|
| **1** | Small | 37 |
| **3** | Large | 43 |
| **4** | Overall | 80 |

**Data collection**

To meet out the objective of the study, both primary data and secondary data were collected. Primary data were collected by the survey method from the wheat grower farmers and secondary data were collected from different reports of the government departments and websites.

**Analytical Framework**

**Cost and return analysis**

Cost concepts recommended by commission for Agricultural Costs and Prices (CACP), Govt. of India, 2004 were employed for the calculation of costs and returns of wheat crop produced by farmers:

**Cost $A_1$ includes:**

1. Cost of planting material
2. Cost of manures, fertilizers and plant protection chemicals
3. Cost of hired human labour
4. Irrigation charges
5. Depreciation on implements
6. Interest on working capital
7. Other miscellaneous charges

**Cost $A_2$:** Cost $A_1$+ Rent paid to leased in-land

**Cost $B_1$:** Cost $A_1$ + interest on the fixed capital

**Cost $B_2$:** Cost $B_1$ + rental value of owned land

**Cost $C_1$:** Cost $B_1$ + imputed value of family labour

**Cost $C_2$:** Cost $B_2$ + imputed value of family labour

**Cost $C_3$:** Cost $C_2$+ management cost (10%)

**Farm income measures:**

| | | |
|---|---|---|
| 1 | Net farm income | Gross income- Cost $C_3$ |
| 2 | Farm business income | Gross income- Cost $A_1$ |
| 3 | Family labour income | Gross income- Cost $B_2$ |
| 4 | Farm investment income | Farm business Income- Imputed value of family labour |

**Computation of Benefit-Cost ratio:**

Benefit- cost ratio implies per rupee invested on inputs used in the production process.

$$\text{Benefit - Cost ratio} = \frac{\text{Gross returns}}{\text{Total costs}}$$

**Break-even analysis**

The amount of production needed to pay all the production cost is known as break-even output and the output below this level would led into net loss to the producer. The break-even output is calculated by the formula:

$$\text{Break - even output} = \frac{\text{TFC}}{\text{Py - AVC}}$$

Where,

TFC = Total fixed cost in rupees

Py = per unit price of wheat

AVC =Average Variable cost in rupees

$AVC = TVC/TP_M$

TVC = Total Variable Cost

$TP_M$ = Total production of wheat in quintals

**Definitions of terms and costs concepts used:**

- **Fixed cost**

Fixed costs include items such as land rent, land revenue, depreciation, interest on equipment investment, and interest on owned fixed capital, all of which were incurred during wheat cultivation.

- **Variable cost**

Variable costs include expenditures on labour, material inputs, and interest on working capital, among other operational expenses incurred during wheat cultivation.

- **Inputs and costs**

Following were the various inputs used in the wheat crops cultivation

**i. Hired human labour cost**

Hired human labour was estimated in terms of man-days where in 8 hours of work in a day was

considered as one-man day. The man days were valued at Rs. 450 per man day prevailing in the study area.

**ii. Family labour**

Family labour cost was calculated on the basis of charges paid to hired labour.

**iii. Seed/Seedling cost**

The cost of seed was worked out at the rate based on prevailing rate in study area including transportation cost.

**iv. Fertilizer cost**

The fertilizers cost was calculated at the actual price paid by farmers to purchase fertilizers.

**v. Depreciation**

The amount of depreciation for implements was calculated by the straight-line method i.e., by dividing the original cost less junk value of implement by its expected life. This was apportioned to individual crop in proportion to the area under the crop.

**vi. Land revenue**

The actual land revenue paid by the farmers was considered in the study.

**vii. Rental value of land**

Rental value of land was evaluated at the rate of one fourth of the total produce produced and then converted into monetary units by multiplying it with prevailing farm harvest price.

**viii. Interest on working capital**

Interest on working capital has been charged at the rate of 6.5 per cent per annum for half of the crop period

**ix. Interest on fixed capital**

Interest on fixed capital has been charged at the rate of 6.5 per cent per annum on the average value of farm buildings, farm implements and other fixed assets which are exclusively used in wheat production.

## Results

**Status of Area, Production and Productivity of wheat in different districts across the State (2022–23):**

The district-wise distribution of wheat cultivation in Himachal Pradesh presented in Table2 which revealed significant regional differences in area, production, and productivity. Kangra emerges as the leading district, with 86,493 hectares under wheat cultivation and a total production of 192,804 MT, contributing substantially to the state's overall wheat output. Wheat in Mandi covers 61,587 hectares with production of 130,058 MT, whereas Una with a smaller area of 35,514 hectares recorded the highest productivity in the state at 2.97 MT/ha, producing 105,473 MT.

In contrast, Kinnaur and Lahaul-Spiti remain marginal contributors due to their limited area and climatic constraints, together accounting for less than 200 hectares. Districts such as Hamirpur (1.61 MT/ha) and Kullu (1.99 MT/ha) reflect relatively low productivity levels compared to the state average. On the other hand, Bilaspur (2.61 MT/ha), Shimla (2.59 MT/ha), and Sirmaur (2.27 MT/ha) showed stronger performance in yield terms despite smaller areas under wheat.

At overall level, Himachal Pradesh reported 3.20 lakh hectares under wheat cultivation, producing 7.14 lakh MT with an average productivity of 2.23 MT/ha. The data revealed that while Kangra led in scale, districts such as Una and Bilaspur have successfully achieved higher yield levels. This variation highlights the need for targeted measures to uplift productivity in lagging districts like Hamirpur, while sustaining high performance in areas such as Una and Bilaspur.

**Table 2:** District-wise Area, Production and Productivity of wheat in Himachal Pradesh (2022–23).

| Sr. No. | District | Area (ha) | Production (MT) | Productivity (MT/ha) |
|---|---|---|---|---|
| 1 | Bilaspur | 20,934 | 54,651 | 2.61 |
| 2 | Chamba | 22,207 | 45,236 | 2.04 |
| 3 | Hamirpur | 30,705 | 49,372 | 1.61 |
| 4 | Kangra | 86,493 | 192,804 | 2.23 |
| 5 | Kinnaur | 79 | 98 | 1.24 |
| 6 | Kullu | 8,970 | 17,866 | 1.99 |
| 7 | Lahaul & Spiti | 73 | 164 | 2.25 |
| 8 | Mandi | 61,587 | 130,058 | 2.11 |
| 9 | Shimla | 5,767 | 14,938 | 2.59 |
| 10 | Sirmaur | 24,868 | 56,392 | 2.27 |
| 11 | Solan | 23,022 | 46,552 | 2.02 |
| 12 | Una | 35,514 | 105,473 | 2.97 |
| | **Himachal Pradesh (Total)** | **3,20,219** | **7,13,604** | **2.23** |

**Source:** Statistical Abstract of Himachal Pradesh, 2022–23

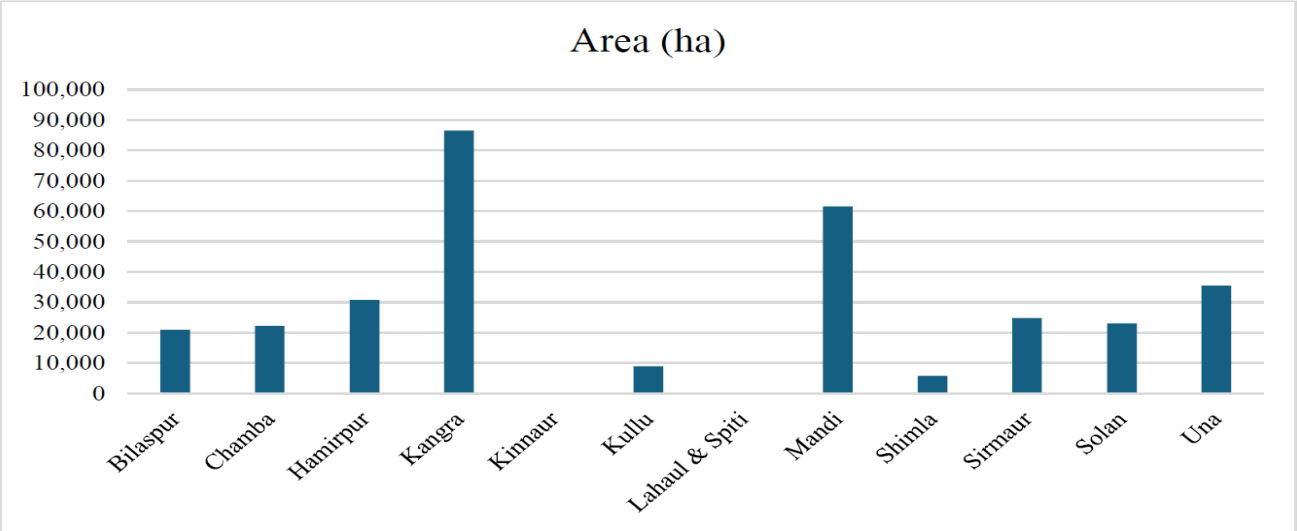


**Fig. 3:** District-wise Area of wheat in Himachal Pradesh

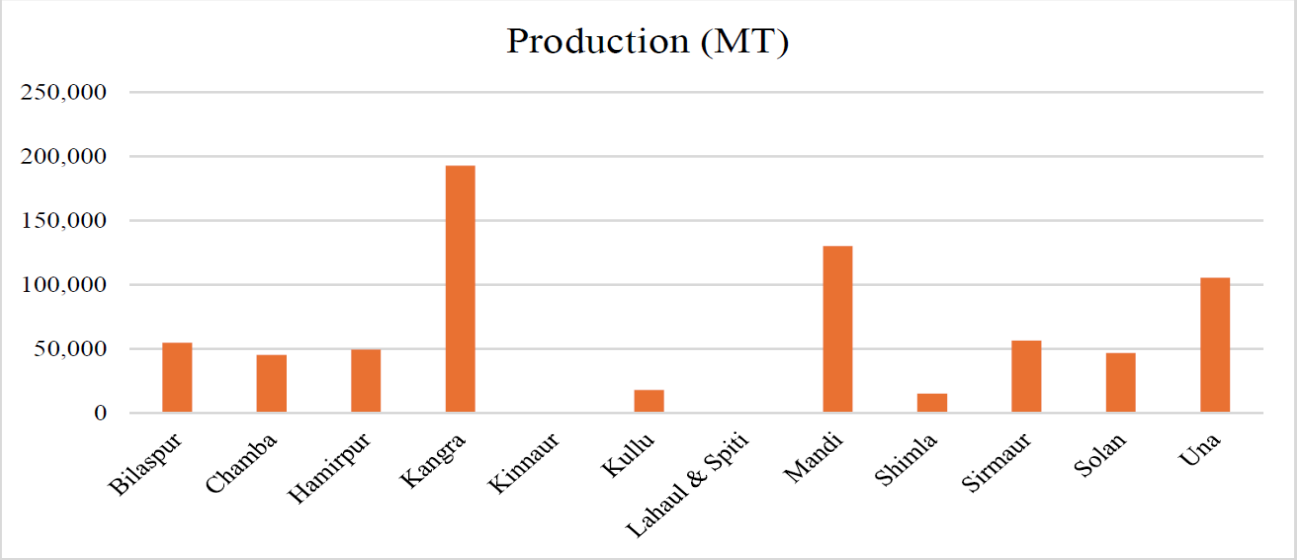


**Fig. 4:** District-wise Production of wheat in Himachal Pradesh

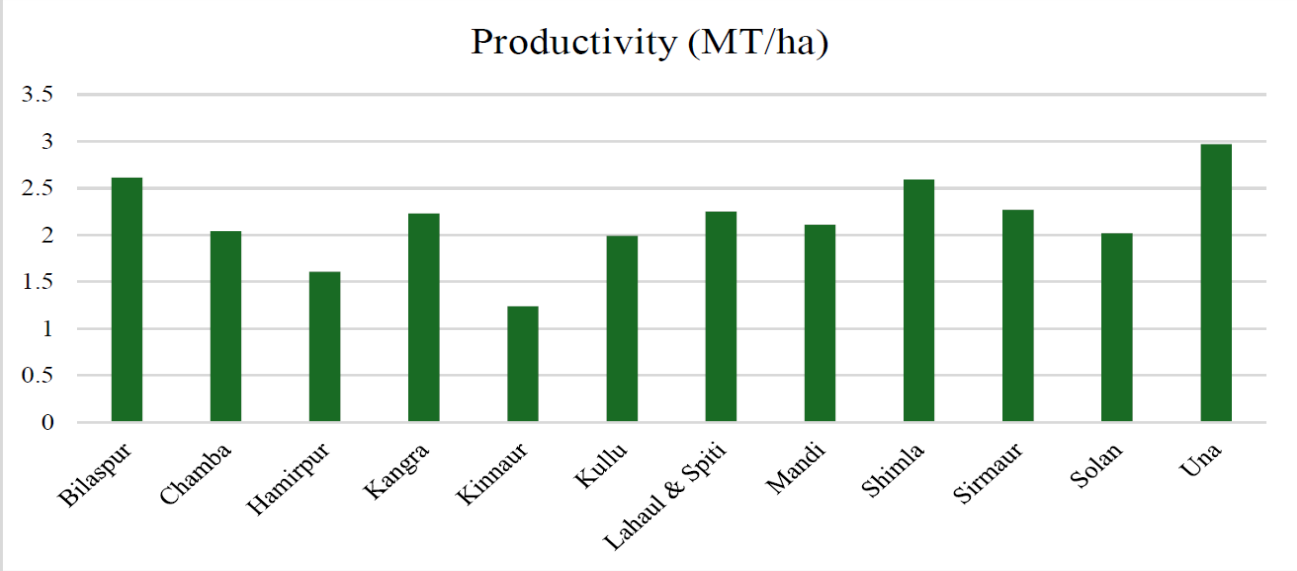


**Fig. 5:** District-wise Wheat Productivity in Himachal Pradesh

**Costs and returns from wheat cultivation of sampled farms**

Analysing the cost-return structure of wheat production is important for farmers and agricultural professionals as it offers a detailed look at all expenses involved in the production process such as expenses on seed, fertilizers application, human labour, hired labour cost etc. By carefully tracking these expenditures, farmers can manage their finances and make informed decisions regarding resource distribution. Such comprehensive understanding aids in budgeting, forecasting financial needs and ensuring that all costs are assessed and known before planting the crop.

In addition to assessment of costs, evaluation of the returns from wheat cultivation is equally important. By estimating potential revenue based on projected yields and current market prices, farmers can forecast their earnings and assess the profitability of their efforts.

This evaluation is important for setting realistic financial targets and developing pricing strategies. Understanding expected returns allows farmers to prepare for market fluctuations and adjust their production practices to maximize revenue.

A detailed analysis of costs and returns helps in identifying areas for cost savings and efficiency improvements. It provides opportunities to reduce expenses by optimizing resource use and adopting new technologies. In this view, an attempt has been made in this section to analyse the costs and returns of wheat production on sample farms.

**Cost of cultivation of wheat in the study area**

The cost structure of wheat cultivation among the sampled households is presented in table 3. The results revealed that the total cost of cultivation (Cost $C_3$) was found to be at Rs. 71,496.46 per hectare for small farmers, Rs. 77,510.80 per hectare for large farmers, with an overall average of Rs. 74,278.09 per hectare. It is evident that large farmers incurred slightly higher expenditure compared to small farmers, which may be attributed to their relatively larger scale of operations and higher investment in machinery and other inputs.

Among different cost components, depreciation on implements formed the largest share, accounting for 23.25 per cent in small farms and 28.31 per cent in large farms, with an overall contribution of 25.69 per cent. This showed that wheat cultivation in the area is moderately mechanized. Human labour and machinery use were also important contributors. Hired labour accounted for 10.31 per cent of the total cost, followed by tractor and thresher charges (8.51%) fertilizers (5.42%). Miscellaneous charges, land revenue, and interest on working capital formed a small share of less than 2 per cent.

When considering different cost concepts, Cost $C_2$ (including imputed value of family labour and rental value of land) was found to be at Rs. 64,996.78 for small farms, Rs. 70,464.36 for large farms, and at all farm situation was found out to be Rs. 67,525.54.

Overall, the results highlighted that wheat cultivation in Kangra district involved significant fixed capital requirements along with notable expenses on labour and machinery. The higher costs on large farms suggested greater intensity of input use, though the relative cost distribution remained broadly similar across farm categories.

**Table 3:** Cost of cultivation of wheat in the study area (Rs. / Hectare)

| Particular | | Small | Large | Overall |
|---|---|---|---|---|
| **Cost $A_1$ i.** | **Depreciation on implements** | 16619.87 | 21945.49 | 19082.97 |
| | | (23.25) | (28.31) | (25.69) |
| **ii.** | **Seed** | 3290.67 | 3312.32 | 3300.68 |
| | | (4.60) | (4.27) | (4.44) |
| **iii.** | **Fertilizer** | 4562.32 | 4651.08 | 4023.43 |
| | | (6.38) | (6.00) | (5.42) |
| 1. | Urea | 547.98 | 579.87 | 562.73 |
| 2. | IFFCO mixture (12:32:16) | 4014.34 | 4071.21 | 4040.64 |
| **iv.** | **Plant protection** | 1613.78 | 1759.82 | 1681.32 |
| | | (2.26) | (2.27) | (2.26) |
| 1. | Seed treatment | 361.78 | 369.67 | 365.43 |
| 2. | Herbicide | 539.78 | 581.25 | 558.96 |
| 3. | Fungicide | 712.22 | 808.90 | 756.93 |
| **v.** | **Hired labour** | 7520.32 | 7812.32 | 7655.37 |
| | | (10.52) | (10.08) | (10.31) |

| | | | | |
|---|---|---|---|---|
| **vi.** | **Tractor/ Thresher charges** | 6389.00 | 6241.00 | 6320.55 |
| | | (8.94) | (8.05) | (8.51) |
| **vii.** | **Miscellaneous charges (including electricity charges, repairs, etc.)** | 386.87 | 413.23 | 399.06 |
| | | (0.54) | (0.53) | (0.54) |
| **viii.** | **Land Revenue** | 31.25 | 31.25 | 31.25 |
| | | (0.04) | (0.04) | (0.04) |
| **ix.** | **Interest on working capital** | 773.31 | 787.18 | 779.73 |
| | | (1.08) | (1.02) | (1.05) |
| | **Total** | 41187.39 | 46953.69 | 43854.31 |
| | | (57.61) | (60.58) | (59.04) |
| **Cost $B_1$** | **Interest on fixed capital** | 1976.07 | 2322.24 | 2136.17 |
| | | (2.76) | (3.00) | (2.88) |
| | **Cost $A_1$** | 41187.39 | 46953.69 | 43854.31 |
| | | (57.61) | (60.58) | (59.04) |
| | **Total** | 43163.46 | 49275.93 | 45990.48 |
| | | (60.37) | (63.57) | (61.92) |
| **Cost $B_2$** | **rental value of owned land** | 13750.00 | 13750.00 | 13750.00 |
| | | (19.23) | (17.74) | (18.51) |
| | **Cost $B_1$** | 43163.46 | 49275.93 | 45990.48 |
| | | (60.37) | (63.57) | (61.92) |
| | **Total** | 56913.46 | 63025.93 | 59740.48 |
| | | (79.60) | (81.31) | (80.43) |
| **Cost $C_1$** | **Imputed value of family labour** | 8083.32 | 7438.43 | 7785.06 |
| | | (11.31) | (9.60) | (10.48) |
| | **Cost $B_1$** | 43163.46 | 49275.93 | 45990.48 |
| | | (60.37) | (63.57) | (61.92) |
| | **Total** | 51246.78 | 56714.36 | 53775.54 |
| | | (71.68) | (73.17) | (72.40) |
| **Cost $C_2$** | **Imputed value of family labour** | 8083.32 | 7438.43 | 7785.06 |
| | | (11.31) | (9.60) | (10.48) |
| | **Cost $B_2$** | 56913.46 | 63025.93 | 59740.48 |
| | | (79.60) | (81.31) | (80.43) |
| | **Total** | 64996.78 | 70464.36 | 67525.54 |
| | | (90.91) | (90.91) | (90.91) |
| **Cost $C_3$** | **Management Cost (10% of cost $C_2$)** | 6499.68 | 7046.44 | 6752.55 |
| | | (9.09) | (9.09) | (9.09) |
| | **Cost $C_2$** | 64996.78 | 70464.36 | 67525.54 |
| | | (90.91) | (90.91) | (90.91) |
| | **Total** | **71496.46** | **77510.80** | **74278.09** |
| | | **(100.00)** | **(100.00)** | **(100.00)** |

**Source:** Field Survey.
**Note:** Figures in parentheses indicate percentages to the total in each category.

## Farm category wise profitability analysis of wheat in the study area:

The profitability of wheat cultivation in the study area across small and large farm categories represents in table 4. The average wheat yield was found to be 37.02 quintals per hectare for small farms and 39.89 quintals per hectare for large farms, with an overall average of 38.35 quintals per hectare. The overall by product returns were Rs.23702.25 per ha, resulting in overall gross returns of Rs.115735.95 per hectare. Net farm income ranged from Rs. 39,092.15 per ha in small farms to Rs. 44,207.20 per ha in large farms, averaging Rs. 41,457.86 per ha. Family labour income was calculated at Rs. 53,675.15 per ha and Rs. 58,692.07/ha for small and large farms, respectively, while farm investment income was found at Rs. 61,317.90/ha for small farms and Rs. 67,325.88 per ha for large farms. The output-input ratio was slightly higher in large farms (1.57) compared to small farms (1.55), indicating marginally better resource use efficiency. Break-even yield was 29.79 quintals per ha for small farms and 32.30 quintals per ha for large farms, with corresponding break-even returns of Rs. 50,099.09 per ha and Rs. 56,302.71/ per ha. Overall, the results suggest that large farms earn slightly higher profitability and efficiency in wheat cultivation than small farms.

**Table 4:** Farm category wise profitability analysis of wheat in the study area (Rs. /Hectare)

| Particulars | Small | Large | Overall |
|---|---|---|---|
| Yield (Quintal per hectare) | 37.02 | 39.89 | 38.35 |
| By product | 21740.61 | 25982.00 | 23702.25 |
| Gross Returns | 110588.61 | 121718.00 | 115735.95 |
| Net Farm Income | 39092.15 | 44207.20 | 41457.86 |
| Farm Business Income | 69401.22 | 74764.31 | 71881.65 |
| Family Labour Income | 53675.15 | 58692.07 | 55995.47 |
| Farm Investment Income | 61317.90 | 67325.88 | 64096.59 |
| Output input ratio | 1.55 | 1.57 | 1.56 |
| Break even yield (Quintal per hectare) | 29.79 | 32.30 | 30.95 |
| Break even returns | 50099.09 | 56302.71 | 52968.26 |

**Source:** Field Survey.

## Discussion

### Cost of cultivation of wheat in the study area

The analysis of the cost of wheat cultivation in the Kangra district revealed that total production costs per hectare amounted to Rs.74278.09, with small and large farms incurring Rs.71496.46 and Rs.77510.80 respectively. Variable costs are the expenses that fluctuate with the volume of production. It includes costs on seed, fertilizers, pesticides, labour, etc. Seed costs are a significant part of the material expenses and were calculated at overall Rs.3300.68 per hectare accounting for 4.44 per cent of the total cost. Similar results were reported by Dudve (2023) where cost of seed per hectare was estimated at Rs.3075 for sample farms.

Expenditure on fertilizers and plant protection chemicals were estimated to be Rs.4023.43 per hectare (5.42%) and Rs.1681.32 per hectare (2.26%), respectively. Singh *et al.* (2017) reported similar findings, with total costs for fertilizers and plant protection chemicals amounting to Rs.4587.92 and Rs.1137.76 per hectare, respectively.

The dominance of mechanization and reliance on hired labor reflected a shift towards semi commercial wheat farming. Moreover, inputs such as fertilizers and plant protection chemicals formed a moderate share of the total cost, indicating that farmers were maintaining recommended input use for optimal yields, similar findings was consistent with Mala and Akbay (2022) in wheat cultivation.

### Farm category wise profitability analysis of wheat in the study area

Analysing the economic returns from wheat is essential as it allows stakeholders to evaluate the profitability and effectiveness of wheat farming, influencing key decisions related to resource distribution, crop choices and investment plans. By examining factors such as production expenses, market values and yield forecasts, farmers can refine their practices and adjust to market dynamics. Meanwhile, policymakers and investors rely on this analysis to formulate supportive policies and assess investment prospects, thereby promoting the economic stability and long-term viability of wheat production. An economic assessment of return indicates profitability of farming activities. For the sample farms, overall yield averaged 38.35 quintals per hectare, generating gross returns of Rs.1, 15,735.95 per hectare. This finding was consistent with previous studies, such as Dhakal (2022), where the gross returns were Rs.1, 53,717.38 per hectare and Dudve (2023), where gross returns were Rs. 10, 5625.

To evaluate the efficiency of wheat production on the sample farms, various measures of farm efficiency, including farm business income, farm labour income and farm investment income were estimated.

The farm farm business income, family labour income was estimated to be Rs. Rs.71,881.65 and Rs.55,995.47 per hectare respectively. Similar results were reported by Dudve (2023) in which farm business income, farm labour income was estimated to be Rs.71, 437 and Rs.57, 272 per hectare. The benefit cost ratio was 1.56. This ratio, being greater than one, demonstrates the profitability of wheat cultivation in the study area.

Break-even analysis is a tool used to assess potential profitability in market-based agribusinesses by comparing costs to revenues. It involves determining the point at which total revenue equals total costs, signifying no profit or loss (Sahu *et al.*, 2021). The breakeven yield in the present study was 30.95 quintals per hectare, indicating that farmers are achieving yields well above the minimum required for

cost recovery. These findings are consistent with Rajput (2020), who reported a break even yield of 36.37 quintals per hectare. As a whole, the study estimated that wheat cultivation in Kangra is economically viable, with potential for increased returns through improved input management and mechanization.

## Conclusion

Wheat is a major cereal crop grown in Kangra district during the Rabi season, with cultivation historically covering around 91,000 to 92,000 hectares. The crop's success is heavily reliant on rainfall, and recent dry spells have impacted production, while a lack of irrigation from damaged or dysfunctional *kuhls* (irrigation channels) has created challenges for farmers. Other factors affecting wheat cultivation include soil deficiency in certain areas and the use of crop as fodder when the stand is poor. With this background in view, the study was carried out in Kangra valley of Himachal Pradesh so as to examine the present status of costs, returns and the net revenue thus generated by working out the various efficiency measures of the sampled households from wheat cultivation. In this context, the results of the study brought out the following points: first, the costs and returns structure of wheat cultivation revealed that the total cost of cultivation (Cost $C_3$) was Rs. 71,496.46 for small farmers, Rs. 77,510.80 for large farmers, with an overall average of Rs. 74,278.09 per hectare. Second, at overall level, cost $A_1$ was found to be Rs. 43854.31, whereas Cost $B_2$ amounted to Rs. 59740.48 per hectare. Third, at all farm situation, the production of wheat per ha was found to be 38.35 quintals with gross returns of Rs. 115735.95 per ha. Gross returns were highest (Rs. 121718.00/ha) in large category than small category (Rs. 110588.61/ha). Fourth, farm Business income, farm labor income, net farm income, farm Investment income for wheat was recorded highest in case of large farm category. Fifth, the overall output-input ratio was found out to be 1.56. And lastly, at overall farm situation, break-even yield and break-even returns were found 30.95 quintals per hectare and Rs. 52968.26 per hectare respectively. The results thus highlighted that wheat cultivation in Kangra district involved significant fixed capital requirements along with notable expenses on labour and machinery. The higher costs on large farms suggested greater intensity of input use, though the relative cost distribution remained broadly similar across farm categories. It has therefore, been estimated that wheat cultivation in Kangra district is economically viable, with potential for increased returns through improved input management and mechanization.

## References


Anonymous (2011). District Census Handbook, Kangra, Directorate of Census Operation, Himachal Pradesh. 12: 26-109

Anonymous (2022-23). DES. Directorate of Economics & Statistics, Government of HimachalPradesh. www. ecostatshp.nic.in

Anonymous (2022). MoA&FW. Ministry of Agriculture & Farmers Welfare, Government of India. www.agricoop. nic.in

Anonymous (2022-23). Statistical Abstract of Himachal Pradesh, Department of Economics and Statistics, Himachal Pradesh.

Anonymous (2023). ICAR. Indian Council of Agricultural Research. www.icar.org.in

Anonymous (2024). CACP. Commission for Agricultural Costs & Prices. cacp.da.gov.in

Anonymous (2025). Agricultural Statistics at a Glance Department of Agriculture and Co-operation, Ministry of Agriculture, Govt. of India.

Dhakal (2022). Profitability and resource-use efficiency of wheat cultivation in Nawalparasi (Bardaghat Susta West) of Nepal. M. Sc. Thesis, p 60. Department of Agricultural Economics, Institute of Agricultural Sciences. Banaras Hindu University, Varanasi

Dudve, B. (2023). An economic analysis of production and marketing of wheat in Khargone district of Madhya Pradesh. M.Sc. Thesis, p 81. Department of Agricultural Economics, Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior, College of Agriculture, Indore (M.P.)

Mala, S.N. and Akbay, C. (2022). Input use, cost structure and economic analysis of wheat production in the northern region of Iraq. *Custos e @gronegócio,* **18**: 250-27.

Menon, G. (2023). Economic analysis of major farming systems in Kangra district of Himachal Pradesh. Thesis, p 148. M.Sc. Department of Agricultural Economics, Extension Education& Rural Sociology, CSK HP Krishi Vishvavidyalaya, Palampur (H.P.).

Rajput, A. (2020). Break even and sensitivity analysis of cost of cultivation for major crops of Madhya Pradesh. M.Sc. Thesis, p 45. Department of Agricultural Economics & Farm Management, Jawaharlal Nehru Krishi Vishvavidyalaya Jabalpur, College of Agriculture, Jabalpur (M.P.)

Rashmi (2018). Economics and resource use efficiency of major vegetable crops in Nagrota Bagwan block of Kangra District (H.P.). M.Sc. Thesis, p 118. Department of Agricultural Economics, Extension Education& Rural Sociology, CSK HP Krishi Vishvavidyalaya, Palampur (H.P.)

Sahu, A., Kolar, P., Nahatkar, S. and Vani, G.K. (2021). Cost and profitability of wheat in the major wheat producing states of India. *Indian Journal of Economics and Development,* **17**(4): 786-796

Singh, S.P., Kumar, N., Kachroo, J., Dwivedi, S., Bhat, A., Hamid, N., Isher, A.K. and Sharma, S. (2017). Economic analysis of costs and returns of wheat in Jammu District of J&K State. *Journal of Safe Agriculture,* **1**: 86-89

Thakur, A. (2024). Economic analysis of production and marketing of wheat in Una district of Himachal Pradesh. M.Sc. Thesis, p 106. Department of Agricultural Economics, Extension Education& Rural Sociology, CSK HP Krishi Vishvavidyalaya, Palampur (H.P.).