ECONOMICS OF WHEAT PRODUCTION IN THE FARMER'S FIELDS IN UTTARANCHAL

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ABSTRACT

In hills, the farmers of valley areas (Zone-I) get the highest returns from agriculture (Rs. 15787/- per ha) as compared to the farmers of other zones. The farmers of Zone-II (mid-hills) get the lowest return (Rs. 5888/- per ha) as compared to the farmers of other two zones. Rainfed situation and poor soils conditions make agriculture less profitable in mid-hills. In Zone-I dependence on the market for wheat is the least (110.91 Kg./ household/ year) whereas in Zone-II dependence on market for wheat is maximum (204.64 Kg./ household/ year). This is, therefore, important that intensified efforts be made to increase wheat production to make the hill farmers self sustained. The main reasons for low productivity in hills are i) marginal and scattered land holdings; ii) non-availability of good quality seeds of improved varieties; iii) lack of irrigation water and iv) non-availability of farm inputs.

Key words: *Rainfed situation; Marginal; Scattered land holdings*

INTRODUCTION

Kumaun hills have four agro-climatic zones, viz., lower hills, mid-hills, high-hills and very high-hills. Low hills include foothills with the elevation ranging from 600 to 1000 m above mean sea level. Climate in this zone is tropical to sub-temperate. The land comprises of mild sloping or rolling hills and valleys and soils in the area are deep and fertile and irrigation sources are available. Mid-hills include area situated between elevations of 1000 to 1600 m msl. The slopes in this region are mildly rising at places to very steep. Agriculture is mostly rainfed. High hill region extends over the elevation 1,600 to 2,300 m msl, with temperate climate. Agriculture is rainfed and region is mainly suitable for temperate fruits and pasture. The altitude of very high hills is between, 2300 to 5000 m amsl with permanent snow line situated at around 5,000 m msl. Even lower areas of this region remain covered with snow during winter and, hence, only mono cropping is practiced. This zone is known for its luxuriant pastures.

Agricultural production in hills is limited by several factors viz., low temperature, small terraces, fragmented and highly scattered fields with gravelly and shallow soils, negligible use of inorganic fertilizers, inadequate farm implements and cultivation of traditional crops with low yield potential. Also, lack of proper input supply system, inefficient extension system, improper land use pattern, non-adoption of soil and water conservation measures and migration of male population are the major constraints in enhancing crop productivity.

Wheat is an important crop of hills. The farmers generally cultivate traditional crops and their local varieties with little inputs. Nature of traditional crops and longer duration of varieties decrease the cropping intensity. For a successful farm planning we need to have the basic information about the relative profitability of various crop enterprises. The study of cost-benefit of various enterprises not only gives us an idea of the relative profitability of the enterprises but also serves as a guide for efficient utilization of resources for maximization of farm returns. The cost study of enterprise also is valued for improving the farm efficiency. In this study, an attempt has been made to estimate the cost of cultivation of wheat crop grown by the farmers in Uttaranchal hills.

METHODOLOGY

Three districts namely Almora, Bageswar and Pithoragarh were randomly selected and from each district three blocks were randomly selected which were further divided into three altitudinal zones viz., low-hills (600-1000 m amsl) defined as Zone-I, mid-hills (1000-1600 m amsl) defined as Zone-II and high-hills (1600-2300 m amsl) defined as Zone-III. From each altitudinal zone in each block two villages were selected randomly and from each village 10 households were randomly selected, thus making a total sample size of 540 households. The data thus obtained was subjected to the statistical analysis.

Various costs have been worked out by applying following methods.

COST A1 : All actual expenses expressed in cash and kind incurred in production by owner operation.
COST A : Cost A1 + rent paid for leased-in land.
COST B : Cost A1+ rental value of owned capital assets (excluding land)
COST B : Cost B1+ Rental value of owned land (except net land revenue) and rent paid for leased-in land.
COST C1 : Cost B1+ imputed value of family labour.
COST C2 : Cost B2 + imputed value of family labour.
COST D : Cost C2 + 10% of the cost C2 for managerial function performed by farmers.

"Cost C1" has been used for the comparison of the cost of cultivation of wheat crop. The "Cost C1" includes wages of

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hired labour, value of bullock labour, value of seed, manure and fertilizers, irrigation charges, land revenue, interest on loan, depreciation of fixed capital assets, rental value of owned capital assets (excluding land) and family labour.

The gross returns include the value of grain and the value of fodder. The value of the produce has been calculated at the existing market price i.e. Rs 700/- per qt. for wheat and Rs. 200/- per qt. for byproduct (straw+husk).

RESULTS AND DISCUSSION

The details of cost of farmers' practices have been presented in Table-1. There were two major cost factors, farmyard manure and family labour, the imputed value of which was about 60% in all the situations.

Further, it can be inferred from Table-1 that use of fertilizer in Zone-I is more than other zones. The reason is that the Zone-I has maximum area under irrigation and irrigated crops are more fertiliser demanding than rain fed crops (Pasricha, 2001).

Table 1. Cost of cultivation of wheat crop in hills

Input cost (% of total Cost C1)	Zone-1	Zone-2	Zone-3	Overall
Seed	6.82	7.60	7.55	7.30
Seed treatment Fertilizer	0.00	0.00	0.00	0.00
FYM	28.51	26.08	27.08	27.30
Urea	0.43	0.18	0.19	0.27
MOP	0.06	0.02	0.02	0.04
DAP	0.21	0.07	0.26	0.18
Irrigation cost	0.79	0.08	0.52	0.48
Plant protection	0.05	0.00	0.04	0.03
Family labour	29.43	33.82	33.24	32.02
Human labourhired	6.31	6.86	6.6	6.57
Bullock labour	22.43	24.14	23.37	23.26
Miscellaneous	3.75	0.00	0.00	1.38
Interest on half	1.04	0.98	0.98	1.00
period of growth	0.16	0.16	0.17	0.16
Depreciation				
Total	100.00	100.00	100.00	100.00
Cost A1(Rs.)	9712.11	7682.84	7984.27	8459.74
% from Cost C1	70.57	66.18	66.76	67.98
Cost A2 (Rs.)	9712.11	7682.84	7984.27	8459.74
% from Cost C1	70.57	66.18	66.76	67.98
Cost B1(Rs.)	9725.28	7694.22	8106.35	8508.62
% from Cost C1	70.67	66.27	67.78	68.38
Cost B2 (Rs.)	11536.48	8489.20	9487.51	9837.73
% from Cost C1	83.83	73.12	79.33	79.06
Cost C1(Rs.)	13762.02	11609.84	11958.99	12443.61
Cost C2 (Rs.)	15573.21	12404.83	13340.15	13772.73
% from Cost C1	113.16	106.85	111.55	110.68
Cost D (Rs.)	17130.53	13645.31	14674.17	15150.00
% from Cost C1	124.48	117.53	122.70	121.75

Cost D includes all the possible costs and is considered as the real cost of production in a farm situation. But rental value of owned land and managerial cost can be excluded in a marginal profit situation and Cost C1 be taken as the standard cost of production which includes all actual expenses expressed in cash and kind, the rental value of owned capital assets (excluding land) and imputed value of family labour. It is evident from Table-1 that the cost D in overall situation is 21.75 % higher than the Cost C1. Cost D is the highest in Zone-1 (24.48% higher than Cost C1) and lowest in Zone-2 (17.53% higher than Cost C1).

Returns over the various costs are presented in Table-2. Cost C1 has been considered as standard. The results show that the farmers of zone-I get the highest return of Rs. 15787/- per ha as compared to the other zones. The farmers of zone-II (mid-hills) get the lowest return of Rs. 5888/- per ha as compared to the other two zones. In mid-hills rainfed situation and poor soils make the agriculture less profitable.

However, if the family labour is excluded from the cost of cultivation (Cost-B1), the net return in zone-I, zone-II and zone-III are Rs. 19824/-, Rs. 9804/- and Rs. 16191/- per ha respectively.

Table 2. Returns over various costs on sample farms

Particulars	Zone-1	Zone-2	Zone-3	Overall
Average grain yield (q/ha)	22.73	13.46	18.69	18.30
Average fodder yield (q/ha)	68.19	40.38	56.07	54.9
Returns from grain (Rs.)	15911.00	9422.00	13083.00	12805.00
Returns from fodder (Rs.)	13638.00	8076.00	11214.00	10976.00
Gross returns (Rs.)	29549.00	17498.00	24297.00	23781.00
Returns over Cost A1	19836.89	9815.16	16312.73	15321.26
Returns over Cost A2	19836.89	9815.16	16312.73	15321.26
Returns over Cost B1	19823.72	9803.78	16190.65	15272.38
Returns over Cost B2	18012.52	9008.80	14809.49	13943.27
Returns over Cost C1	15786.98	5888.16	12338.01	11337.39
Returns over Cost C2	13975.79	5093.17	10956.85	10008.27
Returns over Cost D	12418.47	3852.69	9622.83	8631.00

Table 3. Marketable surplus of farm produce on sample farms

Particulars	Low-hill Zone-1	Mid-hill Zone-2	High-hill Zone-3	Overall
Production (kg/household)	320.88	124.35	218.81	221.34
Disposal (%)				
Kind Payment	0.00	0.00	0.00	0.00
Seed	7.54	12.98	9.45	9.19
Labour payment	0.92	0.00	1.19	0.83
Gifts	0.64	0.00	0.44	0.46
Sub total (%)	9.10	12.98	11.08	10.48
Surplus for use (%)	90.90	87.02	88.92	89.52
Requirement/home	402.47	395.48	399.20	399.05
consumption per year (Kg)				
Marketable surplus/deficit	-110.80	-287.28	-204.64	-200.91

Table 3. gives details of production, home requirement and surplus/deficit. In overall basis, each household depends on market for wheat to meet the household requirement up to the extent of 200.91 Kg. In Zone-I dependence on the market

is least (110.91 Kg.) whereas in Zone-III dependence on market is maximum (204.64 Kg.). This is, therefore, important that intensified efforts be made to increase production of wheat to make the hill farmers self sustained.

Some of the constraints experienced by the farmers of the hills are indicated below;

1. Marginal and scattered land holdings.
2. Non-availability of good quality seeds of improved varieties.
3. Lack of irrigation water.
4. Non-availability of farm inputs i.e., fertilizers and weedicides.

CONCLUSION

Though the cost of cultivation in Zone-I is higher yet the returns are reasonably good. This is because of good irrigation facilities and more use of fertilizers. In mid-hills returns are least because of poor soil and prevailing rainfed agriculture. If the family labour is excluded from the cost of cultivation (Cost-B1), the net return in Zone-I, Zone-II and Zone-III are Rs. 19824/-, Rs. 9804/- and Rs. 16191/- per ha, respectively. Households in Zone-I, Zone-II and Zone-III were found to be deficit in wheat to the extent of about 111 Kg, 287 Kg and 206 Kg, respectively.

REFERENCES

1. Pasricha, N.S. (2001). Growth in irrigation development and fertiliser use in India - Impact on food production. *Agricultural Situation in India* (May, 2001). 45-49.

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