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An economic analysis of production and marketing of kiwi in Solan district of Himachal Pradesh

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Abstract

The present thesis has examined the trends and patterns of kiwi crop, farmers' production behavior and problems faced by farmers in the cultivation of kiwi in Himachal Pradesh. In such a situation, it is important to study production and marketing of Kiwi. Economics of Kiwi production was studied with the following objectives to estimate the costs and returns of persimmon production per ha. And B.C ratio, to identify different marketing channels, to estimate price spread and marketing efficiency, marketing cost to identify constraints in production and marketing of maize and suggest suitable policy measures. Solan district was purposively selected for the present study. There are 10 blocks in this district, out of them we selected 2 blocks Nauni and Ochgaht block. From two blocks 20 villages did select comprise 10-10 from each. Total of 100 sample farmers were selected category wise. The average size of the family was found to be maximum i.e 6.1 on semi medium farm category followed by 5.90, 5.96, and 6 on marginal, small and medium categories respectively table. Under this situation, the total family size was found to be 23.96 with 51.71% males and rest females. The sex ratio of male and female was worked out to be 105.22, 106.59, 110 and 107.98 for marginal, small, semi medium and medium farm categories respectively. The data collected were analyzed by adopting average and percentage analyses and used to show the differences about different size of farm groups. Results of the study revealed that Establishment cost of kiwi per hundred plants was Rs.39832.03. The payback period worked out to be 5 years for all the farm categories. Benefit-cost ratio was estimated to 2.56 to overall farmers and in category wise in ranges from 2.55 for marginal farmers, 2.61 for small farmers and 2.54 for medium farmers, for marginal, 43 for medium and. The findings of this study strongly recommend optimum resource utilization to adapt to the adverse conditions and achieve desired growth in kiwi cultivation and ultimately productivity.

Keywords: cost, production, profitability, kiwi, Solan

Introduction

Kiwi *Actinidia deliciosa* (is a rather new temperate fruit), the commercialization of which started commercialization of Kiwi berry (*A. arguta*) is more recent. A native to central China, it is being grown in commercially in New Zealand, Italy, USA in India, kiwi was first planted in the Lal Bagh Gardens at Bangalore as an ornamental tree. With extensive research and development support its commercial cultivation has been extended to the mid hills of Himachal Pradesh, Uttar Pradesh, Jammu and Kashmir, Sikkim, Meghalaya, Arunachal Pradesh and Nilgiris hills in India. The application of *Actinidia chinensis* to medicines produces good effects in interrupting nitrosophore, which is a cancer inducing substance, and in curing short breadth stuffing chest, coughing etc. There leaves as fodder as it being rich in starch, proteins, and vitamin C.

Kiwi is Himachal Pradesh most important fruit crop today, accounting for about 49 percent of the total fruit crop area and about 84 percent of the total fruit production, (Sharma and Kumar, 2019). Agriculture is the Indian economy stronghold and horticulture is an important component of kiwi production and is the main livelihood in Himachal Pradesh. In contrast to 3.68 lakh tones in 2018-2019, apple production reached 6.64 lakh tones in this fiscal year. The production of horticulture rose by 42.82%

The kiwi fruit plantations are unique in many ways and have advantages over other fruit crops cultivation. There are several attributes that make the kiwifruit cultivation as viable and productive in mid and foot hills of the North Eastern part of the country. Chandel and Rana (2002), reported that its cultivation in the country is of recent origin and total production and productivity is very low, yet there is tremendous scope for its cultivation. The global Kiwi fruit production reached 4.27 billion metric ton in 2016.

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In 2017, the major exporters are European countries (mainly Italy and Belgium) 43.9% and Oceania countries (mainly New Zealand) 43.7%. New Zealand is the largest exporter while China is the largest producer of Kiwi fruit (Dhorji & Penjor, 2019).

Solan district of Himachal Pradesh has best agro-climatic conditions which leads to the production of almost every crop and also good for rearing milch animals like buffalo and cows. As the district is well connected with road/ good transportation facilities which helps farmers to sell their produce to distant markets and fetch good prices. Fruits move from farm gate through numerous intermediaries and finally reach the ultimate consumer. This whole chain sometimes becomes very long due to which losses increase (sometimes more than 40%) and the final consumer ends up paying a high price for the fruits. There is a need to cut down the losses at each stage. This can be done with reducing the intermediaries, improving the transportation (refrigerated transportation) system and reducing time taken by the fruits in reaching the ultimate consumer.

Fruit growers in India's Himachal Pradesh are increasingly turning to commercial kiwifruit production and away from traditional apple cultivation in bid to diversify their crops and boost returns, reports The Hindu. Some 120ha in the region are now planted to kiwifruit, which last year yielded around 137 tonnes, the article said. Varieties grown include Hayward, Abbot, Allison and Bruno. The mid-hills and valleys of Solan, Shimla, Sirmour, Mandi and Kullu districts are ideally suited for kiwi cultivation. It's ideal for crop diversification and has a market among high-end consumers,' Sudhir Katiha, assistant project officer of the state horticulture department, is quoted as saying.

Material and Methods

The basic objective of the study is to investigate the economic aspects of production and marketing of Kiwi in selected area. Any type of investigation to be conducted with specific objectives invariably requires the adoption of scientific method and procedures. Reliability and validity of estimates depends upon methods and procedure of data collection and analytical tools used in the study. The state comprises 12 Districts, among these Districts, Solan District is selected purposively for the study of kiwi for present study. There are 10 blocks in the district for my convenience and transportation, 2 blocks is selected purposively according to area of production and marketing channels presence. A complete list of all villages will be prepared with the help of block development officer. It has a total of 100 panchayat villages. 5% of production area is selected randomly in solan block for the present study. A list of respondents was prepared with the help of KVK and other various organizations. 10% of respondents has been selected.

Cost Concepts

Cost concepts are widely used because of their relevant in the

decision-making process. This means the costs serve as a basis to expand the size of cultivated land, to buy the requisite capital assets and inputs. The concepts of cost have been classified into four categories depending on the purpose of the study. Cost concepts used are briefly explained below.

The following cost concepts were used to find out the costs structure in the production of Kiwi.

Variable costs: Seeds, Manure, Fertilizer, Human labor etc.

Fixed costs: Rental value of land, Interest in fixed capital Depreciation.

1. Total costs = Total variable cost (TVC) + Total Fixed Cost (TFC)

Cost A: It includes,

- a. Value of hired human labour
- b. Value of hired bullock labour
- c. Value of owned bullock labour
- d. Value of tractor charges
- e. Value of seed/seedlings (farm produced and/ or purchase)
- f. Value of manure and cakes owned (farm and/or purchased)
- g. Value of fertilizers,

Farm income measures

Under farm income, gross income, net income, farm business income, family labour income and farm investment income were worked out.

Gross income

Gross income pertains to the total value of the potato production during the year valued at the average prices of the year.

Net income

Net income was worked out on by deducting cost C2 gross income.

Farm business income

This is the return to the producer and his family labour and investment on owned land and owned capital. It was worked by deducting cost A1 from gross income.

Family labour income

It is a measure of return from potato production to family labour. This will be obtained by deducting cost B2 from gross income.

Benefit-cost ratio (BCR)

Benefit – cost ratio is obtained by ratio of total gross return to the total cost

Results and Discussion

Table 1: Cost of Cultivation of kiwi Crop per Hectare in Different Size of farm Group, Number of Respondent = 100

S.N.	Particulars	Size of farms groups				
		Marginal	Small	Semi Medium	Medium	Total average
1	Hired labour charges	6600(21.5)	6440(21.61)	6396(21.94)	6267(22.11)	6425.75(21.79)
2	Family labour charges	9400(30.63)	9300(31.21)	9263(31.78)	9109(32.14)	9268(31.44)
3	Machinery labour charges	2100(6.84)	2200(7.38)	2250(7.72)	2400(8.47)	1951(7.60)
4	Cost of seed	1900(6.19)	1950(6.54)	2000(6.86)	2100(7.41)	1987.5(6.75)
5	Cost of irrigation	500(1.63)	550(1.85)	550(1.89)	580(2.05)	545(1.85)
6	Cost of plant protection	1400(4.56)	1500(5.03)	1575(5.40)	1600(5.65)	1518.75(5.16)
7	Interest on working capital@7.5%	400(1.30)	450(1.51)	450(1.54)	480(1.69)	445(1.51)
8	Depreciation on fixed Resources	150(0.49)	190.14(0.64)	195.09(0.67)	210.14(0.74)	186.34(0.63)
9	Land Revenue Paid to Government	420(1.37)	450(1.51)	460(1.58)	500(1.76)	457.5(1.56)
10	Interest on fixed Capital	200(0.65)	210(0.70)	190(0.65)	180(0.64)	195(0.66)
11	Rental value of own Land	7200(23.46)	7200(24.16)	7200(24.70)	7200(25.40)	7200(24.43)
	Total cost of cultivation	30270(100)	30440.14(100)	30529.09(100)	30626.14(100)	30179.84(100)

Table 1 in revealed that among size of farms, total cost incurred by the marginal size farms were highest (Rs 30270/ha) as followed by small size farms (Rs.23440.14 /ha) in different size of farms group.

The cost of human labor, family labor, implement and seed were high as compared to the other cost. The distribution of pattern of operational cost under various inputs revealed that the cost of family labour was the highest in the marginal size family (Rs 9400.00/ha), followed by small size farm Rs. 9300.00 /ha, Semi Medium size farms and Medium size farms

(Rs. 9263.00/ha and Rs 9109.00/ha). The machinery labour charge range from Rs 2100.00 (marginal size farm) to Rs 2400.00 (Medium size farm). For plant protection, herbicides and pesticides were used and the cost range from Rs 1400 /ha (marginal size farm) to Rs 1600 /ha (Medium size farms). Labourer were hired only during harvesting period and the cost range from Rs 6600.00/ha (marginal size farms) to Rs 6267.00/ha (Medium size farms). The sample average for land revenue paid to the government was Rs 457.5 and rental value of own land was Rs 7200 in different size of farm group.

Table 2: Cost and Return in kiwi crop per Hectare in Different Size of Farms, Group of Respondent =100

S.NO.	Particulars	Size of Farms Group				
		Marginal	Small	Semi Medium	Medium	Average
1	Total Cost of Cultivation	30270	30440.1	30529.09	30626.1	30179.84
2	Yield(q/ha)	26.00	26.80	27.00	27.50	26.83
3	Gross returns per hectare	390000	402000	405000	412500	402375
4	Net returns per hectare	359730	371560	374470.91	381874	372195.2
5	Cost of Production per Quintal	1164.23	1135.83	1130.71	1113.68	1125.06
6	Price per Quintal	15000	15000	15000	15000	15000
7	Net returns per Quintal	13835.77	13864.2	13869.29	13886.3	13874.94
8	Benefit Cost Ratio	01:11.90	01:12.2	01:12.3	01:12.5	01:12.3

Table 2 reveals the cost and returns in kiwi cultivation in different sons group. The total cost of cultivation was highest in medium farms group is detect and followed by marginal farm size Rs. 30626.14 /ha) and the lowest was medium farms group (Rs 30270.00 / ha). The sample average for total cost of cultivation was Rs 30179.84 group lies site group. The gross returns obtained per hectare by medium size farms was highest (Rs 412500/ ha) followed by Semi Medium size farms (Rs 405000/ ha), small size farms (Rs. 402000/ha) and marginal size farms (Rs 390000/ ha) respectively. The net returns per hectare by Medium size farm is the highest (Rs 381873.86), followed by small size farms (Rs. 374470.91 /ha)

small size farms (Rs 371559.86/ ha) and marginal size farms (Rs 359730.00/ ha) respectively.

The average yield of kiwi in different size of farm was 26.83 qt/ha. The yield was highest in use of medium size farms 27.50 qtl/ha, followed by Semi Medium size farms 27.00gt ha and small size farms 26.80 qti/ha and marginal 26.00q/ha respectively. The average cost of production per quintal was Rs 1125.06 qtl/ha and price per quintal was Rs 15000 qtl/ha in different size farms group. Cost benefit ratio was highest in large size farms 1:12.47, followed by Semi Medium size farms 1:12.27, small size farm 1:12.21 and small size farms 1: 11.88 where the sample average was 1:12.33.

Table 3: Cost Concept in kiwi Crop per hectare in Different Size of Farm Group, Number of Respondent=100

S.NO.	Cost Concepts	Size of Farm Group				
		Marginal	Small	Semi Medium	Medium	Average
1	Cost A1	10623.65	10389.9	10003.16	9612.12	10157.19
2	Cost B	18036.37	17428.6	16450.28	15645.4	16890.15
3	Cost B1	10713.09	10590.6	10149.23	9732.1	10296.24
4	Cost B2	18000	17590.6	16594.47	15754.5	16984.88
5	Cost C	27821.08	26728.6	25728.28	24754.4	26258.08
6	Cost C2	27656.04	26890.6	25857.47	24863.5	26316.89
7	Cost C3	29757.04	29429.6	28293.22	27199.8	28669.93

Table 3 shows the cost concept for different size of farm group per hectare. Cost A1 was highest in marginal size farm Rs. 10623.65/ha, followed by small size farms Rs 10389.85 ha, Semi Medium size farms Rs 10003.16/ha and Medium farms Rs 9612.12/ha. Cost C was highest for small size farms Rs. 26258.00 /ha respectively. Cost B1 was highest in marginal farm size Rs. 10713.09/ha, followed by small size farm Rs 10590.56 /ha, Semi Medium size farms Rs 10149.23 /ha and Medium farms Rs 9732.10/ha respectively.

The sample average for Cost A1, Cost B1, Cost B2, Cost C, Cost C3 and Cost C2 was Rs 10157.19/ha, Rs 10296.24/ha, Rs 16984.88/ha, Rs 26256.08/ha, Rs 28669.93/ha and Rs 26316.89/ha in different size of farm group.

Conclusions

The study reveals the production of kiwi in Solan District of Himachal Pradesh. The main objective of the study was to analyze socio economic characteristic of sample respondents, economics of kiwi production, marketing channel, price spread and constraints during production and marketing. From the study it is known that the entire respondents were found to be literate, well economic background and greater access to all the assets. Economics of maize production was more profitable in medium size farms as compare to marginal, small and semi medium size farms group. the study shows that there are only two marketing channel and there is scope to increase the producer's share in consumer's by making the market more effective so that the number of intermediaries to be restricted and that marketing cost and marketing margins be reduced.

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