Economics and Constraints of Pineapple Cultivation in Dimapur District of Nagaland

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Abstract

A study on economics and major constraints in pineapple cultivation in Dimapur District of Nagaland was conducted during 2007-08. The study covered four villages of two blocks and data on constraints and cost-return aspects of pineapple cultivation were collected from 60 farmers. The total cost of pineapple production on average farm was estimated to be Rs.37116.54 and the average gross income per hectare from pineapple production was Rs. 67161.67, whereas the average family labour income was Rs. 19465 and the average net income per hectare of pineapple production was Rs. 30045.13 per hectare. The average benefit-cost ratio worked out to be 1.81. Inadequate transport facilities, non-availability of market in the locality, low marketable surplus, absence of market information, lack of organization among producers, problems of storage etc; are the major constraints in pineapple production.

Key words: *Costs, returns, cost-concept, constraints, pineapple.*

Introduction

Pineapple (*Ananas comosus*) is a herbaceous perennial crop belonging to the order Farinasae, family Bromeliacae and is one of the important commercially grown tropical fruit in the world. Although tropical in nature, pineapple can adopt well top sub-tropical areas up to 1100 m above sea level if the area is free from frost. The fruit is canned or made into juice or other processed products like - jam, jelly etc; the fruit is known to be a good source of Vitamin - A, Vitamin - B and Vitamin - C. It also contain fair amount of calcium, phosphorous and iron.

India is one of the major producers of pineapple contributing more than 8 per cent of the total world production. Indian pineapple in the form of canned slices, titbits, juice and jam are exported to Nepal, UK, Spain and UAE. During the year 2002-03, India produced 1.17 million tonnes of pineapples from about 79846 hectare of land. The major pineapple states in India are West Bengal, Assam, Bihar, Nagaland, Meghalaya, Manipur, Arunachal Pradesh and Kerela (Anonymous., 2004).

The north-east region of India produces about 49 per cent of the total pineapple of the country. While, Pineapple is one of the most important leading fruit cultivated in 11 districts of Nagaland, out of that Dimapur District is in the highest area as well as productivity, that is, yield 11870 kg / ha, more than 70 per cent of pineapple fruit is cultivated under rainfed condition and nearly 60 per cent pineapple area is having high productivity (more than 32 per cent of the total production comes from high productivity groups). Besides, average productivity (11371 kg / ha) of the state is higher than the north east average productivity of 11294 kg / ha (Anon., 2006). The varieties of pineapple which are grown in Dimapur District are 'Kew' and 'Queen'. Kew variety has broad and shallow eyes, suitable for easy trimming and canning and grows up to an average weight of 1 to 1.75 Kg. Queen variety has deep eyes with excellent quality and flavour. It is spiny in nature and mainly used for table purpose.

Methodology

The study was conducted in Dimapur District of Nagaland. Two blocks namely Dimapur and Niuland were randomly selected; further, two villages from each block were selected. From each village fifteen farmers were randomly selected. Thus in all, 60 pineapple

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growers were randomly selected and were stratified into 3 groups viz; Group I (having upto 1 ha land) , Group II (having 1-3 ha land) and Group III (having 3 ha and above land) and the number of cases in I, II and III group came to 17, 21 and 22, respectively. The data on cost-returns aspects of pineapple cultivation were collected through pre-structured schedules and questionnaires.

Results and Discussion

Table 1 reveals that the item wise break up of per hectare cost of pineapple production across various size groups. It was found that the per hectare total cost of pineapple production in the average farm situation was estimated to be Rs. 37116.54. From the total cost, the share of fixed cost was found to be 4.80 per cent and the rest was shared by variable cost (95.20 per cent). From the average variable cost, the average share of labour was found to be highest (55.09 per cent) followed by seed cost (15.07 per cent), transportation cost (14.26 per cent), interest on working capital (6.98 per cent) and lastly by marketing cost (8.60 per cent). Rental value of land was further work out at an average of total 45.31 per cent on fixed cost items. The value of hired labour at Rs. 13036.67 per hectare was found to be highest from among the various items of Cost A_1 in pineapple production.

The table 3 indicate that the average Cost A_1 per hectare was found to be 29764.09. Additions of Cost A_1 with that of interest on value of own capital asset gives the value of Cost B_1. Hence the average Cost B_1 per hectare was found to be Rs. 30688.21, which also shows a pattern of decreasing trend with the increase in farm size. The Cost B_1 for different groups was found to be Rs. 35154.82 in Group I, Rs. 29164.14 in Group II and Rs. 28659.43 in Group III.

The value of Cost C_1 was computed by adding the imputed value of family labour to Cost B_1. The value was found to be Rs. 42834.82 in Group I, Rs. 35729.14 in Group II and Rs. 33699.43 in Group III. The average Cost C_1 per hectare was found to be Rs. 37116.54. The value of Cost C_3 was computed by taking 10 per cent of the total cost on account of risk and managerial function performed by pineapple growers. The average Cost C_3 was found to be Rs. 40828.19 per hectare. The Cost C_3 per hectare was Rs. 47118.30, Rs. 39302.05 and Rs. 37069.37 for Group I, II and III farms respectively. This Cost C_3 value also shows a pattern of decreasing trend with the increase in the size of farms.

Amongst the various size groups of farm size, the per hectare gross income from pineapple production came to Rs. 62560, Rs. 70680 and Rs. 68245 in Group I, II & III respectively, while the average cost per hectare was worked out to be Rs. 67161.67.

It was observed that per hectare human labour income was highest in Group I group Rs. 22540 and lowest in Group III Rs. 16590. The overall average was worked out to be Rs. 19465. This family labour was calculated by deducting Cost B_1 from gross income. The average average net income was worked

Table 1: Cost of cultivation of pineapple production/ha in Dimapur District of Nagaland

S. No. Particulars	Group I	Group II	Group III	Average
A. Variable Cost:				
1. Seed cost	6310.50(15.37)	4551.09(13.38)	5113.20(16.55)	5324.93(15.07)
2. *Human Labour* i) Family labour	7680(18.70)	6565(19.28)	5040(16.31)	6428.33(18.20)
ii) Hired labour	14860(36.19)	12700(37.30)	11550(37.39)	13036.67(36.89)
3. Marketing cost	3965.00(9.66)	2870.75(8.43)	2282.50(7.39)	3039.42(8.60)
4. Transportation	5380(13.10)	4985(14.64)	4750(15.38)	5038.33(14.26)
5. Interest on working capital	2864.70(6.98)	2375.39(6.97)	2155.80(6.98)	2465.09(6.98)
6. Total variable cost	41060.2*(95.85)*	34047.23*(95.29)*	30891.5*(91.67)*	
35332.77*(95.20)*				
B. Fixed Cost:				
1. Rental value of land (leased in+leased out)	806.10(45.42)	760.56(45.22)	858.15(30.56)	808.27(45.31)
2. Depreciation on implements	49.14(2.77)	50.00(2.97)	55.00(1.96)	51.38(2.88)
3. Interest on fixed capital excluding land	919.38(51.81)	871.35(51.81)	1894.78(67.48)	924.12(51.81)
4. Total fixed cost	1774.62*(4.15)*	1681.91*(4.71)*	2807.93*(8.33)*	17833.77*(4.80)*
C. Total Cost (A + B = C)	42834.82*(100.0)*	35729.14(100.0)	33699.43*(100.0)*	37116.54*(100.0)*

(Parenthesis indicates percentage to total)

Table 2: Cost and return of Pineapple on different size group (in Rs. / ha)

S. No.	Particulars	Group I	Group I	Group I	Average
1.	Cost A_1	34235.44	28292.79	26764.65	29764.09
2.	Cost B_1	35154.82	29164.14	28659.43	30688.21
3.	Cost C_1	42834.82	35729.14	33699.43	37116.54
4.	Cost C_3	47118.30	39302.05	37069.37	40828.19
5.	Gross Return	62560.00	70680.00	68245.00	67161.67
6.	Total Labour Income	22540.00	19265.00	16590.00	19465.00
7.	Net income	19725.18	34950.86	34545.57	30045.13
8.	Return from management	58276.52	67107.09	64875.56	63450.02
9.	BCR based on Variable Cost	1.324	2.076	2.209	1.901
10.	BCR based on Total Cost	1.461	1.978	2.025	1.809

Table 3: Distribution of sample farmers of different size groups on the basis of problems faced by them in pineapple marketing

S. No.	Constraints	Group I (N = 17)	Group II (N = 21)	Group III (N = 22)	Total (N = 60)	Rank
1.	Lack of seedling	4(23.53)	4(19.05)	2(09.09)	10(16.67)	XI
2.	Cost of Seedling	10(58.82)	5(23.81)	3(13.64)	18(30.00)	IX
3.	Lack of technical knowledge	3(17.65)	12(57.14)	14(63.64)	29(48.33)	VIII
4.	Lack of own funds	12(70.59)	11(52.38)	10(45.45)	33(55.00)	VII
5.	Lack of finance andcapital facilities	14(82.35)	15(71.43)	18(82.82)	47(78.33)	III
6.	Diseases and pests of Pineapple	4(23.53)	5(23.81)	6(27.27)	15(25.00)	X
7.	Lack of sorting & grading facilities	13(76.47)	12(57.14)	15(68.18)	40(66.67)	VI
8.	Knowledge of properharvesting time	7(41.18)	11(52.38)	11(50.00)	29(48.33)	VIII
9.	Transportation facilities and its cost	15(88.24)	12(57.14)	15(68.18)	42(70.00)	V
10.	Marketing related problems	16(94.12)	18(85.71)	17(77.27)	51(85.00)	II
11.	Lack of processing units / facilities	14(82.35)	19(90.48)	20(90.91)	53(88.33)	I
12.	Lack of Government support	15(88.23)	12(57.14)	17(77.27)	44(73.33)	IV
13.	Lack of Training programme	12(70.59)	18(85.71)	17(77.27)	47(78.33)	III
14.	Involvement of Middlemanfor marketing the products	13(79.47)	12(57.14)	15(68.18)	40(66.67)	VI

(Parenthesis indicates percentage to total)

out to be Rs. 30045.13. Group I farm holds the minimum share with Rs. 19725.18 only, while Group II holds the maximum share of Rs. 34950.86. Whereas, the average per hectare return from management was found to be Rs. 63450.02, while Group II accounts highest share with Rs. 67107.09 and lowest in Group I farm Rs. 58275.72. The average benefit cost ratio on the basis of variable cost was Rs. 1.901, whereas Group III was recorded as highest share of Rs. 2.209 and Group I with the lowest share of Rs. 1.324 only.

The average benefit cost ratio on the basis of total cost was found to be Rs. 1.809, in group III it came to Rs. 2.025, which was maximum and minimum was found in Group I having Rs. 1.461. Thus, the result indicates that pineapple production was economically profitable considering the variable cost since value of BCR was found to be more than unity. It is also of the fact that lower cost was incurred in larger farm and higher outcome was expected from larger farm.

Major constraints in pineapple production as perceived by the growers are presented in Table 3. The constraints reported were lack of processing units / facilities (88.33 per cent), marketing related problems (85.00 per cent), lack of training programme and lack of finance & capital facilities (78.33 per cent), lack of

government support (73.33 per cent), transportation facilities and its cost (70.00 per cent), lack of sorting & grading facilities and involvement of middleman for marketing the products (66.67 per cent), lack of own funds (55.00 per cent), lack of technical knowledge and knowledge of proper harvesting (48.33 per cent), cost of seedling (30.00 per cent), diseases and pests of pineapple (25. 00 per cent) and lack of seedling (16.67 per cent). The intensity of these problems was higher in lower farm size groups.

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