

An Economic Analysis of the King chilli cultivation in Peren district of Nagaland

NAMDAW KEDRISI¹ AND AMOD SHARMA

Prof & Head, Department of Agricultural Economics, Nagaland University, SASRD Medziphema Campus, District: Dimapur - 797 106, Nagaland

Corresponding Author E-mail: hodaec_sasrd@yahoo.co.in

Abstract

The present research study was conducted in Peren district of Nagaland during the year of 2017-18 for the assessment of resource-use efficiency of King chilli cultivation a sample of 60 farmers by following a multi stage simple random sampling technique adopted, first of all the selected respondents were classified into two groups viz; Group-I marginal (<1.00 ha) and Group-II small (1.01 to 2.00 ha) based on the area of King chilli under land holding. Small and medium, chemical, manure and salt cost is zero, On Total cost of cultivation for the marginal is Rs 5,390.00, whereas for the small farmers is Rs 9,650.00/- and for the medium farmers is Rs 23,195.00/-, and the average cost of cultivation for all the respondents comes around Rs 15,754.00-. The production of King chilli for the marginal farmers is 96 kilogram on an average farm, for the small farmers is 178 kilogram and for the medium farmers is 340 kilogram, the rate for selling the King chilli per kilogram for the marginal farmers is Rs 256.00/- per kilogram, for the small farmers is Rs 254.00/- per kilogram and for the medium farmers is Rs 250.00/- per kilogram. The lowest rate of King chilli per kilogram is found in medium farmers is Rs 250.00/- per kilogram, the marginal rate of King chilli per kilogram Rs 256.00/- per kilogram which was observed to be the highest on the farm size group, respectively. The overall benefit cost ratio was work out to be Rs 3.27/-, which was found to be most profitable venture among the existing cropping system / farming.

Key words: King, chilli, cultivation, economics, analysis

Introduction

King Chilli is used in bulk quantities both in fresh as well as dried forms. Chilli in Nagaland is grown commercially for its fruits and constitutes the principal source of dry chillies for marketing. Chilli is an indispensable condiment and used in the diet of every Naga household in one or the other form. For a decade Naga people have been eating chilli. It fruits forms an essential ingredient of the Naga kitchen cuisine. It is also used for a medicinal purpose, fresh and dried chillies are used for ingredients and pickle, it is also used for extraction of oleoresin and capsaicin.

Chilli has been used conventionally by different ethnic communities of the North eastern India in treating various ailments. In Nagaland chilli are used

to tone up body muscles, toothache and muscles pain. Due to the presence of capsaicinoids. The chilli is extremely hot which is found only in capsicum spp (Hoffman et al. 1983). The capsaicin content of fruit of Capsicum chinense has been found to be very high in comparison to the fruits of the chilli species (Sanatombi and Sharma, 2008).

King Chilli is used in bulk quantities both in fresh as well as dried forms. Chilli in Nagaland is grown commercially for its fruits and constitutes the principal source of dry chillies for marketing. Chilli is an indispensable condiment and used in the diet of every Naga household in one or the other form. For a decade Naga people have been eating chilli. It fruits forms an essential ingredient of the Naga kitchen cuisine (Kedrishi, 2018).

¹Post Graduate Student, Department of Agricultural Economics, Nagaland University, SASRD Medziphema Campus, District: Dimapur - 797 106, Nagaland

King Chilli which is popularly known as ‘Wonder spice’ is a major spice as well as vegetables crop in many countries. It gains its popularity through different many varieties available all over the world with different pungency, size, shape and colours and its usage. King chilli is extensively used by the consumers in all over the Nagaland and world in general. Since king chilli is extensively consumed, therefore it is foremost need to evaluate the economics of king chilli so that the benefit gain by the farmers can be evaluated and justified.

Objectives:

For the present study mainly two specific objectives were fame to conduct the research:

- i). To study the socio-economic status of King chilli cultivators across the farm size groups,
- ii). To work out the economics of the production of King chilli on different farm size groups.

Research Methodology

The present research study was conducted in Peren district of Nagaland during the agricultural year of 2017-18.

Table 1 reveals that a sample of 60 King chilli growers were selected following a multi stage sampling technique. In the first stage two blocks of Peren district viz; Peren Block ‘B’ and ‘C’ and four villages were selected randomly, then a list of farmers of the village were prepared separately and on the basis of land holdings (ha), then 15 farmers from each village were selected by purposively stratified simple random method and distributed into two groups, based on the area of land holding of the respondent for the assessment of resource-use efficiency of king chilli cultivation viz; respondents were classified into two groups Group-I: marginal (<1.00 ha), Group-II: small (1.01 to 2.00 ha) based on the area under land holding (Kedrishi, 2018).

Results and Discussion

Table 2 revels the area and production of King chilli in Nagaland (5 year average) with a total area of 5,820 ha in Nagaland state with an average production of 41,904 metric tonnes, as the researcher is the resident of Peren district, so it will be essay for getting all the information with fact and figure for the research study.

Table 2: Area and production of King chilli in Nagaland (5 year average)

S. N.	Districts	Area (ha)	Naga chilli Production (metric tonnes)
1.	Kohima	685	4911
2.	Wokha	670	4948
3.	Mokokchung	574	4093
4.	Zunheboto	357	2518
5.	Tuensang	658	4798
6.	Phek	550	4123
7.	Mon	576	4093
8.	Dimapur	472	3313
9.	Kiphire	458	3291
10.	Longleng	450	3268
11.	Peren	370	2548
	Total	5820	41904

(Source: Statistical Handbook of Nagaland, 2018-19).

Table 3a and 3b revealed the educational status of the population is an significant distinguishing feature that shows the productivity of different crops grown by the farmers. This helps the farmers for the judicious allocation and use of different inputs for better production and profit maximization. The average family size of king chilli growers was found to be 4.35. Among the others sample size groups, in medium the average family size was the highest with 5.25 and lowest in the marginal group with 3.82. It was also found that 3.52

Table 1: Area allocated under King chilli cultivation on different farm size

S. N.	Area under King Chilli cultivation (ha)	Number of households		
		Marginal	Small	Overall
1.	< 1.0 ha	19(31.67)	0(0.00)	19(31.67)
2.	>1.0ha	0(0.00)	41(68.33)	41(68.33)
	Total Cultivated area	64.46(24.01)	204.04(75.99)	268.50(100.00)
	Total King Chilli area	15.21(21.02)	57.15(78.98)	72.36(100.00)
	Average per household area	0.801	1.394	1.206

(Figures in parentheses indicate percentage to total)

Table 3a: Farm family size and level of education

S. Farm N. size group	No. of household	Av. family size of the sample group	Total population			Illiterate			Primary		
			Male	Female	Total	Male	Female	Total	Male	Female	Total
1. Marginal	13(21.67)	3.82	21(43.75)	27(56.25)	48(100)	3(6.25)	2(4.16)	5(10.41)	4(8.33)	7(14.58)	11(22.91)
2. Small	16(26.66)	4.00	34(57.62)	25(42.37)	59(100)	2(3.38)	1(1.69)	3(5.08)	3(5.08)	5(8.47)	8(13.55)
3. Medium	31(51.67)	5.25	97(54.80)	86(48.58)	177(100)	0.00(0.00)	2(1.12)	2(1.12)	2(1.12)	8(4.51)	10(5.64)
Total	60(100)	4.35	152(53.52)	138(48.6)	284(100)	5(1.76)	5(1.76)	10(3.52)	9(3.16)	20(7.04)	29(10.21)

(The figure in the parenthesis indicates percentage to the total)

Table 3b: Farm family size and level of education

S. Farm size N. group	H.S			Graduate and above			Total Literates		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1. Marginal	14(29.16)	12(25)	26(54.16)	3(6.25)	1(2.08)	4(8.33)	21(43.75)	18(37.5)	39(81.25)
2. Small	20(33.89)	18(30.50)	38(64.40)	7(11.86)	2(3.38)	9(15.25)	27(45.76)	25(42.37)	52(88.13)
3. Medium	68(38.41)	52(29.37)	120(67.79)	27(15.25)	23(12.99)	50(28.24)	97(54.80)	83(46.89)	180(91.6)
Total	102(35.91)	82(28.87)	184(64.78)	37(13.02)	26(9.15)	63(22.18)	148(52.11)	128(45.07)	271(95.42)

(The figure in the parenthesis indicates percentage to the total)

Table 4: Distribution of sample farmers according to economic status

S. Farm size No. group	Total population			Earner			Earner dependent			Dependent		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1. Marginal	21(43.75)	27(56.25)	48(100)	15(31.25)	3(6.25)	18(37.5)	5(10.41)	11(22.91)	16(33.33)	2(4.16)	5(10.41)	7(14.58)
2. Small	34(57.62)	25(42.37)	59(100)	18(30.50)	5(8.47)	23(38.99)	11(18.64)	15(25.42)	26(44.06)	2(3.38)	1(1.69)	3(5.08)
3. Medium	97(54.80)	86(48.58)	177(100)	57(32.20)	13(7.34)	70(39.54)	25(14.12)	51(28.81)	76(42.93)	1(0.56)	5(2.82)	6(3.38)
Total	152(53.52)	138(48.6)	284(100)	90(31.69)	34(11.97)	111(39.08)	41(14.43)	77(27.11)	118(41.54)	5(1.76)	11(3.87)	16(5.63)

(The figure in the parenthesis indicates percentage to the total)

per cent of the sample population was illiterate. The literacy percentage was found to be 95.42 per cent. The literacy per cent was found to be highest in medium group of the farmers 91.6 per cent and lowest in marginal group of the farmers 81.25 per cent. Male and female literacy proportions were found to be 52.11 per cent and 45.07 per cent respectively in the study area.

Hence, therefore the above analysis shows that the literacy rate in the study area is highest in HS / PU level of education with 64.78 per cent, followed by graduate and above with 22.18 per cent and primary level with 10.21 per cent.

Table 4 revealed that earners constitute about 39.08 per cent of the total sample population. Male earners constitute about 31.69 per cent while female earners constitute about 11.97 per cent of the total

sample population. The per cent of earners in different size groups were 37.5 per cent in marginal group, 38.99 per cent in small group and 39.54 per cent in medium group of farmer. In the sample 41.54 per cent were earner dependent and 5.63 per cent if the sample population was dependent.

The above findings highlighted the fact that the percentage of the earners increases with increase in size of holdings. It shows that earner dependent (41.54 per cent) constitute the major share in working force followed by earners (39.08 per cent).

Table 5 revealed the working force and its occupational pattern of various size groups of farmer. From the table it represent that 59.85 per cent of the working has adopted agriculture as their main occupation. This was followed by service 29.95 per cent and business 4.57 per cent respectively. The

Table 5: Farm family working force and its occupational pattern

S. Farm size No group	Total population			Agriculture			Service Business			others					
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total			
1. Marginal	21(43.75)	27(56.25)	48(100)	8(16.66)	15(31.25)	23(47.91)	4(8.33)	1(2.08)	5(10.41)	1(2.08)	1(2.08)	2(4.16)	0(0)	0(0)	0(0)
2. Small	34(57.62)	25(42.37)	59(100)	19(32.20)	17(28.81)	32(54.23)	6(10.16)	3(5.08)	9(15.25)	3(5.08)	2(3.39)	5(8.47)	0(0)	0(0)	0(0)
3. Medium	97(54.80)	86(48.58)	177(100)	72(40.67)	43(24.29)	115(64.97)	49(27.68)	12(6.77)	61(34.46)	4(2.25)	2(1.12)	6(3.38)	0(0)	0(0)	0(0)
Total	152(53.52)	138(48.6)	284(100)	99(34.85)	75(26.40)	170(59.85)	59(20.77)	16(5.63)	74(26.05)	8(2.81)	5(1.76)	13(4.57)	0(0)	0(0)	0(0)

(The figure in the parentheses indicates percentage to the total)

Table 6. Cost of cultivation for King chilli cultivation (in average)

S. Farm size N. Groups	Human labour		Seed cost	Inputs				Total
	Owned	Hired		Chemicals/ manures/salts	Tools	Transportation	Other charges	
1. Marginal	2800(51.94)	800(14.84)	400(7.42)	145(2.69)	450(8.34)	400(7.42)	395(7.32)	5390(100)
2. Small	2825(29.27)	1790(18.54)	605(6.26)	630(6.52)	1500(15.54)	1600(16.58)	700(7.25)	9650(100)
3. Medium	3850(11.95)	7780(24.16)	1555(4.82)	765(2.37)	6900(21.43)	6450(20.03)	4895(15.20)	32195(100)
Average	3158.33(20.05)	3456.66(21.95)	853.33(5.41)	513.33(3.26)	2950(18.73)	2816(17.88)	1996.66(12.68)	15745(100)

(The figure in the parentheses indicates percentage to the total)

above finding of a research shows that male population is engaged more in agriculture, service and business than female population.

Table 6 revealed the cost of cultivation generally refers to the total expenses incurred in cultivating one hectare of King chilli. The cost of cultivation is worked out by input wise and operation wise together with their percentage to the total. The higher cost of cultivation in all marginal, small and medium is incurred in human labour (owned and hired), medium farmer has the highest cost of seed and least for the marginal farmers due to the fact that the medium farmer have more area of cultivation. For all marginal, small and medium, chemical, manure and salt cost is very less due to the reason of shifting or *Jhum* cultivation, where fertility of land is high so there is no requirement of manure.

On an average the cost for tools is only around 18.73 per cent of the total cost, likely as the transportation, which cost is also on an average comes to 17.88 per cent of the total cost, other charges like depreciation in the tools and implements used an interest on working capital, marketing cost comes to the least which is around at 13.06 per cent of the total cost. Total cost of cultivation for the marginal is Rs 5,390/-, whereas for the small farmers is Rs 9,650.00/- rupees and for the medium farmers is Rs 32,195/-

and the average cost of cultivation for all the respondents comes around Rs 15,754/-.

Table 7 revealed the total return is the amount of value of a producers earn from the production over a specific period of time, it is also a strong measure of an investment's overall performance. The production of king chilli for the marginal farmers is 96 kilogram on an average, for the small farmers is 178 kilogram and for the medium farmers is 340 kilogram, the rate for selling the king chilli per kilogram for the marginal farmers is Rs 256/- per kilogram, for the small farmers is Rs 254/- per kilogram and for the medium farmers is Rs 250/- per kilogram. The variation in the rate of king chilli per kilogram varies due to the fact that,

Table 7: Total return from king chilli cultivation

S. Groups N.	Production (in Kg)	Inputs	
		Rate (in Rupees)	Total return
1. Small	96(0.39)	256(1.40)	24540(100)
2. Medium	178(0.39)	254(0.56)	45240(100)
3. Large	340(0.4)	250(0.29)	85000(100)
Average	204.66	253.33	51593.3

(The figure in the parenthesis indicates percentage to the total)

according to the different marketing channel the net price received by the farmers differs.

The lowest rate of king chilli per kilogram is found in medium farmers i. e; Rs 250/- per kilogram because the medium farmers goes for the bulk selling and for which they sell the produce in the lower rate, marginal rate of king chilli per kilogram Rs 256/- per kilogram is observed to be the highest due to the fact that the marginal farmers usually go for the direct selling.

Even for calculation of benefit cost ratio (BCR) as an indicator, used in cost-benefit analysis, that attempts to summarize the overall value for the money of a production. A BCR is the ratio of the benefits of a production, expressed in monetary terms, relative to its costs.

Therefore,

$$\text{Benefit cost ratio} = \frac{\text{Total Return}}{\text{Total cost}} = \frac{51593.30}{15745.00} = 3.27.$$

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