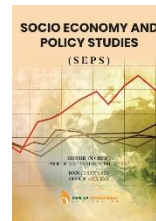




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RESEARCH ARTICLE

ASSESSING SOCIO-ECONOMIC CONDITIONS OF GINGER PRODUCERS IN WESTERN RUKUM DISTRICT OF NEPAL

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ABSTRACT

The study was conducted in two wards (Triveni 6 and Triveni 7) of Triveni municipality of Western Rukum district of Nepal to know the socio-economic condition of the ginger producers. The data were collected from 30 farmers of each ward by interviewing the respondents. In both wards, the majority of the respondents were male and educated up to the primary level. The majority of the respondents were Janajati (43.28%) and Chhetri (43.32%) in Triveni 6 and Triveni 7 respectively. In both wards, the majority of the houses were mud thatched. In Triveni 6, 46.65% and Triveni 7, 51.73% of respondents belong to the age group of 36-50. The total expense, total revenue, net profit and benefit cost ratio per ropani were more in Triveni 6 than Triveni 7. Lack of agriculture loan was ranked as the first production problem with a 1.15 index value while the variable market price was ranked as the first marketing problem with a 0.79 index value. Among various suggestions, increment in agriculture loan availability was ranked as first for solving production problems with a 0.80 index value while making fixed market price was ranked as first for solving marketing problems with a 0.82 index value.

KEYWORDS

Economics, index value, problems, solutions.

1. INTRODUCTION

Ginger (*Zingiber officinale*) belonging to the family Zingiberaceae, is one of the oldest and herbaceous perennial spices grown as an annual crop. Nepal occupies the fourth position in terms of ginger production after India, Nigeria and China and Indonesia (FAO, 2019). Ginger is cultivated in different parts of Nepal. In Nepal, ginger was cultivated on 22,132 hectares of land in the period 2018/19 with the production of 297,512 metric tonnes (MoALD, 2020). It can be used in raw, dry and powder form. Ginger is used for medicinal as well as culinary purposes (Ezra et al., 2017). Ginger is commonly used as a spice, pickles, candies, and medicinal herb (White, 2007). Ginger consists of different phenolic compounds like gingerols, gingerones, paradols, and shogaols (Karna et al., 2011).

Ginger has different medicinal benefits such as anti-cancer, anti-oxidant, anti-proliferative, anti-inflammatory, and anti-diabetics (White, 2007). Further, ginger is used to treat cardiovascular problems, asthma, arthritis and menstrual irregularity (Singletary, 2010; Karna et al., 2011). The national and international demand for ginger is increasing day by day in the country due to its nutritive value, food additive and medicinal value. Among various factors, the socio-economic condition is one factor that affects the production of crops including ginger. Socioeconomic status is the social standing class of an individual or group and is measured as a combination of education, income and occupation (APA, 2021). Due to poverty, the farm size is small.

Due to lack of knowledge producers are unknown about technology and if technology is introduced; people are not using it due to fear, low economic and education status. Further, there are various production and marketing problems due to which producers are not getting maximum production and benefit as a result producers are not being able to raise their socio-economic condition through ginger farming. For the improvement of socio-economic conditions of ginger producers and yield of ginger, it is necessary to identify the socio-economic condition of producers as well as the major production and marketing constraints. Thus this study was conducted to identify the general characteristics of ginger producers and major constraints in the Western Rukum district of Nepal.

2. MATERIALS AND METHODS

2.1 Selection of the study area, respondents and sample size

The study was conducted in two wards (Triveni 6 and Triveni 7) of Triveni municipality of Western Rukum district of Nepal. The study area is shown in Figure 1. It was selected for the study as people of these areas are highly involved in ginger production. The sample is an important part of the research. It is not possible to take data from each individual, that's why sampling is necessary. The respondents were selected by a simple random sampling frame of ginger producers and altogether 60 respondents were taken for the study, 30 from the Triveni 6 and 30 from the Triveni 7.

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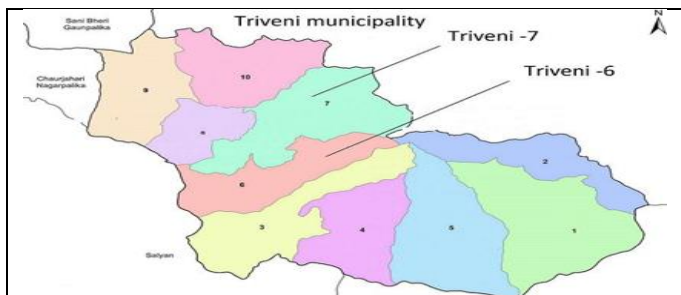


Figure 1: Map of the study area

2.2 Source of data

The primary data were collected by interviewing the respondents while the secondary data were collected through different publications.

2.3 Pre-testing and filed survey

Pre-testing of the interview was done by asking the designed questionnaire to 10% of farmers in the adjoining area of the study sites. The final interview was prepared by considering the suggestion obtained during pre-testing. Then the field survey was conducted from November 2018 to January 2019 to collect the required data related to the survey. Problems and suggestions were ranked based on the index value.

2.4 Indexing

Various problems and solutions were ranked with the use of an index value. The following formula was used to find the index value of problems and suggestions.

$$I = \sum SiFi / N$$

Where, I=index value; Σ=summation; Si = Scale value of Ith intensity; Fi = Frequency of Ith intensity; N=total number of respondents

Scale value used for ranking problems and suggestions is demonstrated below:

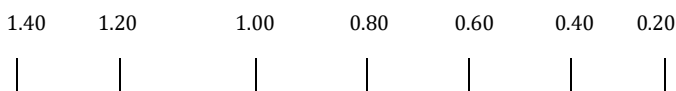


Figure 2: Scale value for indexing production problems

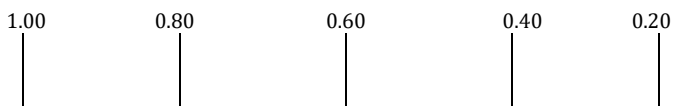


Figure 3: Scale value for indexing solution of production problems



Figure 4: Scale value for marketing problems and their solution

2.5 Profitability and economic analysis

Profitability and economic analysis were done by using the following formulas:

$$\text{Net profit} = \text{Total revenue} - \text{Total cost}$$

$$\text{Benefit cost ratio (B:C)} = \text{Total revenue} / \text{Total expense}$$

2.6 Data entry and analysis

After careful processing, the collected data were entered in Microsoft Excel. The percentage was used to demonstrate sex, ethnicity, education level, land type, family type, age while problems and suggestions were ranked with the help of index value.

3. RESULTS AND DISCUSSION

3.1 Demographic characteristics of household

3.1.1 Sex of the respondent

The study showed that most of the respondents involved in ginger production were male in both wards (Figure 5). In Triveni 6, 68% and in Triveni 7, 70% of the respondents practicing in ginger farming were male while the female involved in ginger farming was 32% and 30% in Triveni 6 and Triveni 7, respectively. The percentage of females involved in ginger production was more in Triveni 6 as compared to Triveni 7.

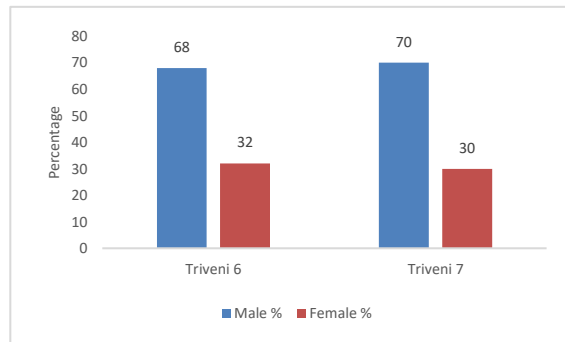


Figure 5: Male and female percentage of respondents

3.1.2 Ethnicity of the ginger farmers

Mainly Janajati, Chhetri and Dalit were involved in ginger production (Table 1). In Triveni 6, the majority of the respondents involved in ginger farming were Janajati (43.28%) while the majority of the respondents involved in ginger farming were Chhetri (43.32%) in Triveni 7.

Table 1: Ethnicity of the respondents			
Ethnicity	Triveni 6	Triveni 7	Mean
Janajati %	43.28	36.68	39.98
Chhetri %	23.30	43.32	33.31
Dalit %	33.42	20.00	26.71

3.1.3 Educational status of ginger farmers

The educational status of the respondents was illiterate, primary, secondary and higher secondary (Figure 6). In both wards, the majority of the respondents involved in ginger production were educated up to the primary level. In Triveni 6, 42.88% of the respondents while in Triveni 7, 48.76% of the respondents were educated up to the primary level. The percentage of illiterate respondents was more in Triveni 6 as compared to Triveni 7 (Figure 6). The percentage of respondents educated up to higher secondary level was 11.24% in Triveni 7 and 10.24% in Triveni 6. A group researchers also recorded the majority of the respondents involved in ginger production were educated up to the primary level (Poudel et al., 2015).

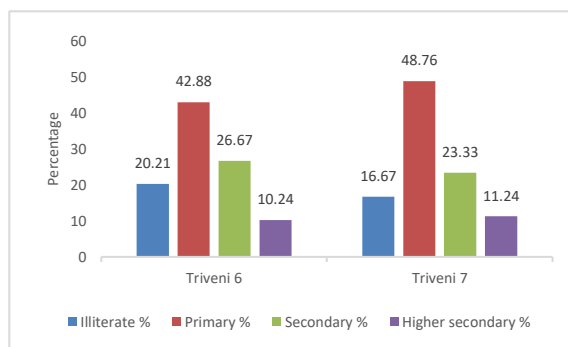


Figure 6: Education status of the respondents

3.1.4 House type

The types of houses used by the respondents to live were mud thatched, galvanized sheet, and concrete (Table 2) in which the majority of the ginger farmers have mud thatched houses in both wards i.e. 51.11% in Triveni 6 and 46.67% in Triveni 7. In both wards, the percentage of concrete houses was low (Table 2). The high percentage of the mud thatched house and low percentage of the concrete house might be due to the low economic condition of the ginger producing farmers. The percentage of the concrete house was more in Triveni 7 as compared to Triveni 6 (Table 2).

Table 2: Types of house of the respondents

House type	Triveni 6	Triveni 7	Mean
Mud thatched %	51.11	46.67	48.89
Galvanized sheet %	42.22	43.30	42.76
Concrete %	6.67	10.03	8.35

3.1.5 Food self-sufficiency

In Triveni 6, 26.57% and 40.15% of the respondents reported the self-sufficiency of food up to 9-12 and 1-4 months respectively while in Triveni 7, 13.33% and 46.67% reported the self-sufficiency of the food up to 9-12 and 1-4 months respectively. The self-sufficiency of food up to 9-12 months was more in Triveni 6 as compared to Triveni 7.

Table 3: Self-sufficiency of the respondents on food

Self-sufficiency of food	Triveni 6	Triveni 7	Mean
1-4 months	40.15%	46.67%	43.41%
5-8 months	33.28%	40.00%	36.64%
9-12 months	26.57%	13.33%	19.95%

3.1.6 Age, family type, and main occupation and land type

In both wards, the majority of the respondents involved in ginger production were between 36-50 years old. In Triveni 6, 46.65% and in Triveni 7, 51.73% of the respondents belong to the age group of 36-50 years old. The nuclear type of family was found more than joint family in both wards i.e. 63.31% in Triveni 6 and 66.73% in Triveni 7. In both wards, the main occupation was agriculture. In Triveni 6, 66.12% of the respondents had agriculture as the main occupation while in Triveni 7, 63.30% of the respondents had agriculture as the main occupation. In both wards, involvement in both agriculture and business as well as involving in agriculture and going to abroad for jobs were also common (Table 4). Mainly respondents possessed three types of land i.e. khet only, bari only and both (khet and bari) in Triveni 6 and Triveni 7 (Table 4). In both wards, the percentage of respondents possessing bari only was found more as compared to possessing khet only (Table 4). In Triveni 6, 66.59% of the respondents possessed bari only, while 76.61% of the respondents possessed bari only in Triveni 7. The percentage of respondents possessing both khet and bari was more in Triveni 6 as compared to Triveni 7 (Table 4).

Table 4: Age, family type, main occupation and land type of respondents

Characteristics	Category	Respondent percentage		
		Triveni 6	Trivrn 7	Mean
Age of farmers	25-35	36.66%	33.90%	35.28%
	36-50	46.65%	51.73%	49.19%
	>50	16.69%	14.37%	15.53%
Family	Joint family	36.69%	33.27%	34.98%
	Nuclear family	63.31%	66.73%	65.02%
Main occupation	Agriculture	66.12%	63.30%	64.71%
	Agriculture and business	10.50%	6.70%	8.60%
	Agriculture and abroad	23.38%	30.00%	26.69%
Land type	Khet only	6.51%	4.33%	5.42%
	Bari only	66.59%	76.61%	71.60%
	Both	26.90%	19.06%	22.98%

3.2 Economic analysis

3.2.1 Cost of production

Ginger cultivation takes into account a heavy expenditure on different inputs. Among various expenses, the maximum expense was seen in rhizome cost in both wards which was NRs.4978.00 per ropani and NRs.5000.00 per ropani in Triveni 6 and Triveni 7, respectively. The

average expense on rhizome was NRs.4989.00 per ropani. The rhizome is the propagating material of ginger. The minimum expense was reported on pest control which was NRs.260.33 per ropani and NRs.263.29 per ropani in Triveni 6 and Triveni 7, respectively. The average pest control expense was NRs.261.81 per ropani. A group researchers also reported maximum expense on seed i.e. propagating material of ginger (Neupane et al., 2019). The total expense per ropani was NRs. 15181.02 in Triveni 6 while NRs. 15164.94 in Triveni 7.

Table 5: Production cost

Particulars	Expense per ropani in Nepalese Rupees (NRs.)		
	Triveni 6	Triveni 7	Mean
Fertilizer cost	2924.01	2914.97	2919.49
Labor cost	4301.68	4326.68	4314.18
Rhizome cost	4978.00	5000.00	4989.00
Pest control cost	260.33	263.29	261.81
Transportation cost	1202.00	1215.00	1208.50
Harvesting cost	1515.00	1445.00	1480.00
Total expense per ropani	15181.02	15164.94	15172.98

3.2.2 Net profit

The total revenue per ropani was NRs.37600.00 in Triveni 6 while NRs. 34078.00 in Triveni 7. Similarly, the net profit per ropani of Triveni 6 was NRs.22418.98 while NRs.18913.06 in Triveni 7. Although the cost of production was more in Triveni 6 than in Triveni 7, the total revenue and net profit per ropani are more in Triveni 6 which might be because people of Triveni 6 spend some more money on fertilizer (Table 5), thus fertilizer might have increased some yield which ultimately increases the total revenue and net profit per ropani.

3.2.3 Benefit and cost ratio (B:C) analysis

The make benefit cost ratio per ropani was found to be 2.47 for Triveni 6 and 2.24 for Triveni 7. The mean benefit cost ratio per ropani was 2.36. A group researchers obtained a low benefit cost ratio than our result in the Surkhet district of Nepal which was 1.88 (Neupane et al., 2019).

Table 6: Total expense, total revenue, net profit and B:C per ropani in Nepalese Rupees (NRs.)

Particulars	Triveni 6	Triveni 7	Mean
Total expense (NRs.)	15181.02	15164.94	15172.98
Total revenue (NRs.)	37600.00	34078.00	35839.00
Net profit (NRs.)	22418.98	18913.06	20666.02
B:C ratio	2.47	2.24	2.36

3.3 Ranking of problems

3.3.1 Ranking of production problems

The different production problems faced by the farmer were ranked with the help of index value (Table 7). Among several problems, lack of agriculture loan was ranked first with a 1.15 index value followed by lack of fertilizer with a 1.07 index value while the lack of irrigation was ranked in the last position with a 0.53 index value.

Table 7: Ranking of production problems by respondents

Production problems	Index scale							Index value	Rank
	1	2	3	4	5	6	7		
Lack of fertilizer	29	10	3	6	4	3	5	1.07	2 nd
Pest	5	5	1	15	18	8	8	0.69	5 th
Lack of irrigation	1	4	4	1	14	27	9	0.53	6 th
Lack of technology	5	2	7	24	9	7	6	0.75	4 th
Unavailability of labor	18	8	15	4	6	3	6	0.90	3 rd
Lack of agriculture loan	22	18	11	5	4	0	1	1.15	1 st

3.3.2 Marketing problems

The different marketing problems were ranked with the help of index value (Table 8). Among various marketing problems, variable market price was ranked first with a 0.79 index value followed by involvement of middle man with a 0.68 index value while lack of transportation was in the

last position with a 0.42 index value.

Table 8: Ranking of marketing problems by respondents

Marketing problems	Index scale				Index value	Rank
	1	2	3	4		
	1.00	0.75	0.50	0.25		
Variable market price	37	8	4	11	0.79	1 st
Involvement of middleman	7	37	10	6	0.68	2 nd
Lack of transportation	4	9	12	35	0.42	4 th
Low market information	12	6	33	9	0.58	3 rd

3.4 Ranking of suggestions

3.4.1 Ranking of suggestions for production problems

The different suggestions to increase ginger production were ranked with the help of index value (Table 9). Among various suggestions to enhance production, an increment in agriculture loan availability was ranked in the first position with a 0.80 index value followed by an increment in fertilizer availability with a 0.72 index value while an increment in irrigation facility was ranked in the last position with a 0.39 index value. These suggestions can help to solve production problems and farmers can enhance their productions, as well as other people, can also be attracted towards ginger production.

Table 9: Ranking of suggestions for production problems by respondents

Suggestions for production problems	Index scale					Index value	Rank
	1	2	3	4	5		
	1.00	0.80	0.60	0.40	0.20		
Access to labor	16	9	11	14	10	0.62	3 rd
Expanding of technology	9	10	7	15	19	0.51	4 th
Pest management training	5	3	13	25	14	0.45	5 th
Increment in agriculture loan availability	22	17	11	1	3	0.80	1 st
Increment in fertilizer availability	23	14	12	4	7	0.72	2 nd
Increment in irrigation facility	4	7	6	14	29	0.39	6 th

3.4.2 Ranking of suggestions for market problems

The different suggestions to solve the marketing problems were ranked with the help of index value (Table 10). Among various suggestions, making a fixed market price for ginger secured the first position with 0.82 index value followed by reduction of middle man market with an index value 0.65 while access to transportation facility secured the last position with an index value 0.51. These suggestions can improve the marketing of ginger and producers can market ginger easily and get a reasonable price which will enhance the socio-economic conditions of producers.

Table 10: Ranking of suggestions for marketing problems by respondents

Suggestions for market problems	Index scale				Index value	Rank
	1	2	3	4		
	1.00	0.75	0.50	0.25		
Transportation facility	6	17	13	24	0.51	4 th
Fixed market price	29	21	6	4	0.82	1 st
Reduction of middle man	21	11	15	13	0.65	2 nd
Market information	15	8	20	17	0.58	3 rd

4. CONCLUSION

From the study, it can be concluded that the majority of the respondents involved in ginger production were male and educated up to the primary level in both wards. In Triveni 6 and Triveni 7, the majority of the respondents were Janajati (43.28%) and Chhetri (43.32%) respectively. In both wards, the majority of the houses were mud thatched. In Triveni 6, 46.65% while in Triveni 7, 51.73% of respondents belong to the age group of 36-50. The total expense, total revenue, net profit and benefit cost ratio per ropani were more in Triveni 6 as compared to Triveni 7. Lack of agriculture loan was ranked as the first production problem with a 1.15 index value while the variable market price was ranked as the first marketing problem with a 0.79 index value. Among various suggestions, increment in the availability of agriculture loans was ranked as first for solving production problems with a 0.80 index value while the making fixed market price was ranked as first for solving marketing problems with a 0.82 index value. The survey could have been more effective if more respondents and data related to the number of family members involved in ginger production, cropping patterns and adopted postharvest technology in ginger were available. In the future research can be conducted with a large number of respondents by adding these parameters.

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