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Economics of Apple Marketing in Mustang district of Nepal

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Abstract

Apple is one of the most economically viable fruits of the high-hills as it has potentiality of export in the international market. Despite this fact farmers are unable to get proper price even in domestic market. Current research focuses to assess the marketing system of apple in mustang district using simple random sampling of 80 farmers from two village development committee (VDC) i.e. Kobang and Tukuche comprising 40 samples from each study VDC. For the market information, two contractors each from Kobang and Tukuche VDC, two wholesalers and two retailers each from Jomsom, Beni, Baglung and Pokhara were interviewed. Data obtained from semi-structured questionnaire were subjected to descriptive and econometric analysis. The analysis shows that the gross margin per ropani and per kg was higher in Tukuche which was Rs 8.21±0.33 and Rs 4625.92±158.30 respectively as compared to Kobang VDC. Pre-harvest contractual system was the most common mode of selling and Jomsom, Beni, Baglung and Pokhara were the major market spots for apple. The marketing margin per kg was higher in Kobang (Rs 30.39) while producers' share was higher in Tukuche VDC (Rs 34.04). Most of the traders were interviewed that lack of transportation facilities and lack of market information were the major marketing problems of the study area.

Key Words: Marketing; Gross margin; Pre-harvest contract; Marketing margin; Producer's share

Introduction

Apple is a prominent and one of the important prioritized high value cash crops (APP, 1995). Apple is a main temperate fruit of Nepal, which is cultivated on 4,003 hectares productive area with production of 36,396 mt and productivity 9.09 mt/ha in hilly topography lying from east to west. It contributes about 5.77 % of the total fruit production

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and occupies 8.8 % of the total fruit area in Nepal (MOAC, 2007/08). Largest productive area under apple is found in Jumla (548 ha) followed by Mustang (337 ha), Solukhumbu (281 ha) and Kalikot (276 ha) respectively (MOAC, 2007/08). The total apple trade in the country is estimated at 7,000 metric ton valued at Rs. 3.5 corers. Most of the apples sold in the local markets of Kathmandu and other major markets are imported (about 90 %). Most of the apple growing districts are not linked with roadways. They are not easily accessible to the national and export marketing channels, although air transport service has contributed a great extent to transport these apples at the urban market centers of Nepal. The construction of agricultural roads to these commercial production pockets, envisaged by APP, will link these districts to roadways and develop opportunities for exporting Nepalese delicious apples to our neighboring countries (MDD, 2000).

Moreover, due to continuous increase in the cost of production, harvesting, carrying and freight charges, the small producers are not getting a fair return from the marketed fruits. All these difficulties in the process of production, harvesting and marketing of fruits affect farm income as well as limit the expansion ofagricultural enterprises. The agriculture needs diversification and commercialization to raise the income andemployment opportunities of the farmers by identifying high value- low volume crops, which have comparative advantage, such as fruits and vegetables, and by optimally utilizing the available resources for production and marketing operations for sustainable development (Gautam and Saraf, 1995). Thus, realizing importance of marketing of apple to increase farm income, this study is proposed to dig out the marketing system, marketing channel and problems of apple marketing. So this study may also helpful for the formulation and implementation of plans and programs for the concerned stakeholders within the district.

Objectives

The broad objective of this studyis to assess the marketing of apple in Mustang district of Nepal with following specific objectives:

- To explore the present marketing systems and channel of apple marketing.
- To assess the major problems faced by apple traders.

Research Methodology

Sources of data

Mustang district was purposively selected for the purpose of the study based on the relatively higher area coverage by apple. The required data for this study were collected through survey method from a sample of 80 farmers from two areas; Kobang and Tukuche village development committee (VDC) of Mustang district. For the market information two contractors from each VDC were selected. Similarly, 2 wholesalers and 2 retailers were selected each from Jomsom, Beni, Baglung and Pokhara. However, apple has been growing extensively in these VDCs of this district. Due to limited resources, complete listing and enumeration of apple farmers in study areas was not possible. 80 farmers were randomly selected taking 40 from each study VDC. The secondary data were collected from the various publications of related organizations like Fruit Development Directorate (FDD), Market Development Directorate (MDD), Ministry of Agriculture and Co-operatives (MOAC), Agro-Enterprise Center (AEC), Central Bureau of Statistics (CBS), District Agriculture Development Office (DADO), Mustang.

Methods of data analysis

Gross margin analysis

It is the difference between total value product and variable cost associated to particular enterprise. Only variable costs were included for this analysis.

The gross margin was calculated as

Gross margin = Gross return – Total variable cost

Where, gross return = Price of apple X total quantity sold

Total variable cost = Summation of all the cost of variable items

Marketing margin and producer's share

Marketing margin is the difference between the net price received by the farmer and the price paid by the consumer. This was calculated by the farm gate price from the retail price.

Marketing margin = Retailer price (Pr) – Farm-gate price (Pf)

Similarly, producer's share is the price received by the farmer expressed as a percentage of the retail price that is price paid by the consumer

Ps = Pf/Pr X100.

Indexing

Traders perception on the importance given to the different marketing constraints were analyzed by using 3 point scale of constraint comprising very high importance, medium, and the least importance by using 3, 2, and 1, respectively.

The index of importance was computed by using the following formula:

$I_{imp} = \sum (Si\ F_i / N)$

Where,

I_{imp} = Index of importance

$\sum$ = Summation

Si = Scale value

F_i = Frequency of importance given by the respondents

N = Total numbers of respondents

Result and Discussion

Factors determining the price of apple

Various factors determining the price of apple in the study area were explored. Altogether, six different factors were identified by the apple producers and were asked to assign scores to identify the major factor. The most important factor that determined the price of apple producers in both VDCs was the quality of apple (Table 1).

In Kobang VDC, quality and size of fruits got the highest rank, followed by apple variety and time of harvesting whereas in Tukuche VDC quality of fruits and apple variety got the highest rank followed by size of fruits and time of harvesting. Similarly, age of orchard and

last year market price was other important factors that determined the price of apple. The factors determining the price of apple in the study area along with their rank has been presented in the table 1.

Table 1: Factors Determining the Price of Apple in the Study Area (2008)

Factors	VDCs			
	Kobang		Tukuche	
	Index	Rank	Index	Rank
Quality of fruits	2.775	I	2.675	I
Size of fruits	2.550	II	2.150	III
Apple variety	2.200	III	2.475	II
Time of harvesting	2.000	IV	2.100	IV
Age of orchard	1.825	V	1.900	V
Last year market price	1.500	VI	1.550	VI

Gross margin analysis

The study reveals that the overall gross margin per *ropani*(5476 sq fit) and per kg is found (Rs 4154.28±143.08) and (Rs 7.97±0.24) respectively from the apple production in the study sites Table 2. The gross margin per *ropani*is higher in Tukuche VDC (Rs 4625.92±158.30) as compared to Kobang VDC (Rs 3682.64±215.58) that might be due to the higher amount of production of apple per *ropani* in Tukuche. Similarly, the gross margin per kg is also higher in Tukuche VDC (Rs 8.21±0.33), which may be due to the higher price received by the apple growers as compared to Kobang (Rs7.74±0.36). The analysis of gross margin shows that apple cultivation is the profitable enterprise in the study sites.

Table 2: Gross Margin from Apple Production Across the Study Sites (2008)

VDCs	Gross margin (Rs/Kg)	Gross margin (Rs/*ropani*)
	Mean ± SE	Mean ± SE
Kobang (n=40)	7.74 ± 0.36	3682.64 ± 215.58
Tukuche (n=40)	8.21 ± 0.33	4625.92 ± 158.30
Total (N=80)	7.97 ±0.24	4154.28 ± 143.08

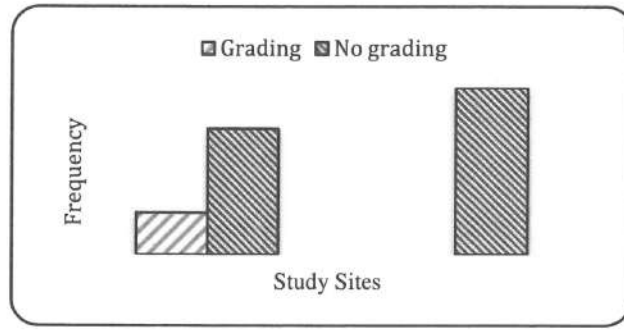
SE = Standard Error.

Grading practice

The figure 1 shows the grading practice of apple in the study area where only few respondents from Kobang VDC perform grading practice and none of the respondents from Tukuche VDC (Appendix 8). No grading practice is more common in Tukuche VDC as compared to Kobang which might be due to higher quality of apple produced in Tukuche VDC followed by high contractual system of selling (Table 3).

Due to the lack of knowledge and marketing skills, farmers rarely practice any grading. They packed fruits of all shapes and sizes in beer carton and carried these to markets. As transport cost were high (including the opportunity cost of family labour), this practice resulted higher transportation cost compared with a grading practice where only higher quality fruits were transported to distant markets where price was better, at the same time selling lower quality fruits in other, nearby markets where price was lower. In other words, there is a need for promoting a sales strategy based on the concept of price discrimination.

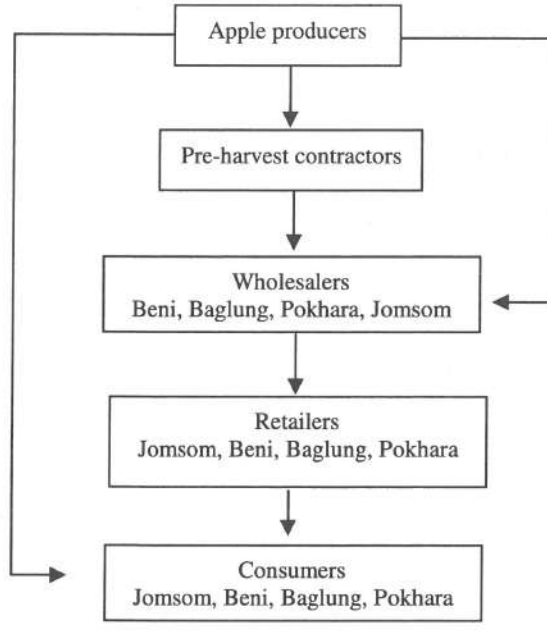
Figure 1: Grading Practice of Apple in the Study Area (2008)



Marketing system and marketing channels of apple

Marketing of apple encompasses all the activities being performed in moving apple from producers to the hands of ultimate consumers. Marketing system creates time, space and form utilities of the farm produce for the consumers. The producers, traders, transporters, wholesalers, retailers were the main actors of apple marketing in Nepal.

Figure 2: Marketing Channels and Functionaries in the Marketing of Apple in Kobang and Tukuche VDCs



The most common and widely used marketing system in the hills of Nepal is the contractual system (Shrestha et al., 1998). Farmers make contractual agreements with traders just few months prior to the harvesting of fruits (Shah, 1992; Tomiyashu et al., 1998). Pre-harvest contract could be profitable than self marketing due to product diversification into different markets and volume of the product sold (Subramanyam, 1981). Mainly the contract

was done before ripening of fruits and the basis of price fixation was the amount, quality of fruit, variety, demand and supply situation. In non-contractual system most of the producers sells their product direct to the wholesalers.

Mainly the fruit was hand picked, collected in the heap, packed in cartons and transported via bus, mule or by plane. Few of the growers sold the product to the Jomsom market by themselves. Hand picking method without grading was the most common mode of harvesting. The common marketing channel of the Kobang and Tukuche are presented in figure 2.

Mode of selling

Generally two types of selling are practiced in the surveyed area i.e. selling to the wholesaler/collector and pre-harvest contractors are followed by the farmers of the respective VDCs (table 3). The pre-harvest contract system is the most commonly preferred system of selling. Majority of the respondent (55%) are practiced the pre-harvest contract system of selling compared to non-contract system of selling (45%) Farmers prefer pre-harvest contract system because of the low risk associated as well as easy way of getting money without harvesting and transportation burden.

Table 3: Selling Practice of Apple in the Study Area (2008)

VDCs	Mode of selling		Total
	Contract system	Non-contract system	
Kobang (n=40)	14 (35.0)	26 (65.0)	40 (100.0)
Tukuche (n=40)	30 (75.0)	10 (25.0)	40 (100.0)
Total (N=80)	44 (55.0)	36 (45.0)	80 (100.0)

Note: Figures in parenthesis indicate percent.

The pre-harvest contract selling is more common in Tukuche where 75 percent of the apple growers sell their product according to pre harvest contract system as compared to Kobang VDC (35 %), which might be due to the higher quantity of apple produced in the Tukuche compared to Kobang. While the numbers of people following non-contractual system were more in Kobang VDC because of the low volume of production than Tukuche VDC. Mostly direct selling to the wholesalers was the most common pattern of selling in non-contractual system.

Marketing margin and producer's share

From the study, it is found that average farm gate price (NRs/kg) of apple was Rs 14.04 in Kobang and Rs 15.13 in Tukuche while Rs 14.58 was the average from the two VDC. Average retail price was found to be Rs 44.43 per kg of apple. So overall marketing margin of the study area was found to be Rs 29.85 whereas the producers' share was 32.82 percent. The marketing margin per kg was higher in Kobang (Rs 30.39). The higher marketing margin might be due to the lack of market price information among the farmers of Kobang VDC as compared with Tukuche (Rs 29.30). The producers' share was higher in Tukuche (Rs 34.04) indicating higher marketing efficiency as compared to Kobang (Rs 31.60). In developing countries like Nepal, marketing services are costly due to very poor transportation infrastructure and marketing margins tends to be high (Bastakoti, 2001). This was highly affected by the accessibility condition of production sites. Generally, high

marketing margin was linked with exploitation by the middlemen. The marketing margin among each VDC was shown in table 4.

Table 4: Marketing Margin and Producers' Share by VDC (2008)

Particular	VDCs		Total
	Kobang	Tukuche	
Average farm gate price (NRs/kg)	14.04	15.13	14.58
Average retail price (NRs/kg)	44.43	44.43	44.43
Marketing margin (NRs/kg)	30.39	29.30	29.85
Producers share (%)	31.60	34.04	32.82

Marketing problems

Marketing plays important role for the easy disposal of the product from producer ultimately to the consumer. Due to low storage life in ordinary condition, easy and safe disposal of the commodity after harvesting is utmost.

Various problems were mentioned and assigned scores by the apple traders. Study showed that the major marketing problems as perceived by traders were the problem of lack of transportation facility from the zone of production to zone of consumption followed by lack of market information. The third rated problem was perisibility of product followed by lack of packaging materials and lack of processing facility. Similarly, price instability, lack of storage facility and finance/credit availability were other serious problems being faced by traders on apple marketing.

Table 5: Intensity of Marketing Problems Faced by Apple Traders (2008)

Problems	Index	Rank
Lack of transportation facility	2.775	I
Lack of market information	2.575	II
Perisibility of product	2.425	III
Lack of packaging materials	2.100	IV
Lack of processing facility	2.050	V
Price instability	1.825	VI
Lack of storage facility	1.775	VII
Finance/credit availability	1.750	VIII

Conclusion

Kobang and Tukuche are the potential production area of apple due to climatic and edaphic suitability. Gross margin analysis showed that apple cultivation was profitable in both of the VDCs. The marketing system was not well developed. There are several areas for improvement like transport facility, market price information, packaging, storage, grading to fetch good price of the commodity. The contractual system was the most common mode of selling. Apple growers were facing several marketing problems. For getting adequate benefit it is better to practice co-operatives or self-marketing. Hence, well developed market structures equipped with good storage and processing facilities should need to be provided for the promotion of apple marketing. Similarly, small kitchen sized juicers are prevalent in local market to sell juice to the trekkers but it had a great export potentiality in the international market. Thus, processing of raw apples to juice production in commercial scale

also seems beneficial to apple growers. In addition to these, Government of Nepal should need to focus on post harvest management of apples to produce hygienic dried apple by improving local drier design of this district.

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