Impact of Emerging Agribusiness Establishments on Potato Marketing in Punjab

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Abstract

To revitalize agriculture in Punjab, crop diversification towards fruits and vegetables is being considered as one of the most promising alternatives. The major constraints inhibiting such diversification efforts have been the inadequate marketing opportunities for such crops owing to their perishable nature. Thus, there is a need to evolve innovative marketing institutions that link farmers with the markets for speedy and remunerative disposal. One such agribusiness enterprise - PepsiCo - has recently emerged in the state. The marketing experience of potato growers with this agribusiness establishment in Jalandhar district during 2009-10 has been studied. The study reveals that the share of the farmers in the retailer's price under the traditional marketing system for potatoes was 42.29%, while the marketing costs as a percentage of the retailer's price were 25.08%, and the marketing margins were 32.63%. The net price received by the farmers while selling the produce to PepsiCo was about 48% higher. The sample potato growers dealing with the newly emerged agribusiness establishment realized a higher benefit-cost ratio for potato cultivation with minimum post harvest losses. To reap the advantage of the emerging agribusiness environment in terms of enhanced farm income, potato growers need to be more product quality conscious as these institutions only buy selected quality produce of specific size, shape, and colour. The requisite training/campaigns can go a long way in augmenting agribusiness potential to enhance farm income through crop diversification in the state.

Keywords: **market practices, market channels, post-harvest losses, agro-processing, agribusiness, potato cultivation**

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To revitalize agriculture in Punjab, agricultural diversification towards high value commodities (henceforth, HVCs) is considered as one of the most promising strategies. Rising per capita income, growing urbanization and globalization are causing a shift in the consumption patterns in favour of HVCs among both rich as well as poor households. Such changes in consumption patterns clearly reveal that food security is no longer restricted to the availability of cereals, but involves a diversified food basket that includes high value commodities such as fruits and vegetables. The global trade of HVCs is growing rapidly. The share of HVCs in agricultural exports increased from 21% in 1990 to 36% in 2000 (Rao, Birthal, Joshi, & Kar, 2004). At present, the country is a minor exporter; contributing merely about 0.5% of global exports of fruits and 1.5% of global exports of vegetables. The rapid increase in domestic and export demand for HVCs clearly demonstrates the opportunity for greater agricultural diversification. Punjab is a relatively minor producer of fruits and vegetables in India. The

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state has a meagre share (less than 2%) in terms of the total area under cultivation of fruits and vegetables in the country. It produces less than about 2.5% of the total vegetables produced in the country (Directorate of Economics and Statistics, Department of Agriculture and Cooperation, 2011).

Potato is the principal vegetable produced in Punjab, accounting for 60% of the total vegetable production in the state (Directorate of Economics and Statistics, Department of Agriculture and Cooperation, 2011). The state is the fifth-largest producer of potatoes in the country, representing only 5% of the national production (Directorate of Economics and Statistics, Department of Agriculture and Cooperation, 2011). The major portion of the area under potato cultivation is concentrated in the districts of Jalandhar, Kapurthala, Ludhiana, Moga, Bathinda, and Patiala. About half of the produce is contracted from the farmer's fields by the traders from major potato producing states like U.P., Bihar, M.P., West Bengal, Rajasthan, and Gujarat. Due to typical climatic conditions, the seed potatoes from Punjab are preferred by other states as they give relatively more yield as compared to the locally produced seeds. The decline in potato production in other major potato producing states resulted in increased demand for seed potato from Punjab, which ultimately led to rise in prices. Other vegetables like chilies and onions are minor in Punjab. The Pepsi initiative during the late 1980s expanded the tomato area under cultivation in selected regions due to access to better technology and higher, assured prices. Though Punjab is a small player in vegetable production, productivity levels in the state are relatively high as compared to the national average.

Facilitating the transition of an agricultural production system dominated by cereals towards HVCs requires greater understanding of the processes involved in diversification and its impact on agricultural performance. The major constraints inhibiting such diversification efforts have been the marketing opportunities for high-value crops, especially fruits and vegetables owing to their perishable nature. Thus, there is a need to evolve innovative marketing institutions that link farmers with the markets for speedy and remunerative disposal of fruits and vegetables.

The "emerging" marketing channels are supposed to reduce transaction costs and ensure that high margins maintained by the intermediaries in the supply chain are reduced so that the farmers benefit and get a better price as compared to sales in regulated markets. Keeping this in mind, the study has the following objectives:

(1) To analyze the share of the farmers in the consumers' rupee in an emerging marketing model vis-à-vis the traditional marketing channel,

(2) To analyze the degree of market efficiency and incidence of post harvest losses in emerging marketing channels vis-à-vis traditional marketing channels,

(3) To note the market practices and services of agencies involved in the emerging channel and observe if they are superior to that of traditional channels,

(4) To analyze the constraints faced by the farmers and different market functionaries in the emerging marketing channel as compared to the traditional marketing channel.

Methodology

The present study was conducted in the state of Punjab covering potato crop in Jalandhar district owing to sizeable area under cultivation. The primary information for the purpose was collected through primary surveys and informant interviews with growers, market committee members, processors, buyers, retailers, and consumers in Jalandhar (potato) district for the study. The study is based on a sample of 45 potato growers from Jalandhar West and Bhogpur blocks of Jalandhar district (Table 1). The required data/information on cost components, crop yields, input and output prices, and inputs supplies to the farm producers, and so forth for potatoes were collected through primary surveys and informant interviews with growers. The reference period for the primary data survey is from 2009- 2010.

➲ **Traditional /Emerging Marketing Channels Selected for the Study:** The most prominent traditional supply

Table 1. Distribution of Sample Households Based on Operational Holding Size Classification

Sr. No.	Classification	Potato		
		TMC	EMC	Overall
1.	Small (1-2 ha)	5 (14.29)	1 (10.00)	6 (13.33)
2.	Medium (4-10 ha)	10 (28.57)	2 (20.00)	12 (26.67)
3.	Large (10 & >10 ha)	20 (57.14)	7 (70.00)	27 (60.00)
	Total	**35 (100.0)**	**10 (100.0)**	**45 (100.0)**

Note: Figures in parentheses are the percent to total in each column.

chain involves farmers selling fresh potatoes produced by them in the primary wholesale markets through commission agents to wholesalers, who in turn further sell to secondary wholesalers located in small cities and towns and local retailers. In recent years, a new supply chain for potatoes : Producer → Processor (Pepsi Co.) → Consumer has also emerged. Hence, 35 potato growers following traditional marketing channels and 10 growers following emerging marketing channels were randomly selected for the present study.

➲ **Distribution of the Sample Farmers as per Operation Holdings:** The land holding status of potato farmers is briefly discussed before analyzing the marketing operations of the traditional marketing channel (henceforth, TMC) and the emerging marketing channel (henceforth, EMC). It can be observed that for the entire sample of potato growers, maximum (60%) were in the large farm category, with 70% in EMC and about 57% in the TMC category. In aggregate, there were 60% large, nearly 26% medium, and 13% small farmers.

The information so collected was supplemented from the intermediaries, buyers/processors, retailers, and consumers to maintain the desired quality and quantity to meet the consumers' demands under the set up of the existing supply chains in fruits and vegetables as well as under the innovative institutional arrangements, which are gradually emerging in fruits and vegetables. In order to observe the supply chain of the emerging and traditional channels, primary data were collected from 10 wholesalers, 10 retailers, and 10 consumers, who were also interviewed with the help of pre-structured research instruments. A focus group discussion with the market committee members/officials was also held to get a lucid idea of market charges, market practices, processes, and so forth. The retail prices for potatoes were collected from the Jalandhar market. Simple statistical tools were used to examine the share of farmers in terminal prices in case of both traditional and emerging channels. The post harvest losses, market practices, and constraints faced were also analyzed using field-level data.

Results and Discussion

Results have been discussed under the following sub heads:

(1) Economics of potato cultivation, **(2)** Marketing of potatoes.

(1)Economics of Potato Cultivation

➲ **Cost of Cultivation in Traditional and Emerging Marketing Channels:** It is a pre-requisite to work out the cost of cultivation of potatoes before investigating about the marketing channels through which it reaches the ultimate consumers/ processors. Per hectare cost of cultivation of potatoes has been shown in the Table 2. The paid out cost of potato cultivation for the sample farmers in TMC was higher than that for those in EMC. Out of total paid out costs, the maximum cost in both the channels incurred was on material inputs such as seeds, manures, fertilizers, and pesticides followed by hired labour charges. Large area was under lease-in and, therefore, rent paid for lease - in land was also as high as ₹ 22070 per hectare in TMC and ₹ 22875 per hectare in EMC. Share of family labour (nearly 8 % of the total cost of cultivation) was more due to higher machine labour owned by the potato growing families.

Table 2. Cost of Cultivation of Potatoes (₹/ha)

Sr. No.	Items	TMC	EMC
1	**Cost of Material Input**		
i)	Seed	24316	17929
ii)	Manure and fertilizers	10914	8092
iii)	Pesticides	829	660
	(a)Sub total	**36059 (47.06)**	**26681 (39.40)**
2	**Hired Labour Charges**		
i)	Male	4908	4516
ii)	Female	3027	3144
iii)	Machine use	83	-
	(b)Sub total	**8018 (10.46)**	**7660 (11.31)**
3	**Maintenance Expenses of Farm Machinery**	**1226**	**1372**
4	**Depreciation**	**3031**	**3454**
5	**Rent Paid for Leased in land**	**22070**	**22875**
(A)	**Total Paid Out Cost (a+b+3+4+5)**	**70404 (91.89)**	**62042 (91.61)**
6	**Imputed Family Labour Charges**		
i)	Male	710	496
ii)	Machine use	5504	5187
(B)	**Sub total**	**6214 (8.11)**	**5683 (8.39)**
7	**Total Cost of Cultivation (A+B)**	**76618 (100)**	**67725 (100)**

Figures in parentheses are percentages of total

Table 3. Details of Cost of Production and Net Returns of Potatoes

Sr. No.	Items	TMC	EMC
1	Per ha cost of cultivation (including family labour)	76618	67725
2	Gross return/output (₹/ha)	104227	137549
3	Cost of production (₹/qtls) including family labour	275	256
4	Cost of production (₹ per quintal) considering only paid out cost	252	235
5	Productivity (qt/ha)	279	264
6	Per quintal price realized by the farmer (₹ /qtls)	374	520
7	Per ha net profit (including family labour) (₹ /ha)	27609	69824
8	Per ha net profit (₹ /ha) considering paid out cost	33823	75507
9	Per quintal net profit (₹ /qtl) considering only paid out cost	121	286
10	Per quintal net profit (₹ /qtls) including family labour	99	264
11	BCR based on paid out cost	1.48	2.22

Overall, it was observed that the total paid out cost for TMC was ₹ 70404 per hectare while in case of EMC, it was ₹ 62042 per hectare. However, if imputed value of family labour is included, the cost of cultivation increased by about 9% per hectare for both the channels.

➲ **Cost of Production and Net Returns in Traditional and Emerging Marketing Channels:** The details of the cost of production of potatoes and net returns accrued to farmers in case of sales through TMC and EMC have been indicated in the Table 3. The productivity of potatoes per hectare was higher in TMC (279 qt/ha) as compared to EMC (264 qt/ha). It can be observed that the average price realized by the farmers selling their produce through

Table 4. Price Spread and Marketing Costs of Potatoes (2009-10) (₹ / quintal)

Sr. No.	Price spread	TMC	EMC
I	**Price received by the farmer**	**373.80**	**520.20**
II	**Total marketing costs for farmers**	**65.07**	**61.50**
	(a) transportation	4.50	7.44
	(b) loading & unloading	2.13	1.10
	(c) Sorting & packing	57.76	52.64
	(d) weighing & other related expenses	0.68	0.32
	Net price received by the farmer	**308.73**	**458.70**
	Net profit (Net price received- paid out cost)	56.23	224.05
III	**Marketing costs and margins of the wholesaler (through the commission agent)**	**64.99**	**-**
	(a) market fee @2%	7.48	-
	(b) RDF @2%	7.48	-
	(c) wastage during transport	0.56	-
	(d) Commission @5%	18.70	-
	(d) transportation charges	8.12	-
	(e) wholesaler's margin	22.65	-
	Purchase price of the wholesaler plus marketing costs & margins	**438.79**	**-**
IV	**Marketing cost and margins of the retailer**	**291.29**	**-**
	(a) Transport to retail outlet	11.15	-
	(b) Miscellaneous expenses such as cess to corporation, watchman for unsold stock	9.46	-
	(c) Wastage	6.58	-
	(d) Loading/ unloading	4.45	-
	(e) Packing material	36.20	-
	(f) Shop rent	7.88	-
	(g) Retailer's margin	215.57	-
	Sale price of the retailer/ consumer's purchase price	**730.08**	**-**
V	**Share of farmer (%) in retailer's price**	**42.29**	**-**
VI	**Marketing costs as % of retailer's price**	**25.08**	**-**
VII	**Marketing margins as % of retailer's price**	**32.63**	**-**
VIII	**Modified measure of marketing efficiency (MME)**	**0.77**	**-**

TMC was less than that of the farmers selling through EMC. The average price in the regulated market was ₹ 374 per quintal; those who sold in EMC received ₹ 520 per quintal. Farmers selling their produce through the regulated market sold some part of their potato crop in December (by digging the raw potatoes), and then the remaining crop is harvested in the month of February just to avoid distress sales due to glut in the market. Thus, after final digging of potatoes, some portion of the produce is directly sold in the regulated market, and some part of the produce is kept in the cold store as seed for next season and for sale in the remaining months of the year. Farmers in TMC stock their produce in cold storage to gain advantage of the lean period rise in prices. In EMC, after the produce is checked for quality specifications by the company officials, the farmers sold their produce to PepsiCo soon after harvest and realized higher prices. However, the important point is that the farmers who sold in TMC had to incur marketing costs, which reduced the net price received by them, whereas farmers who sold through EMC did not have to incur marketing costs, but only incurred transportation costs, to sell their produce to the company.

The net profit made by the farmers (including imputed value of family labour) who sold potatoes under the TMC was ₹ 99 per quintal, whereas in case of EMC, it was ₹ 264 per quintal. The BCR is higher in EMC as compared to TMC. This is because the price received in case of sales through EMC was nearly 40% higher than that through TMC.

(2) Marketing of Potatoes

➲ **Operations in Emerging Markets:** The emerging market in case of potato sales is direct selling of the produce by the farmers to PepsiCo. This channel has been found to be beneficial to the farmers due to non-existence of any intermediary. As per the advice of the company, varieties recommended by it were sown by the selected farmers. However, no seeds were made available to the farmers by the company during the year under investigation. Free technical know- how was provided by the company officials; however, at the time of maturity, sugar content in the potatoes was checked by company technicians to find out the suitability of the produce for purchase by the company. No packaging and marketing support was provided by the company to the farmers. Therefore, the farmers after proper packaging, transported their produce to the company's processing plant at Channo, district Sangrur. Thus, the packaging and transportation costs were borne by the farmers. The price of the produce was settled exclusively by the company and farmers by mutual bargaining. No mandi prices were taken into consideration while fixing the price to be given for the quantity of produce purchased by the company.

➲ **Price Spread and Marketing Costs of Potatoes in Traditional and Emerging Marketing Channels:** The difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of farm produce is called as price spread. The Table 4 depicts the price spread and marketing costs for potatoes based on the data collected from the field survey. It can be seen from the table that in TMC, although the sample farmers received ₹ 373.80 per quintal, they had to incur marketing costs of ₹ 65.07 per quintal, and hence, their net price, after deducting marketing costs, was ₹ 308.73 per quintal. The farmers sold to the wholesalers who incurred marketing costs and margins amounting to ₹ 64.99 per quintal. Sone part of the produce was also wasted while transporting it from the regulated market to the retail outlets. The sale price of the potatoes for the retailers was ₹ 730.08 per quintal. Finally, it can be seen that the share of the farmer in the retailer's price under TMC was 42.29%, while marketing costs as a percentage of retailer's price were 25.08%, and marketing margins as a percentage of retailer's price were 32.63%.

With respect to sales through EMC, it can be observed that although the sample farmers received a higher price than the auction price in TMC, they had to incur loading and unloading, sorting and packing, and transportation costs up to the gates of the company. Hence, ₹ 458.70 was the net price received by the farmers under EMC, which was about 48 % higher than the net price received by the farmers who sold through TMC. Since there were no intermediaries in EMC, hence the price received by the farmers was much higher than what was received by the farmers selling their potato crop through TMC.

➲ **Reasons for Preferring a Particular Marketing Channel:** The reasons for preferring the marketing channel are indicated in the Table 5. It is quite obvious that in case of potatoes under TMC, maximum responses pertained to assured sales followed by low cost of marketing and fair price. They were also influenced by friends and relatives to participate in auctions and were in the habit of selling in the regulated market. In case of EMC, assured sales, low cost of marketing, fair price, less physical loss, and superior services were the main reasons for preferring this channel.

Table 5. Reasons for Preferring a Marketing Channel **(% to total responses)**

Sr. No.	Particulars	TMC	EMC
1	Influence of friends, relatives, neighbours	5.71	0.00
2	Assured sales	51.43	80.00
3	Higher/Fair price	28.57	40.00
4	Low cost of marketing	51.43	70.00
5	Less physical loss	0.00	30.00
6	Superior services	0.00	30.00

Table 6. Per Quintal Post- Harvest Loss in Potato Crop (kg)

Post harvest losses	TMC	EMC
Loss during storage	8.14 (0.58)	-
Loss during transport	0.23 (0.03)	1.33 (0.42)
Loss at retail level	1.40 (0.74)	-

Notes: Figures in parentheses are standard deviations,

Table 7. Reasons for Post Harvest Loss (% of Multiple Responses)

Reason	TMC	EMC
Perishable nature of the commodity	77.14	70.00
Long distance to market	2.86	20.00
Waited for better prices and the product perished	57.14	0.00

➲ **Post Harvest Losses in Traditional and Emerging Marketing Channels:** Post harvest losses not only reduce the availability of vegetables, but also increase the per unit cost of transportation and marketing. Due to less availability of the crop, the price to be paid by the consumer increases. Post-harvest losses take place at almost every stage of handling. Firstly, at the time of harvesting of potatoes, the machinery used in digging damages some tubers, which are not suitable for selling in the market, and this produce is mostly given to the labour free of cost. The farmers themselves store their produce in cold stores to be used as seed and for future sales purpose. At the time of future sales also, there are handling losses at the time of withdrawal of potatoes from the cold stores. Losses also arise during transport, mainly if the produce is sold in the distant markets. Firstly, the farmers sell their potato crop in the month of December after digging the raw crop due to scarcity of produce in the market so as to get a better price. At the time of harvesting of ripe potato in the month of February, some part of the produce is sold in the regulated market, and the remaining portion is kept in the cold store for future sales and to be used as seed for the next year. The produce from the cold stores is withdrawn by the farmers in lean periods, keeping in mind the price prevailing in the market. It can be seen from the Table 6 that post harvest losses were higher in TMC as compared to EMC. For every quintal of potatoes stored, a farmer lost about 8.14 kg under TMC, while there were no losses in the EMC, since the potatoes purchased by PepsiCo are handled by the company after purchase. However, due to quality specifications, losses while transporting the produce were more in EMC than in TMC.

Potatoes are a perishable commodity and have a shelf life of a few days, therefore, the alternative for future sales is cold storage. The quality begins to deteriorate as the length of the storage period increases. Thus, the major reason of post harvest loss is the perishable nature of the potato crop as reported by majority of the farmers. Potatoes are a very important ingredient of various dishes in various parts of India. Hence, they are transported to distant markets such as Rajasthan, Gujarat, and even West Bengal. Long distance transportation of the potatoes is also responsible for post harvest losses. In case of potatoes, there is often a huge difference between the lean period and peak period prices. Hence, farmers store the produce in order to reap the lean season rise in prices.

The main reasons for the loss, as explained by the sample farmers, are shown in the Table 7. Thus, the perishable nature of the potato crop was the major reason for post harvest losses as revealed by the farmers selling their produce through both TMC and EMC. Farmers under TMC also incurred post harvest losses due to time spent in waiting for the prices to rise further, thereby reaping better remuneration for their produce. But in EMC, the farmers did incur some losses due to long distance transportation required for delivering the produce at the doorsteps of PepsiCo.

➲ **Information Regarding Price Available to Farmers in Traditional and Emerging Marketing Channels:** For the farmers to receive remunerative prices for their produce, they must be aware of the prevailing market prices in the regulated market where they sell their produce. This guides them regarding the right time to dispose-off their produce. The details about the price information have been shown in the Table 8. The farmers did have information

Table 8. Details about the Transaction Costs - Information Costs **(% to total responses)**

Sr. No.	Particulars	TMC	EMC
A	**Source of price information**		
1	Personal information	20.00	90.00
2	Speaking with other farmers	5.71	10.00
3	Speaking with Commission agent/Trader	74.29	0.00
B	**Time of price information**		
1	At the time of harvest/sale	77.14	60.00
2	At the time of sale	22.86	40.00
C	**Price information from AGMARKNET**		
1	No	88.57	100.00
2	Yes	11.43	0.00
D	**Difference in price information**		
1	Lower than expected	48.57	20.00
2	Similar to what expected	48.57	80.00
3	Higher than expected	2.86	0.00
E	**Time of price agreement**		
1	At the time of sale	100.00	100.00

about the prices prevailing in the regulated markets. In case of TMC, the commission agent was an important source of price information followed by personal information and speaking to other farmers. Furthermore, at the most, the farmers were aware of the prices soon after harvest. Some of the farmers in the sample got information from AGMARKNET. By and large, the sample farmers in both TMC and EMC revealed that the price received by them was more or less similar to what was expected by them. Price agreement also happened at the time of sale, as revealed by all the farmers.

➲ **Enforcement Costs Under Traditional/Emerging Market Environment :** In case of sales in TMC, the farmer sells his produce in the regulated market through the auction method. A commission agent acts between the farmer and the buyer, who is normally a trader. Similarly, in case of sales under EMC, the crop is directly sold to the company. During the field survey, it was found that some of the farmers were cheated by the commission agents while selling in the regulated market. In order to elicit the farmers' responses, they were questioned about their experiences with the market intermediaries. This transaction cost is indicated in the Table 9.

Majority of the farmers in EMC expressed that they received the payment on time and realized the same price as agreed and did not have to go to the company to receive payment for the sold produce. In case of sales of potatoes in the regulated market, it was revealed by the farmers that about 50% of the farmers received the same price as agreed and there was no problem of payment as revealed by about 63% of the farmers. Majority of the farmers in TMC did not get the receipt of sale, while the reverse was true in case of EMC. There was no conflict between the majority of the farmers and agents on grounds of quality. There were no instances when the produce was rejected because of rain and majority of the farmers (nearly 77%) trusted the merchants in the TMC, and all the farmers selling under EMC reposed their faith in the company.

➲ **Perception on Services Provided by Different Agencies:** It is a well-known fact that farmers are in urgent need of credit, that is, short term as well as medium to long term loans and also require credit for other investment purposes. This credit is available to them from institutional and non-institutional sources of finance. The Table 10 depicts the sources and purpose of obtaining loans. About 80% of the farmers in TMC and 50% in EMC took loans for raising crops. In TMC, there were only a few cases when farmers borrowed from moneylenders, and it was

Table 9. Transaction and Enforcement Costs **(% responses to total)**

Sr. No.	Particulars	TMC	EMC
A	**Difference between agreed price and sale price**		
1	Less	42.86	20.00
2	Same	54.29	80.00
3	A bit more	2.86	0.00
B	**No. of times farmer went to agent to get payment**		
1	None	62.86	100.00
2	Various times	37.14	0.00
C	**Merchant fulfilment**		
1	Bad record	2.86	0.00
2	Satisfactory record	82.86	50.00
3	Good record	14.28	50.00
D	**Sale Receipt**		
1	No	85.71	10.00
2	Yes	14.29	90.00
E	**Conflict on quality**		
1	No	71.43	100.00
F	**Conflicts - any other**		
1	Because of rain	0.00	0.00
2	Production rejected	0.00	0.00
G	**Confidence in the merchant**		
1	Low	22.86	0.00
2	High	77.14	100.00

mostly through banks and cooperative credit societies that loans had been availed in both TMC and EMC. Furthermore, the main purpose of taking loans was for intercultural operations for raising crops. In both TMC and EMC, there were no defaulters, as revealed by the sample farmers.

Table 10. Perception on Services Provided by Different Agencies

Sr. No.	Particulars	TMC	EMC
A	**Taken any loan (% to selected hh)**	**80**	**50**
B	**Source of loan**		
1	Money Lender	2.86	0.00
2	Bank	54.29	10.00
3	Cooperative	80.00	30.00
4	Friends/relatives	2.86	0.00
5	Self Help Group	0.00	0.00
6	Buyer of the produce	28.57	10.00
C	**Purpose of loan**		
1	Crop Loan (intercultural operations)	71.43	100.00
D	**Reason for taking loans from the buyers**		
1	For intercultural operations	71.43	100.00

➲ **Access to Inputs from Buyers:** In agricultural marketing, there is a link between the input and the output market. The farmers receive inputs such as pesticides and seeds in cash or kind from the market intermediary, to whom they sell their produce. Keeping this in mind, the sample farmers were asked about the inputs received from their buyers. The farmers' response showed that none of the farmers under TMC and EMC received input advance from the buyers such as wholesalers and from PepsiCo.

➲ **Perception of the Market Infrastructure:** In order to improve the marketing of farm products, agricultural markets are being regulated by the govt. The major purpose of regulated markets is to ensure free and fare sales by the auction method. In these markets, there are fixed market charges, accurate weighing, provision of cash payment to farmers without any hidden deductions, and to keep civic amenities in market yards. In Table 11, the facilities available in the Jalandhar fruits and vegetable market along with market infrastructure, as perceived by the farmers, has been shown.

Village roads are an important infrastructure for timely delivery of the produce in the market. Good roads are necessary for the produce to reach the point of sale without much damage to it. Majority of the farmers in TMC and EMC expressed that the village roads were in good condition. With respect to proximity to the market, it was observed that the regulated market was not located in the sample villages, and majority of the farmers had to travel within 10 km and even upto 25 km to access the regulated market. In case of EMC, the farmers had to travel more than 50 km to deliver the produce to the company. There were no cold storage and godown facilities in the market, and auction arrangements were good as reported by the farmers following TMC. Sorting, weighing, packing, and banking facilities were good in the market. However, there were no internal phone and computer facilities as reported by the farmers following the TMC channel. Thus, with respect to certain market facilities, majority of the farmers were satisfied, but at the same time, there were also certain shortcomings, and the farmers felt that the infrastructure needs to be improved.

➲ **Perception of the Farmers on Other Market Agents and Prices:** As we know, the farmer sells his produce in regulated markets through auction sales to a trader, and a commission agent facilitates the transaction. The commission agent ensures the timely payment to the farmers. After receiving the payment, the marketing operations normally come to an end. The farmers' information levels about the intermediaries existing in various channels before the produce reached the retail market were ascertained. The farmers' responses have been summarized in the Table 12. It can be observed from Table that after the sale of their produce, about 50% of the farmers in TMC were aware of the supply chain that existed till the produce reached the ultimate consumer. In EMC, there were no intermediaries, and the farmers were not aware about further processes being followed by the company. Farmers selling their produce in the regulated market revealed that nearly half of them knew how their produce changed hands and reached the retail market. The farmers were only concerned with the price that they received. On the other hand, in case of EMC, none of the sample farmers had any awareness about further processes being followed for value addition to their produce by the company.

Nearly half of the farmers in TMC knew about the places where potatoes were sold in the wholesale markets such as Kolkata, Ahmedabad, Delhi, Jodhpur, and other places. Nearly half of the farmers knew about the price realized in the retail markets. Farmers also felt that the margin realized by the buyers of their produce was high. In case of EMC, 88.57% of the sample farmers indicated that they would continue to sell in the same channel, and to the same agent, if given a higher price. Farmers have no option of exporting their produce (potatoes).

The farmers selling to EMC were asked about various constraints faced by them while selling through this channel. According to 80% of the potato farmers, they did not face any major constraint, while only 20% of the sample farmers reported that EMC bought only selected quality produce of specific size, shape, and colour. However, in TMC, the entire produce was sold. The farmers also explained that since only quality produce is picked up by EMC, the balance produce is treated as low quality and is sold at a lower price.

The farmers were asked to give suggestions, which would ensure higher prices for their produce, and also, which would reduce marketing margins of the intermediaries. The farmers gave several suggestions such as - the potatoes

Table 11. Perception of the Market Infrastructure **(% to Total Selected hh)**

S.No.	Particulars	TMC	EMC
1.	**Condition of roads leading to the market**		
a	Bad	5.71	0.00
b	Average	40.00	20.00
c	Good	54.29	80.00
2	**Proximity of the market**		
a	Within the village	0.00	0.00
b	within 10 kms	54.29	0.00
c	between 10 & 25kms	42.86	0.00
d	>25 kms &<50 kms	2.86	0.00
e	more than 50 kms	0.00	100.00
3	**Godown facilities**		
a	Not Available	100.00	0.00
4	**Cold storage**		
a	Not Available	100.00	0.00
5	**Auction arrangements (Open)**		
a	Bad	5.71	0.00
b	Average	22.86	0.00
c	Good	71.43	0.00
6	**Supervision of sale**		
a	Bad	0.00	0.00
b	Average	8.57	0.00
c	Good	91.43	100.00
7	**Loading facilities**		
a	Bad	0.00	0.00
b	Average	0.00	0.00
c	Good	100.00	100.00
8	**Sorting facilities**		
a	Bad	0.00	0.00
b	Average	0.00	0.00
c	Good	100.00	100.00
9	**Weighing facilities**		
a	Bad	0.00	0.00
b	Average	0.00	0.00
c	Good	100.00	100.00
10	**Packing facilities**		
a	Bad	0.00	0.00
b	Average	0.00	0.00
c	Good	100.00	0.00
11	**Banking facilities**		
a	Bad	0.00	0.00
b	Average	8.57	0.00
c	Good	91.43	0.00
12	**Computer/ internal phone facilities**		
a	Bad	0.00	0.00
b	Average	0.00	0.00
c	Good	0.00	0.00
d	NA	100.00	100.00

Table 12. Perception of the Farmers on Other Market Intermediaries, Price Spread, and Constraints in Agricultural Marketing

Sr. No.	Particulars	TMC	EMC
1	**After the buyer, who were the agents and how many channels were there between the farmer and the retail market ? (% to total responses)**		
A	**Agents**		
a	Don't Know	48.57	100.00
b	Agent/Trader/Wholesaler/Retailer	14.29	0
c	Agent/APMC Agent	0	0
d	Trader	37.14	0
B	**No of channels present in between (% to total responses)**		
a	1 Channel	37.14	0
b	2 Channels	0	0
c	3-4 Channels	14.29	0
2	**Which are the wholesale markets in the country where the crop is sold ? (% to total responses)**		
a	Kolkata	17.14	0
b	Ahmedabad	28.57	0
c	Delhi	20.00	0
d	Others	34.29	0
3	**Do you know the price at which the produce is sold in the retail market ? (% to total hh)**		
a	Unaware	57.14	100.00
b	Aware	42.86	0
c	If you know, what is the price ? (₹/qtls)	1150	0
4	**What is the margin the buyer of your produce earns from the sale of the produce ? (₹/qtls)**		
5	**What is your opinion on the margin that is realized ? (% to total hh)**		
a	High	88.57	0
b	Very High	11.43	0
c	Don't know	0	100.00
6	**In the future, will you sell the produce to this agent again? (% to total hh)**		
a	No	0	0
b	Yes	0	0
c	Uncertain	14.29	0
d	If given a higher price	85.71	100.00
7	**Any other option you have for selling the produce ? (% to total hh)**		
a	No	100.00	100.00
b	Yes	0	0
8	**What are the enabling conditions and the support that the government should provide so that the farmers can get a better price for their produce ? (% to total responses)**		
a	Need export facility	22.86	40.00
b	Cold storage & higher MSP	22.86	10.00
c	Need subsidy	28.57	50.00
d	Market and other charges should be reduced	11.43	-
e	Increase MSP	-	-
f	Reduce commission agent	8.57	-
g	Other facilities	5.71	-

9	**What are the constraints faced by you in EMC as compared to TC ? (% to total responses)**		
a	Only buys selected quality produce	-	20.00
b	Buys only in small quantity	-	-
c	Delay in payment	-	-
d	Buys from the traders and not from the farmers	-	-
e	No problem	-	80.00
f	Low rate of produce	-	-
g	EMC is not as strong as TC	-	-
10	**How do you think the constraints in the emerging marketing channels can be overcome?**		100
a	Reduce the purchases from agents	-	-
b	Purchase entire produce	-	10.00
c	Need to attract farmers by providing facilities and services	-	30.00
d	Sell more produce to EMC	-	60.00
11	**Suggestions to ensure that the farmers get a higher price for their produce and the margins of the intermediaries are reduced.**		
		100	100
a	Govt. should help to export	22.86	60.00
b	Reduce intermediaries in the market	8.57	-
c	Provide good transport facilities	28.57	40.00
d	Provide good market facilities	5.71	-
e	Price should be decided by the government during bumper harvest	17.14	-
f	Reduce charges (market/processing)	5.71	-
g	Provide credit facilities	-	-
h	Reduce electricity charges	-	-
i	Government should purchase	11.43	-
j	All produce should be purchased by the merchants	-	-

should be exported when there is a glut in the market, transport facilities should be provided to them , produce should be purchased by the govt. in case of bumper harvest, and that the market charges and intermediaries should be reduced.

➲ **Perception of the Traders/ Consumers :** The potato traders and consumers emphasized the need for govt. intervention by regulating the area under potato crop cultivation due to extreme fluctuation in prices each year, which adversely affects both the farmers and the consumers. Traders also demanded the subsidization of cold storage charges borne by them in case of bumper harvest in the country, which eventually results in crashing the wholesale and retail prices of potatoes, affecting the profitability of the traders as well as of the farmers.

Conclusion

As the net price received by the farmers is higher in case of EMC, therefore, the farmers should try to sell more produce through this channel. With respect to EMC, the main constraint is that EMC purchased limited quantity and only superior quality produce. EMC has to, therefore, increase the scale of its operations to purchase more agricultural products so that more farmers are benefited by selling through this channel.

On the whole, it has been found that the farmers have been benefited by selling their potato produce through EMC, mainly because they avoid/save marketing costs. However, the marketing operations of EMC are very limited and restricted to purchase of superior quality produce, which enables only a few farmers to secure higher prices. Thus, expansion of such innovative/emerging marketing channels for fruits and vegetables in an organized

manner, coupled with upgraded market infrastructure in regulated markets can go a long way to promote the horticultural base in the state, through reducing post harvest losses, reducing intermediaries, increasing net returns for the producers as well as for the benefit of the consumers.

Policy Implications

➲ Potato growers face problems like the sharp decline in the prices in case of a bumper harvest. So, there is a need for providing facilities/concessions for promoting the export of the produce in case of glut in the market to stop the distress sale.

➲ Cold storage cost for potato crop is very high. Sometimes, in case of low prices in the retail market in lean periods, farmers are not able to cover their storage cost. In that case, the govt. should provide subsidy for the storage to augment the income of the potato growing farmers.

➲ There is a need to establish more processing units for value addition of potatoes to increase the farmers' share in the consumers' rupee.

➲ The facilities of grading and transportation of potatoes to distant markets should be subsidized so that the farmers get remunerative prices for their produce.

➲ The farmers as well as the traders reported the unhygienic conditions due to improper disposal of the waste material and problem of stray animals in the market. Hence, the market committees need to ensure proper cleanliness and hygienic disposal of waste material in the market yards.

Limitations of the Study and Scope for Further Research

Although the present research paper tried to highlight various issues related to the marketing of potato crop through emerging and traditional marketing channels, yet the limitation of the study is the small sample size of the farmers following emerging and traditional marketing channels for marketing of the crop. Furthermore, the emerging channel was investigated up to the point of purchase of the produce by PepsiCo from the farmers. The company, after value addition/ processing, sells its final product to the consumers, which is the company's trade secret and hence could not be investigated.

The issues presented in the present paper can be dwelt upon to further undertake a wider study with a larger sample size of potato growers, thereby providing more authentic results for the researchers. The entire value chain of EMC for the potato crop should be investigated up to the point of final consumption of the processed product by the consumers.

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