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Research Article

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Marketing Practices and Assessment of Post-Harvest Losses of Cole Crops (Cabbage & Cauliflower) in Jaunpur District of Uttar Pradesh

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ABSTRACT

Cole crops are most popular vegetables grown during winter season in India. The post-harvest losses in cabbage and cauliflower are mainly due to post harvest handling practices and the type of package and transport used in distribution system. The present study was undertaken to estimate these losses at various stages. The study was conducted in Jaunpur district of Uttar Pradesh. Total of 100 formers were identified randomly. The second level of data collection was carried out at the trader level, loss was estimated from a 40 samples taken from four main markets and third level loss was estimated from a sample of twenty retailers. The important cole crops (cabbage and cauliflower) were selected for the detailed analysis. The data on the harvesting and marketing practices of the cole crop grower, whole seller & retailers were collected using a well designed pre-tested schedule by interview method. After harvesting of cole crops marketing practices like storage, sorting, packaging and transportation were observed at all the three levels of marketing i.e. farm level, wholesale level and retail level. Over all the three levels, the maximum post harvest losses due to different handling process was observed in cauliflower (15.70%) followed by cabbage (13.71%). The post-harvest management of cole crops at all the level in the study area needs a lot of improvement on packaging, storage, transportation and marketing of the produce to minimize the losses, and also to educate the grower in controlling insects/pest and diseases.

Keyword: *Marketing, Post-harvest, Cole crops, Handling and Packaging.*

INTRODUCTION

Cole crops are most popular vegetable grown during winter season in India. Among the cole crops cauliflower and cabbage are the important crop grown, khol-khol is limited only in certain areas in hills and sub tropical parts while broccoli is also gaining momentum in some areas of the country due to high medicinal value. In India, nearly 10% areas and 15% production of total vegetables are being contributed by cauliflower and cabbage only. Presently these are being grown round the year thorough out the country (Ahmad, & Haque, 2013). Cole crops are grown for botanically different edible parts but their cultural practices are almost similar.

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Post haves losses in cabbage & cauliflower is mainly due to post harvest handling practices and the type of package and transport used in the distribution system, in study in Nepal the percentage post harvest losses of cabbage and cauliflower were recorded 13.65% and 2.19% in cabbage and cauliflower at the wholesale and retail levels. The estimated total loss (%) at the wholesale and retail level during marketing was 15.84% and 12. 84% respectively.

Keeping these in view and also considering the importance of cole crops in Jaunpur district of Uttar Pradesh, as attempt is made in this study to understand the practices followed in marketing of cole crops and to estimate the losses at different stages of handling in the major marketing channels.

MATERIALS AND METHODS

Sampling and data collection- Jaunpur district was selected based on its maximum contribution of the area under cole crops. Multistage random sampling methodology was used to select the blocks, villages, farmers and the traders. Data on marketing and post harvest losses at field level, market level and at the retail level were collected from the growers of Sikarara & Kerakat blocks were selected purposively for this study based on highest area and product of cole vegetable crop in Jaunpur district (Giri, 2015). Marketing details were collected form Kerakat & Chaukiya vegetable markets. Jaunpur district is also transported to other region for meeting the demand in the area.

Estimation of post-harvest losses- The post-harvest loss at the field level was worked out on the basis of the data collected from 10 sample village. Each sampling units was made up of 100 samples.

Data on the harvesting and marketing practices followed by the cole crops grower from the study area were collected using a well designed pre- tested schedule by personal interview method. Care was taken of assess and record the physical loss at the time of harvest and often, at the field level, and also at wholesale and retail market level[2]. List of cole crops growers in sample villages was prepared and arranged in order of area under cole crops. From each of two blocks fair predominantly cole crops growing villages were purposively selected. From each village, five cole crop vegetable growers were indentified randomly from the comprehensive list of all cole crops (cabbage & cauliflower) growers (Patel et al., 1999).

The second level of data collection was carried out at the trader level. Trader level loss was estimated from a total 40 samples taken from four markets *viz.* Kerakat, Chaukiya, Kuttupur and Shakarmandi (10 from each market). Traders play a significant role of smooth functioning of harvest, transportation and marketing of cole crops in Jaunpur district (Patel et al., 1999).

The third level, i.e. the retail level loss was estimated from a sample of 20 retailers in and around of each markets and Jaunpur city. Simple statistical tools viz. averages, mean score and percentage etc. were employed to examine the current status of post harvest loss assessment of cole crops at different level in the region (Mandal & Das, Gupta, 1981).

RESULT AND DISCUSSION

Marketing practices and channels- Field sale is the major practice of marketing of cole crops by the farmers. Whole seller both from local and distant markets enter in to agreement with the farmers through commission agent from the field sale. The commission agent charges 4-7% from wholesalers were observed. Cole crops (cabbage and cauliflower) are marketed locally in gunny bags, bamboo baskets, and opens or loose respectively and gunny bags of 40 kg capacity are used. The major distant markets are eastern parts of Uttar Pradesh and other state of India like Madhya Pradesh, Bihar and West Bengal etc. Lorries/tempos are used to transport cole crops and some instances of transporting in buses were also observed. The transportation cost of cabbage and cauliflower are as Rs 20-30 at & Rs 10-100 cured respectively (Ray Susan & Pal, 2000).

The major marketing channels commonly observed in Jaunpur district of Uttar Pradesh are as below.

1. Farmers – whole sellers – cum commission agent-retailer – consumers.
2. Farmers – wholesalers – retailers – consumers.
3. Farmers – retailers – consumers.
4. Farmers – local seller – consumers.

In the process of marketing produce pass through the hands of a number of agencies. The above channel shown clearly indicated that farmer - consumer or in other word direct selling of vegetable the shorted or small channel existing in this area. The common channel existing in the wholesale markets of cole crops is farmer - whole seller – retailer - consumers, in some cases consumers also purchase cole crops directly from wholesaler and retailers purchase directly from farmers, but such process of marketing channel is very few.

Marketing cost of cole crops: The **Table No.1** clearly reveals that the whole sellers of these marketing have to spend certain amount under different hands which also effect the price of vegetable in the marketing. Before selling and other purchasing the produce, sorting and packaging of produce is done by the wholesaler to attract the buyers. For convenient transportation on an average, the wholesalers in these markets have to pay Rs 120 on account of rent for the space they are using. Other this rent the wholesalers also to pay 2.5 percent tax to mandi samiti. The average cost of sorting of these cole crops (cabbage and cauliflower) are Rs 5/qt and Rs 2/100 curd respectively. These crops are mostly packed in gunny bags therefore the average cost of packaging in these crops are Rs 7.50 per qt and Rs 5/100 curds and similar is the trend for loading and unloading of these vegetables.

Post harvest loss estimation at farm and market level: The post harvest losses at different level which farm level wholesale level and retail level and at different stages of this level were estimated and discussed under following sub- heads.

Post harvest losses at farm level: The losses in cole crops start from the very first step or from its origin i.e. farmers field. During harvesting of vegetable farmers have to suffer great losses due to the incidence and insect & pest and diseases. The extent of average losses in cabbage and cauliflower due to disease and insect pest incidence 25-30% and 25-35 % respectively. During harvesting generally two kinds of losses are observed i.e. losses due to mechanical injury and losses due to rotting. As reported in **Table No.2,** losses due to mechanical injury only in cauliflower in 0.5% and losses due to such rotting are 0.6% only in cauliflower. The losses during storage 1.0% only in cabbage and 0.5% in cauliflower. No loss found during packaging at farm level. The transportation loss & only due to some mechanical injury which may be because of improper packaging poor condition of road and improper solution of made of transportation. Mostly the growers carry their produce to the markets on Sagari (tricycle, tractor, & cycle). The losses due to mechanical injury during transportation 0.86% in cabbage, and 1.2% in cauliflower.

Various pre harvest operation if managed efficiently, the outcome is obtained in terms of minimization of post harvest losses.

Post harvest losses at whole sale level: Wholesaling is the business of selling relatively large quantities of Cole crops to retailers or other traders rather than to consumers.

Table 1: Marketing cost of Cole crops in wholesale market

S.No.	Items	Cabbage	Cauliflower
1.	Average cost of loading and unloading of vegetable (Rs/ qt)	7.5	5/100 curd
2.	Average cost of sorting of vegetable (Rs/qt)	5	2/100 curd
3.	Average cost of packaging (Rs/qt)	7.5	5/100 curd
4.	Average other marketing charges (tax etc) (Rs/qt) to Mandi Samiti.	2.5	2.5
	Average cost of shop rent (Rs/month)	**120.00**	**120.00**

Table 2: Post harvest loss estimation at farm level

S. No.	Particular	Farm level		Whole sale level	
		Cole Crops		Cabbage	Cauliflower
		Cabbage	Cauliflower		
1.	Losses due to mechanical injury (%)	Nil	0.5%		
2.	Losses due to rotting (%)	Nil	0.6%		
3.	Percentage loss during storage (%)	1.0%	0.5%		
4.	Percentage loss during packaging	Nil	Nil		
5.	Losses due to mi+ rotting during transportation (%)	0.86%	1.20%		
	Total	**1.86%**	**2.80%**		

Table 3: Losses at whole sale level

S. No.	Items	Cabbage	Cauliflower
1.	Losses during sorting (%)	0.50%	2.00%
2.	Losses during storage (%)	4.75%	4.00%
3.	Losses during packaging	0.60%	0.50%
4.	Losses due to mechanical injury during transportation	0.20%	1.25%
5.	Losses due to rotting during transportation	0.90%	0.50%
	Total	**6.95%**	**8.25%**

MI – Mechanical injury

Table 4: Losses at retail level

S. No.	Items	Cabbage	Cauliflower
1.	Discurd quantity after sorting	2.15%	2.00%
2.	Losses during transportation (%)	0.50%	0.50%
3.	Losses at selling (M.I+ rotting) (%)	2.25%	2.15%
	Total	**4.90%**	**4.65%**

Table 5: Losses at all level and also physical & monetary form

S. No.	At Different levels	Cabbage (Loss %)	Cauliflower
1.	Farm level	1.86%	2.80%
2.	Whole sale level	6.95%	8.25%
3.	Retail level	4.90%	4.65%
	Total loss (%)	**13.71%**	**15.70%**
	Physical loss in qt	489.81%	146.12%
	Monetary loss (Rs/qt)	18.87%	54.31%

Critical view on the data presented in the **Table No.3** shows that the losses during storage 4.75% in cabbage and 4% in cauliflower. The whole sellers of Jaunpur district are having rich experience of materials used from packaging, size of packaging and protection measure for packaging. Due to these experience the losses at wholesale level in packaging is also less i.e. only 0.6% in cabbage and 0.5% in cauliflower. During transportation the losses occur due to both mechanical injury and rotting. The maximum losses due to mechanical injury during transportation are cauliflower (1.25%) and cabbage (0.2%). The losses due to rotting 0.90% in cabbage and 0.50% in cauliflower. The data related to the losses occur during all the different stages like sorting, storage, packaging and transportation of wholesale marketing are reported in **Table -3**. The data related to the losses of cabbage and cauliflower during sorting (2%) in case of cauliflower and 0.5% losses in cabbage.

Post-harvest losses at retail level retailer in this area generally purchase commodity from whole sale market or from farmers. Retail markets are the last commercial act and the retailers are selling to produce directly to the consumer. Therefore, the losses at retail level are minimum compared to wholesale level and farm level. The post-harvest losses in retail market are discussed and as the reported in the **Table-4** the discarded quantity after sorting is in cabbage (2.15%) and cauliflower (2.0%). The retailer have to travel near short distance for purchasing of produce therefore, the losses during transportation is very less with same of 0.5 percent in cabbage and cauliflower. The losses in cabbage and cauliflower due to mechanical injury and rotting 2.25% and 2.15% respectively because due to its perishable nature.

Overall post harvest losses of cole crops (cabbage & cauliflower) around 13-16% of the harvest quantity. The maximum losses occur in cauliflower (15.70%) and cabbage (13.71%). Interpreting the data presented in **Table No.5** for different level, it is clear that the maximum losses of cole crops occur at whole sale level 06.95% in cabbage and 8.25% in cauliflower, followed in retail level 4.90% in cabbage and 4.65% in cauliflower and farm level 1.86% and 2.8% respectively.

The **Table No.5** reveals that the Rs. 54.31 per quintal followed by cabbage (489.81 qt) worth monetary value of Rs 18.87/q. Physical and monetary point of view the losses in cole crops in more in cauliflower followed by cabbage.

CONCLUSIONS AND RECOMMENDATIONS

The marketing and post-harvest losses of vegetable are evident in distribution system as the final produce moves down the pipeline from harvesting to its consumption. Post-harvest loss assessment in marketing and the methods of estimation are important areas of research in post-harvest management. The producer of cole crops are found five channels but the common channel existing in the whole sale market of producers-wholesales-retailers-consumers for marketing their produce. After harvesting of vegetable marketing practices like, storage, sorting, packaging and transportation were observed at all the three levels of marketing i.e. farm, wholesale level and retails lever. Over all the three levels, the maximum total post harvest losses due to different handling process was observed in cauliflower (15.70%) followed by cabbage (13.71%), comprising 2.8% & 1.86% loss at the field level, 8.25% and 6.95% at wholesale level and 4.90% and 4.65% at retail level and due to disease and insect pest incidences are quite high to extent of 13 to 16 percent of the total produce.

(i) Cole crops are perishable crops which due to any delay in marketing start rotting very quickly therefore. Adequate storage facilities and sufficient ventilation should be developed at all the level to avoid the losses due to storage.

(ii) A marketing network of whole sale vegetable markets of the will certainly help the growers in getting transporting their product to other part of the region.

(iii) The post harvest management of cole crops at all the level in Jaunpur district needs a lot of improvement on packaging storage transportation and marketing of the produce.

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