



ESTIMATION OF POSTHARVEST LOSSES OF SOLANACEOUS VEGETABLES AT
DIFFERENT LEVELS IN JABALPUR MADHYA PRADESH INDIA.

Sajad, A.M.* Jamaluddin** and Abid, H.Q.*** and Jitendra Nagpure

** Emeritus scientist at UGC.

* & *** Research Scholars at Department of Biological Sciences R.D. University, Jabalpur, Madhya Pradesh, India-482001

ABSTRACT: Post-harvest losses have been analysed at different levels in Solanaceous vegetables viz, Tomato, Brinjal, Potato and Chilli in different markets of Jabalpur Madhya pradesh India. Post-harvest losses have been estimated using the survey data collected from farmers, wholesalers, and retailers in each solanaceous vegetables in Jabalpur. Major economic losses in solanaceous vegetables were in tomato followed by brinjal, potato and chilli. The result of this study indicated that overall losses at different stages was around 165.23 kg (28.32%) in tomatoes, 112.24 kg (25.32%) in brinjal, 188.5kg (21.34%) in potato and 110.7kg (19.18%) in chilli.

Key words: Farmers, Market functionaries, Estimation postharvest losses, Solanaceous vegetables.

*Corresponding author: Sajad, A.M. Department of Biological Sciences R.D. University, Jabalpur, Madhya Pradesh, India-482001, mirsajadahmad7@gmail.com

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INTRODUCTION

Agriculture is the main sector in Indian economy. Contribution of Agriculture towards national income is about 15-20% (GoI, 2007-2012). Therefore it is to be rightly said, agriculture is the backbone of Indian economy. India ranks 2nd in vegetable production and accounts 15% of world's production of vegetables. In India vegetable production increases from 58.33 million tonnes in 1991-92 to 98.50 million tonnes in 2001 and is currently second only to China. With production of 222 lakh tonnes, Potato is leading vegetable followed by brinjal and tomato with the production of 77 and 73 lakh tonnes respectively. India produces seventy different varieties of leafy, fruity and starch tuber varieties of vegetables (Singhal, 2003). Total area under vegetable cultivation is around 6.2 million hectares which is about 3% of the total area under cultivation in country. Potato is widely grown vegetable with high domestic consumption 23889336MT and an export of 40341MT for the year 2002 and onwards. Uttar Pradesh is leading followed by West Bengal and Bihar. Tomato occupies 2nd position among vegetables in terms of production. Andhra Pradesh is the largest grower of tomato. Brinjal occupies 3rd position amongst vegetable crop. West Bengal is the largest producer of brinjal. A large proportion of these solanaceous vegetables is lost at different stages by post-harvest activities. (Verma and Singh 2004) estimated about 25 % of losses of total production. Losses occur due to poor knowledge, poor transportation facilities, poor management and improper market facilities, lack of management by farmers, dealers and retailers (Gauraha and Thakur, 2008, Singh *et al*, 2008). Estimation of losses in developing countries put losses of potatoes, tomatoes, brinjal and some citrus fruits as high as 50% or half of what is grown. Loss of agricultural commodities would indicate not only monetary losses but also losses of economy and decline in the nutritional value that is already in decline in developing countries (FAO, 1980).

(Gauraha, 1997) reported that post harvest losses in tomatoes up to 32.64%. High perishability, seasonal variation and bulkiness make the marketing of fresh vegetables very complex (Anil and Arora 1999, Gupta and Rathore, 1999, More 1999, Begun and Raha 2002, Murthy *et al*, 2002, Singh and Chauhan, 2004, Bala, 2006, Murthy *et al.*, 2002, Rupali and Gyan 2010, Barkade *et al.*, 2011.) Estimation in post-harvest losses in solanaceous vegetables at various levels help in accessing the extent and magnitude of losses and in identifying the factors contribute for these losses. This results in proper management techniques to reduce losses occurring at various stages. Reduction in post-harvest losses increase the availability of vegetables. The farmers, wholesalers, and retailers would be guided by such studies in formulating suitable policies that result decline in post harvest losses. Specific objective of this study is that to measure the extent of post harvest losses at various levels.

METHODOLOGY

Present study conducted in Jabalpur Madhya Pradesh aims at estimation of post-harvest losses in solanaceous vegetables. Madhya Pradesh with varied agro climatic conditions making it possible to grow large number of fruits and vegetables. Four major solanaceous vegetables viz, tomato, potato, brinjal, and chilli have been selected for this study.

Tabular representation was used to present the data. Stastical average, ratios, percentage were used to estimate post harvest losses at different levels.

RESULTS AND DISCUSSIONS

Post-harvest losses of solanaceous vegetables at different levels were shown in table 1-4. Overall losses in tomatoes at different levels was around 165.23 kg (28.32%) in table 1.

Table-1: Total post-harvest losses in tomato at different levels in Jabalpur Madhya Pradesh India.

Different levels	Quantity in kg.	Percentage of losses.
Farm level	60.2	6.11
Wholesaler level	103.9	19.22
Retail level	1.13	2.99
Total	165.23	28.32

Table-2: Total post-harvest losses in Brinjal at different levels in Jabalpur Madhya Pradesh India.

Different levels	Quantity	Percentage of losses
Farm level	62.10	9.13
Wholesaler level	48.9	8.15
Retail level.	1.24	8.04
Total	112.24	25.32

Table-3: Total post-harvest losses in potato at different levels in Jabalpur Madhya Pradesh India.

Different levels	Quantity in kg.	Percentage of losses
Farm level	102.25	8.18
Wholesaler level	80.24	10.5
Retail level	6.06	2.66
Total	188.55	21.34

Table-4: Total post harvest losses in chilli at different levels in Jabalpur Madhya Pradesh India.

Different levels	Quantity in kg	Percentage of losses
Farm level	70.24	12.9
Wholesaler level	35.11	5.2
Retail level	5.35	1.08
Total	110.7	91.8

Table-5: Opinion of sample farmers, wholesalers and retailers, regarding problems with respect to post harvest losses of solanaceous vegetables in Jabalpur Madhya Pradesh India.

Particulars	No. Of respondents (n=180)	Percentage
Adverse weather conditions	155	86.11
Inadequate storage facilities.	165	91.66
Inadequate transport facilities	170	94.44
Lack of knowledge	55	30.55

A considerable post-harvest losses occurred at wholesaler and retail level due to inadequate storage, transportation facilities and improper handling (Roy and Poll 1991). Maximum losses occurred at wholesaler level in tomatoes. Deterioration occurred due to high moisture content, tender and texture. Quantity losses occurred due to inadequate facilities like storage, drying, packaging and transportation.

Overall losses in brinjal at different levels were around 112.24 kg (25.32%). Maximum losses were found to occur at farm level. Considerable post harvest losses occurred due to inadequate handling, storage, and transportation (Gauraha, 1997).

Total losses in potatoes at different levels were around 188.5kg (21.34%). Maximum losses occurred at wholesaler level. Factors responsible for post harvest losses were improper management of harvesting, storage, transportation, and also tender, texture and moisture content of vegetables. Losses in chilli at different levels were about 110.7kg (19.8%). Maximum percentage of losses occurred at farm level, followed by wholesaler and retail level.

Results from table 5 indicated that 94.44% farmers experienced that losses occurred due to inadequate transportation facilities after the vegetables are harvested. About 91.66% farmers experienced that losses occurred due to inadequate storage facilities. 81.66% farmers told that losses occurred due to adverse weather conditions i.e. Shortage of rainfall, heavy rainfall at the time of harvesting, high humidity and moisture content. About 30.55% farmers consult that needed more information, scientific knowledge and facilities with respect to control post-harvest losses of solanaceous vegetables at farm level.

Thus losses at different levels can be controlled by development of scientific methods, proper handling, proper storage, transportation and management. An Indian economy is based on agriculture there is need to develop proper management practices in order to increase vegetables, not to deteriorate them due to post-harvest losses. This study also suggests that possible solutions to reduce these problems are establishment of producer cooperatives to handle various activities related to production and marketing of solanaceous vegetables.

CONCLUSION

Post-harvest losses occur due to improper methods of harvesting, Transportation, cleaning, drying, storage, transportation, processing and packaging. Present study attempt to estimate post-harvest losses in solanaceous vegetables at different levels in Jabalpur Madhya Pradesh India. Study also attempted to identify and enumerate losses occurring at different levels. Reliable database on vegetable loss help to make proper planning for monitoring and controlling of post harvest losses.

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ISSN : 0976-4550

INTERNATIONAL JOURNAL OF APPLIED BIOLOGY AND PHARMACEUTICAL TECHNOLOGY



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