



Research Article

EXTENT OF POST HARVEST LOSSES AT DIFFERENT STAGES OF FRUITS IN MADHYA PRADESH

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Received: September 25, 2018; Revised: October 25, 2018; Accepted: October 26, 2018; Published: October 30, 2018

Abstract: India is the second largest producer of fruits. Total production of fruits is 81285 thousand million tones and area 6982 thousand ha in India. Fruits production in Madhya Pradesh comprises 6.7 percent in total fruits production and 2.8 percent in total area of India. Post-harvest losses in fruits and vegetables are very high (20-40%). About 10-15 per cent fresh fruits and vegetables shrivel and decay, because lowering their market value and consumer acceptability. Minimizing these losses can increase their supply without bringing additional and under cultivation. Improper handling and storage cause physical damage due to tissue breakdown. Present study conducted to examine the post-harvest losses of fruits in Jabalpur regulated market in Madhya Pradesh. The maximum post-harvest losses were found in mango (1542.3q/yr) as compare to papaya (1470.5q/yr) and banana (1422q/yr). Amongst the different fruits and the different operation, the maximum losses found to be in banana during storage (43.4%) while in papaya (39.75%) and mango (38.3%). Maximum post-harvest losses observed during transportation. Post-harvest losses occur because of poor transportation facilities, lack of knowhow poor management and improper market facilities or due to careless handling of the produce by farmers, market intermediaries and consumers.

Keywords: Trend, comparative analysis, regulated market, wholesalers

Citation: Asathi B.K., *et al.*, (2018) Extent of Post Harvest Losses at Different Stages of Fruits in Madhya Pradesh. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 10, Issue 20, pp.- 7378-7380.

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Introduction

India is the second largest producer of fruit. total production of fruits is 81285 thousand million tones and area 6982 thousand ha in India. production of fruits in Madhya Pradesh 5450thousand million tones and area 195.4 thousand ha at M P.(6.7%) in total fruits production and 2.8 % in total area of India the implicitly assumption in this shift is that huge losses are taking place in the process of handling and storing of food product, especially fruits and vegetables, apart from other issues pick seasonal nature of production, changing food habits, and remunerative price to farming community. the lack of cold storage and modern method of harvesting, improper handling in transport using age-old gunny bag, unrefrigerated and open trucks lack at pre-cooling facilities, lack of organized retailing that can invest in backend operation and related bottlenecks are show to be the reasons for this sorry state of affairs. The extent of losses in the food sector due to improper handling and storage has since been a point of contention [1]. While some scholars have shown the losses to be as huge as 30-40% of total production, some have project them to be around Rs 50000 crores at the beginning of the first decade of the new century. The CIPHET study found that the losses to be to the tune of Rs 44000 crores per annum at 2009 wholesale price and they attributed this reduction technology in the estimation from the earlier frightening figures to the increased availability and adoption of the recent years. Post-harvest losses in the case of fruits are very high 20-40 per cent about 10-15 per cent fresh fruits, lowering their market value and consumer acceptability. Minimizing these losses can increase their supply without bringing additional land under cultivation. Improper handling and storages cause physical damage due to tissue break down in this background the present study aims to examine the losses in Jabalpur regulated market in MP. One of the market under public domain run by the state government encompassing an area around 65 acres, it caters to the fruits requirement of the Jabalpur district with a notified list of 18 fruit. It has average annual handling of around 160774q fruit with signification share by mango (19.07%) water melon 8.99% and apple (6.08%). The finding of the study was useful in arriving at conclusion about the state of affairs regarding the losses

due to inefficiencies in handling, storage and marketing of perishable commodities in the Jabalpur regulated market.

Objectives and Methodology

The present study was based on both primary and secondary data. Primary data has been collected from selected wholesalers by survey method with the help of pretested interview scheduled. The secondary data were collected from the secretary of Jabalpur regulated market, processor and district industrial canter of selected fruits. A multistage sampling technique has been used for selection of respondent for the study. At first stage the Banana, Mango and Papaya were selected purposively. A list of wholesalers was prepared in second stage and 55 wholesalers have been selected for further collection of primary data. The present research is proposed with objective to determine the trend of arrivals and prices of fruits and to study the extend of losses in transporting, handling, storing of fruits.

Results and Discussion

Mango

The arrivals of mango in the Jabalpur regulated market showed increasing trend with magnitude. The year wise trend of arrival and price of mango has been observed and presented in [Fig-1]. It is observed that arrivals of mango in Jabalpur regulated market increased to 3387.76 q in 2013-14 from 1551.67 q in 2004 of 126.7 q/ year during the period under observation. The price of mango also showed increasing trend with magnitude of 38.78 q/year. the rate of change in arrivals was (126.7 q/year). The rate of change in arrivals was 126.7 q/year was found to more as compare to price 38.78/q year. These findings are inconsonance with findings of Nagpure and Ganvir, (2012) [2]. It is observed from the [Fig-2] that the arrival of papaya in Jabalpur regulated market increased from 2185.00 q in 2004-05 to 2374.83 qin 2003-14. The arrivals of papaya in the Jabalpur regulated market showed increasing trend with the magnitude of 126.0 q/year during the period under study. The price of papaya also showed increasing trend with the magnitude of `27.67q/year.

Table-1 Comparative picture of year-wise arrivals(q) and prices of different fruits.

Year	Mango	Price	Papaya	Price	Banana	Price
2004-05	1551.67	400	2185.00	150	2961.25	400
2005-06	2832.50	400	2369.75	150	3112.25	400
2006-07	2901.67	500	2358.00	200	3213.33	500
2007-08	3118.33	500	2433.42	200	3351.83	500
2008-09	3679.33	600	2533.25	250	3594.58	600
2009-10	3660.50	600	2330.50	250	3482.17	600
2010-11	3265.42	700	2933.58	350	4566.67	800
2011-12	4324.75	700	4110.58	350	4109.08	800
2012-13	2381.92	700	3659.58	350	2516.58	800
2013-14	3387.67	700	2374.83	350	2557.08	800
Total	31104	5800	27288.50	2600	33464.83	6200.00
Average	31104	580	2728.85	260	3346.48	620.00
Trend Value(b)	126.71*	38.78*	126.05*	26.67NS	1.23NS	53.33*

** / * denote 1% and 5% level of significance, respectively, Source: Secretary office of Jabalpur regulated market

Table-2 Comparative post-harvest losses in different operation of selected fruits in 2014

Operations	Mango		Papaya		Banana	
	Losses (q)	% to total	Losses (q)	% to Total	Losses (q)	% to total
Transportation	590.9	38.3	584	39.75	568.8	39.99
Cleaning	106.95	6.93	76.4	5.2	62.1	4.37
Storing & Grading	158.7	10.29	170.7	11.61	115.5	8.12
Packing	111.5	7.23	65.6	4.46	58.51	4.11
Storage	574.25	37.23	573.2	38.98	617.3	43.4
Total losses	1542.3	100	1470.5	100	1422.2	100

The rate of change in arrivals of papaya was 126.0 q/year was found to be more as compared to prices 26.67 q/year.

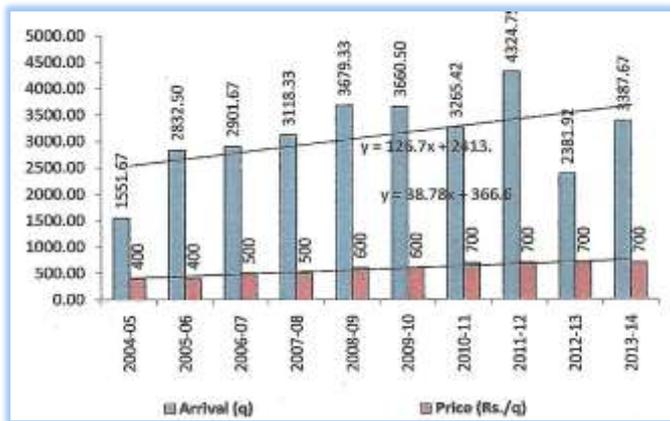


Fig-1 Trend between arrivals(q) and prices (Rs/q) in different years in mango Papaya



Fig-2 Trend between arrivals(q) and prices (Rs/q) in different years in papaya

Banana

The [Fig-3] revealed that the arrival of banana in Jabalpur regulated market found to be increased from 2961.25 in 2004-05 to 4566.67 q 2010-11, while it was found to be decreased to 2557.08t in 2013-14. The arrivals of banana in the Jabalpur regulated market showed a constant trend with the magnitude of 1.234 q/year

during the period under study. The price of banana also showed increasing trend with the magnitude of 53.33 per year. The rate of change in arrival was 1.234 q per year was found to less as compare to prices 53.33/q/year. The findings are at par with the line of Reddy, et al., (2012) [3].

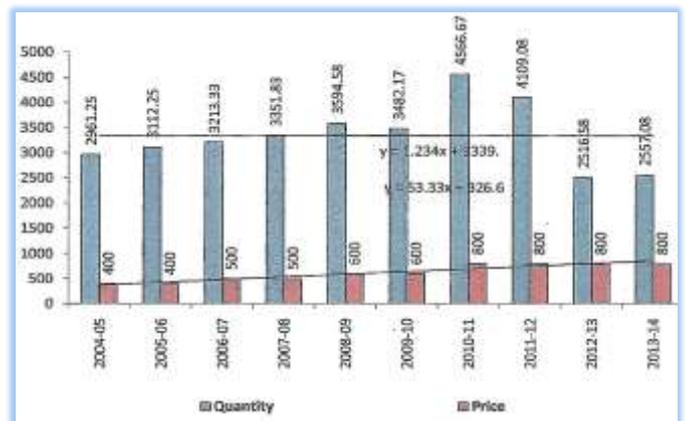


Fig-3 Trend between arrivals(q) and prices (Rs/q) in different years in Banana

Comparative Analysis

The comparative picture of trend of arrivals of fruits are presented in the [Table-1]. The comparative picture of trend of arrivals and price of mango, papaya and banana fruits are also considered for the Jabalpur regulated market. The finding revealed that trend value arrival and price of mango and papaya increased at the rate of 126 and 26.66 q/year respectively, while trend of banana was found to be stagnated with magnitude of 1.234q/year during the period of study. The arrival of banana was showed stagnating trend that was might be due to high distance from the production point and more post-harvest losses of banana. The comparative analysis of trend of price of mango, papaya and Banana fruits were observed from the price of Mango, Papaya and Banana significantly increased with the magnitude of 38.78, 26.67 and 53.33 Rs/qt/year, respectively. The price of Banana (53.33 Rs/q/year) increased with a greater rate as compare to prices of Mango (38.78 Rs/q/year) and Papaya (26.67 Rs/q/year). Basavaraja, (1993) [4] also confirmed these findings.

Comparative Analysis of Post-harvest Losses in different Operation

The post-harvest losses of mango papaya and banana in Jabalpur regulated market showed from the data presented in the [Table-2].

The total post-harvest losses were found maximum in mango (1542.34 q/year) as compared to papaya (1470.5 q/year) and banana (1422qt/year). The maximum losses were found in banana during storage was 43.4%, while in papaya and mango it was found to be 39.75 per cent and 38.3 percent in transportation [5-7].

Conclusion and Policy Recommendation

The arrival trend of mango, papaya and banana had been analyzed and found to be increased with the rate of respectively it. It was found that the price of mango papaya and banana significantly increased with the magnitude during the study period. Amongst the different fruit and the different operations, the maximum losses were found in banana during storage, while in papaya, it was observed during transportation. Post-harvest losses occur because of poor transportation facility, lack of knowledge poor management and improper market facility or due to careless handling of the produce by farmers market intermediaries and consumers.

Application of research: Study shows maximum post harvest losses found during transportation, therefore fruits must be transported through specially designed plastic crates and through cold storage van.

Research Category: Post Harvest Technology

Acknowledgement / Funding: Author thankful to Jawaharlal Nehru Krishi Vishwa Vidyalaya, Adhartal, Jabalpur, 482004, Madhya Pradesh, India

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Research project name or number: MSc Thesis

Author Contributions: All author equally contributed

Author statement: All authors read, reviewed, agree and approved the final manuscript

Conflict of Interest: None declared

Sample Collection: Jabalpur market, Madhya Pradesh

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

References

- [1] Gajanana T.M., Sdha M., Sexena A.K. and Dakshinamoorthy V. (2010) *Acta Horticulturae*, 851, 519-52.
- [2] Nagpure S.C. and Ganvir B.N. (2012) *Marketing and price behaviour of lemon proceeding of the international Symposium on Minor Fruits and Medicinal plants for health and Ecological Security (ISMF&MP) West Bengal, India*, 370-380
- [3] Reddy B.S., Rajeshwari B.N., Goudappa S.B. and Chandrashekhar S.M. (2012) *International Research Journal of Agriculture Economics and Statistics*, 3(2), 192-196.
- [4] Basavaraja H. (1993) *Journal of Agriculture Marketing*, 7(2), 149-159.
- [5] Madan M.S. and Ullasa B.A. (1991) *Mysore Journal of Agriculture Sciences*, 25(4), 458-463.
- [6] Davara P.R. and Patel N. C. (2009) *Journal of Horticulture Sciences*, 4(2), 187-190.
- [7] Agbowuro G.O. (2012). *Advances in Agriculture Sciences and Engineering Research*, 2(10), 385-387.