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Post-harvest losses of Amaranthus in Gondia district (M.S.)

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Abstract

The present study entitled “Post-harvest losses of Amaranthus in Gondia district” was undertaken in three tehsils of Gondia district i.e. Gondia rural, Goregaon and Sadak Arjuni. The primary data were collected from selected farmers by personal interview method by preparation of schedule and it was tested by asking the information from some selected farmers. The collected information regarding, post-harvest losses faced by the farmers and constraints faced farmer, similarly the post-harvest losses occurred during the marketing of amaranthus. The data were collected from the year 2020-21. The post-harvest losses of Amaranthus at different stages of farm level was worked out to be 15.03 kg/qt and per quintal corresponding monetary losses was Rs. 343.16/-. The total post-harvest losses of Amaranthus at market level was observed to be 12.66 kg/qt which causes per quintal economic loss of Rs. 506.40 /-.

The major constraints faced by farmers in post-harvest losses of Amaranthus were burden of transportation cost was the major problem, daily fluctuation of prices, and improper cold storage facilities, high commission charges, rough handling during transportation, packing, handling, loading and unloading.

Keywords: post-harvest losses, Amaranthus, constraints

Introduction

India has been the second largest producer of vegetables in the world accounting for 14 per cent of the world production of vegetables. Outputs of all agricultural commodities produced in the field have to undergo series of operations such as handling, transportation, processing, storage and exchange before they reach the consumer, and there are appreciable losses of outputs during these stages of their handling. The sum quantity of outputs lost in these operations at all these stages is referred to as “Post-harvest losses” of the crop.

In perishable crops like fruits and vegetables, proper and scientific storage, packaging, transport and handling technologies are the need of us to avoid the considerable amount of produce is wasted.

The post-harvest losses in vegetables during operations due to improper handling and storage are enormous. Vegetables are important source of food and income.

Total area under Amaranthus in India was 265.00 thousand ha, with production 59.60 MT and productivity of Amaranthus was 0.22 MT/ha. Total area of Amaranthus in Maharashtra was 501.89 thousand ha, with production 4319.67 MT and productivity of Amaranthus was 8.60 MT/ha. [Horticultural Crops Category Wise System, 2020-21(1st Advance Estimate)]. Total area of Amaranthus in Gondia district was 56.00 ha, with production 142.00 MT and productivity of Amaranthus was 2.53 MT/ha. (District Agriculture Office Gondia 2020).

Amaranthus (Amaranthus spp.) also known as “pigweed” and used primarily as “potherb”, is one of the most important leafy vegetable grown in India. It belongs to the family Amaranthaceae. Among the leafy types, *A. tricolor* L. is the main cultivated species. It is rich source of protein, vitamins A and C, minerals; especially iron, calcium, and dietary fiber.

The best time for sowing is from March to September. Pusa Badi Chulai, Pusa Kiran, Arka Suguma etc. are some of the important varieties grown in the country. It prefers temperature between 25-30 °C. Depending upon variety, crop is ready for harvesting about 3- 4 weeks after sowing. For harvesting, sharp knife or sickle is used.

The study on post-harvest losses in Amaranthus at various stages of marketing would help in assessing the extent and magnitude and losses in identifying the factor responsible for such losses. This in turn would help in developing proper measure to reduce post-harvest losses at different stages of production point to consumption point. Under these circumstances, the reduction in post-harvest losses can help in increasing the availability of vegetables to a great

extent without increasing the production. In the absence of reliable and objective estimates of post-harvest losses at different stages, the way to evolve correct policies for minimizing such losses is more difficult.

Objectives

1. To workout post-harvest losses of Amaranthus at various stages.
2. To identify the constraints in post-harvest losses of Amaranthus.

Methodology

The present study had been undertaken with aim to study post-harvest losses of Amaranthus in Gondia district. It deals with methodology adopted for study viz. Selection of sample, collection of data, analysis and interpretation of data.

Selection of Area

The present study had been undertaken in Gondia district of Vidarbha region. The district was selected purposely, wherein production of Amaranthus was concentrated. The data was pertained to the year 2020-21 for rabi season only.

Selection of Sample

From Gondia district, three Tehsils were selected where the production of Amaranthus raised. From each Tehsil, two villages were selected randomly, hence total six villages were selected. The ten farmers from each village were selected randomly, producing Amaranthus. Therefore, total 60 farmers from 6 villages were selected for present study. The five commission agents, five wholesalers from APMC Gondia as well as five retailers who marketed the Amaranthus in different markets were selected, to assess the marketing losses during marketing of the Amaranthus.

Source of data

Primary data

The primary data were collected from selected farmers by personal interview method by preparation of schedule and it was tested by asking the information from some selected farmers.

The collected information regarding, post-harvest losses faced by the farmers, constraints faced by farmer similarly the post-harvest losses occurred during the marketing of Amaranthus. The data were collected from the year 2020-21.

Selection of market intermediaries

All the major agencies involved in marketing of amaranthus i.e. 5 commission agents, 5 wholesalers and 5 retailers were selected to study the marketing of amaranthus.

Analysis of data

The collected data were tabulated, interpreted for the necessary results. The data were summarized with aid of statistical tools like average, percentage etc. to obtain meaningful results.

The collected data were analyzed, interpreted by simple tabular method using average, mean etc. on the following sub heads.

Post-harvest losses

The post-harvest losses had been analysed in the form of physical loss as well as monitor loss at different stages of marketing was calculated.

Post-harvest losses (ML) is expressed as follows:

$$ML = \{LF \times GPF\} + \{LW \times GPW\} + \{LR \times GPR\}$$

Where,

LF is the physical loss of produce at field level GPF is the gross price received by the farmer LW is the physical loss during wholesaling

LR is the physical loss during retailing GPW is the gross wholesale price GPR is the gross retail price

Results and Discussion

Keeping in view the objectives of the study, the necessary data collected from different sources were analysed and interpreted. The results obtained are presented and discussed below.

Post-harvest losses in Amaranthus

Post-harvest losses may occur at any point in marketing process, from the initial harvest through assembling and distribution to the final consumer. During the process of distribution and marketing, substantial losses occurred which range from slight loss of quality to total spoilage.

Post-harvest losses in Amaranthus at farm level

The post-harvest losses occurred for overall farmers to final retailer were estimated and presented in Table 1.

Table 1: Post-harvest losses in Amaranthus at farm level

Stages	Losses (q/ha)	Per cent Loss	Economic Loss (Rs.)	Losses (Kg./qt)	Per cent Loss	Economic Loss (Rs.)
A. Harvesting						
Pest and disease	2.87	18.32	8400.00	2.09	13.90	61.16
Loss of firmness due to physiological disorder	1.80	11.49	5333.33	1.32	8.78	39.46
Injury	2.88	18.39	8550.00	2.29	15.23	67.73
Loss of texture	1.74	11.11	5016.66	1.35	8.98	38.63
Sub total	9.29	59.32	27300.00	7.05	46.90	207.00
B. Grading and Packing						
Sorting	1.77	11.30	5250.00	3.85	25.61	38.40
Packing	0.86	5.49	2550.00	0.58	3.85	17.40
Sub total	2.63	16.79	7800.00	4.43	29.47	55.80
C. Transportation						
Handling	0.65	4.15	1950.00	1.29	8.58	12.87
Poor Packing	0.55	3.51	1650.00	0.35	2.32	10.50
Loading and Unloading	1.70	10.85	5083.33	1.29	8.58	38.53
Sub total	2.90	18.51	8683.33	2.93	19.49	61.90
D. Self Marketing						

Manifestation through yellowing and wilting	0.52	3.32	1550.00	0.37	2.46	11.16
Decay, shriveling, loss of crispness and succulence	0.32	2.04	966.66	0.25	1.66	7.30
Sub total	0.84	5.36	2516.66	0.62	4.12	18.46
Total	15.66	100.00	46300.00	15.03	100.00	343.16

Table 1. presents that the overall scenario of post-harvest losses of amaranthus at different stages was worked out to be 15.03 kg/qt and per quintal corresponding monetary losses was Rs.343.16/- The maximum losses registered at harvesting (7.05 kg/qt) followed by grading and packing(4.43 kg/qt), transportation (2.93 kg/qt), and marketing (0.62 kg/qt).

Post-harvest losses of Amaranthus at commission agent cum wholesaler and retailer level

The post-harvest losses occurred at wholesaler and retailer level were estimated and presented in Table 2.

Table 2: Post-harvest losses in Amaranthus at market level (Kg/q)

Stages	Physical Losses	Per cent Loss	Economic Losses (Rs.)
A. Losses at commission agent cum Wholesaler level			
Loading & Unloading	2.00	15.79	60.00
Sorting & Grading	0.90	7.10	27.00
Storage	0.99	7.81	29.70
Transportation	1.50	11.84	45.00
Sub total	5.39	42.57	161.70
B. Losses at Retailer level			
Loading & Unloading	2.49	19.66	99.60
Sorting & Grading	1.85	14.61	74.00
Storage	1.62	12.79	64.80
Transportation	1.31	10.34	52.40
Sub total	7.27	57.42	290.80
Total	12.66	100.00	506.40

It is revealed from the table that the total post-harvest losses of Amaranthus at market level was observed to be 12.66 kg/qt which causes per quintal economic loss of Rs. 506.40 /-.

The maximum losses occurred commission agent cum wholesaler level during loading & unloading, transportation, storage and sorting & grading *i.e.* 2.00, 1.50, 0.99 and 0.90 kg/qt respectively corresponding economic losses were Rs. 60.00 /-, Rs. 45.00 /-, Rs. 29.70 /-, and Rs. 27.00 /-. The per quintal economic losses was Rs. 161.70 /-.

The total post-harvest losses occurred retailer level was 7.27

kg/qt, in which losses incurred by loading & unloading was maximum 2.49 kg/qt followed by sorting & grading, storage and transportation *i.e.* 1.85, 1.62, and 1.31 kg/qt respectively. The per quintal economic losses were estimated be Rs. 99.60 /-, Rs. 74.00 /-, Rs.64.80 /- and Rs. 52.40/-. The per quintal total economic losses was Rs. 290.80/-.

Constraints in post-harvest losses of Amaranthus

In post-harvest losses of Amaranthus, farmers faced number of constraints which were identified and given in table 3.

Table 3: Constraints in post-harvest losses of Amaranthus

Sr. No.	Constraints	No. of farmers (n=60)	Percentage of total farmers	Rank
1	Daily fluctuation of prices	55	91.66	II
2	Burden of transportation cost	58	96.66	I
3	Rough handling during transportation, packing, handling, loading and unloading	30	50.00	V
4	Improper cold storage facilities	52	86.66	III
5	High commission charges	47	78.33	IV

It was revealed that, burden of transportation cost was the major problem expressed by 58 farmers (96.66 per cent) followed by daily fluctuation of prices which was expressed by 55 farmers (91.66 per cent) and improper cold storage facilities (86.66 per cent), high commission charges (78.33 per cent) and rough handling during transportation, packing, handling, loading and unloading (50.00 per cent).

Conclusion

- The present study was undertaken to Post-harvest losses of Amaranthus in Gondia district, to worked out post-harvest losses of Amaranthus and to identify constraints faced by post- harvest losses of Amaranthus.
- The overall scenario of post-harvest losses in Amaranthus at different stages was worked out to 15.03 kg/qt and per quintal corresponding monetary losses was Rs. 343.16/-

The total post-harvest losses in Amaranthus at market level was observed to be 12.66 kg/qt which resulted to per quintal economic loss of Rs. 506.40 /-.

- The most of the farmers beared of burden of transportation cost was the major problem expressed by 96.66 per cent farmers followed by daily fluctuation of prices which was expressed by 91.66 per cent which was resulted to farmers's income.

Suggestions

On the basis of present study, the farmers should be aware regarding standardization, grading, handling, proper packing through the training organized by government agricultural department. It is suggested that, leafy vegetables for their study have optimum shelf life at temperature of approximately 0 °C to 10 °C, if it not maintain loss of storage

potential. It is also suggested that, coating of leafy vegetables can be applied, therefore it creating the barrier for the moisture and air migration through the surface while lowering the rate of respiration and evapotranspiration of the leafy vegetables. Hence, deterioration process is reduced resulting a considerable long post-harvest life and fetching better prices in market.

References

1. Dhurwey CK, Chodhary VK, Bante R, Shrey R. Constraints perceived by farmers in production and marketing of major cole vegetables crops in Bemetara district of Chhattisgarh. State, Int. Res. J Agric. Econ & Stat. 2015;6(1):193-196.
2. Gajanana TM, Sreenivasa Murthy D, Sudha M. Post-harvest losses in fruits and vegetables in South India – A review of concepts and quantification of losses. Indian Food Packer. 2011;65(6):178-187.
3. Gajbhiye DT, Kukade NN, Bagde NT, Burade AL. An economic analysis of post-harvest losses of selected vegetables in Nagpur district. J Soils and Crops. 2008;18(2):469-472.
4. Jat JR, Singh S, Lal H, Choudhary LR. Constraints faced by tomato growers in use of improved tomato production technology. Raj. J Extn. Edu. 2012;20:159-163.
5. Kanwade AK. Economic analysis of post-harvest losses of selected vegetable in Amravati district of Maharashtra. Unpublished M.Sc. (Agri.) Thesis Dr. PDKV, Akola. 2007.
6. Koza A, AK Sahu, S Das and KN Patra. Economics of Cabbage Cultivation and Post-harvest Losses in Phek district of Nagaland. Economic Affairs. 2018;63:229-235.