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Short Communication

Farm Level Knowledge and Status in Banana Post Harvest Handling System

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Post harvest handling is the stage of crop production immediately following harvest, including cooling, cleaning, grading, packing and marketing. Post harvest handling largely determines final quality, whether a crop is sold for fresh consumption, or used as an ingredient in a processed food product. Post harvest sector includes all points in the value chain from production in the field to the food being placed on a plate for consumption. Many factors contribute to post harvest losses in fresh banana. These include environmental conditions such as heat or drought, mechanical damage during harvesting and handling, improper post harvest sanitation, poor cooling and environmental control. Efforts to control these factors are often very successful in reducing the incidence of post harvest losses. The study was conducted in Madurai district which has purposively selected. From the district Alanganallur and Vadipatti blocks were selected based on high production of banana. From each block viz., Alanganallur and Sholavandan villages were selected for conduct of the study. From each village fifteen progressive banana growers were selected based on size of the land holding by using simple random sampling method. Accordingly, the total number of respondents for the study was 30. Ex-post facto design was adopted in the study. The pre-tested interview schedule was used to collect the data from the farmers by personal interview method. The appropriate statistical tools such as mean, standard deviation, percentage analysis were used and interpretations were made.

The data given in Table 1 show that majority of the farmers used appropriate field method to judge the maturity and harvested crop at maturity. The results further revealed that 10 per cent of banana farmers harvest at immature stage, 36.70 per cent harvest at mature stage and 53.30 per cent harvest their produce at fully matured stage. All the farmers using manual method of harvesting they were using harvesting knife for harvesting of banana. It was observed that 83.30 per cent of farmers harvest their produce any time they did not have any time frame for harvesting and 16.70 per cent of farmers harvest their produce in the morning. All the farmers did not have field container to hold produce during harvesting the main reason is the unavailability of suitable container for field handling purposes. All the guava and tomato farmers have field container to hold the produce during harvesting. Banana and cauliflower farmers did not have field container for harvesting. The reason for not having field container is unavailability of suitable container to hold the produce in field level during harvesting. The guava and tomato farmers were using traditional field container during harvesting operations. The main causative agents for loss were physiological and mechanical agents. It was observed that (60 %) of farmers field the main loss causative agent in harvesting stage is physiological agents followed by (40 %) of

mechanical agents. Majority of the farmers followed sorting and grading for quality produce. It was observed that 73.30 per cent farmers done grading based on size while 26.70 per cent of farmers done grading based on color of the fingers. It was noticed that (43.30%) of farmers marketed their produce through whole sale market (23.30%) through farmers market (Uzlavar Sandai) (20%) of farmers sell their produce directly to merchants and (13.30%) through local market. With regard to on farm storage of banana (53.30%) of farmers having their own on farm storage facility and (40%) of farmers were using shade under the tree as main on farm storage technique and (13.30%) farmers using temporary protective structures for on farm storage. The findings are in agreement with those of many others[2,3,6,7,8,9].

Table 1 Distribution of respondents based on harvesting of banana

S. No	Harvesting	Frequency
1.	**Assessment of crop maturity**	
	Field method	30 (100)
	Size	30 (100)
2.	**Harvesting factors**	
	Crop maturity	12 (40)
	Price index	18 (60)
3.	**Stage of harvesting**	
	Immature stage	3 (10)
	Matured stage	11 (36.70)
	Fully matured stage	16 (53.30)
4.	**Method of harvesting**	
	Harvesting knife	30 (100)
5.	**Time of harvesting**	
	Morning	5 (16.70)
	Any time	25 (83.30)
6.	**Field container for harvesting**	
	No	30 (100)
	Unavailability of suitable container	30 (100)
7.	**Agents cause loss in harvesting**	
	Physiological	18 (60)
	Mechanical	12 (40)
8.	**Sorting and grading**	
	Size	22 (73.30)
	Color of fingers	8 (26.70)
9.	**Mode of transport**	
	Lorry and van	23 (76.70)
	Motorbike	7 (23.30)
10.	**Agents causing loss during transport**	
	Mechanical factors	22 (73.30)
	Climatic factors	8 (26.70)
11.	**Marketing**	
	Local market	4 (13.30)
	Farmers' market (Uzlavar sandai)	7 (23.30)

	Whole sale market	13 (43.30)
	Directly to merchants	6 (20.00)
12.	**Agents causing loss in marketing**	
	Mechanical	6 (20)
	Climatic factors	4 (13.30)
	None	20 (66.70)
13.	**On farm storage facility**	Yes 16 (53.30)
		No 14 (46.70)
14.	**Mode of on farm storage**	
	Shade under the tree	12 (40)
	Temporary protective structures	4 (13.30)
	None	14 (46.70)
15.	**Processing and value addition**	30 (100)
	Reasons for non adoption:	
	Lack of knowledge and awareness	14 (46.70)
	Small scale farming	16 (53.30)
16.	**Time spent on post harvest handling**	
	1-5 hrs	12 (40)
	5-10 hrs	18 (60)

*Parenthesis indicate percentage

The results revealed that in harvesting of banana all the farmers were aware of maturity determination of banana and only (40 %) of farmers had the knowledge that the stage of harvesting affects the shelf life and (76.70 %) farmers were aware of correct time to harvest the produce. Majority of the farmers have knowledge in maturity determination and correct stage and correct time of harvesting of fruits and vegetables. This is mainly due to the experience and acquired practical skills and knowledge in harvesting (Table 2).

All the banana growers had knowledge about the benefits of washing and gas used for artificial ripening. It was noticed that all the farmers have knowledge about grading techniques and objectives of grading. Majority of the farmers (70 %) did not were aware of recommended packaging material for banana, only (30 %) of farmers were aware of recommended packaging material for banana. Transportation technique suitable for distant market is known by majority (70 %) of the farmers. The importance of storage is known by all the farmers and they don't have knowledge about storage temperature, relative humidity required for storage of banana and also about the problems during storage and chilling injury. It was observed that (53.30 %) of banana growers had knowledge about products prepared from banana and stage of fruit suitable for processing but (46.70 %) of farmers did not have knowledge about processing of banana. Apart from cauliflower growers many of the farmers were aware of processing and value addition, products prepared from their respective produce. The result shows that (56.70 %) were aware of major cause for loss during post harvest handling and (63.30 %) of farmers were aware of post harvest diseases (40 %) farmers have knowledge about the techniques for reduction of deterioration during post harvest handling. Such observations were also reported earlier[1,4,5,8].

Table 2 Distribution of banana growers based on knowledge level

S. No	Post harvest handling Practices	Frequency (Known)	Frequency (Unknown)
1.	**Harvesting**		
	Maturity determination	30 (100)	0
	Stage of fruit shelf life noticed maximum	12 (40)	18 (60)
	Correct time to harvest produce	23 (76.70)	7 (23.30)
2.	**Pre and post harvest treatments**		
	Chemical recommended to reduce loss	0	30 (100)
	Benefits of washing	30 (100)	0
	Chemical used for latex removal	0	30 (100)
	Method of removing field heat	0	30 (100)
	Disinfectant agent in fruits and vegetables	0	30 (100)
	Gas used for artificial ripening	30 (100)	0
3.	**Grading**		
	Objective of grading	30 (100)	0
4.	**Packaging**		
	Recommended packaging	9 (30)	21 (70)
	Ideal cushioning material for banana	30 (100)	0
5.	**Transport**		
	Transport suitable for distant market	21 (70)	9 (30)
	Criterion considered for distant transport	30 (100)	0
	Stage of fruit suitable for distant transport	30 (100)	0
6.	**Marketing techniques**	30 (100)	0
7.	**Storage**		
	Objective of storage	30 (100)	0
	Storage temperature and RH for banana	0	30 (100)
	Chilling injury in banana	0	30 (100)
8.	**Processing**		
	Products prepared from banana	16 (53.30)	14 (46.70)
	Stage of fruit suitable for processing	16 (53.30)	14 (46.70)
9.	Post harvest losses		
	Causes for major loss	17 (56.70)	13 (43.30)
	Post harvest diseases spread by	19 (63.30)	11 (36.70)
	Techniques for reduction of deterioration	12 (40)	18 (60)

*Parenthesis indicate per cent

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