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Research Paper

Post harvest management practice in disposal of cashewnut

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ABSTRACT : The cashew growers used bamboo basket for local variety (42.86%) and gunny bag for HYV. (53.85%) for storing cashewnut and observed to sale after one month. In grading practices, very few numbers of cashew growers from both varieties *viz.,* local (25.64%) and HYV (38.03%) had fallowed grading practice before of nuts. Regarding disposal pattern of cashewnut among the both varieties of cashewnut, 90.18 per cent and 95.42 per cent quantity was sold in market respectively and remaining quantities were utilized for home consumption, wage payment, gift to relatives and losses during storage and drying. In case if local variety observed that maximum quantity was sold through itinerant merchant (37.04%) and in case of HYV cashewnut maximum quantity was sold through wholesaler or commission agent (42.33%) Regarding price realized by cashew growers on the basis of agency wise disposal of cashew nuts, it is observed that at overall level per kg price realized for local variety and HYV cashew orchard was Rs.42.41 and Rs.46.02 respectively for small size orchard and Rs.42.16 and Rs.46.52 for large size orchard. This analysis revealed that cashew growers were in better position for per kg price realization in case of selling of nuts directs to processing factory.

KEY WORDS : Drying, Storage, Grading, Disposal and price

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INTRODUCTION

In Maharashtra state cashewnut is grown mainly in Ratnagiri and Sindhudurg districts. Most of the cashew producers are unorganized. Consequently, marketing of cashewnut remained to be primitive nature and unorganized. Cultivation of cashew is also unscientific and not commercialized in most of the areas. Now days, large number. of intermediaries are involved in marketing of cashewnut. The channels consist of the producers, village trader, wholesalers, pre-harvest contractors (PHC) and processors. The intermediaries play an important role in the movement of raw cashewnut, their by reducing the margin to producers.

A good marketing system is one in which there are minimum number of intermediaries between producers and processors in turn, large proportion of reasonable price realized to producer / grower. From this point of view, it is important to investigate the present system of marketing followed in disposal of cashewnut.

MATERIALS AND METHODS

The south Konkan region of Maharashtra state comprising Ratnagiri and Sindhudurg districts, was selected purposively for the present study. Three stage sampling method was followed in the selection of cashew growers. *i.e.* Tahasils, villages and cashew growers and from each village they were selected randomly. Thus, a cross sectional sample consisted of 80 cashew growers having bearing orchards.

The selected sample cashew growers were classified into two broad categories *viz.,* (i) cashew growers having local varieties plantation and (ii) cashew growers giving high yielding varieties (HYV). The data on post harvest management practices in disposal of cashewnut production were collected through personal interviews with the growers during the year 2006-07 by survey method with the help of specially designed schedule.

RESULTS AND DATA ANALYSIS

The results obtained from the present investigation have been discussed under following heads:

Cashew production and returns :

On the basis of per hectare production of cashew nut and its by-products, gross returns were worked out separately for local and high yielding variety of cashew. The gross returns included the value of raw nut and value of by product (cashew apples). The results of the analysis are presented in Table 1.

It is seen from Table 1 that, the per hectare gross returns realized were Rs. 44352 from local varieties and Rs. 90885.89 from HYV cashew orchard. This showed that in case of local variety, returns came from main produce (raw nuts) only and in case of HYV returns came from main produce (raw nuts) 97.43 per cent and remaining proportion (2.57%) of returns were obtained from by-product (cashew apple).

The per hectare gross returns of high yielding variety of cashew were considerably higher because, number of bearing trees (216/ha), yield of nuts per tree (8.76 kg.), as well as price per kg of raw nut (Rs. 46.80/ha.) was higher as compared to local variety of cashew *viz.,* Number of bearing trees (192/ha), yield of nuts per tree (5.5 kg/tree), per kg of raw nut (Rs. 42/-).

Regarding by product (cashew apple), in case of local varieties cashew growers were not observed to harvest cashew apples for the further processing because of its perishibility, packaging, disposal problems and small size of fruits. Also regarding price of raw nut, fluctuations were observed in study area because of varietal difference.

Harvesting :

Generally, nuts are harvested from March to May. The nuts are harvested by traditional methods like, collection after natural drop, with the help of stick, climbing on the tree and plucking, shaking the tree and combination of above methods. The varietywise distribution of growers, according to the method of harvesting used by them is given in Table 2.

It is seen from Table 2 that, in case of local variety, 38.46 per cent of growers had collected the nuts after natural drop

Table 1: Production and returns from cashew

Sr. No.	Particulars	Local variety	HYV
1.	No. of bearing trees	192	216
2.	Main produce:		
	(a) Yield of nuts (kg.)	1056	1892.16
	(b) Price per kg of raw nut (Rs.)	42	46.80
(A)	Value of nuts (Rs.)	44352	88553.09
3.	By product:		
	(a) Yield of apples (kg.)	-	3888
	(b) Price per kg. of apples (Rs.)	-	0.60
(B)	Value of apples (Rs.)	44352	2332.8
	Total returns A + B (Rs.)	44352	90885.89

Table 2: Distribution of cashew growers according to traditional methods of harvesting

Sr. No.	Particulars	Local variety		HYV	
		Number	%	Number	%
1.	Collection	15	38.46	10	14.08
2.	Shaking the tree	2	5.13	5	7.04
3.	Shaking the tree + Collection	5	12.83	12	16.91
4.	With the help of stick	3	7.69	7	9.86
5.	With the help of stick + Collection	4	10.26	7	9.86
6.	Climbing on tree	1	2.56	5	7.04
7.	Climbing on tree + Collection	3	7.69	15	21.13
8.	Climbing on tree + With the help of stick + Collection	6	15.38	10	14.08
	Total	39	100.00	71	100.00

followed by 15.38 per cent growers had harvested the nuts by using combination of harvesting methods like climbing on tree + with the help of stick + collection. In case of HYV, 21.13 per cent growers had harvested the nuts with combination of climbing on tree + collection method followed by 16.91 per cent growers had harvested the nuts with combination of shaking the tree + collection method, collection (14.08%) and climbing on tree + with the help of stick + collection (14.08%) was used equally in study area. It is revealed that in case of local varieties, collection of nuts after natural drop was most common method of harvesting nuts and in case of HYV, combination of climbing on tree + collection was mostly used method of harvesting of nuts in study area.

Post harvest management practices :

Drying, storage and grading are the important post harvest steps before marketing of cashewnut. Detail of procedure about drying, storage and grading of cashewnut followed by sample growers is presented in Table 3

Drying :

It was observed from Table 3 that, in case of local varieties most of the growers (79.49%) had dried their nuts before sale. Out of that, majority of the growers (58.06%) dried nuts for two days and 25.81 per cent for one day and few of them dried nuts for three days (16.13%). In case of HYV, most of the growers (84.51%) had dried their nuts before sale. Out of that, majority of the growers (30%) dried nuts for two days, 9.68 per cent for one day and 9.86 per cent for three days.

Storage :

Table 3 shows that, in case of local varieties, about 71.79 per cent growers used to store their nuts after harvest. The common method of storage was in bamboo basket (42.86%)

Table 3 :Post harvest management practices of cashewnut

Sr. No.	Particulars	Local variety (n=39)		HYV (n=71)	
		Number	%	Number	%
(A)	Drying				
1.	Growers drying the nuts before sale	31	79.49	60	84.51
2.	Distribution of growers according to period of drying				
	(a) One day	8	25.81	18	30.00
	(b) Two day	18	58.06	25	9.86
	(c) Three day	5	16.13	17	9.86
3.	No. of growers not drying nuts before sale	8	20.51	11	15.49
(B)	Storage				
4.	Growers storing the nuts after harvest	28	71.79	52	73.24
5.	Method of storage:				
	(a) Gunny bag	9	32.14	28	53.85
	(b) Bamboo basket	12	42.86	13	25.00
	(c) Heap	7	25.00	11	21.15
6.	Period of storage				
	(a) One month	15	53.57	31	59.61
	(b) Two months	8	28.57	12	23.08
	(c) Three months	5	17.86	9	17.31
(C)	Grading				
7.	Growers grading the nuts before sale	10	25.64	27	38.03
8.	Reasons behind avoiding grading practices				
	(a) Quantity is low	10	34.48	9	20.45
	(b) Grades are not known	8	27.59	18	40.91
	(c) No much variation due to same variety	7	24.14	10	22.73
	(d) Any other	4	13.79	7	15.91

followed by gunny bags (32.14%) and heap (25.00%). Regarding time of storage, majority of the growers stored their nuts for the period of one month (53.57%), followed by two months (28.57%). In case of HYV, about 73.24 per cent growers used to store their nuts after harvest. The common method of storage was in gunny bag (53.85%) followed by bamboo basket (25.00%) and heap (21.15%). Regarding period of storage, majority of the cashew growers stored their nuts for one month (59.61%) followed by two months (23.08%).

Grading :

From Table 3 it was observed that, in case of local varieties, only 25.64 per cent cashew growers followed grading practices before sale. Remaining 74.36 per cent cashew growers avoided this practice because of various reasons. Out of these, majority (34.48 per cent) cashew growers not followed grading practices because of low quantity of cashewnut. Grades were not known (27.59%), no much variation due to same variety (24.14%), any other (13.79%) *i.e.* time consuming and not much variation in price received due to grading those were another reasons. In case of HYV, only 38.03 per cent cashew growers followed grading practices before sale. Remaining 61.97 per cent cashew growers avoided grading practice because of various reasons. Out of these, majority (40.91 per cent) cashew growers were not following grading practice because of grades were not known to farmers. No much variation among the varieties (22.73%), quantity of cashewnut is less (20.45%) and any other (15.91%) those were another reasons for why cashew growers not graded their nuts before sale in study area.

Disposal of cashewnut :

Disposal of cashewnut included total quantity sold, quantity retained for home consumption, gift to relatives and neighbours, wage payments and losses in drying and storage. The variety wise disposal of cashewnut including local and high yielding variety is presented in Table 4.

It is seen from Table 4 that, in local variety, per hectare total production of nuts was 1056 kg out of which 2.38 per cent (25.12 kg.) were kept for wage payment, 0.71 per cent (7.56 kg.) were consumed at home, 1.16 per cent (12.25 kg.) were given as gift to relatives and 5.56 per cent (58.72 kg.) were lost in drying and storage. Out of total production of cashew nut, the

Table 4 : Per hectare disposal pattern of cashewnut on sample farm

Sr. No.	Variety	Total production of nuts (kg.)	Wage payment (kg.)	Consumed at home (kg.)	Gift for relatives (kg.)	Losses in (kg.) storage and drying	Actually marketed (kg.)
{a)	Local	1056 (100.00)	25.12 (2.38)	7.56 (0.71)	12.25 (1.16)	58.72 (5.56)	952.35 (90.18)
{b)	HYV	1892.16 (100.00)	20.68 (1.09)	8.12 (0.43)	13.08 (0.69)	48.18 (2.55)	1802.1(95.24)

Table 5 : Agencywise disposal of cashewnut (quantity and price)

Sr. No.	Variety	Agent				
		Processing factory	Itinerant merchant	Wholesaler/ commission agent	Retailer	Total
(a)	Local variety					
1.	Group-I : 0.00 to 1ha.					
	Quantity (kg)	177.14 (21.18)	430.97 (51.53)	137.75 (16.47)	90.49 (10.82)	836.35 (100.00)
	Price/kg. (Rs.)	44.12	40.04	42.41	41.98	42.14
2.	Group-II : 1.01 ha. and above					
	Quantity (kg.)	532.74 (23.41)	721.62 (31.71)	777.14 (34.15)	244.63 (10.75)	2276.13 (100.00)
	Price/kg. (Rs.)	44.25	41.09	42.16	41.72	42.31
	Sub total	709.88 (22.81)	1152.59 (37.03)	914.89 (29.39)	335.12 (10.77)	3112.48 (100.00)
(b)	HYV					
1.	Group-I : 0.00 to 1ha.					
	Quantity (kg)	725.50 (43.87)	322.15 (19.48)	372.26 (22.51)	233.84 (14.14)	1653.75 (100.00)
	Price/kg. (Rs.)	48	45.96	46.02	46.84	46.71
2.	Group-II : 1.01 ha. and above					
	Quantity (kg)	1822.51 (32.16)	506.63 (8.94)	2726.40 (48.11)	611..47 (10.79)	5667.01 (100.00)
	Price/kg. (Rs.)	48.58	45.59	46.52	46.13	46.74
	Sub total	2548.01 (34.80)	828.78 (11.32)	3098.66 (42.33)	845.31 (11.55)	7320.76 (100.00)
	Total(a+b)	3257.89 (31.23)	1981.37 (18.99)	4013.55 (38.47)	1181.43 (11.31)	10433.24 (100.00)
	Overall price/kg (Rs.)	46.24	43.17	44.28	44.17	44.47

(Figures in the parentheses indicate percentages to total)

marketable surplus in local variety was observed to be 90.18 per cent.

In high yielding variety, per hectare total production of nuts was 1892.16 kg., out of which 1.09 per cent (20.68 kg.) were kept for wage payment, 0.43 per cent (8.12 kg.) were consumed at home, 0.69 per cent (13.08 kg.) were given as gift to relatives and 2.55 per cent (48.18 kg.) were lost in drying and storage. Out of total production, the marketable surplus in HYV was observed to be 95.24 per cent.

Among the different varieties *i.e.* local variety and HYV, it was observed that, losses during drying and storage of cashewnut were more in local variety (5.56%) than HYV (2.55%). Also the wage payment to labour in the form of nuts was also more in local variety (2.38%) than HYV (1.09%). Out of the total production of local variety and high yielding variety of cashew, 90.18 per cent and 95.24 per cent quantity, respectively was sold in market (marketed surplus).

Agencywise disposal of cashewnut :

The cashewnut growers in the study area sold their produce through different agencies depending upon their scale of production and monetary need. The produce was marketed through commission agent, wholesalers, itinerant merchant and retailers in the study area. The direct sale to the processing factory or processing units was also in practice in study area. The agencywise quantity sold by the growers is worked out and is given Table 5

It is observed from Table 5. that, at overall level there were following four agents involved in selling of the cashewnut in the study area.

– Producer → Processing factory (Direct sale)
– Producer → Itinerant merchant in the village or Local buyer
– Producer →Wholesaler/Commission agent
– Producer →Retailer.

It is also observed from Table 5 that, average per farm total quantity of cashewnut marketed was about 10433.24 kg. out of which 29.83 per cent (3112.48 kg.) of local variety and 70.16 per cent (7320.76 kg) of HYV variety of cashewnut was marketed. Out of the total quantity of local variety of cashewnut, in Group-I maximum quantity was sold through itinerant merchant (51.53%), followed by direct sale to processing factory (21.18%), 16.47 per cent through wholesaler. In Group-II (size of orchard above 1.01 ha.), out of total quantity of cashewnut in local variety, maximum (34.15%) quantity passed through wholesaler or commission agent, followed by 31.71 per cent through itinerant merchant, 23.41 per cent to processing factory and 10.75 per cent through retailer.

In case of HYV, in Group-I (size of orchard 0.00 to 1 ha.), maximum quantity (43.87%) was sold to processing factory, followed by, 22.51 per cent through wholesaler or commission agent, 19.48 per cent through itinerant merchant and 14.14 per cent through retailer.

Regarding price per kg. of cashewnut, the maximum price (Rs. 46.24) was obtained in case of both varieties and very low through the itinerant merchant (Rs. 43.17/kg.).

This revealed that, at the overall level, the percentage of total quantity sold in market was maximum to wholesaler or commission agent (38.47%), which was important agency in the study area, to whom the maximum growers sold their major quantity of nuts in case of both varieties. Regarding local variety of cashewnut, in case of small size orchard, maximum quantity was sold through itinerant merchant (51.53%) and in case of big size orchard (34.15%), maximum quantity was sold through wholesaler/commission agent. Also in case of HYV, maximum quantity of cashewnut was sold to processing factory in small size cashew orchard (43.87%) and wholesaler/ commission agent in large size cashew orchard (48.51%). In marketing of cashew nut, the major constraints faced by sample cashew growers were inadequate marketing facility (77.46%). The other constraints regarding marketing were unawareness about various marketing practices (74.65%), nonremunerative price (61.97%) and malpractices of itinerant merchant (weight and rate) (53.52%).

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