



Study of adoption of post harvest technology practices along with constraints faced by the grape growers in Sangli district

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ABSTRACT

The study was carried out in Tasgaon Tahsil of Sangli district where grape is extensively grown. Sample of 160 grape growers was drawn by using stratified random sampling method. It was observed that all the grape growers adopted the post harvest technology practices like harvesting the grape on the basis of major signs of maturity at proper time by using secateurs and use of bubble sheet or Netlon for cushioning purpose. Most of them followed adoption practices for grading and packing of bunches. Nearly half of them adopted the practices of precooling and cold storage for storing the boxes. It was observed that only half of them adopted the processing of grape for raisin purpose by using soda oil beech method of raisin making. The major constraints reported by most of the grape growers were high cost of packing material, high transportation charges due to long distance market and excessive price fluctuation. Majority of them reported constraints about lack of knowledge and preparation of grape processed products.

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INTRODUCTION

Grape (*Vitis vinifera* L.) is an important subtropical cash crop of the world. It is mainly used for table purpose, raisin making and wine preparation. The production of the grape in India as well as in Maharashtra has been increasing fastly. There has significant role of post harvest technology to maintain or enhance the quality of grape processed products and to make it marketable. Post harvest technology has potential to create rural industries. So, fruit and vegetable processing industry has a significant role to play in development of the country, which is predominantly agricultural economy. The industries are equipped to absorb large quantities of fruits for processing purpose. Adoption of the generated technology has always been the major aim of our developmental activities or efforts. It is beyond doubt that adoption of improved techniques of post harvest technology is the positive answer to increase the agricultural production. The extension agencies are engaged in the various sectors of community development movement in the country and are working for making the farmers to adopt the recommendations of the scientists in respect of improved techniques in

post harvest. However, adoption of these recommendations by the farmer is observed to be differential. The adopters of the post harvest technology practices of grape also differ in adoption behaviour.

Now a days marketing of grape is becoming difficult due to certain causes such as interference of middleman, long distance markets, fluctuation in market prices etc. This results into loss of grape growers. So, this can be avoided by increasing the storage life of berries through processing into different value added products. Therefore, post harvest technology has great importance in preparation of processed products from increased production. Also post harvest technology plays major role in minimizing transportation costs, spoilage in transportation, avoiding fluctuation in market prices, exporting the fresh fruits and processed products to foreign countries and thereby getting maximum price to farmers and increasing their economic status. In view of this, the scientific understanding about the post harvest technology, its extent of adoption and the constraints faced by the grape grower is must for deciding the future strategy.

Key words :

Adoption, Post
harvest
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Constraints

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METHODOLOGY

The present study was undertaken in Tasgaon Tahsil of Sangli district of Maharashtra. A list of grape growing villages was obtained and out of these villages ten villages were randomly selected. Sample of 160 grape growers was drawn by using stratified random sampling method. The data from the grape growers were collected through personal interview schedule. The qualitative data were converted into quantitative form. The independent and dependant variables were measured by assigning score. For adoption, 45 practices were selected. Two scores were assigned for full adoption of practise. One score was assigned for partially adoption of practise and zero score was assigned for no adoption. Maximum total possible score was 51 and minimum was zero. Total score of every grape grower was worked out and they were grouped on the basis of total score obtained into three categories:

Low	: Up to 32 score
MEDIUM	: 33 TO 43 SCORE
High	: 44 and above score

RESULTS AND DISCUSSION

The information pertaining to the practise wise adoption of grape growers is presented in Table 1.

Practice wise adoption of the grape growers about post harvest technologies of grape:

It is observed from Table 1 that, all the grape growers (100.00 per cent) were adopting the grading of berries on the basis of colour of berries and all of them used the practise of separation of cracked, immature, disturbed, disease and pest attacked berries, followed by size of berries (86.25 per cent), weight of bunches (78.13 per cent) only. 18.75 per cent of grape growers used polythene hand gloves for harvesting in order to protect the lusturus appearance of berries. Almost all the grape growers (100.00 per cent) had adopted the post harvest technology practices like use of corrugated fibre board boxes, use of paper cuttings, use of tisco tape for packing of corrugated boxes, while 73.12 per cent of them used bubble pad, polythene paper and tissue paper. About 6.25 per cent of them partially adopted the bubble pad, polythene paper or tissue paper. Also 69.37 per cent of grape growers used grape guard for maintaining the qualities of berries. Most of them (91.87 per cent) followed the method of writing the name of variety, packing date, weight of box and name of the country on the boxes. The data related to the precooling and cold storage facilities showed that 47.50 per cent of grape growers followed the practice of precooling, while 51.25 per cent of them stored their fruits

Table 1: Practice wise adoption of the grape growers about post harvest technologies of grape (n=160)

Sr. No.	Post harvest technologies of grape	Adoption					
		Complete		Partial		No	
		Frequency	Per cent	Frequency	Per cent	Frequency	Per cent
Signs of maturity							
1.	Colour of berries (yellowish or dark black or dark red)	160	100.00	-	-	-	-
2.	Softening of berries	20	12.50	-	-	140	87.50
3.	Transparent berries	157	98.12	-	-	3	1.88
4.	T.S.S. – 18 to 22 degree bricks	5	3.12	-	-	155	96.88
5.	Ratio of T.S.S. to acidity (20:1 to 35:1)	5	3.12	-	-	155	96.88
Harvesting of bunches							
1.	Use of secateurs	160	100.00	-	-	-	-
2.	Time(morning/ evening)	160	100.00	-	-	-	-
3.	Use of bubble sheet at the base of plastic crates for cushioning or use of Netlon	160	100.00	-	-	-	-
Grading of bunches							
1.	On the basis of colour (yellowish or dark black or dark red)	160	100.00	-	-	-	-
2.	On the basis of size(diameter more than 17 mm)	138	86.25	-	-	22	13.75
3.	Weight of bunches(350 to 750 gm)	125	78.13	-	-	35	21.87
4.	T.S.S.(18 to 22 degree bricks)	5	3.12	-	-	155	96.88
5.	Separation of cracked, immature, disturbed, disease and pest attacked berries	160	100.00	-	-	-	-

Contd..... Table 1

Table 1 Contd.....

6.	Use of polythene hand gloves for maintaining the luster on berries	30	18.75	-	-	130	81.25
Packing of fruits							
1.	Use of corrugated fibreboard boxes, paper cuttings and tisco tapes	160	100.00	-	-	-	-
2.	Use of bubble pad, polythene paper and tissue paper	117	73.12	10	6.25	43	26.88
3.	Writing the name of variety, packing date, weight of box, name of country on the surface of boxes	147	91.87	-	-	13	8.13
4.	Use of grape guard for safe carrying & handling of boxes	111	69.37	-	-	49	30.63
Pre-cooling							
1.	Proper time <i>i.e.</i> within a period of 2 hrs. after harvesting. temp. - 0°C, Humidity - 95%	76	47.50	-	-	84	52.50
Storage of boxes							
1.	Use of cold storage facilities for storing the boxes for long time	82	51.25	-	-	78	48.75
Fruit processed products							
1.	Raisin	82	51.25	-	-	78	48.75
2.	Wine	-	-	-	-	160	100
3.	Grape juice	-	-	-	-	160	100
4.	Jam	-	-	-	-	160	100
5.	Vinegar	-	-	-	-	160	100
6.	Grape-syrup	-	-	-	-	160	100
7.	Grape chatni	-	-	-	-	160	100
8.	Storing grapes in Syrup	-	-	-	-	160	100
9.	Canning	-	-	-	-	160	100
Methods of raisin making							
Sun-drying							
i	Keeping bunches on vine for long period	18	11.25	-	-	142	88.75
ii	Drying on bunches in garden	18	11.25	-	-	142	88.75
Golden beech method							
i	Deeping bunches in alkali solution (In 0.2 to 0.3% caustic soda for 2 to 23 seconds at 93°C to 100 °C temp.)	10	6.25	-	-	150	93.75
ii	Sulphur treatment	10	6.25	-	-	150	93.75
iii	Dehydration	10	6.25	-	-	150	93.75
Sulphur beech method							
i	Alkali treatment	18	11.25	-	-	142	88.75
ii	Sulphur treatment	18	11.25	-	-	142	88.75
iii	Sundrying	18	11.25	-	-	142	88.75
Soda oil beech method							
i	(Caustic soda + olive oil) treatment	58	36.25	-	-	102	63.75
ii	Deeping in alkali solution	58	36.25	-	-	102	63.75
iii	Sundrying	58	36.25	-	-	102	63.75
Drying under shade							
i	Harvesting of full matured bunches	-	-	-	-	160	100
ii	Drying under shade	-	-	-	-	160	100

in cold storage. The data in respect of fruit processed products indicated that, only 51.25 per cent of grape growers involved in raisin making. No any other product was processed from grape by grape growers. Regarding the method of raisin making, the data indicated that 36.25 per cent of grape growers uses soda oil beech method of raisin making followed by 11.25 per cent of them used sulphur beech and sundrying method of raisin making. Only 6.25 per cent of them used golden beech method of raisin making.

It was observed from the Table 2 that most of the grape growers faced the problems like high transportation charges (92.50 per cent) due to long distance market (90.00 per cent), Unremunerative rates for grapes (96.87 per cent), excessive fluctuation in market rates (89.23 per cent), higher commission charges for marketing of grapes (88.75 per cent) and

lack of knowledge about preparation of processed products of grape except raisin (93.75 per cent). More than half of the grape growers faced the problem like high cost of processing of grapes and high cost of packing material (64.37 per cent), delay of payment by commission agent (76.25 per cent).

More than one third of the grape growers had problems like high cost of raisin making (43.75 per cent), lack of processing industry (48.12 per cent) and uncertainty of market rate (48.73 per cent), lack of guidance about grape exporting and unavailability of proper guidance about preparation (36.25 per cent). The results are consistent with those of Prasad *et al.* (1996) and Sawant *et al.* (1996) in respect of grape and mango, respectively. Ahire (1997) also conducted the investigation on the adoption of the improved management practices by the grape growers.

Table 2: Constraints experienced by the grape growers in adoption of post harvest technology (n=160)				
Sr. No.	Constraints			
		More constraints	Lower some constraints	No constraints
1.	Harvesting of grape			
	Lack of technical knowledge about harvesting of grapes	-	-	160 (100.00)
	Unavailability of skilled labour for harvesting	13 (8.12)	-	-
	Unavailability of labour/ manpower for harvesting	-	23 (14.37)	-
2.	Grading			
	Lack of technical knowledge about grading	-	6 (4.37)	-
	More labour required for grading	38 (23.75)		
3.	Packing			
	High cost of packing material	103 (64.37)	-	-
	Lack of knowledge about different packing material	-	-	160 (100.00)
	Unavailability of good quality packing material	-	-	160 (100.00)
	Lack of skill about proper packing	-	5 (3.12)	-
4.	Transportation			
	Lack of transportation facilities	-	-	160 (100.00)
	High cost of transportation	148 (92.50)	-	-
	Spoilage during transportation	-	6 (3.75)	-
	Unavailability of cold storage or air conditioned container and railway wagons facility for transportation	-	10 (6.25)	-
5.	Storage			
	Lack of cold storage facility	-	-	160 (100.00)
	Higher charges of cold storage	43 (26.87)	-	-
6.	Market			
	Unavailability of sufficient market information	25 (15.62)	-	-
	Market place at long distance	144 (90.00)	-	-
	Lack of local market facility	-	35 (21.87)	-
	Lack of guidance about grape exporting	58 (36.25)	-	-

Table 1 Contd.....

Contd..... Table 1

VII)	Market rates and selling of grapes			
	Unremunerative rates of grapes	155 (96.87)	-	-
	Delay in payment by commission agent	122 (76.25)	-	-
	Higher commission charges for marketing of grapes	142 (88.75)	-	-
	Fluctuation of market rates	143 (89.37)	-	-
	Uncertainty of market rates	78 (48.73)	-	-
VIII)	Processing			
	Lack of knowledge about preparation of processed product of grape expect raisin	150 (93.75)	-	-
	Unavailability of proper guidance about preparation of processed product	58 (36.25)	-	-
	Lack of processing industry	77 (48.12)	-	-
	Instruments or machinery required for processing are costly	12 (7.5)	-	-
	High cost of processing of grape	103 (64.37)	-	-
	High cost of raisin making	70 (43.75)	-	-
	Lack of technical knowledge of raisin making	-	23 (14.37)	-

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