

कृषि विपणन

AGRICULTURAL MARKETING

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Marketing of Kinnow in Rajasthan

—SHIV PRAKASH SHARAN AND V. K. SINGH*

Introduction

Citrus is one of the major commercial fruit crops grown in India. Among the fruits, citrus group is one of the most important fruit crops in India with a ranking of seventh largest producer of citrus fruits in the world. Again, among the citrus groups, mandarin/kinnow is the most important fruit crop in India as the demand for its consumption is very high due to the nutritional value and its availability at cheap prices. In Rajasthan state, the total area and production under kinnow cultivation during the year 1996-97 was 2.07 thousand hectares and 39 thousand tonnes, respectively.

With the rapid increase in the area under the crop in the state, several problems of production and marketing have emerged which needed careful investigation.

Efficient marketing plays an important role in the development of any enterprise. Hence, it was found necessary to investigate the prevalent marketing systems and channels, the marketing costs, margins and price spread in different channels as well as in different markets and other general problems faced by the kinnow growers in selling their produce. In this study, an attempt has been made to investigate marketing aspects of the kinnow cultivation with the following specific objectives :

To examine the pattern of sales of kinnow and marketing costs and margins; and

To analyse the production and marketing problems faced by kinnow growers.

Methodology

Out of 32 districts of the Rajasthan State, Sri Ganganagar district was selected purposively, as it had the highest area under kinnow cultivation. To select the representative markets, the market arrival of kinnow in all regulated markets of Sri Ganganagar district were obtained for the year 1997-98 to 1999-2000. On the basis of average arrivals these markets were arranged in ascending order. These markets then were grouped into two categories viz. large and small based upon cumulative total method. Then one market each from large and small group was selected randomly.

Thus, Sri Ganganagar and Kesari Singhpur markets were selected in the study area to represent large and small markets respectively. Five villages were randomly selected from Sri Ganganagar Tehsil. From the five selected villages, a list of kinnow growers was prepared. A sample size of about 30

per cent from each village was selected by applying the techniques of probability proportion to size where the number of farms in each village acted as a size from the selected five villages. Relevant information was collected from the selected respondents by conducting personal interviews on a specifically designed schedule.

The required data on marketing cost, purchase price, sale prices, etc., were collected from the selected intermediaries involved in the selected marketing channels. The data on arrivals and prices in two markets, viz., Sri Ganganagar and Kesari Singhpur in which all the growers of the area under study sold their produce, were collected from the respective market committee offices.

To find out the marketing margins and costs for different channels and for different markets, in all 20 contractors, 10 commission agents and 24 retailers were selected from both the markets for the collection of relevant data on pretested schedule.

RESULTS AND DISCUSSION

Marketing costs and Margins

It is apparent from the Table 1 that packing material was the major item in marketing costs (37.78% of the total marketing cost) followed by picking, grading and packing cost (26.04%) followed by transportation (17.08%) watch and ward (13.93%) and loading and unloading charges (5.17%). On an average, marketing cost per quintal worked out to be Rs. 100.31. Tomer *et al*, (1995) worked out the economics of grape cultivation in Haryana and observed that major items of this were packing and transportation and each constituted about 57 and 24 per cent share of the marketing, respectively.

Table 1

Marketing cost of kinnow in Sri Ganganagar district (1999-2000)

Sl. No.	Items	Amount	percentage of total marketing cost
1.	Watch and ward	13.97	13.93
2.	Picking, grading and packing cost	26.20	26.04
3.	Packing material	37.90	37.78
4.	Loading and unloading charges	5.17	5.17
5.	Transportation charges	17.07	17.08
Total marketing cost		100.31	100.00

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The study of marketing margin and price spread is important for the knowledge of the nature, extent and genuineness of various marketing charges. The study of marketing margin and price spread can be utilized to develop appropriate price policy that aims to provide incentive prices to producers and assures him of a legitimate share in consumer's rupee. It is helpful in the development and evaluation of the market policies like the regulation of the market charges for different market functionaries and functions. The marketing margin and costs may vary from channel to channel and market to market. The marketing margins and cost for different channels and for different markets have been presented in Table 2 and 3, respectively.

1. Producer--pre-harvest contractor-commission agent-wholesaler--retailer--consumer (contract sale).
2. Producer--Direct consumer (Direct sale)

The analysis has been done for the channel : producer-pre-harvest contractor-commission agent-wholesale-retailer-consumer in Sri Ganganagar and Kesari Singhpur markets to see the efficiency of different markets.

It is apparent from the table 2 that the consumer's purchase price was Rs. 850.00 per quintal and Rs. 880.00 per quintal for Sri Ganganagar and Kesari Singhpur markets, respectively. The marketing costs incurred by the producer were Rs. 100.31 and Rs. 100.38 per quintal accounting 11.80 per cent and 11.40 per cent of consumer's rupee at Sri Ganganagar and Kesari Singhpur markets, respectively, out of which cost of packing material was highest followed by picking, grading and packing cost.

The retailer's net margin was observed Rs. 132.84 per quintal and Rs. 135.23 per quintal accounting 15.63 per cent and 15.37 per cent of consumer's rupee at Sri Ganganagar and Kesari Singhpur, respectively. The pre-harvest contractor, sale price at Sri Ganganagar and Kesari Singhpur markets were found to be Rs. 470.00 per quintal and Rs. 485.00 per quintal accounting 55.30 per cent and 55.11 per cent of consumer's rupee of Sri Ganganagar and Kesari Singhpur, respectively. Net margin earned by pre-harvest contractor under this channel were 18.77 and 22.67 per cent of consumer's rupee in both the markets, respectively. However, the lower net margins of pre-harvest contractor in Sri Ganganagar market may be due to lower sale price of pre-harvest contractor owing to larger arrivals in this markets. In relative terms the margins of wholesaler and retailer were found the same in both the markets under this channel. The net price received by the producer was worked out Rs. 210.12 per quintal and Rs. 185.12 per quintal accounting 24.72 per cent and 21.04 per cent of consumer's rupee at Sri Ganganagar and Kesari Singhpur markets, respectively.

Table 2

Marketing Costs and Margins of Kinnow under channel-1 in Sri Ganganagar and Kesari Singhpur markets (1999-2000).

Sl. No.	Items	Markets Sri Ganganagar	Kesari Singhpur
1	2	3	4
1.	Net price received by producer/purchase price of pre-harvest contractor	210.12 (24.72)	185.12 (21.04)
2.	Costs incurred by the pre-harvest contractor		
	I. Watch and ward	13.97 (1.65)	13.65 (1.55)
	II. Picking, grading and packing cost	26.20 (3.08)	26.95 (3.06)
	III. Packing materials	37.90 (4.46)	40.53 (4.60)
	IV. Loading and unloading charges	5.17 (0.61)	4.93 (0.56)
	V. Transportation charges	17.07 (2.01)	14.32 (1.63)
	Sub-total (2—I to V)	100.31 (11.80)	100.38 (11.40)
3.	Net margins of pre-harvest contractor	159.57 (18.77)	199.50 (22.67)
4.	Sale price of pre-harvest contractor/ purchase price of wholesaler	470.00 (55.30)	485.00 (55.11)
5.	Costs incurred by the wholesaler		
	I. Loading and unloading charges	4.65 (0.55)	4.52 (0.52)
	II. Grading and repacking charges	22.82 (2.68)	23.07 (2.62)
	III. Commission @ 6 per cent	28.20 (3.32)	29.10 (3.31)
	IV. Market fee @ 1.60 per cent	7.52 (0.88)	7.76 (0.88)
	V. Spoilage and storage charges	31.45 (3.70)	33.11 (3.76)
	Sub-total (5-I to V)	94.64 (11.13)	97.56 (11.09)
6.	Net margin of wholesaler	85.36 (10.04)	92.44 (10.50)
7.	Sale price of wholesaler/purchase price of retailer	650.00 (76.47)	675.00 (76.70)
8.	Sale incurred by the retailer		
	I. Transportation charges	12.13 (1.43)	12.40 (1.41)
	II. Loading and unloading charges	9.21 (1.08)	9.12 (1.04)
	III. Spoilage	22.77 (2.68)	26.14 (2.97)
	IV. Packing material (Polythene bag)	10.00 (1.17)	11.15 (1.27)
	V. Other charges (rent of cart of shop etc.)	13.05 (1.54)	10.96 (1.24)
	Sub-total (8—I to V)	67.16 (7.90)	69.77 (7.93)

1	2	3	4
9.	Net margins of retailer	132.84 (15.63)	135.23 (15.37)
10.	Sale price of retailer/purchase price of consumer	850.00 (100.00)	880.00 (100.00)

Note :Figures in parenthesis are the percentage to the consumer's price.

Channel—I (Producer-Pre-harvest contractor—Commission agent—wholesaler—retailer—consumer).

Channel—II : Producer—Direct Consumer.

Table 3

Marketing costs and margins of kinnow under channel-II in Sri Ganganagar and Kesari Singhpur Markets (1999-2000)

Sl. No.	Items	Markets Sri Ganganagar	Kesari Singhpur
1.	Net price received by producer	366.03 (91.50)	356.24 (91.35)
2.	Cost incurred by the producer		
	(a) Watch and Ward	13.97 (3.50)	13.65 (3.50)
	(b) Picking cost	20.00 (5.00)	20.10 (5.15)
	Sub-total (2.I to II)	33.97 (8.50)	33.75 (8.65)
3.	Sale price of producer/purchase price and consumer	400.00 (100.00)	390.00 (10.00)

Note : Figures in paranthesis are the percentage to the consumer's price channel-II (producer-direct consumer).

In this channel, no intermediaries between producer and consumer was involved. The producer sold his produce at farm level or in the market direct to consumers. As shown in Table 3, the marketing cost incurred by the grower are Rs. 33.97 per quintal and Rs. 33.75, respectively accounting 8.50 per cent and 8.65 per cent of the consumer's rupee in the market. Picking and watch and ward were the major items of costs in both the markets. The cost of picking and watch and ward was almost the same for both the markets accounting about 5 per cent. The consumer's purchase price was Rs. 400.00 and Rs. 390.00 per quintal for both the markets. The net price received by the farmer worked out to be Rs. 366.03 and Rs. 356.25 per quintal accounting 91.50 per cent and 91.35 per cent of the consumer's rupee in case of both the markets, respectively.

The producer's share in consumer's rupee was observed more in Channel-II (Direct sale) as compared to Channel-I (contract sale) due to elimination of pre-harvest contractors. So the above analysis of marketing costs and margin indicates that the producer's share in consumer's rupee may be increased by decreasing the number of intermediaries in the existing marketing system. The results are consistent with the studies conducted by Singh and Khatkar (1994), Tomer *et al.* (1995) Tomar *et al.*, (1997).

Difficulties faced by the kinnow growers in marketing the grapes

Although, the selling of produce through self marketing by the grower was found profitable in comparison to contact sale to the pre-harvest contractors, the study has revealed several problems faced by the kinnow growers in selling their produce by self marketing. These problems need to be tackled to enable the grower to get higher returns. A few of the major problems are given in Table 4.

It is clear from the data in Table 4 that the lack of support price and lack of organisation were the major problems faced by the growers in marketing their produce because all the selected farmers faced these problems. The next major problems faced were delay in payment, lack of competition among buyers, lack of marketing information, lack of cold storage facilities and lack of better and cheaper packing material accounting about 95, 88, 83 and 82 per cent, respectively. The growers also reported other problems like lower prices due to seasonal gluts, lack of stay arrangement in the market, malpractice in weighing methods etc.

Conclusion

On the basis of above findings, it may be concluded that the producer's share in consumer's rupee was observed more in direct sale as compared to contract sale, due to elimination of pre-harvest contractor. Marketing cost and margin indicate that producer's share in consumer's rupee may be increased by decreasing the number of intermediaries in the existing marketing system. Sri Ganganagar being a large market was found more efficient and more paying to producer as compared to smaller market of Kesari Singhpur. Further, it is suggested to remove all problems faced by the producer's to make this vital enterprise a more paying venture. This may be made through creating efficient marketing and processing infrastructure.

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Production and Marketing of Broilers in Jabalpur District of Madhya Pradesh

—ASHUTOSH SHRIVASTAVA, S. K. GUPTA & A. M. MISHRA*

Introduction

Eggs and broilers (flesh) are the two most important products of poultry industry. Broiler is on way to become the first choice among available sources of animal protein (other than milk & eggs). The meat of broiler provides important nutrients like proteins, fat, calcium, iron, vitamins, etc. One hundred grams of bird's flesh gives 165 calories. However, inspite of all these, the per capita per year availability of broiler meat is very low in our country i.e. 850 gm as compared to the world average of 8 kg.

During the last 35 years poultry industry has transformed itself from a backyard business activity into an organised and sophisticated medium scale industry. The introduction of new and efficient modern management techniques, income tax exemption for poultry sector, higher purchasing power of the consumers were the contributing factors for the rapid strides of poultry industry in the country. Intensive production and marketing system developed in different parts of country encouraged progress.

India is 22nd largest broiler producer in the world. It has one of the most favourable agro-climatic conditions. The per capita availability of poultry meat in India (850 gms) is far below the required level (21 kg.) and world average of 8 kg. Clearly there is a long way to go. If a growth rate of 15 per cent in broiler production can be sustained for the next 10 years the per capita consumption of broiler meat will increase to 2.3 kg. Madhya Pradesh is one of the major egg producing states in India. The number of poultry birds for meat (broilers) also increased significantly during the last decade. During 1995-96 the total number of broilers in the state was 5.5 million. The main broiler production and marketing centres in the state are Japalpur, Indore and Bhopal.

Objectives

- (1) To find out the cost of production of broilers on the organised and unorganised farms.
- (2) To study the various marketing channels operating in the market for broilers.

Methodology

There are 3 egg producing areas in the state. These are, Indore mandi, Jabalpur mandi and Bhopal mandi. Jabalpur

is one of the biggest egg producing centres of the state with more than 14 lakh population and state headquarters of the NECC (National Eggs Coordination Committee). It also has the biggest hatcheries of the state. Therefore, the study was taken up in Jabalpur district of Madhya Pradesh. All the poultry units were categorised in three different groups : small, medium and large. For broiler production study, 50 per cent of the broiler farmers were selected from each size group i.e. 3 from small size group, 3 from medium size group and 6 from large poultry farms keeping broilers respectively. Thus, a total of 12 broiler farms were selected for this purpose randomly. The data related to prices of broilers at different marketing channels were collected from wholesalers and retailers. There were only 3 wholesalers in broiler market. Hence all wholesalers were selected. There were quite large number of retailers. Five retailers for broilers were contacted. The cost items are divided into (a) fixed cost (b) variable cost. The fixed cost consists of value of birds, depreciation on poultry shed, cages and equipments and interest on capital investment. Variable cost includes cost of feed for layers, electricity charges, medicines and labour charges. Depreciation on fixed capital items is calculated on the basis of the life span of items. Bird cycle refers the period from a day old chick to the period when it is marketed for meat purpose. For a broiler, it is 40 to 45 days. The reference period for the study was from April, 97 to March, 98 for broiler production and marketing.

Results and Discussion

Under this, only commercial production of broilers is studied. A farmer usually reared 7 to 12 batches depending on the market demand and finance available with the farmer. The per bird cost of production was about equal (Rs. 40) on all the farms irrespective of size of farms. The absence of own farms in the small and medium farms revealed the fact that due to paucity of finance small and medium farmers were not interested in establishing permanent infrastructure and leased in the old farms. Out of the total cost, the feed cost alone accounted for more than 50 per cent (51.41 per cent on small 53.55 per cent on medium, 52.68 per cent on large own farms and 52.50 per cent on large leased-in-farms respectively). The bird cost accounted for more than 33 per cent. Together these two items accounted for more than 85 per cent of the total cost leaving the balance of 15 per cent as other operational costs (Table 1).

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Table 1
Cost of Production per bird per cycle, Jabalpur district, M.P.

(Figures—Rs.)

Sl.No . Particulars	Small		Medium		Large			
	Leased-in	%	Leased-in	%	Own	%	Leased-in	%
1. Depreciation of sheds	1.60*	4.11	1.20*	2.99	0.50	1.25	0.95*	2.37
2. Depreciation of equipment						0.50	1.25	
3. Day old chicks	13.65	35.10	13.60	33.87	13.65	34.08	13.65	34.13
4. Medicine/Vaccines	1.35	3.47	1.55	3.86	1.50	3.74	1.50	3.75
5. Labour	0.40	1.03	1.00	2.49	1.10	2.75	1.00	2.50
6. Litter charges	0.30	0.77	0.30	0.75	0.30	0.75	0.30	0.75
7. Feed cost	20.00	51.41	21.50	53.55	21.10	52.68	21.00	52.50
8. Miscellaneous	1.60	4.11	1.00	2.49	1.40	3.50	1.30	3.25
Total	38.90	100.0	40.15	100.0	40.05	100.0	40.00	100.0

* Rent per bird.

The lower expenses on labour on the small farms indicated that these farmers did not hire full time labourers or casual labourers and hired them only for some special purposes like cleaning of the sheds and mulching of litter etc.

The average gross receipts per bird per farm from all the sources worked out to Rs. 50.05, Rs. 50.15, Rs. 48.85 and

Rs. 49.35 for small and medium leased-in farms and large own and large leased-in farms respectively. The income from broiler sale contributed more than 97 per cent share. Receipts from other items like sale of bags and manure were very small. (Table 2).

Table 2
Gross receipts of poultry units—per bird cycle, Jabalpur district, M.P.

(Figures—Rs.)

Sl.No . Item	Size of farms							
	Small		Medium		Large			
	Leased-in		Leased-in		Own		Leased-in	
	Rs.	%	Rs.	%	Rs.	%	Rs.	%
1. Sale of broiler	49.75	99.40	49.15	98.00	47.75	97.77	48.30	97.87
2. Manure	—	—	0.65	1.30	0.70	1.42	0.65	1.31
3. Sale of gunny bags etc.	0.30	0.60	0.35	0.70	0.40	0.81	0.40	0.82
Total	50.05	100.00	50.15	100.00	48.85	100.00	49.35	100.00

Net Return Per Bird Per Cycle

The estimated net return on small and medium leased in farms and large-own farms and large leased-in farms came to Rs. 11.15, Rs. 10.00, Rs. 8.80 and 9.35 respectively (Table 3).

Table 3
Net Return per bird per cycle, Jabalpur district, M.P.

Sl. No.	Particulars	Size of broilers farms			
		Small Leased-in	Medium Leased-in	Large own	Large Leased-in
1.	Gross receipts/per bird (Rs.)	50.05	50.15	48.85	49.35
2.	Total cost per bird (Rs.)	38.90	40.15	40.00	40.00
	Net return per bird (Rs.)	11.15	10.00	8.80	9.35

Cost of Production per Kg. Body Weight of Broilers

The cost of production of per kg. body weight in the total production cost of a bird minus the receipts from sale of manure and gunny bags etc. divided by the total production in kilograms.

$$\text{Cost of production on per kg. body weight of broiler} = \frac{\text{Cost of a bird (—) Income from manure \& gunny bags}}{\text{Total production in Kilograms}}$$

Table 4
Cost of production per kg. body weight, Jabalpur district, M.P.

Sl. No.	Particulars	Size of farms			
		Small Leased-in	Medium Leased-in	Large own	Large Leased-in
(a)	Total cost/farm per batch (Rs.)	10,308.50	22,885.50	1,90,237.50	2,00,000.00
(b)	Income from gunny bags & manures (Rs.)	79.50	570.00	5,225.00	5,250.00
(c)	(a—b)	10,229.00	22,315.50	1,85,012.50	1,94,750.00
(d)	Total production per batch (kg.)	385.00	885.00	7,500.00	7,515.00
	Cost/Kg.	26.55	25.20	24.65	25.90
	Receipt/Kg.	34.50	32.35	30.90	32.90
	Net return per Kg.	7.95	7.15	6.25	7.00
	Cost Benefit ratio	1:1.30	1:1.28	1:1.25	1:1.27

The cost of production of per kg. of body weight is lowest (Rs. 24.65) on large-own farms followed by medium leased-in farms (Rs. 25.20), large leased-in farms (Rs. 25.90) and small leased-in farms (Rs. 26.55). However, the cost benefit ratio is lowest on large-own farms as compared to other farms and the estimated earning over per rupee investment on per kg. body weight came to Re. 0.25, Re. 0.27, Re. 0.28, and Re. 0.30 on owned large farm, leased-in large farms, medium leased-in farms and small leased-in farms, respectively. This is due to higher price received per bird by small leased-in farms.

Marketing of broilers

In Jabalpur district broiler market is not as organised as the egg market and mainly 3 channels are operating. These are—

1. Producer — Consumer
2. Producer — Retailer — Consumer
3. Producer — Wholesaler — Retailer — Consumer

1. Producer—Consumer

This channel exists only where consumer has direct access to the broiler farms. Small broiler farms sold 20 per cent of their produce through this channel. Medium farms sold 12 per cent of the produce likewise. Large farms did not contribute anything in this channel.

2. Producer—Retailer—Consumer

This channel was popular among small (sold 80 per cent) and medium (sold 48 per cent) size farmers who had transport facility and had interest in marketing. Large farms marketed only 4 per cent of the produce through this channel.

3. Producer—Wholesaler—Retailer—Consumer

All the big size broiler farmers preferred this channel. This channel controlled more than 90 per cent of the total broiler produce of large farms (Table 5).

Table 5
Different marketing channels for broilers, selected farms, Jabalpur district, M.P.

Size of farms	Percentage of total broilers marketed			Total (%)
	P—C (%)	P—R—C (%)	P—W—R—C (%)	
Small	20.00	80.00	—	100.00
Medium	12.00	48.00	30.00	100.00
Large	—	4.00	96.00	100.00

Source : Mahakoshal, Broiler Farmers Association

Price Spread

The producers share in consumer's rupee was highest in channel I (99.70%). In this channel the broiler farmers especially smaller farmers sold their produce (broiler) directly to consumers, because they operated within the thickly populated areas like consumers or hotels etc. As the intermediaries like retailers and wholesalers increase, the share of broiler farmers decreased in channel II (80.00 per cent) and it further declined to 79.09 per cent in Channel III, which is the most active channel and commanded 90 per cent share of the total broiler market.

Thus, it could be concluded that the producer receive roughly the same price and it does not vary due to marketing channels in the marketing of broilers. On the other hand, the consumers could purchase at less price if approach the farm—

ers directly. Study also revealed that the dressed chicken cost the consumer more due to wastage (beak, legs, intestines,

feathers, etc.) which accounted for nearly 300 to 350 gms. of a bird of 1.5 kg. body/weight (Table 6).

Table 6
Break-up of price spread of a broiler

Functionaries/Item cost	Channel I		Channel II		Channel III	
	Rs.	(%)	Rs.	(%)	Rs.	(%)
A Net price to the producer (including margin of Profit)	49.00	99.50	48.00	80.00	48.00	79.09
Expenses incurred by producers						
1. Labour	0.20	0.40	—	—	—	—
2. Other expenses	0.05	0.10	0.15	0.25	0.10	0.16
B Producer's sale/wholesalers purchase price						
Expenses incurred by wholesaler						
1. Labour	—	—	—	—	48.10	79.25
2. Transportation	—	—	—	—	0.25	0.41
3. Other expenses (Electricity) Telephone/Postages etc.	—	—	—	—	0.05	0.08
4. Profit margin	—	—	—	—	4.50	7.41
C Wholesaler's sale/retailer's purchase price	—	—	48.15	80.25	53.00	87.31
Expenses incurred by retailers						
1. Labour	—	—	0.30	0.50	0.35	0.58
2. Transportation	—	—	0.70	1.17	0.50	0.82
3. Other expenses (Rent of shop, Telephone/Electricity charges/Postages, etc.)	—	—	1.40	2.33	1.35	2.22
4. Margin of profit	—	—	9.45	15.75	5.50	9.07
D Retailers sale/consumer's purchase price	49.25	100.00	50.00	100.00	60.70	100.00
(Dressed chicken)	—	—	74.00	—	74.00	—

Month-wise Variation in the Prices of Broilers

The average month-wise broiler fluctuated between Rs. 32.3 in the month of May to Rs. 39.5 in the months of January, February and March. However, the fluctuation was not as volatile as in the case of eggs.

Table 7
Month-wise variation in broiler prices Jabalpur district, M.P.

Sl. No.	Month	Price (Rs.)
1.	April 1997	38.00
2.	May 1997	32.3
3.	June 1997	38.4
4.	July 1997	39.0
5.	August 1997	34.0
6.	September 1997	33.4
7.	October 1997	37.0
8.	November 1997	37.0
9.	December 1997	37.0
10.	January 1998	39.5
11.	February 1998	39.5
12.	March 1998	39.5

Broiler market is not as organised as the egg market and it needs to be addressed properly. Broiler market is functioning without any effective price intervention mechanism.

Suggestions

The analytical results and the discussion on emerging policy issues lead to following recommendations—

- (1) In broiler farming the system of "all out" should not be the criterion for finance to broiler units by NABARD/Banks but the relay system of raising broiler should also be equally considered.
- (2) Exotic breed which are fast growing and productive should be encouraged and popularised with adequate training facilities and technical know how from Agricultural University particularly for the tribal and rural areas.
- (3) Poultry marketing especially broiler marketing is not well organised and the absence of "N.E.C.C." like organisation worsened the situation further. Moreover, due to absence of any practical solution (technologies) the withholding of broilers during slump is not practically possible and forced many small farmers out of the business. Therefore, some organisational set up like N.E.C.C. for broilers marketing should also be formed.

A Study on Market Infrastructure in Punjab

—P. S. RANGI* M. S. SIDHU AND HARJEET SINGH*

Introduction

The development of farm sector depends not only on advancement in farm technology but improvement in market infrastructure is also essential to ensure better returns to the farmers. The efficient marketing can correct snags which have discouraging effects on production and helps in improving the economic lot of the farmers.

The Royal Commission on Agriculture (1928) pointed out that there were no common yardstick to measure the quality of produce, the weights and measures were unstandardized and the private market operators exploited the farmers. It recommended the enactment of market legislation to curb rampant malpractices and realize better returns. In that context, the Punjab State enacted the Punjab Agriculture Produce Markets Act, 1939. This Act was further amended in 1961 and is operative at present in the State. Under this Act, all the markets have been regulated. A large number of market committees were set up to supervise the functioning of the agricultural produce markets. The Punjab State Agricultural Marketing Board now known as Punjab Mandi Board has been established under this Markets Act to guide, supervise and control the market committees of the State for better and efficient marketing of farm produce. The market committees numbering 144, levy and collect the market fee on the sale and purchase of the agricultural commodities at a rate determined by the Board in consultation with the State Government. At present, the market fee is charged at the rate of two per cent ad-valorem. All the market committees contribute a fixed proportion of their income from market fee to the Market Development Fund (MDF) of the Board depending upon the volume of fee collected by each market committee. The Punjab Mandi Board not only creates market infrastructure, but also provides financial assistance to the economically weak market committees of the State from the MDF.

The regulation of markets has solved quite a few problems of agricultural marketing. The marketing of farm produce has become orderly and efficient, particularly at the assembly point. The manifold increase in the agricultural production might not have been achieved without the successful development of an efficient marketing system. The Punjab Mandi Board has provided necessary help to the farmers in the form of (i) providing necessary market infrastructure; (ii) linking all the villages to the market with pucca roads; (iii) grading of farm produce; (iv) market research; (v)

market information and (vi) even some welfare activities. The Punjab model of agricultural marketing, i.e., levy of market fee on the market arrival of farm produce and investment of a part of this fee back for creating necessary market infrastructure and facilities like link roads in rural areas for still higher production and efficient marketing system is unique in the developing countries of the world (Rangi and Sidhu, 1998).

The major expenditure of the Punjab Mandi Board is on the link roads which in percentage terms worked out at about 40-45 per cent. The expenditure on development of mandis is less which resulting in poor market infrastructure like roads within the yards, pucca platforms, sheds, drainage system, electricity, etc. (Chawla, 1997). The poor market infrastructure results in high marketing losses. According to the study conducted by PAU in eighties, the marketing losses were 0.59, 0.65, 0.35, 0.21 and 0.68 per cent for wheat, paddy, maize, gram and barley respectively in Punjab (Gill, et al. 1984).

The present study has been undertaken to examine the market infrastructure in the State.

Data base

This paper is based on the comprehensive study entitled, "A Study on Market Infrastructure in Punjab" conducted by the first two authors of the present article. The study is mainly based on the secondary data obtained from the Punjab Mandi Board. The information has also been collected regarding market arrivals from the various issues of Statistical Abstracts of Punjab.

RESULTS AND DISCUSSION

Market arrivals of farm produce

The market arrival of food grains and non-food grains has increased manifold in Punjab during the last about three decades. The per market committee arrivals of wheat, paddy and totals foodgrains and non-foodgrains for the period 1974-75 to 1998-99 is given in Table 1. Wheat is the principal crop of the State. About 42 per cent of the total cropped area is under wheat crop. Its production has also increased from about 25 lakh tonnes in 1967-68 to about 145 lakh tonnes in 1998-99. The per market committee arrival of wheat has increased from 20.68 thousand tonnes in 1974-75 to 43.85 thousand tonnes in 1998-99. This analysis shows that arrival of wheat has more than doubled during the period under reference.

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Table 1**Market arrival of wheat, paddy and total foodgrains and non-foodgrains in Punjab, 1974-75 to 1998-99**

(per market committee in 000 tonnes)

Year/crop	Wheat	Paddy	Total foodgrain and non-foodgrain
1974-75	20.68	14.05	50-34
1979-80	39.61	39.39	87.81
1984-85	38.89	53.46	101.85
1989-90	44.83	58.30	124.20
1993-94	47.42	62.94	153.53
1994-95	52.33	65.50	160.18
1995-96	51.33	47.66	148.93
1996-97	41.42	55.03	153.02
1997-98	44.81	48.22	159.84
1998-99	43.85	65.12	162.50

Next to wheat, paddy is the most important cereal crop of Punjab. It occupies about 30 per cent of the total cropped area of the State. Except some pockets of Kandi area and cotton belt, paddy crop is sown all over Punjab. The large scale cultivation of paddy crop was started in mid-seventies only. Earlier, its cultivation was confined to the traditional paddy growing districts viz., Amritsar, Gurdaspur and Kapurthala. The average arrival of paddy in each market committee was 14.05 thousand tonnes in 1974-75 which has further increased to 65.12 thousand tonnes in 1998-99. It means that arrival has increased by about four times. For all foodgrains and non-foodgrains taken together, the per market committee arrival has increased from 50.34 thousand tonnes in 1974-75 to 162.50 thousand tonnes in 1998-99. Among the non-foodgrain crops, cotton (American), cotton (Desi), oilseeds and fruit and vegetables are prominent in Punjab.

Market Infrastructure

As already stated, there are 144 market committees in Punjab. The principal yards with these market committees are 156 because fruits and vegetable markets have separate yards for principal markets of the State. During the year 1998-99, there were 252 focal points, 118 sub-yards and 932 purchase centres. Out of these, about 97 per cent of the principal yards were pucca whereas this figure was about 66 per cent for the purchase centers. About 93 per cent and 98 per cent of the sub-yards and focal points respectively were having pucca platforms. The area of the principal yards during the year 1998-99 is shown in Table 2. The data about area was not available for 26 yards. In rest of the principal yards, about 24 per cent of the yards were having 50 acres and above area, about 12 per cent between 40 and 50 acres, about 16 per cent between 30 and 40 acres, about 22 per cent between 20 and 30 acres, about 12 per cent

between 10 and 20 acres and about 14 per cent had area up to 10 acres. The size of the area depended on the volume of market arrival of different commodities. Except during the peak arrival of rabi and kharif crops in Punjab, these yards remained unutilized mostly during the lean period. Stray cattle roam there frequently. It has also been observed that local transporters park their vehicles during the lean months there. The concerned market committee may discourage such practices during the lean months.

Table 2**Area of principal yards in Punjab, 1998-99**

Area (in acres)	No. of principal yards	% age
Up to 5	7	5.38
5-10	11	8.46
10-15	8	6.15
15-20	8	6.15
20-25	13	10.00
25-30	16	12.31
30-35	16	12.31
35-40	5	3.85
40-45	10	7.60
45-50	5	3.85
50 and above	31	23.85
Total	130	100.00

Area of sub-yards

There were 118 sub-yards in the State during the year 1998-99. The information regarding area was not available in case 48 per cent of the sub-yards. The rest about 57 per cent of the sub-yards were having area upto 10 acres, about 18 per cent between 10 and 20 acres, about 13 per cent between 20 and 30 acres, about six per cent between 30 and 40 acres, about two per cent between 40 and 50 acres and about three per cent 50 acres and above (Table 3). As in case of principal yards, the area of sub-yards is also linked with the volume of market arrivals.

Table 3**Area of sub-yards in Punjab, 1998-99**

Area (in acres)	No. of sub-yards	% age
1	2	3
Up to 5	24	39.34
5-10	11	18.02
10-15	6	9.84
15-20	5	8.20
20-25	4	6.56
25-30	4	6.56

1	2	3
30-35	2	3.28
35-40	5	3.28
40-45	—	—
45-50	1	1.64
50 and above	2	3.28
Total	61	100.00

Area of focal points

The information regarding area of focal points is given in Table 4. This data were not available in case of 98 focal points out of the 252. In the rest of these focal points, the area was up to 10 acres in case of about 59 per cent focal points, about 29 per cent of the focal points were having area between 10 and 20 acres and about 12 per cent had more than 20 acres of area.

Table 4
Area of focal points in Punjab, 1998-99

Area (in acres)	No. of focal Points	% age
1	2	3
Up to 5	51	33.12
5-10	40	25.97
10-15	24	15.58
15-20	20	12.98
20-25	11	7.14
25-30	5	3.25
30-35	2	1.31
35-40	—	—
40-45	—	—
45-50	—	—
50 and above	1	0.65
Total	154	100.00

Area of purchase centres

The information regarding area of purchase centres in the State is given in Table 5. About 78 per cent of the purchase centres were having up to 5 acres of area, about 16 per cent were having 5 to 15 acres, about six per cent from 15 to 25 acres and the rest about one per cent were of more than 25 acres. Since almost all the purchase centres

operate only for wheat and paddy procurement seasons (45 days), therefore, large area may not serve much useful purpose. The Punjab Mandi Board may evolve a policy to keep a maximum of ten acres of area for the purpose centres. It will be sufficient

Table 5
Area of purchase centres in Punjab, 1998-99

Area (in acres)	No. of Purchase Centres	% age
1	2	3
Up to 5	249	77.57
5-10	32	9.97
10-15	18	5.61
15-20	20	2.18
20-25	11	3.43
25-30	2	0.62
30-35	1	0.31
35 and above	1	0.31
Total	321	100.00

for efficient market operations even in the peak market arrival of wheat and paddy.

Street light arrangements

It has been found that majority of the principal yards had permanent street light arrangements. On the other hand, majority of sub-yards, focal points and purchase centers did not have the facility of permanent light arrangements. Only temporary light arrangements were provided in the peak marketing season of rabi and kharif crops.

Drinking water

It has been observed that majority of the principal yards had permanent drinking water arrangements. On the other hand, such facility is mostly provided on temporary basis in the sub-yards, purchase centers and focal points by keeping pitchers there. It may be mentioned here that drinking water was not a major problem in the markets because almost every market had a hand pump or there was water supply by the municipal committees/corporations/public health department. Some voluntary social organizations also serve drinking water to the public particularly during the summer months on the road sides of various markets. Even bullocks, camels, ponies, horses, etc. did not face any problem of drinking water throughout the year in all the markets of the State. Besides, almost all the commission agents in the mandis serve drinking water to the sellers, buyers, labourers, officials of public procurement agencies, officials of market committees, transporters, etc. without any hesitation. Rather, it is considered as a social service in Punjab. Above all, tea stall, dhaba and sweet shop owners in the markets also serve some drinking water to the public.

Covered sheds

The information regarding covered sheds in the markets is given in Table 6. A perusal of the table showed that 55 per cent of the principal yards had the facility of covered sheds. On the other hand, this was available only in about 4 per cent of the purchase centers. About 64 and 69 per cent of the sub-yards and focal points had this facility in Punjab. To save the agricultural commodities from the vagaries of nature, the Punjab Mandi Board may evolve a policy to build up covered sheds in all the principal yards in the near future. As a long run policy measure, all other

Table 6

Facility of covered sheds in the markets of Punjab, 1998-99

Sl. No.	Type of market	Markets having covered sheds	% age to the total
I	Principal yards	86	55.13
II	Sub-yards	75	63.55
III	Focal points	174	69.05
IV	Purchase centres	408	43.78

sub-yards, purchase centres and focal points may also have this facility in the State by the year 2010. Given the present number of purchase centres is sufficient, therefore, new purchase centres may not be set up keeping in view political considerations of the ruling party in the State. The infrastructural facilities may be strengthened in the existing markets. New purchase centres may not be economically viable.

Area of covered sheds

It was found that about 78 per cent of the principal yards had sheds up to two acres of area, about 16 per cent between two and four acres and the rest about six per cent had four acres and above area. There are two types of sheds in the State. At present, the Board constructs RCC as well as tin sheds. In almost all the sub-yards, the area of covered sheds was found to be up to one acre whereas this figure was half an acre for almost all the focal points as well as purchase centres.

Mechanical handling units in grain markets

The grain markets in Punjab were classified into small, medium and large markets based upon the seasonal quantum of foodgrains handled in each market. It was suggested that in small markets only one operation, i.e., cleaning operation be mechanized. This was termed as nominal mechanization. In medium sized markets, cleaning, filling of bags, weighing of bags and stitching of bags were proposed to be mechanized through small mechanical handling units, the capacity of which would match the manual unloading rates. A number of such units were proposed to be established in each market depending upon the need. Such markets were termed as

partially mechanized markets. Due to financial and other constraints, the experiment of fully mechanized grain markets have not been taken up by the Punjab Mandi Board and State Government so far.

In the year 1980, the Punjab Government decided to undertake implementation of partially modernized market on an experimental basis. As a result of this, six mechanical handling units in three markets namely Khamano, Sahnewal and Doraha were installed by the agricultural engineers of the Punjab Agricultural University, Ludhiana with the financial support of Punjab Mandi Board. These units were finally put to use in 1982 after all the formalities were taken care of. In the decade 1982 to 1992, the number of such units has increased from 6 to 88 i.e., more than 14 times and the number of modernized markets increased from 3 to 34. The year-wise detail is given in Table 7.

The capacity of small units was 100 bags of wheat, 50 bags of paddy and that of big units was 200 bags of wheat and 100 bags of paddy per hour (Grewal, 2001). These units were capable of automatic weighing, filling and stitching of bags. Most of these units were lying under an

Table 7

Number of mechanical handling units in Punjab, 1982 to 1993

Year	No. of mechanical handling units	No. of markets
1982	6	3
1985	10	4
1986	22	8
1991	32	12
1992	68	29
1993	88	34

open sky and were being damaged by rains (Grewal, 2001). Only some machines were under proper sheds. Most of these units have been lying idle for the last many years. They have also not been repaired for a long time. There are only a score of mechanics to look after these units but at most of these units only chowkidars were looking after these machines.

Up to the late eighties, these units were operated to their full capacity and the results were up to the expectations. For example, the actual capacity utilization of these units in case of paddy season was 107, 117 and 115 per cent during the years 1988, 1989 and 1990 respectively. Even during these years, the performance in case of wheat season was dismal. The actual capacity utilization for wheat was 11, 17 and 9.3 per cent during these three years respectively. It has been observed that when these units were introduced, rumours were spread out by some quarters that with the coming of these units, the commission agents will become

idle and they will be thrown out of their business, with the result that most of the commission agents in such markets started opposing this scheme. The officials of procurement agencies were also not interested in this scheme because they were also hand in glove with the commission agents (Grewal, 2001).

The operation of these units was beneficial to the farmers of the State because they got Rs. 4 per qtl more than the fixed price and the payments were made on the spot. These units were filled with power cleaners that cleaned wheat and paddy in a better way. These units also saved a lot of time. But later on power cleaners were made compulsory for the commission agents after which these units became almost idle. The commercial electricity connection of these units are still going on and the payment of these bills is being made by the concerned market committees. The electricity connections of these units should be terminated if these units are not to be made operational. Keeping in view the overall unsatisfactory performance of these units during the last about two decades in the State, these units may be auctioned by the Punjab Mandi Board and resources generated in this regard may be invested for the development of other infrastructure in the mandis.

Expansion of market committees

The expansion of regulated markets has brought a number of improvements in the system of agricultural marketing. The model of agricultural marketing development of Punjab is often cited as an example for other States of India. The data given in Table 8 show the growth in the number of market committees in Punjab from 1966-67 to 1998-99. Their number which was 88 in 1966-67 rose to 144 in 1993-94. During the last one decade or so, new market committees have been established in a few cases because of high establishment cost of each committee. The high establishment cost left little funds for development

Table 8

Number of market committees in Punjab, 1966-67 to 1998-99

year	No of regulated markets	Average No. of villages served per regulated market	Av. Area served per regulated market (sq. kms)
1966-67	88	139	572
1976-77	108	113	466
1986-87	141	88	357
1993-94	144	86	352
1998-99	144	86	352

Source : Statistical Abstract of Punjab, Various Issues.

purpose. Therefore, the State Government and the Punjab Mandi Board decided in mid-eighties not to have rapid expansion in this regard.

It was found that each market committee served 139 villages in 1966-67 which fell to 86 in 1998-99. Against this, each principal market served 257 villages in India (Rangi and Sidhu, 2001). The average area served per market committee in Punjab was 572 sq. kms in 1966-67. With the establishment of new market committees, over a period of time, this figure declined to 352 sq. kms in 1998-99. Against this, the area served per principal market in India was 1424 sq. kms (Rangi and Sidhu, 2001). It may be mentioned here that a farmer of Punjab has not to travel more than 8 to 10 kms for sale of principal crops, i.e., wheat and paddy. This not only saves time of farmers but also bring efficiency in various marketing operations like unloading, cleaning, filling, stitching and loading of the produce. It also reduced congestion in the main yards of the market committees.

Income and expenditure of the Board

The income and expenditure of the Punjab Mandi Board for 1996-97 through 1998-99 is shown in Table 9. The market committees collect the market fee @ 2 per cent of the value of the produce from the buyers of farm produce. All the market committees have to contribute a fixed proportion of their income from this source to the Punjab Mandi Board. The financially weak committees contribute less whereas the committees with high income contribute more. This difference has been kept to provide rational allocation of funds for development to all the market committees of the State. It may be mentioned that committees with an annual income up to Rs. 20 lakhs contribute 20 per cent of their income to the Board whereas this figure is 40 per cent for the committees with income from Rs. 20 to Rs. 40 lakhs. The financially sound committees with income above Rs. 40 lakh contribute 50 per cent of their income to the Board.

The data given in Table 9 showed that the Board got Rs. 69.12, Rs. 92.12 and Rs. 79.70 crores mainly this way in 1996-97, 1997-1998 and 1998-99 respectively. The opening balance during these respective years was Rs. 45.59, Rs. 31.81 and Rs. 31.49 crores respectively. Thus, the total funds available with the Board during these three years were Rs. 114.70, Rs. 123.93 and Rs. 111.19 crores respectively. The expenditure of the Board was Rs. 82.89, Rs. 92.44 and Rs. 94.68 crores during these respective years. Each year, sufficient funds were left unutilized and were carried to the next financial year. This shows the sound financial health of the Board. It may be mentioned that most of the other Boards and Corporations of the State Government are in the red whereas the Punjab Mandi Board had positive closing balance of Rs. 31.81, Rs. 31.49 and Rs. 16.61 crores during the years 1996-97, 1997-98 and 1998-99 respectively.

Table 9
Income and expenditure of Punjab Mandi Board, 1996-97 through 1998-99

(Rs. in lakhs)

Sl. No.	Particulars	1996-97	1997-98	1998-99(P)
I.	Opening balance on 1st April	4558.53	3181.32	3148.87
II.	Income during the year	6911.70	9211.51	7970.00
III.	Total (I + II)	11470.23	12392.83	11118.87
IV.	Expenditure during the year	8288.91	9243.96	9457.50
V.	Closing balance on 31st March (III-IV)	3181.32	3148.87	1661.37
	Components of expenditure			
I.	Establishment expenses	1434.99 (17.31)	1596.38 (17.27)	2448.00 (25.88)
II.	Contingencies—Recurring	251.85 (3.04)	273.69 (2.96)	300.00 (3.17)
III.	Contingencies—Non-recurring	61.45 (0.74)	182.93 (1.98)	166.00 (1.76)
IV.	Loans and advances to employees	119.54 (1.44)	282.68 (3.06)	500.00 (5.29)
V.	Construction work	5729.38 (69.12)	5787.07 (62.60)	5404.00 (57.15)
(a)	Development of mandis	1027.40 (12.39)	980.62 (10.60)	1800.00 (19.03)
(b)	Board's works	102.30 (1.24)	97.67 (1.06)	400.00 (4.23)
(c)	Central assistance	—	—	5.00 (0.05)
(d)	Link roads	4599.68 (55.49)	4708.78 (50.94)	3200.00 (33.84)
VI.	Financial aid/loan	32.43 (0.39)	1.89 (0.02)	50.00 (0.53)
VII.	Repair and maintenance of Kisan Bhawan	56.76 (0.68)	48.89 (0.53)	65.00 (0.69)
VIII.	Investment and purchase of property	—	1.25 (0.01)	5.00 (0.05)
IX.	Securities refund	6.81 (0.08)	26.84 (0.29)	25.00 (0.26)
X.	Development schemes	95.70 (1.16)	42.34 (0.46)	243.50 (2.58)
XI.	Deposits in suspense	500.00 (6.04)	500.00 (5.41)	200.00 (2.11)
XII.	Miscellaneous adjustable/recoverable payments for advance to District Mandi Officers, Insurance Claims, market committees' works, Rural Development Fund, Provident Fund, etc.	—	500.00 (5.41)	50.00 (0.53)
XIII.	Grand total	8288.91 (100.00)	9243.06 (100.00)	9457.50 (100.00)

(P) means provisional.

Note: Figures in parentheses indicate percentages to total expenditure.

Source : Punjab Mandi Board, Chandigarh.

A perusal of Table 9 further revealed that major expenditure of the Board was on the development of market infrastructure in the form of construction of link roads, development of mandis and other works of the Board. The expenditure on link roads alone was Rs. 46.00, Rs 47.09 and Rs. 32.00 crores in 1996-97, 1997-98 and 1998-99 respectively which in percentage terms worked out at about 55,51 and 34 of the total expenditure of the Board. As already discussed, Punjab is the second State after Haryana in the country to link almost all the villages by metalled roads.

Another important component of expenditure of the Board has been on the development of mandis. The Board spent about 12, 11 and 19 per cent of its total expenditure on this head in 1996-97, 1997-98 and 1998-99 respectively. It also included expenditure on the upliftment of infrastructural facilities such as providing pucca platforms, covered sheds and electricity. Keeping in view lack of the market infrastructure in the State, the expenditure on this head may be doubled from the next financial year. Expenditure on the same proportion may be reduced from the sub-head of link roads. As already stated, more than 99 per cent of the villages of the State have metalled link roads, therefore, new link roads may not be the priority area of the Board. It is suggested that existing link roads may be repaired and may be widened keeping in view the traffic intensity in a particular area. The funds saved from the construction of new link roads may be utilized for the development of mandis and strengthening of infrastructure there.

The expenditure on recurring and non-recurring contingencies were about four, four and five per cent of the total expenses in 1996-97, 1997-98 and 1998-99 respectively. The notable recurring expenses were telephone and electricity bill, printing and stationery, running and maintenance of cars and other vehicles, travelling expenses, medical aid, postage and publicity. The non-recurring expenses included purchase of new vehicles, furniture and fixture and audit fee. About one, three and five per cent of the expenditure of the Board during 1996-97, 1997-98 and 1998-99 respectively was on loans and advances to its employees.

The Board also utilized about one, half and three per cent of its expenditure on the development schemes during 1996-97, 1997-98 and 1998-99 respectively. It was mainly on the installation of mechanical handling units in the grain markets, provision of power cleaners in the mandis, grading of foodgrains and oilseeds, research grant to the Punjab Agricultural University, Ludhiana, grading of fruit and vegetables, fire fighting and related equipment, data processing and computers, Apni Mandi (Farmers' Market), metallic bins and weigh bridges. These measures of the Board in the form of development schemes have brought efficiency in the marketing system and proved a boon to the farmers of the State.

Income and expenditure of market committees

The income and expenditure of all the 144 market committees in Punjab for the year 2000-01 is given in Table 10. As already stated, the main source of income of the market committees is from the market free levied @ two per cent of the value of the produce. It is charged from the buyers of the farm produce. From this source, the income is Rs. 256.00 crores. The opening balance on 1st April, 2000 was Rs. 35.58 crores. The Income from licence fee and other sources was Rs. 1.87 and Rs 14.82 crores respectively. Thus, the total income was Rs. 308.28 crores. The income of each market committee was worked out at Rs 2.14 crores.

Table 10

Income and expenditure of market committees in Punjab, 2000-2001*

Sl. No	Particulars	Rs. in lakhs	
		Amount	%age
A. Income			
I	Opening balance	3557.81	11.54
II	Market fee	25600.30	83.04
III	Licence fee	187.37	0.61
IV	Other income	1481.98	4.81
V	Total income (I to IV)	30827.50	100.00
B. Expenditure			
I	Mandi development	5860.66	18.97
II	Mechanical units	67.65	0.22
III	Link roads	2362.34	7.65
IV	Cotton grading	0.78	0.003
V	Landscaping	11.37	0.04
VI	Establishment expenses	6004.42	19.44
VII	Travelling expenses	30.12	0.10
VIII	Contingencies-recurring	824.38	2.67
IX	Contingenceis-Non-recurring	400.55	1.30
X	Loans	1106.95	3.58
XI	Contribution to Board	10884.39	35.23
XII	LIC fee	139.76	0.45
XIII	Audit fee	289.25	0.94
XIV	Amenities	1616.97	5.22
XV	Misc. expenses	1294.34	4.19
XVI	Total expenditure	30893.93	100.00

*Budget estimates.

Source: Punjab Mandi Board, Chandigarh.

The pattern of expenditure of market committees revealed that about 35 per cent of this was contribution to the Punjab Mandi Board. As already stated, a fixed proportion of income from the market fee goes to the Mandi Board. The establishment expenses were 19 per cent. Each market committee in the State utilized about Rs 41 lakhs on mandi development. The share of link roads was about eight per cent in the total expenses. About five per cent of the expenses were on amenities and four per cent were miscellaneous expenses. The expenditure on loans to employees was about four per cent, recurring and non-recurring contingencies taken together about four per cent and audit fee about one per cent. It may be mentioned here that total expenditure per market committee was Rs. 2.15 crores during the year 2000-01. The expenditure per market committee was marginally high to the extent of about Rs. 1000 as compared to the average income. As already stated, the expenditure on the link roads may be reduced by the market committees and allocation for the mandi development may be enhanced. The schemes may be formulated keeping in view the economic interests of the farmers, buyers, public procurement agencies, etc. In the peak marketing seasons of rabi and kharif crops, repair works in the mandis may not be initiated. Such job may be completed in the lean months. The number of projects/schemes to be initiated in a particular year may be formulated keeping in view the financial constraints/implications. The number of purchase centre is sufficient in the State. New such centers may not be established for a minimum of next five years. The infrastructure may be built up in the existing purchase centers.

Conclusion and suggestions

The regulation of markets has solved quite a few problems of agricultural marketing. The marketing of farm produce has become orderly and efficient particularly at the assembly point. The manifold increase in the agricultural production might not have been achieved without the successful development of an efficient marketing system. The Punjab model of agricultural marketing, i.e., levy of market fee on the market arrival of farm produce and investment of a part of this fee back for creating necessary market infrastructure and facilities like link roads in rural areas for still higher production and efficient marketing system is unique in the developing countries of the world. The major expenditure of the Punjab Mandi Board is on the link roads which in percentage terms worked out at 40-45. The expenditure on the development of mandis is less which resulted in poor infrastructure like roads within the yards, pucca platform, sheds, drainage system, electricity, etc. The poor market infrastructure results in higher marketing losses. At present, the overall market infrastructure is not adequate. The following suggestions

will go a long way to bring improvements in this regard.

I. The number of principal yards, focal points, sub-yards and purchase centers is sufficient to meet the requirements of farmers in all the 12428 villages. Therefore, new mandis should not be set up anywhere in the State at least during the next five years.

II. The length of the existing metalled link roads in the rural areas is adequate in the State. Therefore, new link roads may not be laid anywhere in Punjab. Rather, the existing link roads may be repaired and widened wherever required.

III. The saving of funds from the rural link roads may be utilized for the development of infrastructure in the mandis. Additional funds may also be provided in this regard by the concerned quarters.

IV. The construction work or repair work in the mandis may be done only during the lean months when the arrival of farm produce is low. In the peak period, such construction or repair work creates problems in the mandis.

V. Those mechanical handling units which are not operative may be auctioned by the Punjab Mandi Board and resources generated in this regard may be invested for the development of other market infrastructure in the mandis.

VI. The financial resources of the State are limited. Therefore, existing levies/cesses may be allowed to continue on all the agricultural commodities. Any reduction in such levies/cesses will adversely affect the income of the market committees, Punjab Mandi Board and State Government. Ultimately, it will also have negative affect on the development of infrastructure in the mandis.

VII. In the era of liberalization, privatization and globalization, the market infrastructure may be of international standards. Quality of farm produce will have to play a crucial role in the years to come. Market infrastructure can play an important role in this regard.

VIII. The establishment expenses of the Punjab Mandi Board and market committees may be reduced. It will generate funds for the development of infrastructure in the mandis.

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“एगमार्क भारत सरकार द्वारा गुणवत्ता के प्रमाणन की एक प्रणाली है।

Marketing and Export of Fresh Vegetables

—AJAY VERMA, SUDHIR KUMAR AND P.M. SINGH*

Introduction

Awareness about the importance of vegetables for well-balanced nutrition and as a potential generator of farmer's income, employment and foreign exchange earnings have been generated. World vegetable trade has increased manifold in last two decades. At present there is a series of forces increasing the pressure for expansion of production and trade of vegetables in the world. The vegetable producing business is too varied in nature to permit a single description or even a good classification. Countless farmers and others could improve both their diet and economic position by growing more vegetables and by preserving & using them throughout the year. Modern civilization leaves millions of people in situations where, under normal conditions, vegetables can not be grown or it has been found preferable to buy their demands. To meet these needs the commercial vegetable business has grown up. The business of growing vegetable has been shown to be an important part of agriculture and to have an important place in supplying needed food to human beings. This being so, many people will continue to grow vegetables to sell and many will be engaged in the auxiliary business that serve vegetable growers. The market must be studied in detail to determine current supply and demand forces by studying previous market data and picking up possible trends of what the market might be in the future. This will also include determining any legislation governing standards and which varieties of crop receive the best prices and at what time of year. Market situations are constantly changing and it is important to know what competitors or potential competitors are doing or planning to do.

Marketing Concept

The "market" concept has many connotations. For geographers it usually refers to a physical area and denotes the place where commercial exchange takes place. For economists the concept often transcends the idea of a mere physical location and is used in a broader sense to indicate the meeting of supply and demand. Marketing is one of the most important, yet misunderstood, business activities and frequently means different things to different people. To the retailer in the agricultural sector, for example, it is selling of inputs to the farmer. To the farmer it is simply selling what he produces on his farm. However, whatever the circumstances, a well-defined sequence of events has to

take place to promote the product and to put it in the right place, at the right time and at the right price for a sale to be made. Many people think of marketing solely in terms of the advertising and selling of goods, whereas in reality marketing starts long before the goods exist and continues long after they are sold. Market performance is related to the functioning of arbitrage. Arbitrage is the process of exchange of commodities with the objective of taking advantage of price differences that exceed marketing costs. Spatial arbitrage should equalize supply and demand at different market places until price differences are reduced to the level of transport costs. The higher the level of marketing costs between markets, the smaller the probability that exchange will take place between them. Links between markets thus become more likely as marketing costs decrease. Marketing margins are relatively high in developing countries. There can be many reasons for this. For example, marketing by a large number of small traders will, in theory, be economically less efficient than trading carried out by a limited number of large traders, although it may offer other more social benefits. However, lack of information is generally seen as being one of the main reasons, apart from transport costs, for high marketing costs. The potentials and constraints for vegetable consumption and marketing need special attention to provide new outlets for vegetable products coming from farm enterprises. An initial step should be the determination of quality standards. value, prestige pricing, quality packaging and labeling perceive quality as an intangible characteristic for many consumers.

Market Importance

Markets provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated. In theory markets supply food corresponding to consumer preferences. Simultaneously, prices that consumers are willing to pay for different commodities and grades should be transferred to producers in order to encourage production of that produce which is in demand. Price differences over time and between market locations should correspond to the marketing (transaction) costs incurred, notably those for storage and transport. Prices are the result of the functioning of the market and are determined by supply and demand which, in turn, are influenced by costs of production, the costs of

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marketing and by consumer preferences, among other things. Marketing has much importance in vegetable trade, which are cultivated by farmers for market only. The marketing operations have crucial role, due to seasonality of produce, in deciding the profit of the farmer on one hand and level of availability to consumers on other side.

The marketing of vegetables, unlike in case of cereals, is more complex because of the special characteristics like highly perishable nature, seasonality, bulkiness etc. and needs special care and immediate disposal. In case of perishable commodities for a producer, the real problem starts when he attempts to dispose of the same i.e. marketing the produce. Besides, the huge expenditure the marketing cost also affects the income of the cultivators. Studies conducted on marketing of vegetables have shown the exploitation by middleman resulting in very low share of consumers rupee.

Market Activities

Wholesaling facilitates the economic function of buying and selling (usually termed as "price formation") by allowing the forces of supply and demand to converge to establish a single price for a commodity. The assembler or wholesaler may also perform a storage and warehousing function, as well as allowing economies of scale to be obtained in the transportation of produce from farm to market. The people involved in wholesaling can act simply as merchants, buying and selling produce, be brokers dealing in orders rather than goods, be commission agents (or factors) acting for the producers (and without title to the produce) or be export/import agents, only dealing in foreign trade.

The purpose of retail markets for any commodity is to provide an environment for looking at and buying merchandise that is displayed for sale. With a conventional shop, including a large-scale market, there is usually a sales area where goods are displayed, a shop front used for advertising the goods and a service area where goods can be received re-packed and stored. With a market stall these functions occur at one place. A retail market, like any other type of market, is a location at which there is a public gathering of buyers and sellers at a known time. All retail markets involve a large number of transactions of relatively small quantities of goods on a face-to-face basis between a seller and buyer. An essential feature of a market is the opportunity it can provide to immediately and easily compare prices between different sellers of the same product. Retail markets provide low-cost retailing facilities based on small-scale operations and are typically found in the low and middle-income, higher density areas of cities and small towns and in the centers of villages in rural areas.

It is important that the farmer should be able to sell the produce at a convenient stage of the marketing channel. For example, some farmers have the option of selling at farm gate, of delivering to a local assembly market, of supplying a wholesale market direct or of selling directly to retailers or even to consumers. However, a maximum value added

for the farmer is not always an optimal solution. This depends on the costs (e.g. transport, risk bearing and time) involved when the farmer decides to sell in a market segment closer to the final consumer. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market. Farmers often have limited outlets for their produce and are often bound by traditional trading relationships, which may include an element of credit provision by the trader. Opportunities for most farmers to take advantage of spatial arbitrage possibilities are therefore restricted. Such opportunities are further hindered by the small quantities produced by most.

Marketing Methods

Deciding where to market depends in large part on the volume of produce to be marketed. In general, the larger the volume of produce handled, the greater the number of marketing alternatives. Small-scale producers may be limited to local or regional markets while larger producers are able to market on national and international levels as well. Some small growers are able to access national markets by selling their produce through a growers' cooperative. The best market for a grower is not just the market that offers the highest price, but is the one that matches cultivators particular circumstances at any given time. Growers first consider marketing alternatives available in local markets. Local markets are easier to access because an individual grower can serve them with a small or large volume of produce.

Pricing Strategy

When selling directly to consumers at the farmer's market or to other local outlets, the price received depends mainly on the produce prices in local markets and any premium the consumer is willing to pay for higher quality or freshness of produce. When selling to a produce dealer at a farmer's market, the price received depends on the price the broker or grower's agent receives. One of the more difficult marketing decisions is knowing when to accept a price and when to wait for something better. Growers would like to sell their products at the highest possible price, but no one knows when this price will be offered. A market strategy that attempts to achieve an acceptable price has a better chance of success than one that aims for the highest price. Therefore, growers must know that price level is consistent with an acceptable profit for the total farming operation. Careful attention to market trends will help you decide whether to accept a price or wait for something better.

Export Performance

India has been a large exporter of agricultural products for centuries. With the growth in economy, especially with the growth of more import intensive sectors, the need for foreign exchange earnings from agricultural exports becomes increasingly more important from the national point of view.

In 2000-01 agri products valued at more than U.S. \$ 6 million were exported from the country. Although fruit and vegetables are not among the dominant foreign exchange earners while able to achieve strong growth over the years.

India has been exporting agricultural products as raw products, semi-processed and processed items. The country exports in this sector include commodities and processed food items.

Table 1
Export of Fresh Vegetables in World Market

Country	MT				Rs. (Lakhs)			
	98-99	99-00	00-01	-% share	98-99	99-00	00-01	-% share
Bangladesh	3646.5	17579.0	7290.2	5.44	263.12	1114.94	1074.63	5.63
Bahrain	1999.3	2123.7	3178.13	2.37	426.77	382.31	499.14	2.62
Canada	1186.5	1372.7	2434.2	1.82	195.94	312.61	413.81	2.17
Spain	1870.6	1890.0	2930.8	2.19	310.94	229.08	487.84	2.56
U.K.	2986.0	3300.7	6045.0	4.51	603.47	828.32	1249.15	6.55
Kuwait	2324.8	2243.7	2954.1	2.20	444.37	417.29	523.48	2.74
Sri Lanka	113409.4	43549.2	44101.7	32.91	1020.94	2511.1	2946.01	15.44
Maldives	3650.8	2528.8	3805.6	2.84	708.95	543.73	558.95	2.93
Nepal	861.1	432.2	6276.9	4.68	43.15	15.64	203.56	1.07
Qatar	1838.7	1852.7	2453.3	1.82	318.14	331.69	394.19	2.07
Saudi Arabia	3971.0	4678.5	8218.5	6.13	676.42	717.9	1251.1	6.56
U.A.E.	11641.2	12063.4	16511.1	12.32	1872.96	1718.83	2192.46	11.49
USA	3488.2	6037.4	10408.7	7.77	1085.05	2221.87	4467.6	23.41
Netherlands	744.0	1676.7	1980.3	1.48	152.89	400.25	329.47	1.73
France	1610.0	1545.2	2142.6	1.60	335.85	324.6	420.93	2.21
Belgium	1276.2	1535.91	1462.3	1.09	290.24	323.22	325.89	1.71
Total	64654.6	115626.4	133992.0	100.0	10233.34	14414.62	19084.96	100.0

Fresh vegetables are considered as one of the most potential commodities for export in world market as reflected above. India is able to fulfil vegetable demands of foreign markets on *ad-hoc* basis. Vegetables are proved to have more export potential than other crops. In 2000-01, the country exported other fresh vegetables to the tune of Rs. 190.84 crores over Rs. 144.14 crore in the preceding year, representing a growth of 32.89%. India over the years has been regularly exporting a variety of fresh vegetables. Sri Lanka, UAE, and USA together accounted for more than 50% of the total exports of fresh vegetables in 2000-01. The general expansion in the demand and trade of vegetables has been accompanied by a greater internationalization of trade due to a greater number of importing countries as well as supplier countries in world trade. In many cases trade was local or bilaterally oriented is now more international, which has intensified the trading contracts among countries.

Packing and Organic Farming

Vegetable marketing has followed an expected pattern of growth and international participation has increased over the years. The new liberal policies have assessed to global

inventories. The growth and survival of domestic entrepreneurs will depend on their strength, innovative product closeness to the customers and capacity to take decisions at lower level. World wide there has been considerable research over the type of packaging material for agricultural commodities, both raw and processed. The FAO/UNDP/Govt. of India Project Marketing Planning And Design Centre (MPDC) conducted certain trial with regard to packaging of fruit and vegetables. The results of these trials increased substitution of traditional wooden/bamboo packages with telescopic carton. Tissue paper or polyethylene sheets are used for wrapping to reduce evaporation and thereby prolonging shelf life of the fresh vegetables like asparagus, capsicum, chillies, brinjal and okra. Packing size depends upon requirement of importing country whereas packing material depends upon the acceptance by the airlines.

Right from production to the shelf, there are strict checks and watch on the production techniques, use of inputs and processing so that the extra money paid by consumer bring added satisfaction. The consumer demand for organically produced food is driven by food safety concerns. The move-

ment towards increasing food safety and consumption of organic food produced without the use of chemical inputs such as pesticides, herbicides are strong in the developed countries. In this direction accelerated agricultural research is desired which aimed at issues such as host plant resistance to pests, nitrogen fixation from the air, and plants that are more efficient in extracting and utilizing nutrients.

Conclusion

Growing produce can be profitable, but not everyone who attempts to grow produce will be successful. The problems and opportunities associated with vegetable production need to be carefully considered. But of equal importance are the problems and opportunities associated with marketing. A sound marketing strategy should be developed before a crop is planted. Then, good management is needed to ensure high yields of high quality products that are packed and labeled according to market specifications. Raising the level of productivity and quality standards to Internationally competitive levels is one of the major challenges following the dismantling of quantitative restrictions on imports, as per the

W.T.O. Agreement on Agriculture. For several commodities, our national productivity is less than world average. Within the country there are wide variations in productivity level. The stagnating vegetable export from country in recent year can be traced partially to distorted domestic prices for certain products. Weakness in export infrastructure specific to vegetable products, such as storage, port handling facilities, lack of large scale processing technology and export quota restrictions makes Indian supply sources unreliable and hinder the exploitation of full export potential.

The competitiveness in global market has acquired a multi-dimensional concept. Now it involves not only price competitiveness, but also ability to deliver the desired quantity at demanded destination in time. In developed countries, organically produced vegetables are available in the market at a premium price. The International trade in vegetable is increasingly being dominated by concern of quality to safe the human health. The developed countries are setting higher standards of quality, imposing quality barrier, called non-tariff barriers, at progressively higher levels to prevent entry of country exports into their markets.

**AGMARK STANDS FOR PURITY AND QUALITY BUY
AGMARK PRODUCTS**

Price Spread in Marketing of White Onion in Raigad District of Maharashtra State

—A. V. GADRE¹ J. M. TALATHI² AND S. S. WADKAR³

Onion (*Allium Cepa*) is an important and indispensable item in every kitchen as condiment and vegetable in India. It is an important crop in all continents and is commercially cultivated in various countries. However, about three fourth of global production is accounted for by 24 countries in the world, the important countries are China, India, USA, Russia, Spain, Iran, Turkey, Brazil and Japan.

The demand for onion is world-wide and is not limited to any particular climate and nationality. Highly industrialized nations such as United Kingdom and Germany are leading importers of onion. China ranks first in area and second in onion production in the world. The area under onion in India was 301.390 ha. and its production was 32 lakh MT in 1997-98. It is grown in three seasons of the year (i) Kharif (ii) Late Kharif and (iii) Rabi.

Onion crop has a very important place in the economy of Maharashtra. It has destination of largest contributor accounting for nearly 30 per cent to the national production with only 24 percent of the area under onion in India. The principal onion growing districts in the Maharashtra State are Nasik, Dhule, Jalgaon, Pune, Solapur, Satara, Ahmednagar, Osmanabad, Buldhana and Aurangabad occupying about 89 per cent of area under onion in the state. Particularly, in Konkan region of the state white onion is grown by cultivators in certain pockets only. In Raigad district of the Konkan region about 100 ha area is under white onion crop in Rabi season. In view of this, an attempt in this study is made to study profitability and resource productivity in white onion production in Raigad district. (M.S.)

Methodology

A sample of 100 white onion growers was selected randomly from 10 villages in Alibag Tahsil of Raigad district (M.S.) where white onion cultivation is concentrated in the Konkan region. The disposal pattern and price spread in different channels of marketing for white onion were studied for the year 1998-99 by collecting data from selected white onion growers and important market functionaries in the study area. The selected cultivators were classified into three categories viz. (i) Small Group upto 0.17 ha (ii) Medium Group upto 0.18 to 0.27 ha. and (iii) Large Group 0.28 ha and above on the basis of area under white onion cultivation. This stratification was done with the help of mean and standard deviation. The standard cost concepts were used to study the objective.

Marketing Efficiency (ME)

The ratio of the total value of goods marketed to the total marketing cost is used as a measure of efficiency. Higher the ratio the higher the efficiency and vice versa.

Shepherd's Equation is,

$$ME = \frac{V}{I} - 1$$

Where

ME = Index of Marketing Efficiency

V = Value of goods sold (Consumer's Price)

I = Total Marketing Cost.

RESULTS AND DISCUSSION

General Information

Table 1 indicates that the size of operational holding for sample farms of white onion was increased from 0.72 ha. in small group to 1.14 ha in large group with an overall average of 0.89 ha. The average cropping intensity was 127.91 per cent for sample farms. The per farm area under white onion was 0.09 ha in small group, 0.23 ha in medium group and 0.33 ha in large group with 0.17 ha area under white onion at the overall level. The productivity per hectare of white onion ranged between 140.89 q to 150.36 q with the overall average of 144.91 q. Nearly one fourth (23.32%) of the capital investment on the farms was on irrigation structure.

Table 1
General Indicators of Sample Farms of White Onion.

Sl. No.	Particulars	Small	Medium	Large	Overall
1	Total operational holding (ha)	0.72	1.03	1.14	0.89
2	Gross Cropped area (ha)	0.62 (111.42)*	1.03 (131.92)*	1.28 (139.35)*	0.86 (127.91)*
3	Area under White Onion in Rabi Season	0.09 (14.49)**	0.23 (22.35)**	0.33 (25.74)**	0.17 (19.84)**
4	Productivity per ha. (Q)	140.89	143.21	150.36	144.91
5	Per farm investment on irrigation structure (Rs.)	64182 (26.80)+	54487 (21.31)+	68130 (23.46)+	57856 (23.32)+

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*Figures in parenthesis indicate cropping intensity.

**Figures in parenthesis indicate proportion to gross cropped area.

+Figures in parenthesis indicate proportion to per farm investment in assets.

Disposal of produce

The per hectare disposal of produce is given in Table 2

It was observed from the table 2 that out of total production 14.32 per cent produce was consumed at home in small group, 4.87 per cent in medium group, 3.41 per cent in large

group, where it was 6.26 per cent at the overall level. It was observed that with the increase in farm size quantity of produce sold also increased from 110.16q (78.19%) in small group to 140.84q (93.67%) in large group. This has resulted into generating large marketed surplus of white onion with increase in farm size.

Out of total production very small quantity was used as gift to relatives/friends which was 3.81 per cent, 1.23 per cent and 1.37 per cent in small, medium and large group respectively.

Table 2

Per hectare disposal of white onion.

Sl. No.	Particulars	Small group		Medium group		Large group		Overall	
		Quantity	Value (Rs.)	Quantity	Value (Rs.)	Quantity	Value (Rs.)	Quantity	Value (Rs.)
A.	Bulbs								
I.	Production	140.89 (100.00)	128773.46	143.21 (100.00)	101106.26	150.36 (100.00)	136075.80	144.91 (100.00)	1186681.29
II.	Disposal								
	i. Home consumption	20.17 (14.32)	18435.38	6.98 (4.88)	4927.88	5.13 (3.41)	4642.65	9.08 (6.26)	7436.52
	ii. Gifts to relatives	5.38 (3.81)	4917	1.76 (1.23)	1242.56	2.01 (1.34)	1819.05	2.86 (1.97)	2342.34
	iii. Marketed surplus	110.16 (78.15)	100686.24	131.84 (92.06)	93079.04	140.84 (93.67)	127460.2	129.31 (89.23)	105904.89
	Total	135.71 (96.32)	124038.94	140.58 (98.16)	99249.48	147.98 (98.42)	133921.9	141.25 (97.47)	115683.75
	iv. loss in storage and transport	5.18	4734.52	2.63	1856.78	2.38	2153.9	3.66	2997.54
	Losses (%)	(3.68%)		(1.83%)		(1.58%)		(2.53%)	
B.	Seed production (kg)	13.31	8306.45	11.48	6941.48	11.69	7117.11	12.01	7337.73

(Figures in parentheses indicate percentages)

It was observed that losses in storage and transport in small size farms were 3.68 per cent, in medium size farms 1.83 per cent and 1.58 per cent in large size farm of the total production. At the overall level, the losses were observed to the extent of 2.53 per cent. This has showed that post-harvest losses in white onion were reduced with increase in farm size.

Total marketed surplus was 110.16 q per hectare (78.19%) in small group, 131.84 q per hectare (92.06%) in medium group and 140.84 per hectare (93.67%) in large group. The marketed surplus at the overall level was 129.31 q per hectare (89.23%).

It was observed that seed production in small group was 13.31 kg per hectare, in medium group 11.48 kg per hectare and in large group 11.69 kg per hectare with the 12.01 kg per hectare at overall level. Farmers took production of seed considering their own requirement. Hence the quantity was very low.

Marketing of White Onion

The marketing system for white onion in Raigad district is without interference of the Government at any stage of marketing. Cultivator choose the channel as per their convenience their produce in the study area.

Table 3

White Onion sold to agencies

Sl. No.	Agency	Small		Medium		Large		Overall	
		Qty	No (qt.)	Qty	No (qt.)	Qty	No (qt.)	Qty	No (qt.)
1.	Consumer	0.92	7 (14.00)	—	—	—	—	0.92	7 (7.00)
2.	Retailer	4.75	26 (52.00)	10.03	10 (30.90)	—	—	14.78	36 (36.00)
3.	Wholesaler	3.68	17 (34.00)	20.01	23 (69.70)	45.98	17 (100.00)	69.57	57 (57.00)
	Total	9.35	50 (100.00)	30.04	33 (100.00)	45.98	17 (100.00)	85.37	100 (100.00)

It is observed from Table 3 that out of 50 cultivators in small group maximum i.e. 26 (52%) growers preferred to sell their produce through retailers, while 17 (34%) growers preferred to sell their produce through wholesalers and remaining 7 (14%) growers preferred to sell their produce directly to consumers. In medium group, out of 33 sample cultivators, maximum i.e. 23 (69.70%) growers preferred to sell their produce through wholesalers while 10 (30.90%) growers sell their produce through retailers. While in large group all i.e. 17 (100%) growers sell their produce through wholesalers only. At the overall level, out of 100 cultivators maximum i.e. 57 (57%) growers sell their produce through wholesalers, 36 (36%) through retailers and 7 (7%) growers directly to consumers.

Based on quantity marketed through different functionaries, it was revealed that the maximum quantity was marketed through wholesalers (Channel IV). The next important functionary was sale through retailers (Channel III) and lowest quantity was sold directly to consumer. Thus, marketing of white onion was in the hands of marketing functionaries to the extent of 93.00 per cent.

The channel-wise distribution of white onion growers and quantity marketed is given in the Table 4.

Table 4

Channel-wise Distribution of White Onion Marketed

Sl. No.	Channel	No. of Growers	Qty Marketed (Qtls)
1.	Producer-Consumer	7	0.92 (1.07)
2.	Producer-Wholesaler-Consumer	10	12.48 (14.62)
3.	Producer-Retailer-Consumer	36	14.78 (17.32)
4.	Producer-Wholesaler-Retailer-Consumer	47	57.19 (66.99)
		100	85.37 (100.00)

It is observed from the table that the maximum quantity of white onion was passed through Channel IV (66.99%) followed by Channel III (17.32%), Channel II (14.62%) and Channel I (1.07%). The white onion growers were observed to use different channels viz., producer-consumer, producer-wholesaler-consumer, producer-retailer-consumer and producer-wholesaler-retailer-consumer respectively.

Marketing Channels for White Onion

In the marketing system for assembling and distribution of white onion, agencies involved were accounted as white onion cultivators, wholesalers, retailers and consumers. The commodity passed through four different channels of trade namely,

- I. Producer → Consumer
- II. Producer → Wholesaler → Consumer
- III. Producer → Retailer → Consumer
- IV. Producer → Wholesaler → Retailer → Consumer

Operational Efficiency in Marketing of White Onion

Operational efficiency can be measured by cost benefit ratio. The various marketing functions performed by different agencies, and comparison of costs incurred can give a appropriate measure of efficiency which is presented subsequently.

(1) Marketing Cost

The per quintal cost on marketing of white onion incurred by different agencies is given in Table 5. The detail break up of other costs incurred by retailers and wholesalers are given in Appendix IV.

Table 5

Cost of marketing incurred per quintal of white onion by different agencies

Sl. No.	Cost item of	Producer	Retailer	Wholesaler
1.	Assembling (AC)	—	1.11	2.23
2.	Grading (GC)	0.50	2.18	1.54
3.	Transport (TC)	7.00	10.52	11.94
4.	Losses (SL)	1.00	9.21	25.93
5.	Others (OCWS)	1.50	35.54	10.85
	Total	10.00	58.56	52.49

It is observed from Table 5 that the per quintal cost of assembling was Rs. 1.11 for retailers, Rs. 2.23 for wholesalers. The cost of grading was Rs. 0.50 for producer, Rs. 2.18 for retailers and Rs. 1.54 for wholesalers. In case of transport it was Rs. 7.00 for producers Rs. 10.52 for retailers and Rs. 11.94 for wholesalers. Retailers and wholesalers used various modes of transport such as bullock cart, tempo, truck etc. for transport of white onion.

The losses were Rs. 1.00 for producers Rs. 9.21 for retailers and Rs. 25.93 to wholesalers. The share of other costs was Rs. 1.50 for producers Rs. 35.54 and Rs. 10.85 for retailers and wholesalers, respectively. The average marketing cost incurred by producer was Rs. 10.00 retailer was Rs. 58.56 and by wholesalers Rs. 52.49.

Market Margins and Price Spread

The price spread refers to the difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of farm produce. This spread consists of marketing costs and margins of the intermediaries, which ultimately determine the overall effectiveness of a marketing system. The price spread will be helpful in studying the efficiency of the marketing system.

The cost and margin for each agency in various channels was estimated and their share in different channels is given in Table 6.

(i) Share of Producer

The producers share in consumers rupee was the highest (98.95%) in channel I and it was lowest (65.60%) in channel II. The producers share in consumers rupee in other channels varies as 70.73 per cent in Channel III and 68.60 per cent in channel IV.

Table 6

Per Quintal Price Spread and Returns of White Onion obtained through different Channels

Sl. No.	Particulars	I	II	III	IV
(1)	Net price realized by producer	840 (98.85)	823.27 (65.60)	845.18 (70.43)	823.27 (88.60)
(2)	Wholesalers net margin	—	324.24 (27.02)	—	125.24 (10.44)
(3)	Retailers net margin	—	—	296.26 (24.69)	110.44 (9.20)
(4)	Cost of marketing	10 (1.15)	52.49 (4.37)	58.56 (4.88)	110.95 (9.24)
(5)	Consumers Price	850 (100.00)	1200 (100.00)	1200 (100.00)	1200 (100.00)
(6)	Gross market Margin	10 (1.15)	376.73 (31.39)	354.82 (29.57)	346.88 (28.88)

The producer's share was highest (98.85%) in channel I, in which they had disposed of their marketed surplus directly to the consumer. This higher share was made possible due to the total elimination of middlemen intervening between producers and consumers. The producers share in consumer rupee in channel II, III, IV was lower than channel I because the producers marketed their produce through the wholesaler and retailer who reaped away large amount from the consumers rupee.

Next to channel I (i.e., direct sale), channel III (i.e. sale through retailer) was comparatively profitable channel for sale of white onion in the study area.

(ii) Share of Wholesalers

The net margin share of wholesaler's accounted for 27.02 per cent of consumers rupee in channel II, and it was 10.44 per cent in channel IV. It was also noticed that the volume of commodity handled by this agency was very large.

(iii) Share of Retailers

This agency was final link between the wholesalers and consumers and played an important role in delivering the goods and services at the desired time and place.

The net margin of retailers in consumer rupee was worked out to 24.69 per cent and 9.20 per cent in channel III and IV, respectively.

(iv) Gross market Margin

The percentage share of marketing margins in consumers price paid was 1.15, 31.39, 29.57 and 28.88 per cent in Channel I, II, III and IV, respectively. The marketing margin was highest in Channel II, while it was lowest in Channel I due to absence of market functionaries.

Marketing efficiency (ME) estimated in marketing of white onion crop is presented in Table 7.

Table 7

Marketing Efficiency (ME) in Marketing of White Onion

Sl. No.	Particulars	Marketing Channels			
		I	II	III	IV
1.	Value of the produce sold (Consumers Price Rs./q) (V)	850	1200	1200	1200
2.	Marketing Cost (I) (Rs./q)	10	376.73	354.82	346.63
3.	Marketing efficiency	84	2.19	2.38	2.46

$$(ME = \frac{V}{I} - 1)$$

It was noticed from Table 7 that the marketing efficiency (ME) was much higher in Channel I (84) than that of Channel II (2.19), Channel II (2.38) and Channel IV (2.46). This revealed that the higher marketing margins were taken

away by the market intermediaries in the Channel II, III and IV resulted in the poor efficiency in the marketing of white onion.

Storage of White Onion

The growers were asked about reasons for storing white onion and to mention advantages of storage and causes of storage losses. The information is presented in Table 8.

Table 8
Storage of White Onion

Sl. No.	Particulars	Proportions of respondents (N=100)
(A) Reasons for storing white onion		
1.	Top reap benefits of higher prices	93
2.	For home consumption	99
3.	Non availability of time to dispose of produce after harvest	27
(B) Advantages of storing white onion		
1.	Higher price realized	60
2.	Protection against decline in prices	07
(C) Methods of storage		
1.	Heap Method	40
2.	Hanging the wreaths on bamboo structure for storage of long duration	60
(D) Causes of storage losses		
1.	Losing of the onion from wreaths	60
2.	Decaying in storage (Heap method)	40
3.	Inadequate space for storing of white onion	50
4.	Lack of knowledge about proper method for storage of onion	100

It is observed from the Table 8 that the reasons for storing white onion by respondents were to reap benefits of higher prices (93.00%) for home consumption (99.00%) and non availability of time to dispose of produce after harvest (27.00%). However, they had mainly higher price realization (60.00%) and protections against decline in prices (7.00%). Forty per cent were following heap method for storing white onion and sixty per cent were having the wreaths on bamboo structures for long duration storage. However growers gave different reasons for losses in storage viz., losing of the white onion from wreaths (60.00%), decay in storage particularly in heap method (40%), in adequate space for storing of onion (50.00%), lack of knowledge about proper method of storage (100.00%). On the whole, growers of white onion need scientific knowledge about proper method of storage (100.00%).

Conclusion

It was observed that the production of white onion on sample farms was 144.91 quintals per hectare, of which 89.23 per cent was marketed surplus. The marketing system for white onion was in the hands of marketing functionaries to the extent of 93 percent. The maximum quantity of white onion was passed through Channel IV i.e. Producer-Wholesaler-Retailer-Consumer (66.96%) followed by Channel III i.e. Producer-Retailer-Consumer (17.32%) Channel II i.e. Producer-Wholesaler-Consumer (14.62%) and Channel I i.e. Producer-Consumer (1.07%).

The producer share in consumer's rupee was the highest in Channel I (98.85%) and it was lowest (65.60%) in Channel II. The percentage share of marketing margins in consumer price paid was 11.56, 31.99, 29.57 and 28.88 per cent in Chanel I, II, III and IV respectively. The marketing efficiency (ME) was much higher in Channel I (84%) than that of Channel II (2.19) and Channel III (2.38) and Channel IV (2.46). The white onion cultivators should streamline marketing strategy to minimize the role of marketing functionaries to harness better from white onion cultivation.

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Quality Issues in Supply Chain : A Case of Kesar Mango at Saurashtra Region

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Introduction

In the new WTO led freer trade environment, Indian food industry can compete globally only if it is price and quality competitive. However, many times, price competitiveness of Indian food products is a reflection of price discounting due to poor quality and/or poor quality reputation. In fact, Indian food industry is faced with a symmetric trade opportunities. When international prices are low there is deluge of imports into India, and, when international prices are high there is no symmetric spurt in exports due to quality problems. It is imperative that farmers and entrepreneurs engaged in post-harvest handling and food processing will have to commit themselves wholeheartedly to food quality management.

While policy issues on food quality are discussed at various forums, issues of problem identification and resolution at the micro enterprise level are seldom taken up. The devil is in the details. Kesar mango being the pride of Gujarat's horticultural crops, which also has strong potential for exports. Mango is one of the major fruit of Gujarat, as it shared 17% of the total fruit production of state (Naik and Pandit, 2001). Major mango producing region in the state are Saurashtra, South Gujarat and some part of Kheda and North Gujarat. Saurashtra is the major mango-producing region of Gujarat, mainly Junagadh district. Gujarat has produced 34,000 tonnes of mango during 1997-98. The major mango varieties of Gujarat are Kesar, Langra, Rajapuri, Badami and Gola. Out of that Kesar is the most favourite fruit, due to its attractive saffron pulp colour, delicious taste and sweet aroma (fragrance). As Talala and Vanthali are the most dense talukas of Junagadh district for this mango tree, a audio-video survey was carried out in these areas by the Professor and his Associate of Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad; to understand the status and problems of post-harvest handling practices of mango at growers, transporters, wholesalers, retailer, consumers and R & D Scientist level.

Production

India is at first position in the production of mango in the world. The production and productivity of mango is shown

in Table 1. It was observed that the growth rate of productivity goes down during 1991 to 1999.

Table 1
Production and Productivity (99-2000)

Region	Production (million MT)	Productivity MT/HAC
Gujarat	0.38	6.64
India	12.00	9.23
World	24.97	9.03
Share of Gujarat in India	3.17%	—

1.1 Varieties

There are about 1100 documented varieties of *Mangifera indica* L. in the world, out of that over 1000 varieties are grown in India itself. Most popular commercial varieties of India are given in Table 2.

Table 2
**The most popular commercial varieties of mango
grown in India**

State	Varieties
Andhra Pradesh	Banganpali, Totapuri, Neelum, Rumani, Alampur Baneshan, Dashaheri, Malgoa, Chinnarasam, Peddarasam, Cheru-Kursam, Panchdarakalasa, Kothapalli Kobbara, Navaneetam, Himayatpsand, Phirangiladua,
Bihar	Bathua, Bombay, Himsagar, Kishanbhog, Sukul
Goa	Fernandin, Mankurad
Gujarat	Alphonso, Kesar, Rajapuri, Vanraj, Jamedar
Haryana	Dashehari, Langra, Sarauli, (Bombay Green)
Karnataka	Alphonso, Neelum, Banglora, Mulgoa, Pairi,
Madhya Pradesh	Alphonso, Bombay, Langra

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1	2
Maharashtra	Alphonso, Mankural, Kesar, Mulgoa, Pairi
Orissa	Beneshan, Langra, Neelam, Suvarnarekha
Punjab	Dashehari, Langra, Samarbehisht, Chausa, Kalapad, Sendurg, Banglora, Mulgoa, Peter Sarauli, Neelum, Rumani,
Uttar Pradesh	Bombay Green, Dashehari, Fazli, Langra, Safeda Lucknow, Samarbehisht, Chausa
West Bengal	Bombay, Himsagar, Kishanbhog, Langra

Source : www.apeda.com/html/mango.htm

2.2 Composition

Although the composition of mangoes varies considerably with variety on an average the following composition is observed:—

Edible Portion	55—75%
Seed	7—23%
Peel	8—22%
Sugar Content	15—20%

Kesar has relatively larger edible meat, smaller seed, thin peel, and it is very sweet. The chemical composition of ripe Kesar mango is given in Table 3 and its comparison with some other varieties of India is given in Table 4.

Table 3
Chemical Composition of ripe Kesar mango

Moisture	:	78.00%
Protein	:	0.60%
Fat	:	0.11%
Salt	:	0.30%
Fiber	:	1.10%
Carbohydrate	:	11.60%
Acidity	:	0.28%
Vitamin (A,B,C)	:	11.03mg/100g
Reducing Sugar	:	4.15%
Non Reducing Sugar	:	8.55%
Total Sugar	:	13.15%
Total Carotenoids	:	9.478mg/100g
Ascorbic Acid	:	46.692mg/100g
TSS	:	18.54%

Source : Dudhat, 1996.

Table 4

Comparison of chemical composition of ripe Indian mangoes

Variety	Total Soluble Solid (%)	Acidity as Malic Acid (%)	Total Sugar (%)	Reducing Sugar (%)
Alphonso	17-20	0.14-0.64	10.5-18.5	2.5-4.0
Baneshan	14-19	0.15-0.30	10.5-15.5	4.5-7.0
Chausa	18-24	0.20-0.35	16.0-18.0	2.0-3.0
Dashehari	18-22	0.20-0.30	13.5-16.0	2.5-4.0
Fazli	18-20	0.10-0.20	12.4-15.5	5.0-7.5
Kesar	16-20	0.15-0.30	13.5-18.0	4.5-6.3
Langra	18-22	0.20-0.35	12.1-14.0	2.4-3.5
Mulgoa	14-20	0.10-0.25	15.0-15.5	3.2-4.0
Neelum	16-18	0.15-0.30	11.4-15.5	5.0-7.0
Pairi	14-16	0.10-0.34	11.6-15.6	2.5-5.2
Totapuri	14-16	0.20-0.45	11.2-15.4	4.0-5.8

Source : Rajgopalan, 1997

3. Cultivation

The farmers of these talukas have mango-cultivated plants from 0.5-15 h. The plant-to-plant and row-to-row distance varies from 35 to 45 ft and 30 to 45 ft respectively. In Gujarat, it is believed that Saurashtra is the oldest land which was to be cultivated for mango plantation. The fruit bearing age varies from 5 to 50 years or more than that. The entire tree is being irrigated by dugout lined well. The irrigation method used by farmers are, either furrow or drip.

It is observed that the old plantation is very dense (at 25 x 25 ft), so trees do not have enough area for the full development of canopy. Every year tree bears new leaves in early monsoon, so tree become itself dense. The growers are also not following the pruning practice, so the fruits, which are inside the canopy, cannot get enough sunlight to grow properly. The flowering starts from January to early February. The farmers are not used to spray growth regulator for the higher yield from tree. As the monsoon of this region is uneven and this region does not have big water conservation command area, the ground water table level of this region remains very uneven. This region also comes under semi-rid region and so trees many times feel water stress.

The pest attack is also affecting the fruit quality. The major pests and diseases, which are being responsible for the losses in mango, are given in Table 5.

Table 5

The major pests and diseases and its solution for mango tree.

A. Diseases in the mango tree

Disease	Infection area/part	Causal organism	Treatment	Dose
<i>Major</i>				
Powdery Mildew	Flowers, Stem, Twig, Small fruit (<i>Khataki</i>)	<i>Oidium mangiferae</i>	Sulphur or Bavistin	2 g/lit 0.5 g/lit
Anthraco nose	Twig, Fruit, Leaves	<i>Colletotrichum</i>	Bavistin or Mancozeb	1-2 g/lit
Die back	Old dry branches	<i>Colletotrichum</i>	Plant sanitation	
Malformation	New branch and new flower	<i>Fusarium moniliformae</i>	Plant sanitation	
Spongy tissue	Fruit	Sun burn	Protection from soil heat	
<i>Minor</i>				
Stem end rot	Fruit pedicel	<i>Botryodiplodia</i>	Hot water Bavistin or Benomyl	0.5 g/lit
Anthraco nose	Fruit	<i>Colletotrichum</i>	Hot water Bavistin or Benomyl	0.5 g/lit
Soft rot	Fruit	<i>Rhizopus arrhizus</i>	Hot water Bavistin	0.5 g/lit
Black rot	Fruit	<i>Aspergillus niger</i>	Hot water	

B: Pests in the mango tree.

Pest	Infection area/part	Treatment
Mealy bug	Twig	Plant Sanitation
Stem and root borer	Stem and Root	Kerosin, Endosulfan (Blocking of Air)
Leaf webber	Leaves	Webbing
Fruit fly	Fruit	Trap with Dichlorovos (nuvan) and Methyl euginol solution
Mango hopper	Inflorescence	Monocrotophos (ETL 7 hopper/inflorescence)

Source : Om Prakas and Srivastava, 1987. Note

Plant sanitation=Removal of infected part from the tree.

4. Harvest and Post-Harvest Practices

4.1 Harvesting

The harvesting season of (Kesar) mango in the Saurashtra region is from April to June. The main maturity index for the fruits considered by growers is the white powder on the skin. A team of mango harvesting worker is rented. Generally rent of mango harvesting, for a man and a woman is Rs. 70 and pay Rs. 50 plus one time food per day. The harvesting is carried out up to mid of the day, depends on the quantity of mango that is to be harvested. The harvester used is traditional mango harvester locally called *Vedi*. Individual fruit has harvested by pulling the harvester, which break the pedicel of fruit from uneven length. The short length of pedicel oozes the latex, which creates black rot during the ripening and also provides environment for the fungal and bacterial growth. The fallen fruit gets the me-

chanical injuries, which results in diseases or soft rot during the ripening. The harvested fruits are collected in the *Tagaras* or *Bamboo* Toplas and transported for the packaging. The rough surface of collecting vessel may create bruising on the skin of mango, which also invites the disease. There is no any loading and unloading platform in the field so almost all the mango thrown down from the vessel to ground from almost 2—2.5 ft height.

4.2 Grading

The fruits are not graded in this region by any way i.e. according to size, weight or quality, and so healthy fruits get infection by diseased fruit or not evaluated at high price.

4.3 Packaging

The fruits are not even washed to get better price during the bargaining, because the price of mango in the market depends on the white powder on fruits, instead of its size,

weight or quality. Due to that the fruit temperature remains as it is during entire post-harvest handling chain. During the harvesting the packaging of fruits is also carried out in the locally available 10 kg corrugated cardboard boxes. The ripe and over decayed fruits are to be thrown away during the packaging. To get better price, small fruit are hide at the bottom of box and big fruits are kept at the top. The boxes were bind with nylon or jute (*Kathi*) string and stacked at side the "KESAR" is pre-printed on the boxes and all kinds of mango can be packed in that. The capacity of the box is decided by the manufacturer not by growers or any authorized agency. These boxes do not have enough stacking strength and ventilation. Some times used boxes were re-used for packaging. If boxes are costly or not available then the mangoes are packed in to the cement or fertilizer (nylon) bags (*kothalo*). The newspaper is used as a cushioning and covering material in the packaging. Some good farmers arrange the fruits as the tip remains at the top in the boxes.

4.4 Handling, Transportation and Marketing

The boxes are not handled carefully in the farm, market, truck and even in the retailing shop. the farmer's children are use to play/sleep/sit on the staked boxes at the farm. the Three-wheeler (*Chakada*) is loaded as much as possible to reduce the transportation cost.

Generally *Chakada* is used for short distance (up to 300km), while Tempos and Trucks are used for long distance or for more than 100 boxes. One or two person are use to sit on the loaded boxes during the travelling. The persons, who sit on the boxes, are not known with the quality deterioration and loss.

The complete marketing channel of this region is shown in the flow chart 1. The harvested mango fruit boxes were brought to mango market and stacked against the shop of trader/agent, before 3:00 p.m. These are the open markets, where the growers can sale their produce to any one and at any rate. No amount has to pay by farmers to the market for the dealing, but the agent has to pay 6% commission and rent for loading and unloading of boxes as 1 Rs/box, according to government rules. At 3:00 p.m. auction starts,

which is carried out from the one corner of the market. The wholesaler, trader, agent and farmers get together with a market authority person. The market authority person note down the quantity to be sold, at what rate to be sold, who has purchased and who has sold. the auctioneer pulls out the mango from any one box and show to the crowd. As there is no display platform in the market , they are used to stand on the boxes and encouraging the agents to increase the price by dancing and shouting. After fixing the price, the fruits are tied up and loaded on the vehicles by the buyer. These mangoes are marketed further as shown in the flow chart 1.

Flow chart: 1. Complete marketing channel of Saurashtra region

The quantity of mango coming to the market was initially 13220 kg and finally 198200 kg in the 2001-2002. All the mangoes are only Kesar. there is no standardization in the mango size, but still there are three grades according to visual size of mangoes and on that based prices are decided during the bargaining. The average price of mango also varies according to the size of mango (Table 6).

Table 6
Price of Kesar mango at Talala market in season 2001-2002.

Date	Price (Rs. per 10 kg box)							
	21-04-01	28-04-01	05-05-01	12-05-01	19-05-01	22-05-01	23-05-01	24-05-01
Small	100	105	105	75	55	60	89	87
Medium	175	176	170	140	125	125	135	135
Large	255	215	220	170	153	160	170	165
Quantity (kg)	13220	14000	85000	89250	130000	191750	190000	198200

Figure 1 shows that the mango price is influenced by the quantity and its size at the Talala mango market. In the initial days of season the price is high due to less quantity, and these things lead the growers to harvest the fruits at the premature stage. As the quantity increased the price goes down, it shows that fluctuation of price depends on the quantity brought to market. There is also a significant difference of price according to size of the mango throughout the season. These happened every year at both Vanthali and Talala mango market, and so growers harvested their mangoes before maturity, which will not ripe properly and thus quality is deteriorating.

Figure 1 Effect of quantity and size on the price of mango.

There is no cool chain, throughout the marketing chain of Kesar mango. Mangoes reach to the wholesaler after about 24-36 hrs. travelling, and till that 7% mango get spoiled due to heat, jerk and vibration in the truck, which was loaded without cushioning materials. The total post-harvest loss in mango was estimated about 20-35% (Jadeja, et. al., 1994) the wholesaler sell this mango as it (in boxes) to the retailer/hawkers/overhead vendors. The retailer some times grades the mango according to quality, by his experience to attract consumes. The harvesting season of Kesar mango is very late, till that other mangoes like, Totapuri, Alphonso, Rajapuri, Pairi etc. are available to compete the Kesar. These also affect the price of Kesar mango at the market. The retailer sell the mangoes at about 150% higher price than the Talala market price. The figure 2 shows the price difference of the 10 kg Kesar mango box between retailer and market price. It means out of consumer price grower gets only 40% and rest 60% goes to mediators. Out of these only 40% farmer

has to handle all the farm economy, which includes; water charges, labour charges, cost of pesticides, cost of fertilizer and his survival etc.

Figure 2: Difference in the price of mango at retailer shop and at Talala market.

Consumer selects the mango by his experience i.e. on the basis of size, colour, and quality. Some times consumer becomes confused to select right quality mango, because he doesn't know the better quality criteria and varieties of mango.

5. Conclusion

5.1 Problems

1. The growers of the Saurashtra are not aware about the importance of quality. They don't tackle the mango cultivation professionally.
2. The effective growth regulators are not used by the growers to stop the falling of flower during flowering stage of mango tree.
3. The harvester used by farmers is not so efficient, which leads the losses.
4. No one followed the pretreatment of fungicide to reduce the quality losses by disease due to mechanical damage and brushing injuries.
5. In entire supply chain nowhere cold chain is used, which is very important factor to reduce the fruit temperature and thus, increase the shelf life as well as quality.
6. About 4% fruits get damaged due to jerk and heat during transportation (Jadeja, et.al., 1994).
7. The packaging boxes do not have enough strength and even ventilation to absorb jerk and to reduce the respiration heat respectively.

8. The marketing system of the mango is not grower's profit oriented, i.e. growers get little bit low profit.
9. The market environment is not so suitable for the bargaining process and also unhygienic.
10. There is no standardization of mango grade, which may leads the early harvesting of mango.
11. The consumers are not aware about the quality of mango, date of harvesting, etc.
12. There is not any brand name in the mango marketing system.

5.2 Possible Solutions

- Education for the quality importance of their produce must be given to the growers, harvesting and handling of fruits could be improved. The growers can think farming as business. The value addition starts from the farmers' field.
- The standard growth regulator and stabilizer should be recommended and advertised so that the falling of flowers can be reduced and thus, the production of mango can be increased.
- The standardized pretreatments of fungicide application should be encouraged, which help to reduce the post harvest diseases.
- The growers should encourage, starting co-operative mango society, so that they could get hold on the mango market or reduce the hold of brokers and agents in the market. By such organization they can maintain the quality criteria.
- Providing loan or subsidy, etc help the cold chain equipments establishment, should be encouraged i.e. equipment like; pre-cooler, evaporative cooling structure for small and marginal growers, small-scale cold or cool storage structure for big growers or co-operative societies. The shelf life of Kesar mango can be extend up to 40 days after proper post-harvest handling, vacuum packaging at 700mm Hg and in 13°C and 95% RH storage condition (Pandit, 2001).

- The less damage generate harvester should be developed and it should be encouraged in the mango cultivated area.
- The well-strengthened and ventilated packaging box should be developed and during that investigation the price per box should also be considered because the farmer will hesitate to utilize the costly packaging boxes.
- The transportation by trucks, tempos and trollies for the perishable commodity should be developed which can beat the respiration heat of commodity as well as reduces the mechanical injuries from jerk.
- No market or marketing yard in the Gujarat is suitable for the highly perishable and sensitive commodity, so the improvement of entire structure; from environment, activity, transportation and hygienic point of view should be needed.
- The less vegetables producing countries like Australia, Belgium, France, UK, US, etc have standard for all the commodities form size, variety and quality point of view, whereas, being the second largest fruit and vegetables, producer, we should have our own standard and accordingly market should get flow. For the standardization, scientists and reserchers should find out the different physical and qualitative criteria for the standardization.
- The consumers should be aware with the importance of quality and the composition of each variety of fruits in the shop, so that while selecting the fruits they can consider the quality i.e. the nutritional value in mind instead of price.
- There must be some brand name for particular variety of mango, like Parley, Britannia, etc. so that even child or blind man can trust on the quality of the branded fruit.

6. Quality in Supply Chain

Quality problems in the supply chain are caused by many factors. A comparative analysis of practices that are considered ideal internationally and the practices that are actually followed in presented below :

Sl. No.	Ideal Practices*	Actual Practices
(i)	Orchard Size	
	<ul style="list-style-type: none"> ● Large size of orchards so that infrastructure investment on orchards is economical. ● With large size, old trees can be removed and new planted on a rotational basis. 	<ul style="list-style-type: none"> ● The farmer we visited had a relatively large orchard of about 30 hectares, But many have orchards much smaller in size. Drip irrigation still not followed. ● Farmer had only recently started harvesting mangoes, as the trees were barely 6-7 year old. Another farmer had trees as old as 75 years. But there is no diversity in the tree age within an orchard.
(ii)	Orchard maintenance	
	<ul style="list-style-type: none"> ● Sometimes branches bow down and rests on the ground. Due to this fruit comes in contact with the ground resulting in some damage. to overcome this, a bamboo rest is used to lift the branches. 	<ul style="list-style-type: none"> ● The practice of erecting bamboo-rest is being used but not adequately. This would result in saving significant amount of fruit being damaged due to bruises.

Sl. No.	Ideal Practices*	Actual Practices
	<ul style="list-style-type: none"> ● At times, Mango Hoppers could damage mango tree. It creeps inside the stalk and eats away the whole tree. ● Fruit flies also attack the fruit for which a mix of two chemicals can be used. One chemical attracts the flies and the other kills the fly. ● Pesticide spray is another option. 	<ul style="list-style-type: none"> ● Appropriate pesticides must be applied in time to avoid damage due to mango hoppers. ● The scale of fruit-fly control method seems inadequate.
(iii)	Selection of fruit for the harvest	
	<ul style="list-style-type: none"> ● Mature fruit is thick and shoulders bulging out. Stem should be depressed. Generally immature fruit is more elongated and thinner. ● Appearance of white powder and pigmentation should be there on the skin. ● Lesser the curvature between shoulder and the beak the better. ● A size of about 350 g (plus minus 20 g) is considered appropriate. ● Fruit be absolutely firm and little reddish-yellow blush on shoulders may have appeared. 	<ul style="list-style-type: none"> ● Generally growers have a fair idea about the harvesting stage of the fruits. ● Often, traders to ensure early arrival of the fruit to the retail market goes for premature plucking of the fruit, which fails to develop good colour, flavour and high soluble solids. Artificial ripening by applying carbide granules improves the colour from outside, but the flavour and aroma remain poor and the fruit blackens from inside.
(iv)	Harvesting	
	<ul style="list-style-type: none"> ● In the early hours of the day when the ambient temperature is relatively low. ● 10-20 cm stem should be attached when clipped by hand. ● Hand cutters or traditional kind of mango nippers can be used. ● Fruits, which have fallen on to the ground, should not be mixed with the properly harvested fruit. ● Care should be taken while transporting the fruit to the pack house to ensure that fruit is not exposed to the sun. 	<ul style="list-style-type: none"> ● Occurrence of mangoes falling on the ground is not rare. Latent and external damage takes place. ● Fallen mangoes packed along with the rest. They can spoil others later. ● Also the some of the fruits were plucked without sufficient margin of the stem on the fruit. Resulting in latex flowing on the surface of the skin.
(v)	Treatment	
	<ul style="list-style-type: none"> ● Mangoes should be kept upside down for two hours on a holed pallet after making a cut on the stem at a length of 1 cm from the fruit. The latex will flow out from the fruit completely without flowing on to the fruit. ● Mangoes should be washed with a solution (10-litre solution having 10grams detergent and 1 gram of Benomyl-powder/Bavistin as fungicide). Mangoes are kept in solution for 2 minutes and USA and can be imported.) washed with soft muslin. ● Dry the fruit and apply wax (food grade edible sugar based wax duly approved by EEC and USA and can be imported.) ● Hot water treatment should also be done for mangoes. For the mangoes to be exported to US this is a pre-condition. 	<ul style="list-style-type: none"> ● No such treatments in practice resulting in the loss due to spoilage of fruit after ripening. Appearance also deteriorates. ● Some amount of pesticide residues, organic matter, fruit fly may stay on fruits. ● Results in wastage of fruits by the time it reaches final consumer. ● Farmers, traders are reluctant to wash the fruit as it will lose the white powder that stays on it. Somehow, the presence of white powder gives a guarantee that the fruit is a mature one. ● While presence of white powder while harvesting gives an indication of mature fruit, it need not stay on the fruit afterwards. But credibility problem makes everyone keep it on the fruit. In the process, washing is never practiced jeopardizing the fruit quality at later stages.
(vi)	Grading	
	<ul style="list-style-type: none"> ● Fruits are graded on the basis of size and the quality. ● As per EU specifications there are three categories: Extra Class (superior quality, characteristic. 	<ul style="list-style-type: none"> ● No such grading done, ignoring the fact that grading could fetch them higher prices and profits. ● Only sorting of mangoes done by removing already spoiled mangoes.

Sl. No.	Ideal Practices	Actual Practices
(vi)	<p>shape & colouring of the variety & free of defects), class I (Good quality, slight defects provided these do not affect general appearance & keeping quality), Class II (satisfying minimum requirements).</p> <ul style="list-style-type: none"> ● Size criteria : A 200-350 g ● B -351-550 g, C-551-800 g 	<ul style="list-style-type: none"> ● No such grading done, ignoring the fact grading could fetch them higher prices and profits. ● Only sorting of mangoes done by removing already spoiled mangoes.
(vii)	Packing	
	<ul style="list-style-type: none"> ● Weight of the packing boxes should be 300 g/m² ● 8% of the total surface area of the box should be left for ventilation. ● Mangoes should be kept in layers and all the stems in one direction so as to have minimum friction between mangoes. Use of straw mat or paper could also be made to separate mango layers. 	<ul style="list-style-type: none"> ● The diagonal strength of the boxes appeared quite good to hold the fruit for short distance. ● The boxes used never accounted for such specifications and even the existing holes were not pricked to have enough aeration. ● No such practices followed to keep mangoes in layers. Mangoes are simply dumped into the boxes. The people carrying out these operations are ignorant about handling practices. ● We also saw at some places boxes being reused. Does affect the quality of mangoes while they are in transit.
(viii)	Transportation	
	<ul style="list-style-type: none"> ● Boxes should be stacked properly in pallets and overloading should be avoided. ● For export markets, availability of cool chain essential. In fact, even for domestic market it must be developed. 	<ul style="list-style-type: none"> ● While loading and unloading, boxes are simply thrown. laborers have little idea of the damage it causes to the product. ● Laborers sit on top of the heaped boxes while mangoes are being traded or transported. ● Cool chain non-existent.
(ix)	Retailing	
	<ul style="list-style-type: none"> ● Loss due to transpiration and spoilage be minimal due to various practices followed earlier. ● Market promotion and advertising by Mexican exporters and US importers on the cards. 	<ul style="list-style-type: none"> ● Due to unavailability of cool chain, between Talala and Ahmedabad, 20 per cent of the weight of the fruit is lost due to reduction in water due to heat. ● Adding spoilages at the orchard, transit, and the retailer, total loss could be about 40%. ● Marketing and promotion not done for export market. Must educate customers of various ways of eating mangoes. e.g. Mango bottle, mango cone, mango cut and slices.

*On the basis of Rabo India Finance (2000). "Gujarat Agrovision 2010" report.

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Marketing Strategies of Rice in Chhattisgarh—A Case Study

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Introduction

Agriculture in Durg district of Chhattisgarh is dominated by rice cultivation. The marketing of rice in Durg district is not properly organised. This district occupies 12 percent of the total rice area in the state and contributes 14 percent to state output during 1999-2000. Rice is grown in the district as principal crop under rainfed condition during Kharif. However, very little attention has been given to its marketing aspect. There are greater variations of production cost and marketing system existing in different district of Chhattisgarh.

It is therefore, felt necessary to analyse the present marketing strategies of rice and to estimate the producers' share in consumers rupee, marketing cost, margin of intermediary marketing efficiency and price spread etc., in different marketing channels of Durg. This study was taken up to help farmers to identify the deficiency in management of marketing systems and to improve their profit margin.

Methodology

The methodology adopted in this study was a two-step stratified random sampling technique. The study was conducted in three blocks of Durg district, having maximum area under paddy cultivation. The villages were considered as primary units whereas households as secondary units. In the first stage 3 villages namely Malud, Pasood and Pendri were selected at random and in second stage a complete direct enumeration of the holding in each sample village was made. The operational holdings are thus stratified into 3 (three) size groups as small (up to 2 ha.), medium (2-4 ha.), and large (above 4 ha.) farmers, from each size group 10 (ten) samples were drawn at random.

Thus 90 (10×3×3) farm families from three villages have been taken into account. Primary data from rice growers, traders, village merchants, wholesale merchants, professional shops and consumers were collected by a specially designed pretested questionnaire through personal interview method. The tabulation and percentage analysis were made to find out marketing cost, return and pricespread. The marketing efficiency was estimated by using shepherd's formula

$$ME = \frac{V}{I} - 1$$

Where, ME = Index of marketing efficiency

V = value of goods sold (consumer price)

I = Total marketing cost

Results and Discussion

During peak period the marketing cost and margins were worked out for rice in Durg market. The marketing margin and price spread very much depends upon the channels through which rice passes on its way to the end users.

Rice Marketing Pattern

In Durg market, mostly the producers bring their produce to the yards of the commission agent, where the auction takes place and purchasers who make the highest bid, purchase the produce. The important marketing channels of rice have been established as follow :

Channel-I, Producer to consumer

Channel-II, producer to retailer to consumer

Channel-III, Producer to trader to retailer to consumer.

Marketing Cost and Margin

The relevant data relating to marketing cost and margin are presented in Table 1. It is noted that the expenses incurred by the producer in channels I and II were 9.43 percent of the price paid by the consumer, In channel II and Channel III expenses incurred and margin taken by the retailer were 3.23 percent and 5.34 percent respectively of the price paid by the consumer. The total marketing cost were Rs. 30 Rs. 67.12 and 67.68 per quintal of rice sold through channels I, II and III respectively. The marketing cost thus varies according to the length of the distribution channel. The marketing cost of rice in channel III is Rs. 0.56 more than that of channel II. Similarly, the marketing cost of rice in channel II is Rs. 17.12 more than that of channels I. In Channel-II and III total margin of intermediaries were 5.34 percent and 11.19 percent of consumer's rupee respectively as shown in table 2.

Price Spread

It is revealed from table 1 that the price paid by consumer per quintal of rice in Durg market are same (Rs. 530.00) irrespective of marketing channel, but variation occurs only

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in price received by the farmers in different channel because of its lower or higher marketing cost and margin. The producer's share expressed.

As consumer's rupee in case of channel III was only Rs. 403 per quintal of rice (76.04%) which is 16.04 percent and 7.27 percent less than that of in channels I and II respectively. Similarly in channel II share of farmer expressed in end users rupee was Rs. 434.60 per quintal of rice (82%) which is 9.46 percent less than in channel I. Hence the share of producer in consumer's rupee was inversely proportional to the length of the distribution channel.

Marketing Efficiency

Analysis of indices of marketing efficiency in the selected three channels were indicated in table 3 that index of marketing efficiency is highest for channel I followed by channels II and III, the corresponding values 16.67, 6.90 and 6.82 respectively. This shows to what extent the marketing agencies are able to move the goods from producer to consumer at the minimum cost extending maximum service. It is clear that efficiency of channel I, having no intermediaries was highest than all other channels.

Conclusion

The study shows that there is a tendency on the part of the farmers to sell their produce to retailer (in channel II) though they are aware that their share in consumers rupee is high in channel I (producer to consumer). Effort should, therefore, be made by government to provide physical facilities in and around market including storage, transport processing, market intelligence facilities etc to facilitate efficient marketing of rice and hinder the intermediaries in taking advantages from the situation. A support price policy is helpful to farmers having marketable surplus and therefore it would produce same kind of protection to marginal & small categories of farmers.

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Table 1
Marketing Costs and Margins

Sl. No.	Particulars	Channel-I	Channel-II	Channel-III
1.	(a) Net price received by the producer	480.00 (90.57)	434.60 (82.00)	403.00 (76.04)
	(b) Expenses incurred by the producer	50.00 (9.43)	50.00 (9.43)	—
	(i) Transportation	5.83	5.83	—
	(ii) Market charges	4.17	4.17	—
	(iii) Labour charges	2.00	2.00	—
	(iv) Pressing cost	31.00	31.00	—
	(v) Other charges	7.00	7.00	—
2.	(a) Sale price of the producer purchase price of the wholesaler/trader/retailer	—	481.97	359.75
	(b) Expenses incurred by the wholesaler/trader	—	—	50.56 (9.54)
	(1) Transportation	—	—	5.73
	(2) Market charges	—	—	4.20
	(3) Labour charges	—	—	2.10
	(4) Processing cost	—	—	32.00
	(5) Other charges	—	—	6.53
	(c) Margin of the Trader/wholesaler	—	—	31.00 (5.85)
3.	(a) Sale price of the wholesaler/trader purchase price of the retailer/consumer	—	481.97	481.97
	(b) Expenses incurred by the retailer	—	17.12 (3.23)	17.12 (3.23)
	(i) Weighing charges	—	0.81	0.81
	(ii) Labour charge	—	1.72	1.72
	(iii) Market charges	—	4.07	4.07
	(iv) Taxes	—	4.88	4.88
	(v) Gunny bag cost	—	4.00	4.00
	(vi) Other charges	—	1.62	1.62
	(c) Margin of the retailer	—	28.30 (5.34)	28.30 (5.34)
4.	Price paid by the consumer	530 (100.00)	530 (100.00)	530 (100.00)

Figures in parentheses indicate percentages.

Table 2
Marketing Margins

Particulars	Channel I	Channel II	Channel II
Margin of trader/wholesaler	—	—	31.00 (5.85)
Margin of retailer	—	28.30 (5.34)	28.30 (5.34)
Marketing margin of intermediaries	—	28.30 (5.34)	59.30 (11.19)

Figures in parentheses indicate percentages.

Table 3
Indices of marketing efficiency in the selected three channels

Particulars	Channel I	Channel II	Channel III
Value of goods sold			
Consumer price (V)	530	530	530
Marketing Cost (I)	30	67.12	67.68
Index of marketing	16.67	6.90	6.82
efficiency = $\frac{V}{I} - 1$			

Home News

कम्पनी समाचार

(i) मंडी अधिनियम की विसंगतियों पर विचार के लिए समिति बनेगी

भोपाल. मुख्यमंत्री दिग्विजय सिंह को व्यापारियों और औद्योगिक संघों द्वारा समय-समय पर दिये गये ज्ञपनों में उठाये गये विभिन्न मुद्दों के संबंध में सुझाव देने के लिये गठित मंत्रिपरिषद की उप समिति की बैठक विधानसभा में सम्पन्न हुई।

बैठक में बताया गया कि मंडी अधिनियम की विसंगतियों को दूर करने और विश्व व्यापार जगत में हुए परिवर्तनों को ध्यान में रखते हुए मंडी अधिनियम में संशोधन के लिये शासन द्वारा एक समिति का गठन किया जा रहा है। इसमें व्यापारी प्रतिनिधि को भी शामिल किया जायेगा। बैठक में कृषि मंत्री महेन्द्र सिंह, वित्त मंत्री अजय नारायण मुशरान, वाणिज्यिक कर मंत्री नरेन्द्र नाहटा, खाद्य राज्य मंत्री सत्येन्द्र पाठक उपस्थित थे।

बैठक में खाद्य विभाग की ओर से बताया गया कि चावल की नयी लेवी नीति के लिये प्रस्ताव भारत शासन की अनुमति के लिये भेजा गया है। चावल पर सम्पूर्ण कस्टम मिलिंग दर 39 रुपये किये जाने के संबंध में आदेश जारी हो चुके हैं। फार्म 13 की सुविधा का वास्तविक उपयोग करने वाले कैरोसिन डीलरों को कमीशन देने के आदेश भी जारी हो चुके हैं। एल.पी.जी. का मूल्य प्रदर्शन तथा मूल्य नियंत्रण आदेश 1977 को समाप्त करने संबंधी प्रस्ताव भारत सरकार को भेजा गया है।

मंडी बोर्ड की ओर से बताया गया कि मंडी समिति इंदौर के व्यापारी प्रतिनिधि एवं व्यापारी संघों के प्रतिनिधियों के सुझाव पर मंडी समिति ने लक्ष्मी बाई नगर और संयोगितागंज मंडी प्रांगणों में नियमित साफ-सफाई का कार्य

संबंधित व्यापारी संघों को देने का निर्णय लिया है। मंडी प्रांगण में सुरक्षा के लिये एक सुरक्षा अधिकारी और नौ सुरक्षाकर्मियों की नियुक्ति की गई है। सोयाबीन का मंडी टैक्स अंतिम बिन्दु पर करने के संबंध में बैठक में कहा गया कि इस संबंध में निर्णय लेने के पहले निर्वाचित मंडी समितियों से सुझाव लेना ठीक रहेगा। मंडी लाइसेंस आजीवन करने के संबंध में बताया गया कि इस प्रावधान से मध्यप्रदेश में खरीद करने के संबंध में मंडी अधिनियम में संशोधन का प्रस्ताव शासन के पास विचाराधीन है। मंडी अधिनियम की धारा 19 (6) से बिनौला शब्द हटाये जाने के संबंध में बताया गया कि कृषि उपजों की अनुसूची में तिलहन में 10वें क्रमांक पर उल्लेखित शब्द बिनौला को विलोपित कर दिया गया है। अतः बिनौला मंडी अधिनियम के नियंत्रण से मुक्त हो चुका है। बैठक में आलू, प्याज, फल और सब्जी के व्यापारियों के संबंध में भी चर्चा की गयी।

वाणिज्यिक कर विभाग द्वारा बताया गया अनाज दलहन पर कर ढांचे के संबंध में राज्य शासन द्वारा विचार के बाद पुनर्विक्रम्य अथवा विनिर्माण के उपयोग के लिये दोनों दशाओं में एक प्रतिशत की दर से निर्धारित की गयी है। इसके अलावा प्रदेश के बाहर से आयात से भिन्न रीति में किसी स्थानीय क्षेत्र में अनाज तथा दलहन के प्रवेश पर प्रवेश कर से पूर्ण मुक्ति प्रदान की गयी है।

बैठक में वाणिज्यिक कर विभाग की प्रमुख सचिव सुषमा नाथ, उद्योग विभाग के प्रमुख सचिव के. शंकरनारायण, खाद्य विभाग के प्रमुख सचिव आर.एस. सिरोही, कृषि सचिव ओ.पी. रावत और मंडी बोर्ड के प्रबंध संचालक के.के. सिंह व अन्य वरिष्ठ अधिकारी उपस्थित थे।

स्त्रोत :- कृषक जगत, दिनांक 2-8 दिसम्बर, 2002, राष्ट्रीय कृषि अखबार, भोपाल। (म. प्र.)

‘एगमार्क’ शुद्धता की पहचान है

(ii) Import of 300 Sensitive Items—Data for April-October 2002

The total import of 300 sensitive tariff lines for the period April-October 2002 has been Rs. 7805 crore against Rs. 6671 crore for the corresponding period of last year thereby showing a growth of 17%. However, this growth is almost entirely due to significant increase in the import of crude palm oil, but for which import of all other sensitive items together show negative growth.

Imports of cotton & silk, alcoholic beverages and poultry have shown a decline at broad group level during the period. Imports of edible oil, fruits & vegetables, automobiles, milk & milk products, SSI products and foodgrains have shown increase during the period under reference.

In the edible oil segment, the imports have increased from Rs. 4016 crore last year to Rs. 4907 crore for the corresponding period this year. However, significant feature of edible oil import is that while import of crude palm oil has gone up, that of refined palm oil has come down leading to better utilisation of the processing capacity in the country. Import of Sunflower oil both crude & refined, has gone down.

Imports from Indonesia, Malaysia, Guinea Bisu, Ivory coast, Czech Republic & Brazil etc. have shown some increase while those from Argentina, Australia, Paraguay, Thailand, Benin & Iran etc. have shown some decrease.

Import of Sensitive Items-Provisional Estimate

Sl. No.	Commodity Group	No. of Tariff lines	Value (Rs. Crore)	
			Import	
			April-Oct. 01	April-Oct. 02
1.	Milk & Milk Products	22	8.82	26.70
2.	Fruits & Vegetables	48	493.70	936.77
3.	Poultry	13	0.25	0.03
4.	Foodgrains	12	2.72	3.12
5.	Edible Oil	27	4015.74	4900.69
6.	Alcoholic beverages	8	18.69	15.05
7.	Cotton & Silk	6	1745.35	1259.21
8.	Automobiles	32	39.35	200.49
9.	Products of concern to SSI (toys, writing instruments, tiles, glassware etc.)	20	63.80	78.65
10.	Others	112	282.14	384.61
Total		300	6670.55	7805.31

Directorate General of Foreign Trade, Ministry of Commerce and Industry, New Delhi, dated 26th December, 2002

(iii) High Quality Draft Sequence of rice Genome Declared Completed

A high quality draft sequence of rice genome by the International Rice Genome Sequencing project (IRGSP) has

been declared completed. This was announced by the Japanese Prime Minister Mr. Junichiro Koizumi in Tokyo at the just concluded ceremony organised to commemorate the event of decoding of the rice genome. He hailed it as a great achievement in international cooperation in plant science research and epoch making feat comparable to the completion of the first draft of the human genome two years ago.

In a message to the ceremony, the Prime Minister Shri Atal Bihari Vajpayee said it is a matter of great pride for India that its scientists have contributed to this international effort. He complimented in particular the Department of Biotechnology which in association with the Indian Council of Agricultural Research, Jointly launched the Indian initiative at the Indian Agricultural Research Institute and the University of Delhi, South Campus. Also congratulating scientists from ten participating nations, Shri Vajpayee expressed the confidence that 'publicly available rice genome sequence will be used by crop scientists to pursue their goal in basic science and agriculture.

India has the largest area in the world under rice cultivation totalling 28 percent of its arable land. The Indian scientists completed the international obligation as member of the IRGSP in a record time of two and half years, contributing 15 million bases of sequence for Chromosome 11. the rice genome sequence harboring 62,435 genes would serve as global heritage and golden standard for gene discovery and precision breeding for crop improvement. This sequencing will also help in uncovering useful genes from wheat, maize and millets etc., close relatives of rice.

A working group meeting was also held as part of the ceremony to plan future strategies for genome completion and annotation. As parallel future strategy, the Department of Biotechnology has evolved a functional genomics effort, on inter-institutional basis, covering all scientists and agencies. These endeavours have heralded a new era in plant molecular biology research, for crop improvement, the Department of biotechnology says.

(iv) Export Promotion Council for EOUs Finally Set Up

With the issuance of Certificate of Registration by the Registrar of Societies, the Export Promotion Council for Export Oriented Units (EOUs) has been finally set up and come into force. Shri R. Veeramani, Chairman, EPC for EOUs and Shri Sharad Jaipuria, Vice-Chairman, EPC for EOUs on behalf of all EOUs and units in SEZs have welcomed the formation of EPC for EOUs as their long felt need of the EOUs for a separate Export Promotion Council has finally been fulfilled and the Council has started functioning with immediate effect.

Shri Veeramani said the EPC for EOUs would specifically cater to the needs of EOU/SEZ Sector which has over 2300 operational EOUs/SEZ units spreading all over the country

Source :-Press Information bureau, Govt. of India New Delhi, dated 26.12.02.

providing direct employment to over 7 lakhs people and has a credible achievement of 13% share in the national exports. The export earnings of this sector in 2001-02 was Rs. 28,000 crores registering a growth of 14.66% over the previous year and compares very favourably with the national export growth of only 2.1% in the same period. The EOUs/SEZ units cover major industrial sectors, like textiles, garments & yarn; food & agro products, electronics & software, chemicals, engineering, minerals, granites etc. The Council with the help of this sector and export of high value added and manufactured products will do its every effort to bring name and fame to the country. Shri Veeramani added that the EOU sector has shown a double-digit continuous growth much more than that of the national exports. This sector has proved its uniqueness and the future direction of this country in exporting manufacturing goods through value addition using state-of-the-art technology.

The Council with the support of EOUs/SEZ Sector has an ambitious road map to achieve and contribute 25% of the national export through manufacturing exports by the year 2007. In the next couple of years this sector is looking for

achieving 10 billion US dollars exports. Shri Veeramani said that this sector fully deserved an EPC because of its performance, vast membership, regional and sectoral spread and employment provided. We are happy that after two decades of operation of the EOU Scheme, finally the EPC for EOUs has started functioning.

The Council has plans to organise Seminars on issues pertaining to EOUs in different states. To start with, the council plans to organise such Seminars at Hyderabad, Jaipur and Delhi. Shri Veeramani has thanked the Union Commerce & Industry Minister, Shri Arun Shourie, Minister of State for Commerce & Industry, Shri Rajiv Pratap Rudy; Commerce Secretary, Shri Dipak Chatterjee; and the Director General of Foreign Trade (DGFT), Shri Lalit Mansingh and other senior officials of the Ministry of Commerce for all the help and cooperation in the formation of the Council. Shri Veeramani also assured the EOUs and SEZs that this Council will take care of all their problems with total dedication in a time bound manner.

Source : Press Information Bureau, Govt. of India, New Delhi, Dated 22-1-2003.

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