

Scope of Market-Led Extension Management in Horticulture

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ABSTRACT

The aim of the most of the farmers should be to earn much more profit as possible. Due to globalization of the market, farmers need to transform themselves from more producer-sellers to producers cum sellers. India is at the brink of a Golden Revolution in horticulture. Considering the existing market structure & marketing Infrastructure there is the greatest importance of marketing intelligence, Analysis of market demand, linkages and adoption of Scope of Market-Led Extension Management in Horticulture (SMLEMH) etc. There is wide awareness gap and adoption gap among the farmers and consumers regarding the marketing, value added techniques & processing. They are faced major problems in terms of credit, technical know-how at the market yard premises, grading & packing, Transportation, Malpractices, unremunerative prices during peak season, which can be overcome by the Scope of Market-Led Extension Management in Horticulture (SMLEMH).

Keywords : Marketed - Extension, Management, Horticulture

INTRODUCTION

Agriculture is a very ancient, worth – while and important occupation for the economic development as well as employment generation in India. Sixty per cent people are engaged in the field of agriculture in our country. However, it contributes only 25 to 26 per cent share in national production. It indicates that India farming is very inefficacious, (Mehta, 2002).

A farmer who is a good manager should be able to make as much profit from farming as from any other business. The aim of most of the farmers should be to earn profits. Crops should be grown only to earn profit, and therefore, farming as a business means farming for profit, not just some profit but as much profit as possible. Therefore, now a days, it is considered as professional industry and enterprise, (Mehta, 2002).

Secondly, with globalization of the market, farmers need to transform themselves from mere producers-sellers in the domestic market to producers cum sellers in a wide market sense to best realize the returns on their investments, risks and efforts. In order to achieve this, farmers need to know the answer to questions, What to produce?, Where to sale?, When to produce?, With what price to sale? And How

much to produce? In what form to sale? (Solanki *et al.*, 2006)
When to sale?

Importance of Horticulture

Horticulture is gaining popularity day-by-day in the Indian economy, contributing substantially to its growth. Horticulture sector covering only 8% of the total crop area in the country, contributes 24.5% to the GDP, and 54.55% to export earnings in the agricultural sector. Horticulture has become an integral part of food and nutritional security and an essential ingredient of economic security. It has emerged as an indispensable part of agriculture, offering a wide range of choices to farmers for crop diversification. Adoption of horticulture by small and marginal farmers has brought prosperity in many regions of the country, (Chadha, 2002).

There is a growing awareness about the advantages of the horticultural crop production, and this is bound to go up with the increase in socio-economic status of the people. Its role in the country's nutritional security, poverty alleviation and employment generation is becoming increasingly important. India, today, is the second largest producer of fruits and vegetable in the world, contributing 10 and 13.38% of the total world production of fruits and vegetables respectively. The availability of flowers has increased significantly in all

the cities, as indicated by the growing number of florists and sizeable export of cut-and-dried flowers. India is a treasure house of medicinal and aromatic plants. It is the largest producer, consumer and exporter of spices products in the world. It ranks first in the total production of coconut and areca-nut, and it the largest producer, processor, consumer and exporter of cashew-nut in the world. There have been gluts in the production of several important crops. Thus, India is at the brink of a Golden Revolution in Horticulture, (Chadha, 2002).

Vegetable cultivation is a major occupation of the 70 per cent of Indian population dependent on agriculture. Although India rank 2nd (next to china) in vegetables cultivation, but the per capita consumption of vegetables is only 46 gm/day against 362 gm in Japan and 269 gm in USA. This means there is a great necessity of growing vegetables in India for both the use as fresh and processed products along with highest employment opportunities in this sector, (Anonymous, 2011).

However, India's share in world exports of fruits and vegetables production is not even one per cent. Further, only less than one per cent fruits and vegetables are commercially processed in the country. This is despite the fact that India has developed technology to process all types of fruits and vegetables. The prominent processed items are fruit pulps and juices, fruits based ready-to-serve beverages, canned fruits vegetable, jams, squashes, pickles, chutneys and dehydrated vegetables. The main items of export from our country are mango pulp concentrates, other fruit pulps, chutneys, dehydrated vegetables and canned fruits, vegetables and pickles, (Saxena, 1996).

Spices are a broad term used to describe herbal by-products that add flavor and aesthetic, aromatic and therapeutic treatments to food, drink and other items. Taken from the seeds leaf, flower, roots, bark or nuts of a plant, spices are usually dried and ground to be mixed with other ingredients. Spices appeal to the five senses and influence cultures and societies through trade and daily use.

Indian vegetable export: present status and future strategies

Vegetable seeds are demanded in USA, Japan, Italy, Pakistan and Netherlands; dried and preserved vegetables in Egypt, Sri Lanka, UAE, USA and Turkey, and other processed vegetable in the Netherlands, Indonesia, UK, USA, and UAE. India has also been exporting canned and dehydrated vegetables and other products like pasts, frozen vegetables,

ketchup, pickles, juices and powdered vegetables (onion and garlic) mainly to West Asian markets. These markets are receiving only 4.5% of their fresh vegetables from India; so a tremendous potential exists in increasing export to these markets. The dehydrated vegetables, beans, onion, and garlic are important and among frozen vegetables prospects for peas, cauliflower, French bean, baby carrot and okra are major items. Chilli oleoresin is another important export item to earn foreign exchange. India has started exporting snow peas to markets in UK, UAE, Denmark, France, Germany and Holland. Onion accounts for more than 70% of the total foreign exchange earned from fresh vegetables. Besides, okra, peas, bitter gourd, green chilli, muskmelon, bottle gourd, sweet pepper, brinjal and colocassia are also exported, (Sirohi, 2003).

Objectives of Market – Led Extension

Market – led agricultural extension aims at improving the efficiency of the farmers in an effort not only to rapidly increase the rate of agricultural production but to improve the qualities of agricultural production to compete in the market.

A study of consumer behavior is helpful in understanding the purchase behavior and preferences of different market segments. Consumers differ in terms of age, education, occupation, income, family set-up, religion, nationality and social status.

The starting point for the decision process is provided by the marketing stimuli in the shape of product, promotion, price and distribution strategy. The marketing stimuli are received by the potential consumer along with the other stimuli already existing in the environment. These stimuli may be social, economic, cultural and/or technological in nature. At the point of receiving the marketing stimuli, the consumer already had a certain mental, emotional and psychological frame of mind, developed over the years by his cultural, religious, social, family and psychological background. However, most of these factors exert their influence at the subconscious level so that the consumer is not really aware of their existence or working.

When a stimulus is received, the consumer goes through an elaborate process of decision making in terms of receiving, retaining, interpreting the stimuli according to his own framework. Depending on the nature of product being purchased, this process may work at the sub-conscious level or it may be overt. The time taken to make the decision may vary from a few seconds to a few days or months. The

buyer characteristics and buying decision making process on conjunction with marketing stimuli lead to a decision to either buy the product or not to buy.

Table 1: Specific quality standards of cut flowers for export

Crop	Quality standard
Rose	Free from bull heads, bent neck and petal discoloration
Carnation	No calyx splitting or mended splits
Gladiolus	No geotropic bending, uniformly spaced florets facing in one direction
Chrysanthemum	Stems without bending or crooked stems
Gerbera	No bent neck, free from inflorescence disorders
Orchid	Intact pollinia, un-pollinated flowers, must have well developed labellum
Anthurium	Spadix never longer than the spathe, symmetrical heart-shaped spathe
Tulip	Free from flower blasting, white tip perianth, green perianth and abnormal anther

The steady growth of Indian exports from ₹ 25 crores in 1994 to ₹ 150 crores in 2002, stands as a testimony to the fact that the floricultural produce from India has already made a mark in the global floriculture business meeting the stringent quality standards. In a highly fashion-driven technology like floriculture, the preferences and standards do change from time-to-time. The Indian floriculture industry therefore must strive to maintain the exiting standards and

Table 3: Vegetable varieties/hybrids suitable for processing

Crop	varieties/hybrids	Important processed products
Tomato	PusaGaurav, PusaUpkar, Roma, Punjab Chhuara, ArkaSaurav, Pusa Hybrid- 2, Pusa Hybrid -4,	Sauce, Ketch up, chutney etc.
Carrot	Pusakesar, PusaMeghali	Shreds,halwa
Onion	Pusa Red, Pusa White Round, Pusa White Flat	Flakes, powder
Bitter gourd	PusaVishesh, Pusa hybrid -1	Pickles
Pumpkin	PusaVikas, Pusa Hybrid 1	Sauce
Ash gourd	Pusa Shakti, CO -1	<i>Petha sweet</i>
Vegetable amaranth	PusaLalChaulai	Soup
Garden pea	PusaPragati, Arkel	Canned, Freezing
Chilli	PusaSadabahar, Punjab Lal, Pant C 1	Sauce
Cauliflower	Pusa Snowball KT-1, Pusa Snowball KT -25	Pinkles, dehydrated products
Fenugreek	Pusakasuri	Dehydrated leaves, powder
French bean	PusaParvati, Contender	Canned
Potao	KufriChipsona 1, KufriChipsona-2	Chips and French fry

meet the future requirements. To meet stringent quality control regimes of global trade cut flower should meet the international standards practiced across the world. According to the International Trade center, UNCTAD/ GATT, (General Agreement on Trade and Terrif) the prescribed quality standards for cut flower.

Table 2: Value-added fruit and vegetable products and countries for export

Product	Countries
Dried and preserved vegetables	Sri Lanka, USA, UAE, Germany, France, Netherlands
Mango pulp	UAE, Saudi Arab, Kuwait, Netherlands, UK, USA
Pickle and chutney	UK, USA, UAE, Germany, Canada, Netherlands, Saudi Arab
Other processed fruits and vegetables	USA, Netherlands, UK, UAE, Indonesia, Philippines

Based on exotic Indian raw materials, fruit salads, fruit bars, fruit-based cereals and baby foods are gaining in consumers' preference. The pre-prepared meals based on Indian vegetables for large Asian ethnic population settled in developed countries are a very big opportunity for export of these products.

Though the share of vegetable production in Indian Horticulture is 60.5% but hardly 1% of the produce is exprted. Though uniformity in size and colour are universally accepted attributes, there are several other specific quality requirements for world market.

Analysis of market demand

Table 4: Per household per month consumption of processed horticultural products in kg

n=100

Product	Business class	Regular service class	Temporary service class	Farming class	Non-farming	Overall Average	Rank
Jam	0.65 (75)	0.435 (80)	0.28 (10)	0.335 (60)	nil	0.474 (45)	IV
Pickle	0.483 (100)	0.651 (100)	0.175 (55)	0.704 (90)	0.154 (40)	0.433 (77)	II
Vegetable sauce	0.35 (70)	0.411 (65)	0.286 (25)	0.287 (30)	nil	0.329 (38)	V
Murabba	-	-	-	-	-	0.446 (17)	-
Fruit Squash	1.184 (65.00)	1.527 (55.00)	0.84 (25.00)	0.962 (20.00)	nil	1.128 (33.00)	-
Turmeric	0.201 (100)	0.207 (100)	0.291 (100)	0.276 (100)	0.193 (100)	0.233 (100)	I
Coriander powder	0.174 (100)	0.207 (100)	0.240 (100)	0.318 (100)	0.221 (100)	0.232 (100)	I
Red chilli powder	0.181 (100)	0.148 (100)	0.131 (100)	0.198 (100)	0.214 (100)	0.174 (100)	I
Garam masala	0.053 (65)	0.06 (70)	0.055 (50)	0.159 (65)	0.075 (60)	0.13 (62)	III
Meat masala	0.166 (30)	0.173 (30)	0.055 (15)	0.159 (25)	0.075 (10)	0.113 (22)	-
Chhola masala	-	-	-	-	-	0.055 (5)	-
Chat masala	-	-	-	-	-	0.031 (9)	-
Samber masala	-	-	-	-	-	0.031 (9)	-
Jeeraship/jaljeera	-	-	-	-	-	0.163 (11)	-

(Note: Figures in parentheses denote the percentages of respondents consuming that particular product.)

There are various processed horticultural products available in the market these are mainly fruits, vegetables and spices based. The processed horticultural products included in the study were Jam, Pickle, Vegetable sauce, fruits squash, murabba, Turmeric, Red chili powder, coriander powder, gram masala, meat masala, chhola masala, chat masala, samber masala and jeerasip/jalzeera. The data presented in table 10 indicate that Turmeric, coriander powder, Red chili powder are used cent per cent in per household per monthly consumption of processed horticultural products and ranked

fruit in all classes Pickle was found 100 per cent consumption in Business and Regular services class followed by Farming class (90 per cent) and overall ranked second in per household per monthly composition of processed horticultural products. The Garam masala, Jam and vegetable sauce were found third fourth and fifth rank in overall average monthly consumption of processed horticultural products, respectively. Jam, murabbe, fruits squash, sauce etc., are not consumed by non farming rural class. Chat masala, samber masala, chhola masala and jeerasip are purchased by very few samples

respondents.

Table 5: Buying behavior pattern of sample consumer-buyers for processed horticultural products

Product	Most preferred brand	Three major-factors influencing buying decisions	Buying decision dominated by	Type of packing preferred most
Jam	Kissan	Price, taste, and availability	Husband and Husband wife	Glass bottle
Pickle	Indana	Price, taste, and availability	Husband and Husband wife	Glass bottle
Sauce	Maggi	Taste/flavour, quality & price	Husband	Glass bottle
Murabba	Local	Price, taste and quality	Husband wife	Plastic jar
Squash	Kissan	Taste, quality, & fragrance	Husband	Glass bottle
Turmeric	Goldi	Price, quality, and packing	Husband	Hard paper
Coriander powder	Local	Price, availability and quality	Husband	Polythene packing
Red chilli powder	Local	Price, availability	Husband	Polythene packing
Garam masala	Local	Price, availability and quality	Husband	Hard paper Packing
Meat	Goldi	Price, availability and quality	Husband	Hard paper Packing
Chhola masala	M.D.H.	Taste, quality and availability	Husband and Husband wife	Hard paper Packing
Chat masala	Goldi	Taste/flavour, quality & price	Husband	Hard paper Packing
Samber masala	Goldi	Price, taste, and availability	Husband and Husband wife	Hard paper Packing
Jeerasip/jaljeera	M.D.H.	Taste/flavour, availability and quality	Husband wife Husband wife-children	Hard paper Packing

The information presented in the table indicate that, on an average, price, taste, quality and availability were found major factors influencing purchase decision of processed horticultural products. In case of spices either 'Goldi' or 'Local brand' was preferred most by the consumer-buyer. Kisan was the most preferred brand in case of jam and squash. For all the processed horticultural products selected in the study buying decision was dominated either by husband or husband-wife both. Glass bottle was preferred most for jam, pickle, sauce and squash, where as plastic jar was preferred most for murrabla. Except coriander powder and red chilli powder, hard paper package was preferred by most of the respondents for all the processed spices.

Table 6: Quantity of vegetable exports ('000 tonnes) during different years*

	1993-94	2001-02
Seeds (fruits and vegetables)	9138.87	6188.68
Fresh onions	357132.25	441749.6
Other fresh vegetables	33366.58	17090
Total fresh vegetables	390498.83	611939.6
Dried and preserved vegetables	53512.27	209157.78
Other processed fruits and vegetables	27683.97	61332.36
Total	871332.77	1500558.02

The data presented in table 6 reveal that owing to tremendous increase in production and productivity

in vegetables, the quantity of total vegetables exports is increased two times more during 1994 to 2002. The total fresh vegetables, dried and preserved vegetables and other processed fruits and vegetables are exports more & more during different years.

Table 7: Country wise important vegetables for export

Bangladesh	Radish, pea, green chilli, capsicum, tomato, onion, garlic, cauliflower and mixed vegetable
Saudi Arabia	Tomato, pea, beans, green chilli, mixed vegetable, <i>sitafal</i> and other vegetables
Sri Lanka	Tomato, onion, egg plant, root vegetable, fresh vegetables, cucumber, gherkin and green chilli
UAE	Cabbage, tomato, beans, onion, pumpkin, pea, green chilli, other vegetable and kale
Malaysia	Tomato, onion, garlic, green chilli, <i>sitafal</i> and kale
UK	Onion, garlic, radish, mixed vegetables, cucumber, gherkin and green chilli
Kuwait	Onion, cabbage, lettuce, pea, mixed vegetables, cucumber, gherkin and green chilli
Netherlands	Onion, radish, cucumber, gherkin, green chilli and other vegetables
USA	Onion, green chilli, cabbage, kale, cucumber, gherkin, beans and mixed vegetables
Australia	Onion, cucumber, gherkin, green chilli, peas and mixed vegetables
Germany	Onion, pea, mixed vegetables, green chilli, cucumber, gherkin and other leguminous vegetables
France	Pumpkin, onion, mixed vegetables, green chilli, cucumber and gherkin

India shares 13.60% of total world production of vegetables. It has emerged as one of the major vegetable-exporting countries. During 2000-01, ₹ 582.31 crores have been realized with export of fresh and processed vegetable. In India, APEDA has identified okra, bitter gourd, chilli, onion, potato, asparagus, celery, sweet pepper, sweet corn, baby corn, green peas, French bean, cucumber, gherkin and cherry tomato with good export potential. Cultivation of gherkin, baby corn, sweet corn, broccoli, Burssels spouts, zucchini, Chinese cabbage, red cabbage, asparagus, celery and parsley is on the rising trends, providing better returns. For export, the product should be true-to-type as per the declared variety, uniform in shape, size, colour and free from any chemical residues. Vegetables should be properly graded and packed in good packing boxes of desirable size. The requirement

of variety of vegetable and their quality for Europe, Japan, Australia, USA etc. is different to that of Gulf countries and South-East Asian countries.

Problems

Table 8: Main marketing problems faced by farmers in marketing of vegetables n=100

Sr. No.	Particulars	Small (%)	Large (%)	Overall (%)	
1	Grading and Packing				
	a) Grading is time consuming	42	37	40	
	b) Lack of standard grades	32	32	32	
2	c) No premium price for graded produce	82	79	60	
		Transportation			
		a) Lack of approach road	16	16	16
3	b) High charges of transportation	38	21	32	
		c) Non-availability of vehicular traffic and quick transportation	29	26	28
			48	32	42
4	d) Bus transportation not permitted	48	32	42	
		Market Information			
		a) Lack of reliable source	55	52	54
5	b) Inadequate and misleading information	26	16	22	
		c) No information.	00	00	00
			Malpractices		
6	a) Unnecessary deductions	32	63	44	
		b) Market fee is charged over and above the fixed rates.	39	47	42
			Miscellaneous Problems		
7	a) Low price and lack of storage	36	37	36	
		58	68	62	
		b) Lack of regulated markets	13	11	12
			45	58	50
		c) Lack of co-operative agents	32	42	36
			23	21	22
		d) Lack of forwarding facilities	26	16	22
e) Lack of sanitary condition in market					
	f) Monopoly of commission agents				

The vegetable growers are confronted with various marketing problems (Table 8). The opinion survey of the producer revealed that the most emerging problem regarding the marketing of vegetables relate to grading and standardization of produce, as reported by 60 per cent of the

farmers. They aware of the opinion that due to lack of well defined grading standards they were devoid of the possible higher prices for the graded produce/vegetables. The quick transportation of the produce up to the market/consuming place as this is highly needed in case of vegetables due to their perishability, was lacking in the producing area due to non-existence of any transportation agency. This opinion was confirmed by about 32 per cent of growers/farmers in which the proportion of small farmer was high due to their inability to manage for a vehicle collectively as done by the large farms. Majority of farmers received inadequate and misleading information regarding marketed prices due to inadequate communication facilities and poor access to the area. Lack of reliable source of market information was also reported by the farmers. The other problems reported by the majority of farmers in the marketing were unnecessary deduction of the produce in market and charging of market fee higher than the fixed rates. This was mainly due to lack of regulated market which left the farmers on the mercy of private middleman or traders. In this backdrop, the lack of regulated markets around the potential producing areas, storage facilities along with lack of sanitary conditions, and some degree of monopoly power exercised by the commission agents in the markets were also reported by the farmers.

Marketing Extension Envisages

- **Advise on product planning** - The careful selection of the crops and varieties to be grown with market ability in mind, is an important Starting point.
 - **Marketing information** : Current price and market arrival information and forecasting of market trends? The information should be area specific, crop specific, buyer specific etc.
 - There is a need that every agricultural market should have an extension cell equipped with internet and other audio-video facilities.
 - **Securing markets for farmers** : For grains to be sold to the government procurement agencies, extension workers can advise on how, when and at what price to sell the designated food grains. For cash crops, farmers need assistance in making contract marketing arrangements with processors, wholesale traders or other bulk buyers.
 - **Advise on alternate marketing**-Farmers can be advised to take benefit of warehousing with pledge finance schemes, entering into forward contracts or go in for futures trading.
- **Advise on improve marketing practices** : Farmers need education on improved harvesting methods, standardization and grading, improved packing for profitable marketing of the produce.
 - **Advise on establishing and operating markets** : to establish and operate markets to save themselves from exploitative elements.

Required information to extension system and farmers:

- The present agricultural scenario and land use pattern
- Suitability of land holding to various crops
- Crops in demand in near future
- Market prices for crops in demand
- The extent of demand
- Credit facilities
- Desired qualities for the products by consumers
- Market network for the local area and the price differences in various markets
- Network of storage and warehouse facilities available
- Transport facilities
- Regular updating of market intelligence
- Production technologies like improved varieties, organic farming, usage of bio-fertilizers and bio- pesticides, right methods of harvesting

Post-harvest management like processing, grading, standardization of produce, value addition, packaging, storage, certification, etc. With reference to food grains, fruits and vegetable, eggs, poultry, fish, etc

CONCLUSION

From above discussion, it can be concluded that, the aim of the most of the farmers should be to earn much more profit as possible. Due to globalization of the market, farmers need to transform themselves from more producer-sellers to producers cum sellers. India is at the brink of a **Golden Revolution** in horticulture. Considering the existing market structure & marketing Infrastructure there is the greatest importance of marketing intelligence, Analysis of market demand, linkages and adoption of Scope of Market-Led Extension Management in Horticulture (SMLEMH) etc. There is wide awareness gap and adoption gap among the farmers and consumers regarding the marketing, value added techniques & processing. They are faced major problems

in terms of credit, technical know-how at the market yard premises, grading & packing, Transportation, Malpractices, unremunerative prices during peak season, which can be overcome by the Scope of Market-Led Extension Management in Horticulture (SMLEMH).

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