

Performing supply chain in banana, black pepper, capsicum and seed spices : status, issues and scopes

A. B. SHARANGI¹ AND S. K. ACHARYA²

¹Department of Spices and Plantation, Crops, Faculty of Horticulture

²Department of Agril. Extension, Faculty of Agriculture
Bidhan Chandra Krishi Viswavidyala, 741252, Nadia, West Bengal, INDIA

ABSTRACT

India is uniquely characterized by becoming the lead producers of spices, vegetables and fruits, has an overt contradictions of having a poor status in disposing value-added produces to the global market. One of the reasons for this poor plight has already been identified as the dismal performances catered by what we call the 'supply chains'. The present paper focuses on the nature of supply chains, perception of value addition at the delivery system, efficiency maintained at different exit points and peoples participation specially at the post harvest processing component for adding standard values in relation with some selected orchard and plantation crops like banana and spices. For building up of a network among the crescent economies including Indonesia, Malaysia, Philippines, Thailand, Myanmar, India, Bangladesh, Nepal, Bhutan, Sri Lanka etc. The mutually intervened approaches are the need of the hour for combating the aggressive hegemony posed by the Northern economy in the domain of biological commodities.

Key Words : Growers' association, wholesaler, retailer, consumer, blackpepper, banana, capsicum, seed spices, supply chain, value addition

Supply chains are the lifelines for value-added, export promoting and livelihood generating agriculture. Countries like India have both the strengths and weaknesses for promoting value-added agriculture as well as horticulture (Welde, 2001). India is the highest producers of different horticultural high value crops. On the other, there is the intrinsic incompetency of translating the huge produce into value-added, transportable commodity. In few cases only the supply chains are organized, performing or facilitating. But in majority cases the same having too many shortages created by traders, with excessive prices dictated by traders, with too many points of sales and so on (Seck, 1989). With the perspective, the study envisages to look into the status, scope or constraints of having a performing supply chains in the context of changing global scenario. This would further provide an introspection where and how to go stronger, integrating with other countries of South East-Asia or elsewhere in the world in terms of promoting and fostering value-added crop enterprise for both having a secure return and a decent livelihood.

However, the present study envisages the following objectives:

- To study the supply chain status in terms of the trafficking of different horticultural produces in and around fiscal markets;
- To study the market segments and networking as operational in the marketing of horticultural produces;

- To examine critically the constraints and opportunities of different channels and marketing organs operating in Indian context;
- To derive some strategic implications for topping up of the market network and performance in the above-mentioned areas.

MATERIALS AND METHODS

Consultation of secondary sources of information, sharing experiences with the key stakeholders, collection of some digital information have primarily been the methodology followed here. However, the key features are given hereunder:

Method applied	Expected outcome
Reference consultation	Data base creation
Case studies	Citing success stories
Channel analysis	Modeling of supply chain
Objective analysis	Generation of classified data

RESULTS AND DISCUSSION

1. Status, Scope and Constraints of Banana (*Musa sp.*) in terms of Supply Chain Performance

Banana is the second largest fruit crop in the world, mostly produced in the tropical and subtropical regions of developing economies. It is recognized to be the 4th important food crop in terms of gross value exceeded by paddy, wheat and milk products (Valmayor, 1994). Total global production of banana is 88.24 million tonnes of which only

12.63 million tonnes are exported to the developed countries. The rest is consumed in domestic market. India is the largest producer of banana in the world with a production of 13.2 million tones, majority of which is utilized for internal consumption and only 0.1% is left for export.

1.1 Supply and marketing

The entire supply and marketing network is primarily governed by the private sector excepting in some states where state co-operatives handle it. Banana markets are specialized markets located in all big cities, in a regulated manner. Perishable

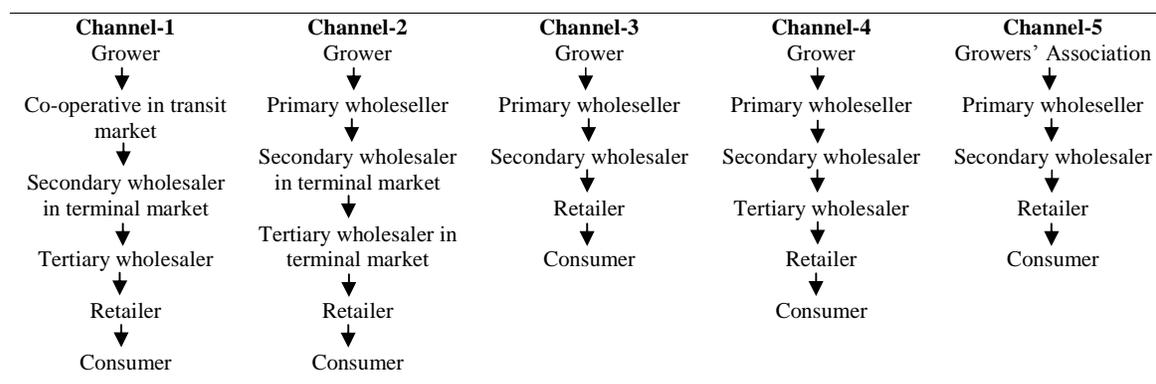
nature of banana forces the markets to be short-lived and fresh transactions are effected with everyday new arrivals. The bunches are transported to the nearest town by the growers. Sometimes, the bunches are sold by farmers to the pre-harvest contractors even before harvesting, who pay them 50% of the cost in advance. After harvest the bunches are transported to primary wholesale market by the growers or by the pre-harvest contractors. Secondary wholesale markets are the ones located at a distant place to receive the bunches from the major area of production.

Table 1 : Stages of marketing and mode of transportation

Sl No.	Stage of marketing	Transported by	Mode of transport
1.	From field to the village market or primary wholesale market(PWM)	Farmer or pre-harvest contractor	Head loads(8-10%),Bullock cart and hand cart(60-62%),Camel cart(2-3%),Tractors(20-25%),Cycle trollies(1-3%).
2.	From village market or PWM to secondary wholesale market(SWM)	Commission agents	Trucks (25%), Lorries (30%), Railway wagons (30%), Bullock and hand cart (15%).
3.	SWM to consumer	Retailer or consumer	Head loads, bicycle, hand carts, camel or bullock carts.

[Singh, 1996]

Table 2 : Major marketing channels in India



[Singh, 1996]

Processing

More than 20 value added products of banana are awaiting commercialization (Singh,1996). Important among them are Banana puree, Banana powder, Banana ketch up, Banana flour, Banana chips, dried banana fritter etc. Aseptically packed pulp has high demand for export. Banana puree has its application in dairy products, bakery, baby food etc. Banana flour is becoming popular day by day.

2. Status, Scope and Constraints of Spices (Black pepper, Capsicum and seed spices viz., coriander, cumin, fennel, fenugreek etc) in terms of Supply Chain Performance:

The problems of marketing in spices differ from other agricultural commodities in the country. The marketing surplus for those cash crops varies

from 82.8% from ginger to 99.0% for cardamom (small). Majority of the farmers engaged in the production of spices are small and marginal. Due to weak financial position, they prefer to dispose of their small marketable surplus commodity after harvest to the private commercial houses or in the nearby rural market. Because of long germination period, farmers find it difficult to invest money for the development of plantation.

There is a need to organize **growers' cooperative** to integrate the production, processing and marketing activity. Besides, the following aspects are also to be taken care of

- Transport and communication
- Regulation of production and supply
- Market intelligence

- Extension of voluntary and compulsory grading
- Production stabilization and ensuring competitive prices in export markets
- Role of central and state Cooperative organizations.
- Introduction and enforcement of APGMA (Agriculture Produce and Marketing Act)
- Soliciting cooperative and public institution
- Diversification of value added spice products
- Regular compilation of statistics
- Study of quality changes in spices during transport and storage.

2.1 Black pepper

It is known as the “king of spices” and is important in India as well as throughout the globe. During April 2007, Pepper exports amounted to 1,600 tonnes valued Rs 20.64 crore. (Anon, 2007) India and Indonesia are the largest producers of

Table 3 : Average production and export of black pepper during 3 decades country wise

Country	Seventies		Eighties		Nineties	
	Production (MT)	Export (in, 000 Rs)	Production (MT)	Export (in ,000 Rs)	Production (MT)	Export (in ,000 Rs)
Brazil	23,581 (20%)	20,290 (20%)	32,383 (21%)	31,211 (24%)	25,110 (12%)	23,051 (15%)
India	28,131 (24%)	22,852 (22%)	43,639 (28%)	30,166 (26%)	59,600 (30%)	33,065 (22%)
Indonesia	28,767 (24%)	25,105 (24%)	41,056 (26%)	36,619 (29%)	47,154 (23%)	40,061 (27%)
Malayasia	31,286 (26%)	31,286 (30%)	22,046 (14%)	21,425 (17%)	20,010 (10%)	20,620 (14%)
Sri Lanka	2,075 (2%)	588 (1%)	2,218 (1%)	1,805 (1%)	4,906 (2%)	3,888 (3%)
Thailand	-	-	7,789 (5%)	1,564 (1%)	8,431 (4%)	1,884 (1%)
Vietnam	-	-	5,256 (3%)	3,366 (3%)	21,323 (11%)	22,711 (15%)
Others	5,336 (4%)	3,304(3%)	3,566 (2%)	1,743 (1%)	14,728 (7%)	4,447 (3%)
World	1,19,176	1,03,425	1,57,953	1,27,900	2,01,262	1,49,727

Updating of Yong (1995)

black pepper together growing about half of the world's total production of about 180,000 t. Outside Asia, black pepper is produced commercially in Brazil, Madagascar, and the Federated States of Micronesia.

2.2 Capsicum : It is divided into 3 major categories

- Non-pungent paprika and bell peppers (genetically sweet or material with very low levels of capsaicin, less than 500 scoville unit.
- Slightly pungent chile peppers, 500 - 5000 scoville.
- Highly pungent red peppers or chillies, 5000 to over 1,00,000 scoville.

Since, most countries do not statistically isolate these various categories; it is difficult to address them specifically. There is almost no country in the temperate and tropical zone of the world that does not grow and consume dehydrated capsicum

peppers and probably no country in the world that does not consume some form of these spices.

2.2.1 World production, import and export of chilli :

As reported by FAO, the compound growth rate for the past 7 years has been 1.9%.

Recent world production-2,090,000MT

Recent world import-1,70,100 MT

Recent world export-1,70,100 MT

During April 2007, chillies export was 22,000 tonnes valued Rs 126.50 crore registering an increase of 231 per cent in quantity and 320 per cent in value. (Anon, 2007).

2.3 Seed spices scenario- An Indian perspective :

Though 17 seed spices are grown in India, most important among them are coriander, cumin, fenugreek and fennel.

Table 4 : Seed spices producing countries in the world

Sl. No.	Crop	Countries
1.	Cumin	India, Turkey, Iran, Egypt, Pakistan, Italy, Afghanistan, Syria, Germany
2.	Coriander	India, Morocco, Rumania, Bulgaria, Mexico, Italy, Argentina, China
3.	Fennel	India, Egypt, Hungary, China, Italy, Rome
4.	Fenugreek	India, Morocco, Bulgaria
5.	Dill Seed	India, Germany
6.	Celery	India, China

[Choudhari, 2000]

India has continued to be the largest seed spices producer and exporter in the world for its consistency and stability in supply. Seed spices are now considered as essential ingredients of almost all food items throughout the globe. The demand for value-added spice products is increasing. It includes seed-spice oils, oleoresins, curry powder, mixed seed powder etc. The share of value added spices export from India is very less, principally due to the lack of adequate processing facilities. There are two major constraints of trade in spices. One is infrastructural which includes poor transportation, storage and port facilities. The other is policy constraint which covers fiscal control.

2.4 Marketing

Spice growers/exporters need to spend more time in marketing than in production activities. There are many markets for seed spices, each with its own unique consumer requirements, marketing and distribution channels. Assessment of market and buyer's need can only be recognised by experience.

Table 5 : Market potential for organic spices

Country	Market size of conventional spices (t)	Market size of organic spices (t)[10% of conventional spices]
Europe	2,10,000	21,000
US	3,00,000	30,000
Japan	60,000	6,000
Total	5,70,000	57,000

[Boor, 2000]

- **High intermediation:** There is fragmentation of supply sources across farms, farmers and retail trade. High level and intensity of intermediations counts for 20-60% of the market price.
- **Lack of demand driven crop planning:** Had there been a well-focused, demand driven crop planning, there would have been a desired market and supply chain performances. A demand driven crop plan imbibes stakeholder's participation, precisioning of market channel, value addition, allocation of resource, area and types of produce, etc.
- **Multiple points of taxation:** Multiple points of taxation such as check posts and incidence of multiple taxes should be eliminated.
- **Lack of Agro-service centers:** Agro-service centers are the key organs performing at the grassroots echelon to organize production, value addition, marketing, networking and even motivating the stakeholders for a common goal. These are, in India, not in adequate number and capability.
- **Value addition--- The neglected area:** The concept of and commitment to value addition amongst the primary producers are very poor. They are producing the maximum and adding values the

Organic spice is another refinement in this context and has greater importance. The emergence of organic spices is mainly due to the continuous increase of demand for 'healthy food' during past two decades.

Assuming that within the next 10 years organics will have a market share of 10% in Europe, the US and Japan; the market potential for organic spices is as follows (Table 5) :

Supply chain mechanism : Characters and constraints

- **Low Consumption:** We have been very much fortunate to have a stable growth rate over the last several years. Though it may now be short of our earlier achieved growth rate of 7% and above, the country has been consistently showing attractive growth rates over the last few years. But as a sharp contrast, our consumption standards, has been one of the lowest in the global scenario.

minimum. This would lead to a situation of market indifference and disenchantment.

- **Interdependence –At a low key:** The processor and raw material supplier can hope to remain in business as long as it makes commercial sense, based on the scope for working out a win-win situation. Of course, there are issues of logistics and transportation, inventory management, information flows and most critically, the issues of benchmarking performance standard and best practices relevant to the given industry.

The entire discourses and the deliberation process, structured and methodical, has helped us to conclude that the horticultural markets in India are suffering from organized supply chain performance, weak market buoyancy, predominance of huge intermediaries and bleak attitudes on the part of the growers for value addition. With weak infrastructural arrangements and anaemic attitudes for value addition and absence of policy support looming shadow on the prospect of value-added horticulture, it is very difficult for Indian horticulture to cope up with the changing scenario of global markets and the demands simmering therein.

REFERENCES

- Anonymous, (2007). *Business Line*; Business Daily from The Hindu group of publications, Monday, Jun11, 2007 <http://www.blonnet.com/2007/06/11/stories/2007061100580500.htm>
- Boor, B., (2000). *Trade in Organic Spices*. Proc. World Spice Congress, 2000. p 48 - 54.
- Chomchalow, N. (1996) Unpublished paper presented at the IBC's Asia Spice Markets '96 Conference, Singapore, 27 - 28 May 1996.
- Choudhari, M., (2000). *Seed Spices*. Proc. World Spice Congress, 2000. p 55 - 61.
- Seck, P.A., (1989). L'approvisionnement de Dakar et la filiere des legumes frais au Senegal. These de doctorat en analyse et politique economique agricole. Universite de Bourgogne.
- Singh, H.P., (1996). Perspective of Banana Production Problem and Utilization in India, Proc. Of the Conf. on "Challenges for Banana Production and Utilization in 21st Century" Trichy, India on 34-25 September 1996, p 20 - 58.
- Singh, H.P. and Uma, S. (1996). Banana cultivation in India. Published by Directorate of Extension, Min. of Agril. And Coop., New Delhi, pp 102.
- Valmayor, R.V. (1994). Nematodes and wivel borer conference rationals. (In): Banana Nematodes and Weevil Borers in Asia and the Pasific (valmayor R.V. Et.al., Eds.), Serdang, Selangor, Malayasia. 18 - 22 April 1994. INIBAP-ASPNEST, Los Bones
- Welde, R. (2001). Supply Chain Management in Indian Agriculture. Proc.Natl. Seminar on Value addition in Indian Agri. (Ed. V. Venkateswarlu), Bangalore, India, 20 - 21 July, p 295 - 299.
- Yong, Betty O.F. (1995). Review of the 1994 pepper economy and outlook for 1995/96. Int.Pepper News Bull. **29** (3) : 8 - 16.