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RESEARCH PAPER

Organic food supply chain and acceptability of organic foods in Coimbatore district

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ABSTRACT

As traditional practices, though the organic farming is well known to India. Now-a-days it has been realized as one of the safer practices to produce residual free food. The aim of this study was to identify the organic food supply chain and to study the consumer acceptance of organic foods. Coimbatore district was selected as study area for this study. About 20 farmers, 60 consumers, two processors and seven retailers/ wholesaler were selected for this survey. Different organic food channels were identified with members like producer, marketer and consumers. The perceptions of different channel members towards organic foods were measured. Also the challenges faced by members in supply chain were identified to make practical implications.

KEY WORDS : Organic food market channel, Conventional food, Producer perception, Marketer perception, Consumer perception

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In recent decades, worldwide environmental issues were considered very much by both producers and consumers (De haen, 1999). Due to this environmental impact of products, considerable attention has been directed towards environmental friendly produce like green products, organic products and eco-friendly products. Furthermore, this environmental impact makes people to criticize the conventional inorganic (chemical inputs) agricultural practices and start to support organic produce. Indian consumers are also changing their behaviour towards healthy food and safer foods like organic and eco- friendly foods during past decade. This consumer behavioural change helps the organic producers to tap even the domestic market which is growing steadily.

Various agro-climatic regions of India have lot of potentials to produce all varieties of organic products round the year. Organic farming is not a new concept for India.

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Besides, in several parts of the country, the farmers are doing the traditional farming practices which inherited tradition of organic farming. Hence, is an added advantage for Indian farmers to convert into organic farming practices with certification which leads them to get high price. In 2010-11, India has cultivated land under organic certification around 4.43 million ha. In addition worldwide India ranks 33rd position in terms of total land under organic cultivation and 88th position for agriculture land under organic crops to total farming area. Agricultural Processing and Export Development Authority data supported that India produced around 3.88 million tons of certified organic products which included all varieties of food products namely, Basmati rice, pulses, honey, tea, spices, coffee, oilseeds, fruits, processed food, cereals, herbal medicines and value added products (APEDA, 2012). As well India is producing non-food organic items like organic cotton fibre, garments, cosmetics, body care products, etc. These products have been sold in both export and domestic markets.

India has diversity not only in terms of its agro-climate but also in terms of its population with several religious groups with different food habits and culture. This diversity should be used to advantage to become the organic food hub. Domestic organic food market is still at a nascent stage with hurdles of high logistic cost and low volume operation (Chakrabarti and Baisya, 2007).

Though Indian organic food market is niche, India has a huge opportunity to become a leading organic food supplier if only it has the right marketing strategies with adaptive and efficient supply chain. Very little organic food research is available in India. So, this has been added some specific value to this field to rectify the obscurity in organic food supply chain. Hence, this research paper has the following objectives:

The specific objective was to identify the organic food supply chain and to study consumer acceptance of organic foods.

METHODOLOGY

Coimbatore people are more health conscious and aware about the environmental issues and this may direct them towards the organic products and environmental friendly products. Also the economy aspects wise, the Coimbatore city is one of the fastest growing city with multiple industrial sectors and infrastructures next to Chennai in Tamil Nadu. The people are mostly well educated and higher income group and middle income group. Hence, Coimbatore consumers are prepared to pay a higher price for healthier options for organic products. This leads to develop a specific organic food retail chain in Coimbatore since 2004. During 2009 – 11, many organic stores that sell only organic food items have opened in prominent localities in Coimbatore city. The major organic food stores in Coimbatore are Sreevastsa organic farm products, OTR organic farm products, Go nature organic foods, Arya Organic and Health Food Store, Organic Super Market, Dams Organic Foods and Multi Organic Foods. Some retailers act as producer and processors through produce from their own farm. Also in and around Coimbatore, nearly 80 farmers were growing organic produce. For this study, 20 farmers were selected randomly. Also two processors and seven retailers/ wholesaler were selected for survey. Three organic outlets were selected based on sales volume and 20 consumers were selected randomly from each store. Totally 60 consumers' responses were considered for this study.

A well structured separate interview schedules were used for data collection from the respondents. Collected data were analyzed for critical results. The five point Likert scale (strongly agree -5, agree-4, neutral-3, disagree-2, strongly disagree-1) was used to measure the statements of constraints of produce and marketer. Garrett score was used to measure the constraints faced by consumers.

ANALYSIS AND DISCUSSION

The findings of the present study as well as relevant discussion have been presented under following heads :

Organic food supply chain:

The conventional food supply chain is complex with perishable goods and numerous small stake holders. The Indian organic food market is slightly differing from the conventional market channel. Organic food market has limited stake holder: farmers, organic food processors / manufacturers, wholesalers, retailers, consumers. The different channels adopted in Indian organic food supply are depicted in Fig. 1.

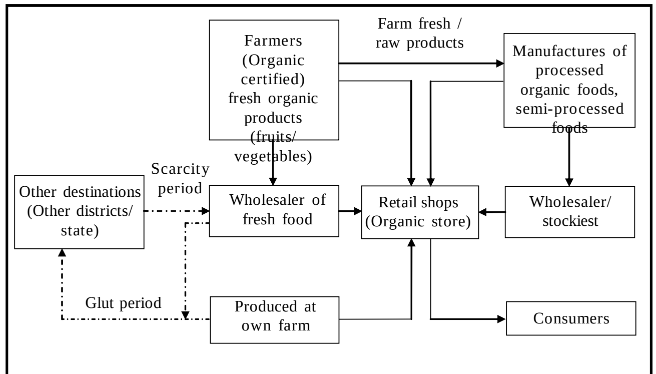

Fig. 1: Market channel for organic products

Comparatively organic production is very small in size. In India, organic foods are marketed through both specific organic retail stores and conventional stores. In conventional store, a problem arises among the consumer to differentiate the products. Most of the organic food materials are supplied through organic stores. The organic store retailers organize the organic products produced from the organic certified farmers and also from their own farms. Meanwhile some retailers of organic stores would select the farmers who had the organic certification and enter contract with the farmers to produce the organic products through contract farming. In periods of scarcity, the organic retailers also source the materials from other destinations like neighbour district/state through wholesaler. By some means, in periods of glut especially the organic products produced from own farms will be shifted to other destinations. The processed organic food products like candies, cookies etc., and semi-processed organic foods like rice flour, health mix, organic tea etc., are sourced from manufacturers directly or through wholesalers by the organic retailers. Mostly all categories of organic food and organic non-food items are available at organic retail stores. Through the study observation, the available organic products were categorized in ten categories which are shown in Table 1.

Table 1: List of organic products available in organic stores

Sr. No.	List of organic products available in organic stores
1.	Fruits
2.	Vegetables
3.	Pulses
4.	Cereals
5.	Processed / semi-processed
6.	Other staple foods (spices and condiments)
7.	Beverages, health supplements, medicines
8.	Oil
9.	Milk and milk products
10.	Non - food items like cleaning products like soap, toothpaste, garments, ornament etc.

Regarding the packaging of products, other than farm fresh fruits and vegetables, all the products were neatly packed with certification labels. But the farm fresh fruits and vegetables were loose packed and kept in tray for sales in stores.

Regarding price fixation, it was purely based on negotiation between farmers and marketers. The information flow is also purely restricted between marketers and the selected farmers who supply products to the marketers.

In India, the infrastructure connecting the organic supply chain partners is very weak. Demand forecasting is totally absent in that market. Hence, the farmers try to push what they produce into the market. A well supply chain management activities like data integration, financial flow management, supply-demand matching, collaborative forecasting, information sharing, goods movement synchronization through efficient transport scheduling practices should find their way in to the food supply chains. Cold chain logistics supply chains should take advantage of technology improvements in data capture and processing, product tracking and tracing, synchronized freight transport transit times for time compression along the supply chain and supply –demand matching. Also, the supply chain needs to be designed and built as a whole in an integrated manner with IT tools and software.

Producers' perception:

The organic food product producer consists of farmers and processors. The producers perception towards organic foods are shown in Table 2.

It is evident from the results of Table 2 that majority of producer respondents were considered that organically grown products were superior in terms of no chemical residues (90.91 %), shelf-life (77.27 %), flavour (90.91 %), environmental impact (72.73%), nutritional value (86.36 %) and appearance (27.27 %). In terms of appearance (40.91%) of respondents and in terms shelf-life (13.64) perceived that organic produce were inferior. Very minimum producers were considered that organic food is similar to conventional in terms of appearance (31.82), environmental impact (9.09), shelf-life (4.55%), flavour (4.55%), no chemical residues (4.55%) and nutritional value (4.55%). Over all 95 per cent of consumers considered that organically grown foods are superior.

Table 3 shows the ranking of different constraints faced by the producers while producing organic foods.

The Table 3 explains that the most difficulty faced by the organic farmers was unavailability of organic inputs to produce the products. Organic markets are niche stage in India. Though organic products incur high production cost, organic markets have emerged to attract high income consumers nearer to major cities like Mumbai, Delhi, Kolkata, Chennai, Bangalore Hyderabad and Coimbatore (Org-Marg, 2002 and Department of Commerce, GOI, 2002). Hence, it is very limited market availability to the farmers. Also organizing organic products in one place again increases the cost of products. Furthermore, information about organic food market is not readily available to farmers. This is third most constraint faced by the farmers. Also the organic market is not very well known to most of the farmers in the developing countries. Most of the organic inputs are limited availability and has been sold high cost. These constraint leads to high production cost. Other constraints faced by farmers are lack of market infrastructures, high

Table 2: Producers' perception towards organic foods (n=22)

Factors	Organically produced products are superior	Organically produced products are inferior	No difference	Don't known
Over all	22 (100.00)	0	0	0
Appearance	6 (27.27)	9 (40.91)	7 (31.82)	0
Shelf-life	17 (77.27)	3 (13.64)	1 (4.55)	1 (4.55)
No chemical residues	20 (90.91)	0	1 (4.55)	1 (4.55)
Environmental impact	16 (72.73)	0	2 (9.09)	4 (18.18)
Flavour	20 (90.91)	0	1 (4.55)	1 (4.55)
Nutritional value	19 (86.36)	0	1 (4.55)	2 (9.09)

Figures in the parentheses represent percentage to the total certification cost and conversion period market loss. Also manufacturers or processors face the unavailability of standards during process.

Table 3: Constraints faced by the organic producers			(n=22)
Sr. No.	Constraints faced by the organic producers	Likert score	Rank
1.	Unavailability of inputs	4.5	I
2.	Unavailable market	4.4	II
3.	Lack of market information	4.2	III
4.	High production cost	4.1	IV
5.	Low quantity production	3.5	V
6.	Financial support (Government schemes, subsidies)	3.5	VI

The organic market expansion makes it possible for farmers to reap the benefits of a trade with relatively high price premiums. The absence of the sufficient technical and market information and financial support also means that few farmers will risk changing their method of production.

Marketers' perception

Wholesalers and retailers are considered as marketers of organic products and the Table 4 is explaining the perception of marketers towards the organic foods.

Table 4 explains that majority of the marketer respondents reported that organic products were superior to conventionally grown products in the aspects like no chemical residues (100 %), shelf-life (85.71%), environmental impact (85.71%), nutritional value (71.43 %), appearance (57.14 %) and flavour (57.14 %). In addition in terms of appearance, 28.57 per cent of marketer respondents perceived that organic produce were inferior. Similarly, a small percentage of the managers stated that organic products were similar to conventional products in the following aspects like flavor (28.57%), appearance (14.29%), shelf-life (14.29%), environmental impact (14.29%) and nutritional value (14.29%).

Table 4: Marketers' perception towards organic foods				(n=7)
Factors	Organically produced products are superior	Organically produced products are inferior	No difference	Don't known
Over all	7 (100)	0	0	0
Appearance	4 (57.14)	2 (28.57)	1 (14.29)	0
Shelf-life	6 (85.71)	0	1 (14.29)	0
No. chemical residues	7 (100)	0	0	0
Environmental impact	6 (85.71)	0	1 (14.29)	0
Flavour	4 (57.14)	0	2 (28.57)	1 (14.29)
Nutritional value	5 (71.43)	0	1 (14.29)	1 (14.29)

Figures in the parentheses represent percentage to the total

The main challenges faced by markets in marketing organic products are shown in Table 5. This is to infer that from the table that high prices was foremost challenge faced by the marketers with Likert score of 4.5. In addition this high price of organic products has been lead by high logistics cost which was second most problem. Also the insufficient demand for organic products was third most problems faced by marketers and this may occur due to unawareness about the organic products. Also potential consumers were far away from the market well will reduce the demand. Unorganized distribution system was another problem and supplies were not always available when needed. Lack of standards would be the problems where as for marketing of organic conversion products. Next constraint faced by marketers was poor quality which happened due to the difficulties like pests and disease attack, poor handling, poor logistics and improper storage.

Table 5 : Challenges faced by organic marketers			(n=7)
Sr. No.	Challenges	Mean value	Rank
1.	Supplies are not always available when needed	3.5	V
2.	High prices	4.5	I
3.	Insufficient demand	4.1	III
4.	Poor quality	2.5	VII
5	Lack of standards	3.0	VI
6.	Distribution system not co-ordinate	4.0	IV
7.	High logistics cost	4.3	II

Demographic details of consumers and their perception:

The details about the general characteristics of consumers of organic food are shown in Table 6. Majority of the consumers (61.67%) had graduate level education and about 35 per cent respondents had their own business followed by the private employment (26.67%). About 18 per cent of the sample was women purchasers visiting these outlets for purchase.

Table 6 : Demographic details of organic food consumers		(n=60)
Characteristics	Total respondents	Percentage
Educational levels		
Up to schooling	23	38.33
Graduate	37	61.67
Occupational status		
Government Jobs	12	20.00
Private	16	26.67
Business	21	35.00
Home maker	11	18.33

Consumers' perceptions of organic produce during assessment of quality are shown in Table 7. Respondents were considered that organically grown products were superior in terms of no chemical residues (96.67%), shelf-life (93.33 %), flavour (93.33 %), environmental impact (88.33 %), nutritional value (81.67 %) and appearance, (75

%). In terms of appearance, 20 per cent of respondents perceived that organic produce were inferior. Some consumers considered that organic food was similar to conventional in terms of appearance (3.33), shelf-life (5 per cent), flavour (3.33 %) and nutritional value (15 %). Over all 95 per cent of consumers were considered that organically grown foods were superior.

Table 7 : Consumer perception during assessment of organic food quality when compared to non-organic foods (n=60)

Factors	Organically produced products are superior	Organically produced products are inferior	No. difference	Don't known
Over all	57 (95.00)	0	1 (1.67)	2 (3.33)
Appearance	45 (75.00)	12 (20.00)	2 (3.33)	1 (1.67)
Shelf-life	56 (93.33)	0.00	3 (5.00)	1 (1.67)
No. chemical residues	58 (96.67)	0	0	2 (3.33)
Environmental impact	53 (88.33)	0	0	7 (11.67)
Flavour	56 (93.33)	0	2 (3.33)	2 (3.33)
Nutritional value	49 (81.67)	0	9 (15.00)	2 (3.33)

Figures in the parentheses represent percentage to the total

Constraints faced by consumer during organic food purchase:

Identification of problem faced by the customers during their purchase in the organic retail outlet will be helpful for the firm to take correct the defects and would enable to stabilize/increase the sales. The data on the problems stated by the customers were analysed and the results are presented in the Table 8.

Table 8: Constraints faced by consumer during organic food purchase

Sr. No.	Constraints	Garrett score	Rank
1.	Unavailability of the product	31.83	I
2.	High price	26.83	II
3.	Low quality product	43.40	IV
4.	Uncertified products	59.22	VIII
5.	In convenient to shop, long distance	49.53	VI
6.	Improper maintenance of packing	56.22	VII
7.	Deteriorate quickly	43.37	III
8.	Have more blemishes	70.73	IX
9.	May have pesticide residues	74.87	X
10.	Not attractive	49.00	V

It is obvious from Table 8 that, unavailability of the product was the first and fore most constraint faced by the respondents with a Garrett's score of 31.83. The other important constraints were high prices of the organic product (26.83), deteriorate quickly (43.37) followed by low quality product (43.40).

Conclusion:

The overall perception of channel members towards organic foods stated that organic food was superior in quality than conventional foods with score like producer (100 %), marketer (100 %) and consumer (95 %). The only factor, appearance of organic food was considered inferior than conventional.

The three important constraints faced by the organic producers were unavailability of inputs, unavailable market and lack of market information. High prices, high logistics cost and insufficient demand were three challenges faced by the organic marketers. Unavailability of the product, high price and deteriorate quickly were three most constraints faced by consumer during organic food purchase.

India is a country with a huge number of small farmers who do farming with traditional methods with few agricultural inputs. Government, private institutions and NGOs that promote organic farming and other organizations support farmers in these aspects. Now the organic movement is emerging in India on different levels with producer groups, trainers and advisors, certification bodies and processors and traders. Hence, dissemination of market information and supply chain practices were of fundamental concern in order to allow continued development of the organic agriculture movement in this country in terms of domestic market as well as export market.

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