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Organic food grain consumption pattern in Trichy city

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Abstract
Consumption of organic food nowadays is has a huge reputation among elite and upper middle class consumers particularly in growing cosmopolite cities like Trichy and an economic survey was conducted among 200 consumers of different age group and occupational in Thiruchirappalli (Trichy) city to analyse the opportunities and consumption pattern of organic food grains in Trichy. The results indicate that here existed a sizeable awareness about organic food consumption particularly among younger generation and elite consumers which influenced the purchase decision of the consumers. A huge difference existed between the anchor price (price of corresponding conventional product) and the regular prices in the case of rice and other food grains.

Keywords: Organic food, willingness to pay, organic premium, organic penetration, anchor price

Introduction
Organic and natural foods produced naturally, without the use of any chemical fertilizers, pesticides, are now much more popular and widely available, for a number of reasons, the most significant of which is the health and wellness benefits associated with naturally grown foods as evidenced by the growing number of natural/organic retailers. Additionally, purchasing organic and natural foods has become somewhat trendy, adding to its popularity. India is bestowed with lot of potential to produce all varieties of organic products due to its various agro climatic regions. In several parts of the country, the inherited tradition of organic farming is an added advantage. This holds promise for the organic producers to tap the market which is growing steadily in the domestic market related to the export market.

Green marketing
The term "Green marketing" refers to the planning, development and promotion of products or services that satisfy the needs of consumers for quality, output, accessible prices and service, without a negative effect on the environment, with regard to the use of raw material, the consumption of energy etc.

Organic market
- Organic food is sold to consumers through three main venues *viz*., natural food stores, conventional grocery stores, and direct-to-consumer markets.
- A typical organic consumer is difficult to pinpoint, but new research continues to shed light on consumer attitudes and purchasing behavior.
- Organic price premiums continue to remain high in many markets as the demand for organic products expands.

Organic Food
While buyers of organic food like to try new categories, they are yet to feel convinced enough to completely overhaul their purchase patterns. The typical product categories that they prefer to purchase are usually perishable goods – fruits and vegetables and dairy products.
While organic food is certainly perceived as a healthy option, there is lack of clear understanding among consumers as regards their exact health impact. Recent debates in the public sphere about the freshness and quality of regular food products have made consumers more aware about the possible adverse effects of such products. Therefore, the health benefit they expect from organic food stem from the fact that organic products do not contain harmful chemicals or pesticides and are grown in hygienic conditions.
However, even considering the perceived health benefit, consumers are currently in a confused state of mind about the actual meaning and implication of “organic”. They are also not clear about the difference offered by products labelled ‘organic’ or ‘natural’. While a select few understand the ‘organic’ category in terms of factors related to its production, farming,

packaging etc., overall there is a huge blank in consumers' minds about the same. This gap is even wider for non-users of organic food, i.e. people who have never bought any kind of organic food till date.

A study was contemplated to analyse the green market opportunities in Trichy city with the following objectives

- To analyse the awareness on organic food products among the consumers of Trichy city.
- To estimate the organic premium among different food categories and different consumers.
- To estimate the willingness to pay for organic premium among the consumers of Trichy city.

Data and Methodology

The study was conducted among 200 randomly selected consumers of Trichy city. The sampled consumers belonged to all sections of the society, from primary educated to professionals: from students to business class; all categories of ages, low, high income groups etc. spread across the city. Respondents were post stratified into organic consumers and other consumers.

Tools of Analysis

Probit Model

The Probit model was employed to study awareness about organic food and premium price paid for food grains. The dependent variable was the awareness level, which was defined as Y=1 if farmers were aware about organic food, and 0, otherwise.

The Probit model is specified as per the following equation:

$$Y = a_0 + \beta 1\ EDN + \beta 2\ SOCIAL + \beta 3\ SOCIAL + \beta 4\ URBAN + \beta 5\ MEDIA + Ui$$

Where,

Y = Awareness about crop insurance (1 for aware, 0 otherwise)

EDN = Education level of farmer

SOCIAL = exposure to social networking (1 for exposure, 0 otherwise)

URBAN = Unban residence nature of the consumer (1 for urban residence, 0 otherwise)

MEDIA = Exposure to media (1 for yes, 0 otherwise)

Ui = Error-term

Results and Discussions

The data collected on various socio economic details of the respondent consumers, awareness about organic food consumption, perception of the consumers of Trichy city about organic foods, their willingness to pay are analysed and the results are presented and discussed hereunder.

Demographic profile of the consumers

Data were collected from 200 consumer respondents of Trichy city and they were post stratified into organic consumers (20%) and other consumers (80%). Data were collected separately regarding organic food consumption, willingness to pay for organic food, organic premium paid etc. These results were presented and discussed separately in this chapter.

Table 1: Demographic profile of sample

Variables	Particulars	Organic customers (40)		Other customers (160)	
		Frequency (N)	%	Frequency (N)	%
Age	25 or less	4	10	21	13
	26-35	10	25	40	25
	36-45	8	20	35	21
	46 and above	18	45	64	40
Education	Illiterate	-	0	-	0
	School education	7	17	40	25
	Graduate	13	32	93	58
	Post graduate and professional	20	50	27	15
Children house	Yes	38	95	160	100
	No	2	5	-	0
Family size (No)	1-2	2	5	10	6.25
	3-4	29	72.5	95	59.3
	5-6	9	22.5	36	22.5
	6 and above	-	0	19	11.8
Earning members in the family	1-2	24	60	77	48.18
	3-4	16	40	63	39.37
	5-6	-	0	16	10
	6 and above	-	0	4	2.5
Occupation	Student	1	2.5	20	12.5
	Agriculture	3	7.5	15	9.38
	Private job	12	30	41	25.63
	Govt job	9	22.5	45	28.12
	Business	15	37.5	39	24.37
Annual family income (Rs)	< 50000	-	0	-	0
	50000 – 1 lac	-	0	12	7.5
	1 lac – 2 lac	2	5	10	6.25
	2 lac – 3 lac	7	17.5	28	17.5
	3 lac – 5 lac	10	25	85	53.12
	Above 5 lac	21	52.5	25	16.62
Asset value of the family (excluding house)	< 1 lac	-	0	-	0
	1lac – 3 lac	-	0	-	0
	3 lac – 5 lac	8	20	35	21.88
	Above 5 lac	32	80	125	78.12

The detailed profile of the respondents is presented in Table 1. Respondents contacted in this study mostly belonged above 25 years of age (around 87% of other customers and 90% of organic customers). Among organic customers contacted, 65% belonged to the age category of 36 years and above. About half of the organic customers belonged to the age category of 46 and above. The results indicate that matured consumers prefer organic food consumption. Still there existed a sizeable awareness (35%) about organic food consumption among younger generation.

From Table 1 it could also be inferred that almost 82% of the organic consumers are either graduates or post graduates or professionals. The family size of the majority of the organic customers (72.5%) falls under 3 to 4 numbers with earning members in the range of 1-2 (60%) and 3 to 4 (40%).

Regarding the occupational pattern of the organic customer respondents from the categories of students and agriculture back ground are very low at 2.5 and 7.5% respectively. Around 60% of the consumers are either going for government jobs (22.5%) or doing business (37.5%).

Table 1 also reveals that more than three fourth of the organic customers (80 %) have an asset value of above 5 lacks (excluding the value of their houses) and their annual family income ranges from 3 lakhs to 5 lakhs (25%) and above (52.5%).

These results imply that mostly organic consumers are belonging to elite categories of high income groups with highest educational qualification doing white collar jobs either in government organizations and doing high profile businesses. This result is going to influence the purchase decision of the consumers towards organic foods especially organic food grains like organic paddy and pulses. Their educational back ground, profession and annual income are significantly influencing the respondents' purchase decision and their willingness to pay for organic food and the amount of premium paid towards the price of organic food grains.

Dynamics of organic food consumption

Table 2 explains us the dynamics of organic food consumption among the consumers of Trichy city over the past 5 years. Five years ago consumption of organic foods was in the initial stage and during the initial years paddy was the only food substance which was introduce as organic among the consumers of Trichy city. Presently all food grains like rice, pulses like, redgram (*tur*), black gram (*urd*) and green gram (*mung*) are gronw and consumed organically to some extent. Still there exists a huge gap in the area of organic fruits and vegetables and greens.

The extent of consumption of organic food grains had grown up to 133% in the case of organic rice during last five years. Other cereals and organic pulses were not in their kitty for consumption 5 years ago.

Table 2: Dynamics of organic food consumption in Trichy city (kg/month/family) (N=40)

Consumption	Items	Qty/ month	
		Organic	**Other**
Consumption at 5 years ago	Paddy	3	15
	Other cereals	-	4
	Red gram	-	1.8
	Black gram	-	1
	Green gram	-	0.4
Consumption at present	Paddy	7	12
	Other cereals	0.5	5
	Red gram	0.3	2
	Black gram	0.5	1
	Green gram	0.1	0.5
% change over 5 years	Paddy	133.33	-20.00
	Other cereals	-	25.00
	Red gram	-	11.11
	Black gram	-	-
	Green gram	-	25.00

Household expenditure and willingness to pay for organic food

From Table 3, it is clear that there exists a huge difference between the anchor price (price of corresponding conventional product) and the regular prices in the case of rice and other food grains. In case of organic rice and pulses consumers willing to pay more for organic food ranges from 9-22% which was highest in the case of black grams at 22% and lowest in the case of green grams at 9%. Around 25% of the respondents were ready to pay more for organic rice.

Table 3: Willingness to pay for organic food grains among the consumers of Trichy city (N=200)

Particulars	Paddy	Red gram	Black gram	Green gram
Anchor price (price of corresponding conventional product in Rupees)	42	73	64	95
Percentage distribution				
Not willing to pay more	85 (n=170)	89 (n=178)	78 (n=156)	91(n=182)
Willing to pay more	15 (n=30)	11 (n=22)	22 (n=44)	9 (n=18)
Total	100 (n=200)	100 (n=200)	100 (n=200)	100 (n=200)
Mean WTP in Rupees (std dev.)	60 (0.08)	90 (0.19)	80 (0.37)	110 (0.41)
Mean WTP in % (std dev.)	42.86 (0.45)	23.29 (0.28)	25 (0.13)	15.79 (0.31)
%age distribution on price premiums for those willing to pay more				
Less than 5% more				
6 to10% more	13.33 (n=2)	18.18 (n=2)	13.64 (n=3)	11.11 (n=1)
11 to 25% more	66.67 (n=10)	72.73 (n=8)	68.18 (n=15)	66.67 (n=6)
More than 25% more	20 (n=3)	9.09 (n=1)	18.18 (n=4)	22.22 (n=2)
Total	100 (n=15)	100 (n=11)	100 (n=22)	100 (n=9)

The average Willingness to Pay (WTP) prices for rice, red grams, black grams and green gram are Rs. 60, Rs. 90, Rs. 80 and Rs.110 respectively for per kg of those items. On an average, consumers are willing to pay around 43% more for organic rice and it was around 25, 23 and 16% for organic black gram, red gram and green gram respectively. Around 67% of the organic consumers were willing to pay 11 to 25% more as price premium in the case of rice and green gram and it was around 73% in the case of red gram. In case of organic rice 20% of the consumers were willing to pay a price premium to the extent over and above 25% from its anchoring price of Rs 42 per kilogram.

Organic premium and penetration

Table 4 describes the organic premium, organic penetration and the comparison of organic and anchor prices (price of corresponding conventional prices) along with the range of organic prices of rice, red gram, black gram and green gram in the organic stores of Trichy city. The organic price of rice was Rs 70 per kilogram with a range of Rs 60 to Rs 80 as against its anchor price of Rs 42 per kilogram which exhibited a premium of 40%. The organic premium was highest in the case of rice and they were 21, 27 and 29% in the cases of green gram, red gram and black gram respectively. Similar pattern was observed with respect to organic penetration which was highest in rice at 0.58. The organic premium and penetration were lowest in the case of green gram positioned at 21% and 0.20.

Table 4: Organic premium and organic penetration among consumers of Trichy city (N=44)

Commodity	Mean price (Rs/kg)		Price range (Rs)	Organic premium (%)	Organic Penetration (%)
	Organic	Conventional			
Paddy	70	42	60-80	40.00	0.58
Red gram	100	73	90-110	27.00	0.30
Black gram	90	64	80-100	28.89	0.50
Green gram	120	95	100-140	20.83	0.20

Note: All prices (Rs/kg) were computed as a unit price paid by dividing total expenditure, net of any promotional and sale discounts, by the total quantity purchased.

The organic premium is computed as the organic price premium divided by the conventional average price.

The organic penetration represents the ratio of the quantity of organic produce purchased relative to the purchase of conventional produce.

Motivational factors, perception and distribution channels for organic food grain

Table 5 shows the details of channels of distribution among organic consumers of Trichy city. Most of the consumers obtained their organic food products from exclusive organic stores and a sizeable of them received directly from the producer. Regarding the motivational factors influencing the purchase decision of the consumers to go for organic food grains, all consumers we contacted cited health issues, quality factor and environmental concern as reason for buying organic food grains (Table 6).

Table 5: Channel of Distribution among consumers of Trichy City (N=40)

Sl. No.	Channel of Distribution	Number
1	Supermarket	5
2	Organic store	31
3	Directly from producer	12
4	Local market	7

Note: The total will not be equal to the sample size because of the multiple responses of the consumers

Table 6: Motivations and Reasons to buy organic food among the consumers of Trichy City (N=40)

Sl. No.	Motivational factors	Number
1	Health	40
2	Taste	19
3	Environment	40
4	Quality	40
5	Freshness	23

Note: The total will not be equal to the sample size because of the multiple responses of the consumers

Table 7: Perception of respondents about the features of organic food grains (N=200)

Sl. No.	Perceptions	Number
1	Fresh product (A)	23
2	Healthy product (B)	40
3	Mostly imported (C)	3
4	Meant for export (D)	27
5	Products produced with less chemicals (E)	13
6	Products produced without chemical usage (F)	27
7	A and B	28
8	A, B and E	31
9	A, B and F	40

Note: The total will not be equal to the sample size because of the multiple responses of the consumers

We tried to identify the perceptions about the features of organic food and majority of them opined organic food is fresh, healthy and products produced without chemical usage. This indicated that though the awareness of organic food and the number of customers consuming organic food are less, they had a clear idea about the features of organic food products.

Consumers' awareness about organic food

The Probit regression was performed to identify the factors that influenced the awareness of consumers of Trichy city about organic food. The estimates of the probit model have been presented in Table 8. The educational qualification of the consumers, participation in the social networking and the urban residing nature of the consumers were found to significantly influence the consumers' awareness about organic foods in Trichy city. Higher educational qualification of the consumers, participation in the social networking and the urban residence, increased the probability of being aware. Thus, encouraging participation of consumers in social networking activities has been found an important tool to improving the awareness about organic food.

Table 8: Estimates of Probit regression model of consumers' awareness about organic food in Trichy city

Dependent variable: Awareness
Number of observations: 200

Sl. No	Variables	Coefficients	P value
1	Constant	0.189	0.8715
2	EDN	0.564**	0.0401
3	SOCIAL	0.716**	0.0312
4	URBAN	0.165*	0.0854
5	MEDIA	0.279	0.9736
6	Log likelihood function	-308.264	

Note: * and ** denote significant at 10% and 5% levels, respectively

Conclusions

The following conclusions were drawn from the present study
About half of the organic customers belonged to the age category of 46 and above. The results indicate that matured consumers prefer organic food consumption. Still there existed a sizeable awareness (35%) about organic food consumption among younger generation. Mostly organic consumers are belonging to elite categories of high income groups with highest educational qualification doing white collar jobs either in government organizations and doing high profile businesses. This result is going to influence the purchase decision of the consumers towards organic foods especially organic food grains like organic paddy and pulses.
Presently all food grains like rice, pulses like, red gram, black gram and green gram) are grown and consumed organically to some extent. Still there exists a huge gap in the area of organic fruits and vegetables and greens. The extent of consumption of organic food grains had grown up to 133% in the case of organic rice during last five years. Other cereals and organic pulses were not in their kitty for consumption 5 years ago.
There exists a huge difference between the anchor price (price of corresponding conventional product) and the regular prices in the case of rice and other food grains. Around 25% of the respondents were ready to pay more for organic rice. The organic premium was highest in the case of rice and they were 21, 27 and 29% in the cases of green gram, red gram and black gram respectively. Similar pattern was observed with respect to organic penetration which was highest in rice at 0.58. Higher educational qualification of the consumers, participation in the social networking and the urban residence, increased the probability of being aware.

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