
Supply Chain of Vegetables

A Case Study of Barabati Market of Jajpur District

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Abstract

India is the world's largest producer of many fruits and vegetables. Whereas Odisha ranked fourth in terms of production of vegetables. Barabati is a market in Odisha, which plays an important role for the vegetable growers and also for the consumers that the farmers could be benefited and the consumers could fetch fresh vegetables in proper price. This case study briefs on the supply chain of vegetables of Barabati market, for which data were collected from primary source with sample size of 32. The case enlightens the production status and trend of major four vegetables such as Cauliflower, Brinjal, Cabbage & Ladies finger. These vegetables are supplied from Barabati market to various other markets such as Bhubaneswar, Keonjhar, Sambalpur and Rourkela. The modes of transportation used are mostly the small and medium carriers such as pickup vans and Tata ace in order to meet the need of markets. This mode of transportation depends on the distance, frequency of order and demand of the particular vegetable. The market is situated near the national highway which helps for better supply chain of the vegetables to the other targeted markets. As Barabati market influences the other markets in Odisha, Govt. should give special attention by regulating it properly and providing various infrastructures for storage, handling & transportation.

Keywords: - Supply chain, frequency, regulating.

1. Introduction

Our country is blessed with diverse agro-climates with distinct seasons, making it possible to grow wide varieties of vegetables. India is the second largest producer of vegetables in the world. Fruits and vegetables together contribute about 92% of the total horticultural production in the country. Vegetables are important constituents of Indian agriculture due to their short duration, high yield, nutritional richness, economic viability and ability to generate on-farm and off-farm employment. India produces 14 % of world's vegetables. India ranks first in the production of okra in the world i.e 73% of world production.

Odisha ranked fourth in terms of production of vegetables. The consumption of vegetables in Odisha is also very high in our country as it is important part of our diet. Taking this into consideration the growers of our state quite emphasis on the cultivation of vegetables as it has a good demand finally contributing good price. Govt. is also playing a major part by making various market yard so as to facilitate the farmer to sell their produce in proper price. In this context Barabati market plays an important role for the vegetable growers and also for the consumer so that the farmers could be benefited and the consumers could fetch fresh vegetables in proper price.

2. Objectives

- ♦ To study the area of production, productivity, marketable surplus of different vegetables related to Barabati market of Jajpur.

- ♦ To study different market channels involved in order to make the vegetables reach consumers from producers.
- ♦ To study the supply chain of vegetables from farmers to consumers of Barabati market of Jajpur.

3. Scope of the study-

The study has a wide scope to bring about a significant change in existing marketing system

- ♦ The study will indicate the area and type of vegetables including off season vegetables to be grown on basis of choice of the consumers.
- ♦ The study will help in rationalizing the ongoing marketing channels keeping in view to ensure the consumer to receive a higher percentage of consumer's rupee.
- ♦ The study is helpful to the policy makers to know the extent of marketable surplus of different types of vegetable and accordingly effective post harvest management including storage, processing and packaging etc can be done for value addition.
- ♦ The study will be of great importance in encouraging export of vegetables and pave the way for linkage with globalised market.

4. Methodology

- ♦ **Study design:-** Exploratory research design is followed in order to get the needed information from persons and agencies involved in the particular market of Barabati.

- ♦ **Sampling design:-**
 - **Sample unit-** They are the members of market, farmers, traders transporters, some agencies related to storage.
 - **Sampling procedure-** For sampling procedure the non-probabilistic method is followed. In this procedure of sampling members of market, farmers, traders transporters, some agencies related to storage are taken as samples.
 - **Sample size-** The total no. of sample size is 32
- ♦ **Data Collection:-** Data are collected from primary source through questionnaire, and follow up interviews.

Secondary source is also used in order to make the survey more accurate.

5. Data Analysis:

The data collected were tabulated and analyzed keeping the objectives in view.

Jajpur District is having the third best condition for sustainable development in agriculture followed by Bargarh and Jagatsinghpur Districts. Rice is traditionally grown in two well defined seasons, namely kharif and dalua. Of these two, kharif (rainy) is the most important

rice season. The kharif rice is the main crop, covering over 85 percent of the total rice area, and depends entirely on the southwest monsoon. It is sown in June and harvested in October–December, depending upon the duration of the cultivation and topography of the field. It is also very much famous for the horticultural produce such as vegetable and fruits, but mainly 75 % of the horticultural produce are mostly vegetables as the climate is much favorable for the vegetables. The climate of Jajpur district is normal as per Indian standards. All the seasons arrive in the district at their usual time. The district's average height from the sea level is 331 mts and its average rain fall is 1014.5 mm. The average maximum and minimum temperatures are 38 degree C and 12 degree C respectively. Overall, the climate of the district is neither hot nor cool. In this context, Barabati and its catchment areas plays a vital role. Barabati is situated in Dharmasala tehsil and located in Jajapur district of Odisha. It is one of 232 villages in Dharmasala Block . It has a tremendous potential for agriculture specially for the vegetable farmers. Nearly 30 no. of villages around the Barabati area are engaged in production of vegetables. It can not be denied if we say that Barabati is the main hub of vegetable market of Jajpur as well as some other districts of Odisha.

Table-1.
Area Under Cultivation Near Barabati Market

Vegetables	Area Under Cultivation (Inacre)	Production (Inquintals)	Productivity (Qt / Acre)
Cauliflower	2600	392600	151
Brinjal	1450	253750	175
Cabbage	1450	274050	189
Ladies finger	80	6080	76

Source –Field Survey 2013

Barabati market which fully control the vegetable market of Dharmasala block , also control the market of the entire Jajpur district. It can be said as the vegetable hub of the Jajpur district. Generally the farmers from the nearby villages and to some extent some progressive vegetable farmers of Jajpur district play an important role to make Barabati a main market. In Barabati area ,out of 5900 acres of land used for vegetable and fruit cultivation

the area of cultivation of cauliflower is maximum which bears 45% of total land. It is cultivated around 2600 acre of land and having productivity of 151 Qt /Acre. The second most grown vegetables are brinjal and cabbage which share the same amount of land coverage of 1450 acre with productivity of 189Qt/acre and 175 Qt/acre respectively. Ladiesfinger shares 80 acres of land with productivity of 76 Qt /acre.

Table-2
Production of Vegetables for Barabati Market

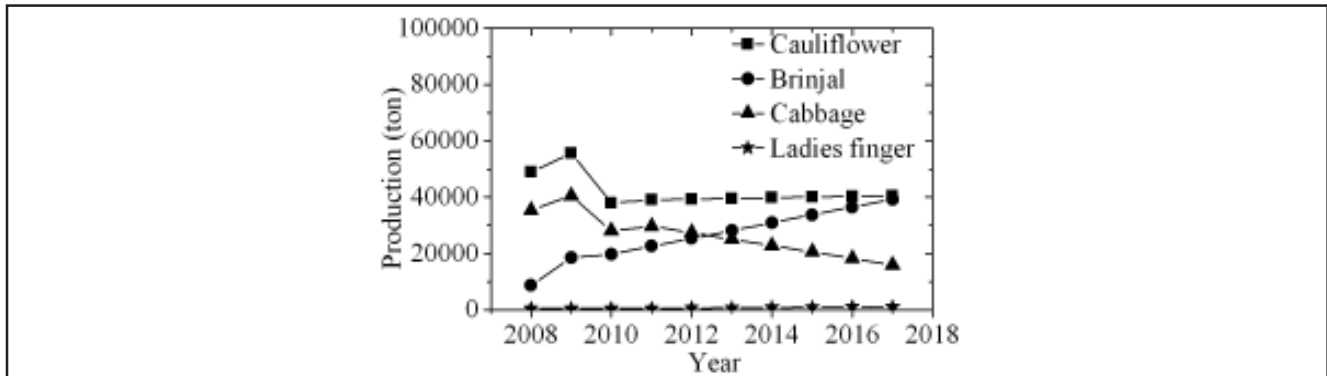
Year	Vegetables (Intons)			
	CAULFLOWER	BRINJAL LADIE SFINGER	CABBAGE	
2008-09	49000	8750.5	35400	480
2009-10	55600	18600	40500	485
2010-11	38000	19700	28100	450
2011-12	39000	22600	29700	510
2012-13	39260	25375	27405	608

Source –Field Survey 2013

It is very well understood from above table that the trend of the vegetable production is fluctuating through the last five years. Production of cauliflower was maximum in 2009-10 and decreased in 2010-11 and is increasing slowly till 2012-13 with the quantity of 39260 tons. The

trend of production of cabbage was also highest 2009-10 and decreased suddenly to 28100 tons from 40500 . About ladies finger and brinjal the production rate has increased but in a slower rate.

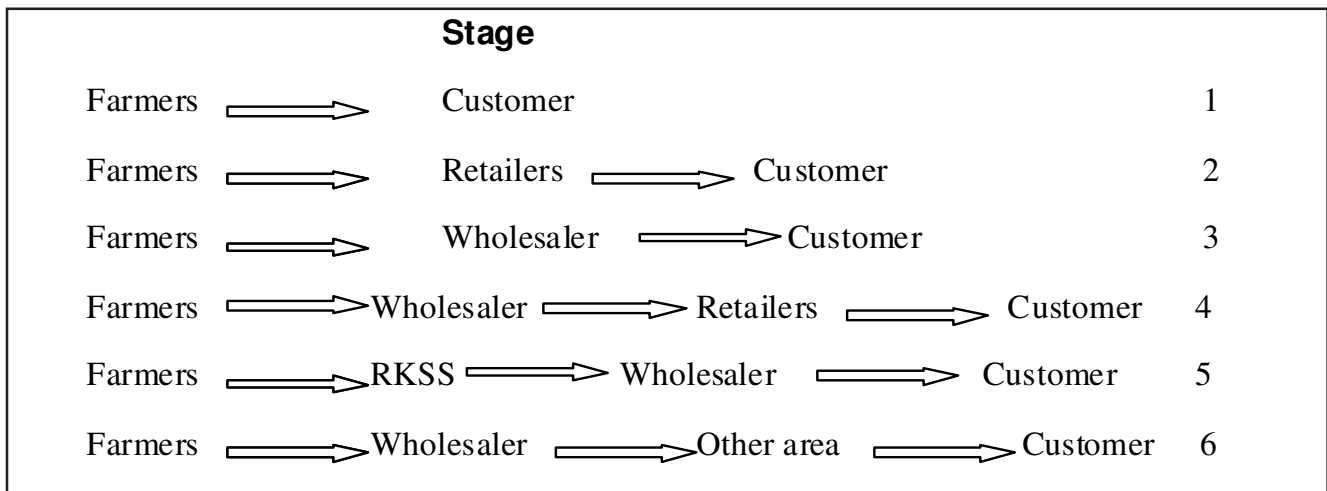
**Figure-1
Trend Line**



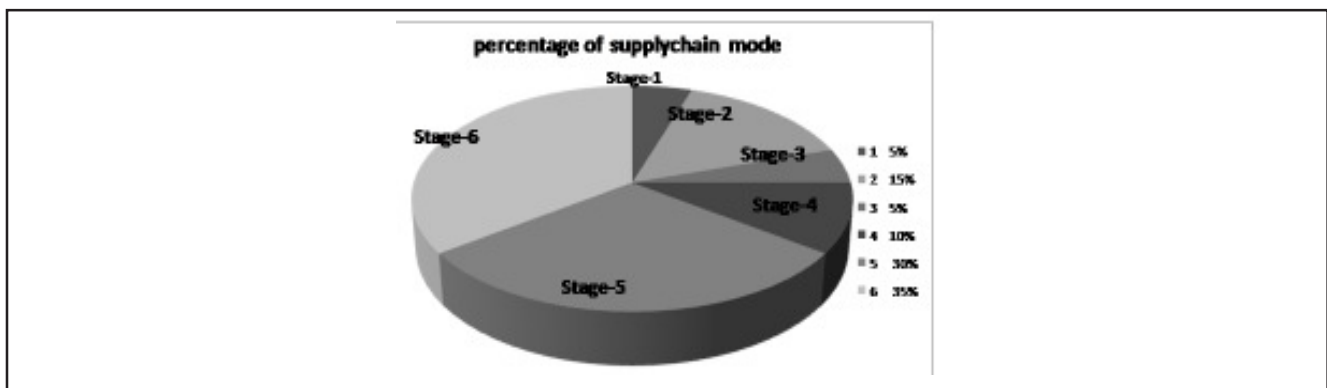
From the above trend line it is clearly observed that the production of brinjal will be more as the demand is more as well as the crop can be grown throughout the year .For this reason specially the farmers are quite interested to grow in order to sell the brinjal to the customers throughout the year and fetching good price. Cole crops

like cabbage and cauliflower are produced maximum but in winter season and the growth rate will be in constant in case of cauliflower and may vary in case of cabbage. The growth rate of ladies finger will be increasing but in a slower rate. The market of Barabati have a direct influence on the production of the locally grown vegetables.

**Figure-2
Supplychain Mode**



**Figure3
Percentage of Supply Chain Mode**



Channel members playing main role in market of Barabati are farmers, Regional Krushaka Seba Samiti (RKSS), wholesaler, retailer, customers etc.

The supply chain of the vegetables from farmers to consumer in Barabati context is carried out in 6 stages and it is found that the stage 6 plays a very crucial role and this supply chain comprises of 35% of total system followed by stage 5 then stage 2, then stage 4, stage

3, stage 1 with 30%, 15%, 10%, 5%, 5% respectively. As the barabati market is situated beside NH-5 it becomes very easy to supply the vegetables to various other areas outside the district. This not only fetch good price for vegetables but also the market plays an important role to control the market price of Odisha.

Surplus vegetables from Barabati are supplied to different places of Odisha as mentioned below

**Table-3
Distribution of Vegetables**

Send to	Month	Vegetables & Fruits
Bhubaneswar	Nov-Feb	Cabbage, Cauliflower, Brinjal, Ladies finger
Balasore	Jan-Feb	Cabbage, Cauliflower
Berhampur	Feb-July, Sept-Nov	Cabbage, Cauliflower
Keonjhar	Jan-Sept	Cabbage
Rourkela	April-June	Cauliflower

Source –Field Survey 2013

After meeting the local consumer needs the surplus vegetables are supplied to other places of Odisha such as Berhampur, Balasore, Bhubaneswar, Keonjhar & Rourkela. The vegetables are generally send to the different places according to the production i:e season. Sometimes the vegetables are also sent to some other places such as Cuttack, Paradeep, Chhatia, Marsaghai etc. but after meeting the demand of other regular places.

Table- 3 clearly describes the supply of vegetables both month wise and area wise.

The modes of transportation used are mostly the small and medium carriers such as pickup vans and Tata ace in order to meet the need of the markets within the distance of 150 Kms. For distance 150 Kms and above generally the trucks and pick up vans are preferred.

**Table-4
Transportation of Vegetables**

Sl no	Places	Vehicles Used for transport	Distance in Km	Charges for transportation
1	Bhubaneswar	Pickup van Tata ace	75	1400 1100
2	Rourkela	Pickup van Tata 407	360	6000 7500
3	Keonjhar	Pickup van Tata ace	140	3500 3000
4	Berhampur	Pickup van Tata 407	210	5500 6500
5	Balasore	Pickup van Tata ace	120	2800 2000

Source –Field Survey 2013

For maintaining the effective supply chain the transport mode is chosen by taking the following factors into account.

- The cost incurred for using the type of vehicle by considering the type of vegetable, quantity of vegetable and the expenses borne by transporting to cover the distance.
- Sometime depending upon the demand of lots the mode for transportation is also considered.

- Care is also taken for the frequency of demand from a particular market in order to choose a mode of transport which ultimately meets the need of the market demanded and the suppliers.

6. Strength of Barabati Market

A large number of farmers are cultivating vegetables in the nearby areas which increase the production of vegetables. Mostly the local farmers are growing cauliflowers than other vegetables in large areas.

Barabati is situated very close to the national highway (NH-5) which adds strength to the market as, the communication to various places becomes very easy and cost effective.

Farmers have a very strong unity and bargaining power which helps them to overcome the dominance of middlemen.

7. Suggestions

Farmers are still using the local seeds and traditional practices which should be changed to modern practices for which extensive knowledge and training should be provided.

Proper warehouse and cold storage should be available so as to preserve the vegetables in good condition for larger duration.

Modern packing and packing techniques should be introduced in order to minimize loss while transporting.

Government should also facilitate the market through its regulatory committee to have some award and some incentives in order to achieve the farmers involvement more and more.

8. Conclusion

Barabati plays an important role directly or indirectly in the total supply chain of the vegetable market in Odisha .Nearly consumers from 8 districts depends on the daily consumption of the vegetables for their diet. So taking the importance of the market, Govt. should give special attention by regulating it properly and creating various infrastructures for storage, transportation and running the market properly in coordination with the farmers.

References

1. http://www.indiaagronet.com/indiaagronet/horticulture/CONTENTS/vegetable_culture.htm
2. <http://faostat.fao.org>
3. <http://agricoop.nic.in/hort/hortrevo5.htm>
4. http://www.horticultureworld.net/hort_india.htm
5. <https://www.vedamsbooks.com/no19585.htm>
6. <http://agricoop.nic.in/about.htm>