A Study on the Supply Chain Process of the Flower Market in Khurda District of Odisha

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ABSTRACT: Floriculture is a way in India for generating employment and sustainable livelihood for small and marginal farmers since long. In today's time it has been emerged as a profitable agribusiness sector not only for small and medium farmers rather large farmers are actively involved in this business. Many entrepreneurs are have developed their business in floriculture looking to the market opportunities states are involved in growing different flower for commercial purpose. West Bengal and Tamil Nadu are major producing states for cut flowers and loose flower respectively. In Odisha some districts like Ganjam, Khurda & Gajapati are among the lead growing areas. Though there are some other districts who do floriculture in cluster still then there is a huge gap between the demand and supply in the market. It has a huge market for local consumption, season-based consumption, worship purpose and industrial purpose. The market is quite unorganised and unscientific which affects the supply chain of flowers which hampers the demand of flower throughout the year depending upon season and occasion. To mitigate the demand the florist depends on purchasing flowers from other states which ultimately affects price. This study focuses on understanding the market channels involved in the flower business and also the gaps and challenges in its marketing targeting to Khurda market.

Keywords: Floriculture, Supply chain, unorganised, demand and supply, marketing channels.

INTRODUCTION

Floriculture is an old age practice as flower is associated with many religious and social activities. For this not only floriculture growers but different agencies of Govt. has also highlighted it as a sunrising industry. Looking into the increasing demand it has become one of the commercial trades in agribusiness sector. Floriculture is now done commercially in different states of India. As per APEDA Kerala is the state with highest area under flower cultivation. Tamil Nadu, Karnataka, West Bengal and some parts of Madhya Pradesh, Odisha Jharkhand, Gujarat, Himachal Pradesh are also engaged in this cultivation. As per different agroclimatic conditions and climate different types of flowers are grown in open space by the farmers if different regions. For commercial purpose many entrepreneurs, large farmers and companies also have started doing floriculture in controlled condition like green house under regulated climatic condition. The potential per unit area as compared to other field crop is higher in case of floriculture, which encourage the grower for an open Indian market as well as exporting to different other countries. The flower marketing industry currently lacks organization. Major metropolitan cities, despite having substantial market demand, rely on wholesale markets that often operate in open spaces. A small group of prominent flower wholesalers typically dominate the market, purchasing most of the flowers and selling them to local retailers at considerable markups. The government is now investing in setting up of auction platforms, as well as organised florist shops with better storage facilities to prolong shelf life.

Govt. of Odisha has encouraged farmers for promoting floriculture as there is a huge gap between the demand and production of flowers in the market. Floriculture is mostly followed in Khurda, Ganjam, Gajapati and some portion in Mayurbhanj & Keonjhar. Though it has started in commercial way but unorganised marketing is a big drawback. The supply chain of flower is not so stable for which a dilemma in assured marketing and good price. Florist on the other hand could not depend on the local farmers for their business as there is a huge difference in demand and supply. Retail outlets - more often are operated in the open on-road sides as per convenience. Some good florists have showrooms with storage facilities are taking flower market in to different horizon. Supply Chain, packaging and transportation of flowers from the farms to the retail markets at present is very unscientific and unorganised leading to different marketing challenges.

Background studies. Shukla *et al*. (2022) studied on the topic "Constraints in Marketing of Flowers: A

Study in Solan and Sirmaur Districts of Himachal Pradesh". They have studied the marketable significance of the cut flowers and different constraints in marketing of flowers. Study has been done in two districts of Himachal Pradesh, Solan and Sirmaur. Study reveals different issues like transportation, low value chain, middlemen intervention, disorganised market& poor infrastructure. Study also revealed that pricing is erratic in case of marketing for which it also needs to be included in MSP.

Jincy and Gomati (2023) studied floriculture or flower farming has become an attractive export-focused market in India. Tamil Nadu is particular is one of the largest flower producers in the country. Flower farming also creates a viable employment market and creating several jobs. The Indian flowers are also attracting several exporters due to their longstanding traditional connection to flowers. But it must be noted that despite all the above alluring factors, flower farmers fail to make notable profits and are set back by several internal and external factors of marketing.

Mahalle *et al.* (2020) explain that India's floriculture business, which is seeing rapid expansion, has grown in importance from an export perspective. Cut flowers are more in demand not only in the country but also abroad. This has happened because of liberalisation of industrial and commercial norms. For better commercial floriculture it is done in green house with climatic conditions results in significance growth in last 10 years.

Vahoniya *et al.* (2018) studied that In the recent years floriculture production and market is booming now-a-days due to increase in demand both in national and international market it has emerged as a profitable agri-business in India and worldwide. Searching of market is essential tenet for each and every producer of floriculture which propels them to go for producer association, as it improves the quality and value of the products. Netherland is the best production hub in world forum where as India exports more to USA and United Kingdom these days. Southern India controls the major production of flowers whereas West Bengal is number one in cut flower production and Tamil Nadu is number one in loose flower production.

Bahirat and Jadav (2011) the study aimed to identify the various marketing channels used by rose farmers and analyze the price spread, which is the difference between the price paid by the consumer and the price received by the producer. The research provides valuable insights into the marketing of roses in the Satara district, which can be used to improve marketing strategies, enhance the efficiency of the rose supply chain, and potentially increase the income of rose farmers.

Kaur & Singh (2019) study's main limitations were high weather variability, a lack of trained and professional labour, a low market price for flowers, and price volatility. The study was carried out in 4 districts of Punjab where only 20% of flower growers had adopted the suggested flower production method to a great level, while the remaining 80% of growers used medium and low adoption rates. The main focus was on to setting a market price for flower output and implementing appropriate crop insurance coverage. Study identified several marketing issues, with the florists' lack of access to transportation and storage facilities standing out as the biggest challenge to floriculture.

Objectives of the Study

1. To understand the marketing channels of the flower business in Khurda district of Odisha.
2. To understand the factors affecting the supply chain of flower market of Khurda district.
3. To understand the scope and challenges of flower business in Khurda district.

RESEARCH METHODOLOGY

The study has been conducted in Khurda district of Odisha with a sample size of 85. Different places are covered in order to collect primary data such as Bhubaneswar, khurda, Jatani. The data are collected from farmers growing flower, wholesalers, and retailers. Interviews and schedulers are used to gather information regarding their opinion, perceptions and experience. Some data are also collected by secondary sources like journals, and Govt department's publications. Data are collected as per non-random convenience sampling. Data are then analysed and interpreted in order to analyse market trends and patterns in flower production, pricing, demand pattern and supply chain dynamics.

**Table 1: Area & Production of flowers in Odisha (Area in 000Ha, Production in 000MT).**

Year	Area	Production (Loose flowers)	Production (Cut flowers)
2011-12	7.54	26.08	-
2012-13	7.52	26.16	-
2013-14	7.44	37.4	57.4
2014-15	7.5	25.86	57.16
2015-16	6.56	24.78	29.42
2016-17	6.57	24.82	48.16
2017-18	6.61	24.91	48.49
2018-19	6.61	24.9	28.54
2019-20	5.46	30.85	32.08
2020-21	5.6	31.56	33.5

Source- Horticultural statistics at a glance, Govt of India, 2023

Table 2: Area & Production of Marigold, Rose & Gladiolus flowers in Odisha.

Year	Marigold		Rose		Gladiolus	
	Area	Production	Area	Production	Area	Production
2011-12	2715	25644	2346	4016	2368	2642
2012-13	2785	26252	2514	4271	2412	3013
2013-14	2840	27464	2592	4306	2494	3740
2014-15	2875	27568	2486	4221	2482	3804
2015-16	2680	26846	2511	4354	2488	3812
2016-17	2710	27103	2478	4328	2510	3878

Source- Directorate of Horticulture, Govt of Odisha
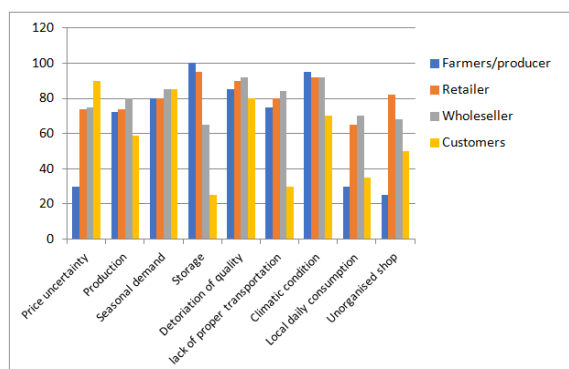
Source- Field survey

Fig. 1. Factors affecting the supply chain in flower marketing (values are in %).

Fig. 1 shows that price uncertainty, production of flowers, seasonal demand, storage, quality, transportation, climate condition, local daily consumption and unorganised shop has impact on the supply chain of the flower marketing. The above figure clearly interprets how a flower grower, whole seller, retailer and customers are affected.

As per the figure storage and climate has maximum impact upon the farmer as it directly affects the production and the self-life of the flowers. Flower farmers typically cultivate small quantities and sell them quickly. However, some traditional flower growers face challenges due to limited storage space, even for their small produce. To maintain freshness, quality, texture, and lifespan, cold storage facilities are crucial for flowers. Without these facilities, flowers can deteriorate rapidly, reducing their value and profitability. A better storage facility can help the growers to retain their products for a longer time and market it in right time and place.

Retailers are also affected by the lack of proper storage facilities which becomes difficult to sell the flower by keeping for a longer time. This directly affects the quality of the flowers which has very less self life except some varieties. Transportation is also another factor which affects the marketing of flowers. Most of the flowers they purchase from different states for which they have to depend on different modes of transportation. Those modes are not designed to transport flower with proper storage condition, if so it also cost a lot which ultimately will increase the price in local market. In order to minimise the cost, they prefer public transport and pick up vans. Looking into these factors price uncertainty is also another cause which affects the supply chain. During high to seasonal demand retailers face challenges as the back ward linkage system cost high to him. They purchase with high cost and thus the market price goes up for certain flower varieties. Many times the production also plays an important role in marketing of flowers. The retail florist shops also usually operate in the open on-road sides, with different flowers arranged in large buckets. However, there are some good florist showrooms, where flowers are kept in controlled temperature conditions, with considerable attention to value-added service.

Whole sellers who supply the flowers to different retailers are affected mostly by quality detoriation due to climatic condition, transportation and with seasonal demand. As they are buying in bulk to supply different retailer, they mostly use different transportation mode under their own risk. Failure of timely supply of the product to the market ultimately hampers sell, detoriation of quality. In case of seasonal demand like festival or marriage season the demand for some particular varieties goes up which is also another factor they are concern of.

Costumers are the end users who buy from retailer. As per the figure price uncertainty is a major factor for them. Day to day change in price, shortage of varieties in season time is a major problem faced by the customers. In this case quality become a parameter where the customers has to buy local varieties which are available in the market or in need they have to compromise with the quality.

Table 3: Seasonal demand of flowers as per arrangements.

Arrangements	Flowers	Seasonal demand
Cut Flowers	Rose, Lily, Sunflower	Celebrations, Occasions
Bouquets	Rose, Gerbera, Daises, Sunflower, Lily, Carnation, Baby's breath	Celebrations ,functions, Occasions
Garlands	Roses, Jasmine, Orchids, Marigold	Puja, Festivals, Decorations in marriage and functions
Flower basket	Daisies, Sunflower, Roses with different colours, Gerbera	Celebrations, functions
Loose flowers	Marigold, Champa, Hibiscus, Jasmine	Day to day religious work, Festivals

Source- Field survey

The above Table 3 gives a picture of the seasonal demand of the market. Customers buy different arrangements of flowers in order to fulfil their needs. Market demand for garlands and loose flowers increase when there are festivals or anything needs to decorate. In that case the demand for the varieties like Rose, jasmine, marigold, increases .Generally in the month from August to January we celebrate various religious festivals and also in these day there are many marriages and other functions. Because of low temperature all types exhibitions, melas, conferences are also done which increases the demand of those varies of flower, in this time the price of the arrangements also goes up as the demand increases. Side by side in celebration people prefer bouquets and flower basket to greet. For making those varieties like Gerbera, Daises, Carnation, Lily etc. flowers are used. These demand pattern ultimately affects the marketing of the flower market. For day-to-day religious work like worshiping in home or in temples retailers need to keep flowers like Champa, Hibiscus, Jasmine, Marigold etc.
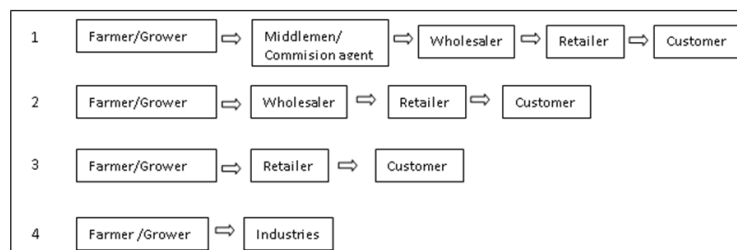
Source- Field survey

Fig. 2. Type of marketing Channels.

Supply chain of flower is an important aspect as it directly affects the entire marketing system. These things need to be carefully transported through its channel partners to ultimately reach its customer in time and with quality. This marketing channel refers to the route a product takes from the producer to the end-user, whether it's a consumer or industrial buyer. This channel involves various intermediaries, such as agents, dealers, wholesalers, and retailers, who facilitate the movement and sale of the product or service.

From the above Fig. 2, it is found that the there are four types of supply chain process being followed in the surveyed market. Among these first, second and third follows B to C model supply chain process.

In the first process of supply chain flowers are being transported from grower to consumer through middlemen, distributors and retailers. In this type of supply chain system mostly bulk purchases are done of different flower varieties from a distance place.

In the second supply chain process generally, whole seller plays an important role in purchasing flowers from growers and supply to retailers for retail sale. In this type generally a single or less number of flowers variety is purchase and those are regular sources.

In the third type retailers directly fetch the lowers from the growers and sale in the markets. In this system mostly the retails having a bulk order purchase from the growers to liquidate the order and sale in market. Local farmers plays an important role where the retailer purchase.

The fourth process of supply chain in flower marketing that followed in this market is direct B to B in which the industry directly procure the flowers from the grower farms. In this process a single variety of flower is purchased as per the need of the industry. In this contract farming and pre agreement is followed.

Table 4: Source of purchase and transportation mode.

Place	Flowers	Transportation Mode
Kolkata	Marigold, Jasmine, Rose, Gladiolus, Hibiscus	Train, Bus, Truck, Pick up van
Bangalore	Lily, Gerbera, Tipsy, Orchid, Daisy	Flight
Raipur	Gerbera, Rose	Bus, Truck
Local market	Marigold, Rose, Orchid	Pick up van, Truck

Source- Field survey

The above Table 4 shows the areas from which the flower is procured for Khurda market. As per the study maximum varieties of flowers come from Kolkata and Bangalore. Kolkata being nearer to Khurda district maximum flowers are procured which are demanded in common in the market. Those flowers are procured by wholesalers through train, night buses & pick up vans. These flowers are less susceptible to breakage and quality loss, for which they are transported through these modes which is also cost effective. Lily, Gerbera, Tipsy, Orchid, Daisy are some of the flower which are procured from Bangalore, Karnataka through flight.

These are mostly high value flowers and fetch high price in the market. Gerbera, Rose are flowers which are procured from Raipur, Chhattisgarh. Whole sellers prefer Raipur to Bangalore for Gerbera as the cost is less than Bangalore, but it still depends on the production and availability. Some flowers whole sellers and retailers also purchase directly from local growers but only during season time. Some of the areas are Berhampur, Puri, Pipili, Niali which supply flowers to Khurda market. A single grower is present in Berhampur who supplies Orchid to this market.

Table 5: Comparison of wholesale price.

	Oct-Jan	June-Sep	Feb-May
Marigold	Rs 10/piece	Rs 20-25/piece	Rs 20/piece
Rose	Rs 4/piece	Rs 6/piece	Rs 8/piece
Lily	Scented & Large Variety- Rs 1200-1500/5 pieces Without scent & bit small Rs 900-1000/5 pieces	Scented & Large Variety- Rs 1500/5 pieces Without scent & bit small Rs 1000-1200/5 pieces	Scented & Large Variety- Rs 1500/5 Pieces Without scent & bit small Rs 1000-1200/5 pieces
Jasmin			Rs 20/piece
Gerbera		Rs 8/piece	Rs 10/piece
Hibiscus	Rs 120/150 pieces		Rs 70/150 pieces
Orchid	Bangalore variety Rs 25/piece Local variety Rs 20-23/piece	Bangalore variety Rs27/piece Local variety Rs 23-25/piece	Bangalore variety Rs 27/piece Local variety Rs 23-25/piece

Source- Field survey

Tables 5 shows the wholesale price that the retailers buy to sell in Khurda market. Depending upon the type of flower, variety of a particular flower, place from where it is purchased and the season when it is purchased. In Oct-Jan the climate is favourable for flowers so there is high production to mitigate the demand of market. Though it is also time of festival still then the price of the flowers is low as compared to other season of the year. In this season local farmers also grow many flowers which also help to fulfil the local demand. In the off season the price of the flowers are high but because of the demand for various occasions the retailers purchase the flowers to supply in the market.

Findings. The market is quite unorganised and unscientific which affects the supply chain of flowers to fulfil the demand of consumers. Though the production in our state has increased still then the vendors are depending fully to other states for mitigating demand. It is a season based business where the demand is irrational depending upon occasions. There are no proper storage facilities available in for storing flowers which compels growers and other channel partners to sell as soon as possible. The flower packaging and transportation system is inefficient, with flowers often packed in basic materials and transported without temperature control, leading to damage and reduced quality. Market is entirely depending upon the outside state for which proper equipped transportation facilities are not used rather Lorries and public transportations are used to reduce the cost and quick supply. The market price also varies as per the availability of the flower.

CONCLUSIONS

An effective marketing channel and systems are crucial for the successful marketing of flowers in terms of yield and income. Good marketing information and facilities will ultimately increase efficiency of the supply chain system involved. Looking into the monopoly involve in this marketing system Govt. should form a regulated market exclusively for flowers. It must give substantial facilities to farmers for floriculture along with modern infrastructure so as to make our state self-sufficient in production and marketing of flowers can be improved. This will not only increase the production also will help

all the channel partners to work in better and economic way to fulfil the need of market keeping the supply chain system well balanced on both supply and demand side.

Thus it may be concluded that by framing proper regulations of flower marketing and by providing adequate institutional credit to mechanize the farmers, the production and marketing of flowers can be improved in the study area.

FUTURE SCOPE

1. Supply Chain Optimization strategies for optimizing the supply chain management of flowers, with a focus on enhancing logistics, storage, and transportation infrastructure to minimize losses and maximize efficiency with a complete empirical analysis.
2. Market Analysis and Forecasting regarding demand patterns and developing predictive models that can enable growers and vendors to anticipate and prepare for fluctuations in demand, thereby improving market responsiveness and reducing uncertainty.
3. Feasibility and potential benefits of implementing cold storage and transportation facilities in the flower industry, with the goal of preserving flower quality and extending shelf life.
5. Current state of market infrastructure in the flower industry, including storage facilities, transportation systems, and market information systems, and identify opportunities for improvement and investment.
6. Potential benefits and applications of emerging technologies, such as blockchain, IoT, and data analytics, in improving the efficiency, transparency, and competitiveness of the flower supply chain and market.
7. A comprehensive analysis of the flower industry's value chain, identifying areas for improvement, opportunities for growth, and potential strategies for enhancing the overall performance and sustainability of the industry.

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