



## **Role of Farmer Producer Organization Post COVID in Marketing of Perishables in Karnataka**

**G. Basavaraj<sup>1\*</sup>, Ashok S. Alur<sup>1</sup>, Itigi Prabhakar<sup>1</sup>, M. Manjunath<sup>1</sup>,  
G. Shashibhushana<sup>1</sup>, S. Kumar<sup>1</sup> and K. J. Parameshwarappa<sup>1</sup>**

<sup>1</sup>Centre of Excellence for Farmer Producer Organizations, University of Horticultural Sciences  
Campus, GKVK, Bengaluru, India.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author GB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ASA and IP managed the analyses of the study. Authors GS, SK and KJP managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

The COVID-19 pandemic started in India during first week of March has infected people and taken its toll. As a result of this pandemic, the entire Nation went into lockdown from March 22<sup>nd</sup> 2020 to protect people's life. The lockdown has hit all the sectors of the economy including agriculture resulting in disruption of business, movements, lifestyles, health and employment. Agriculture being backbone of the Country is affected both on backward and forward linkages of the supply chain. In this context, a study of Farmer Producer Organizations (FPO) primarily dealing in horticulture commodities in Karnataka was undertaken with an objective to understand their role in addressing the challenges in supply chain. Of the 100 FPO's promoted by Department of Horticulture, 40 FPO's were involved in output business post COVID-19 pandemic of which 23

FPO's were chosen for the study. As field surveys were not possible due to the pandemic, information was elicited through telephonic interview of Chief Executive Officers of the FPO's. FPOs in the process on selling diverse commodities to consumer door step faced challenges with respect to transport, payment, logistics and working capital. Though FPOs faced several challenges, several of them found new approaches to deal with the situation. The findings from the study are summarized and recommendations are made to create an enabling environment for FPO's to do business more effectively and to equip them to deal with the situation.

**Keywords:** *Farmers producer organisation; COVID-19; supply chain; horticulture; perishables.*

## 1. INTRODUCTION

The COVID-19 pandemic in India is part of the worldwide pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The COVID-19 pandemic started in India during first week of March has infected people and taken its toll. As a result of this pandemic, the entire Nation went into lockdown from March 22<sup>nd</sup> 2020 to protect people's life. The clampdown has hit all the sectors of the economy including agriculture resulting in disruption of business, movements, lifestyles, health and employment [1]. Since agriculture is the backbone of the Country and it being an essential commodity sector, the stringent national lockdown caused severe disruptions across agrifood supply chains from "farm to fork" [2,3]. Hence, protecting the sector against the pandemic is critical. Governments, both State and Centre have taken several steps and measures to address issues and challenges faced by the Agriculture sector. Some of the important measures taken by Karnataka state government to safeguard the farming community are procurement of produce and pulses under Public Distribution System, issue of pass for free movement of agriculture commodities, opening of Agriculture Produce Market Committee (APMC)'s/*Mandis* for trading and distribution, enabling trading on e-NAM platform, facilitating the process of direct marketing including perishables, farmers to utilize Warehouse Development Regulatory Authority (WDRA) registered warehouse to avoid distress sale, linking of large aggregator logistic platform to facilitate trader in availing trucking facility and also avoid crowding at *Mandis*, Farmer Producer Organizations (FPO) availing bidding facility without bringing produce to APMCS' and facilitating storage in food parks and several such measures.

While these measures are helpful at macro level, at micro level farmers especially small and marginal farmers face several constraints. The

problem of access to market pronounced for small and marginal farmers. The participation of these categories of farmers is further restricted by limitations like poor vertical and horizontal linkages and limited access to market, training and to finance [4]. Collective action is an acclaimed strategy to deal with these challenges that small-scale producers face. Specifically, farmer organizations – such as cooperatives; associations; unions, groups; and federations with different organizational structures – have been identified to play a key role in enhancing farmers' access to markets [5,6,7]. The benefits of collective action through producer organizations are widely acknowledged, and policymakers and development agencies often devote uncritical attention and resources to support smallholders in associating and collaborating to form FPO [8]. It is in this background, we conducted a study on the role of farmer producer organizations as collectives post pandemic in access to market for perishables like fruits and vegetables. To understand the role of FPOs in marketing fruits and vegetables, Centre of Excellence for Farmer Producer Organizations, GoK took up a telephonic survey with Chief Executive Officers (CEO's) of Farmer Producer Organization promoted by Department of Horticulture, GoK as these FPO's are primarily dealing with fruits and vegetables. The study was undertaken with the following specific objectives;

1. To study the role of FPO's post pandemic in marketing fruits and vegetables
2. To study issues and challenges faced by the FPO's in marketing fruits and vegetables
3. To make recommendations to streamline issues faced by the FPO's

## 2. METHODOLOGY

Preliminary discussion with the FPO's revealed that out of the 100 FPO's promoted by Department of Horticulture, 40 FPO's were involved in output business post COVID-19

pandemic. For a quick reconnaissance survey, of the 40 FPO's involved in the business post pandemic, about 23 FPO's were chosen for the survey. To compare and contrast, another 17 FPO's who did not initiate any business post pandemic were also interviewed. FPO's across districts of Karnataka were chosen based on administrative divisions of Karnataka (Bengaluru, Belagavi, Kalaburgi and Mysuru). CEO's of respective FPOs were contacted to understand the opportunities and challenges faced in business during post COVID-19 pandemic. A structured interview schedule was prepared to include questions on business activities before COVID-19, business withdrawn due to COVID-19, days since business initiated after COVID-19, channels adopted for business, mode of sales, challenges in transport, procurement, distribution, marketing, price, availability of produce, risks etc. The information collected is compiled, analyzed and summarized.

### 3. RESULTS AND DISCUSSION

#### 3.1 Status of FPOs Engagement before and after COVID

Of the 23 FPO's surveyed, 9 FPO's (39%) were engaged in input business, 8 (35%) FPO's were involved in input and vegetable business and 6 FPO's (26%) were involved in input and agriculture output business before the pandemic (Table 1).

On the impact of COVID-19 on business of FPO's, only 5 FPO's (23%) said that the business was affected due to non-procurement of maize as transport was not available, 7 FPO's (32%) indicated that business has slowed down, 9 FPO's (41%) indicated business as status-quo and one FPO indicated improvement in business

(Table 2). Before COVID-19, only 8 FPO' were doing horticulture output business. After COVID-19, FPO's who were engaged only in input business and FPO's with only agriculture commodity business also started horticulture output business which primarily focused on selling vegetables and fruits. With 15 more FPO's additionally doing horticulture output business, the incremental change is 75 per cent.

Though a small percentage ( 22.73) of FPO's indicated the effect of COVID on their business.

#### 3.2 Business Channels Adopted by FPO's

Some of the challenges that the consumer faced in purchase of essential commodities post lockdown due to COVID-19 was movement restrictions, maintaining social distancing and policing. This provided an increasing opportunity for business to deliver commodities at consumer door delivery. FPO's also took the advantage of the opportunity and with the support of Department, Government and other stakeholders initiated the business of reaching consumer directly through retail sales.

The business channels adopted for distribution of output is presented in Table 3. Of the 23 sample FPO's, 11 FPO's (47.83%) adopted door to door delivery as the channel for business to sell fruits and vegetables. Farmer Interest Groups (Fig) villages of the FPO, villages close to FPO location and surrounding villages were the customer groups targeted by the FPO for sales. Additionally, 5 FPO's (21.74% ) did sales both in villages and to the nearby cities through door to door delivery of fruits and vegetables to the consumers. Three FPO's (13.04% FPO's) located close to Bengaluru did business in Bengaluru and another 5 FPO's (21.74%) sold to apartments, HOPCOMS, traders, in front of FPO

**Table 1. Status of FPO engagement before and after COVID-19**

Type of business before COVID-19	Number of FPO's	Percentage
Input business	09	39.13
Input & vegetable output business	08	34.78
Input & agriculture output business	06	26.09

**Table 2. Impact of COVID-19 on the business of FPO's**

Impact on business	Number of FPO's	Percentage
Status quo	09	40.91
Business has slowed down	07	31.82
Business impacted	05	22.73
Business improved	01	04.55

**Table 3. Business channels adopted by FPO's**

Type of business	Number of FPOs	Percentage
Daily retail sales	17	73.91
Door to door delivery	11	47.83
Sales both in villages and to the nearby cities	05	21.74
Sold to Apartments, HOPCOMS, traders, in front of FPO Office and directly to consumers	05	21.74
Sales alternate days	04	17.39
Business in Bengaluru	03	13.04
Sales once in four days and monthly once	01	4.35

Office and directly to consumers. A significant number of FPO's 73.91 per cent did daily retail sales, 17.39 per cent did sales alternate days while 4.35 per cent each did sales once in four days and monthly once respectively. The door step delivery adopted by FPO helped the consumers by not contracting the infection and practicing social distancing. The importance of practicing these measures is also highlighted by a report published by International Food Policy Research Institute [9].

### 3.3 Logistics Systems Adopted by FPO's

FPO's adopted different mechanisms to deliver fruits and vegetables to the end consumer. Of the 23 sample FPO's, 19 FPO's (82%) rented vehicles to sell fruits and vegetables while three FPO's used FPO tractors for transport while one FPO availed the services of vehicles provided from Gram Panchayat of the district (Table 4). Apart from vehicles, the FPO's had to procure weighing scales, trays, baskets and gunny bags for business.

Problems faced by FPO's to deliver fruits and vegetables to end consumer is presented in

Table 5. None of the FPO's faced problem on arranging transport for procurement and sales. However, of the sample, 56.52 per cent them indicated high cost of hiring vehicles and transport while seven FPOs faced problem related to non availability of logistic facilities on time. This had impact on FPO profits. The intervention of Government providing pass during lockdown for movement of produce was a major factor in free movement of the produce. Majority of the FPO's did not face any problems in movement of the produce except three of FPO's indicating frequent check delayed movement and also restriction on inter district movement.

### 3.4 Procurement of the Produce

FPO's procured produce both from member farmers and from outside (APMC) as not all the commodities were available with FPO members. The CEO's of the FPO oversaw the procurement and monitoring. The quantity of commodity required for procurement was available in plenty from all the sample FPO's. On an average, on daily basis the FPO's procured 3-4 quintals which was fluctuating based on the demand. The method of procurement was either FPO

**Table 4. Logistics systems adopted by FPO's**

Logistic system	Number of FPOs	Percentage
Rented vehicles sales of fruits and vegetables	19	82.61
Used FPO tractors for transport while	03	13.04
One FPO was provided with vehicles from gram panchayat of the district	01	04.35

**Table 5. Problems faced by the FPOs in logistics**

Problems faced in logistic system	Number of FPOs	Percentage
High cost of hiring of vehicles and transport	13	56.52
Non availability of logistic facilities on time	07	30.44
Due to COVID-19 frequent check delayed movement and also restriction on inter district movement	03	13.04

**Table 6. Problems faced by the FPOs during procurement of produce**

Problems faced in in procurement of produce	Number of FPOs	Percentage
No problems in procurement	12	52.17
Problem procuring from farm gate	07	30.43
Procuring from multiple source	02	08.70
Labour problem	02	08.70

**Table 7. Sale of horticulture commodities by FPOs**

Crop	Number of FPOs	Percentage
Tomato	09	39.13
Onion	03	13.04
Onion and Tomato	04	17.39
Banana, Papaya, Watermelon, Grapes & Guava	05	21.74
Other vegetables	02	08.70

procuring from farm gate or farmer bringing their produce to a procurement point designated by the FPO or to the FPO Office. In case of large volume of produce, FPO procured from farm gate and farmers with small volume were asked to deliver to the common procurement point of the FPO outlet.

The problems faced by FPO's in procurement of the produce is presented in Table 6. Of the 23 sample FPO's, 12 FPO's (52.17%) of them did not have any problem in procurement of the produce while 30.43% of the FPO's indicated procuring from farm gate was a problem as it increased the cost of doing business. Two FPO's (8.70%) indicated that procuring from multiple sources was problematic while two FPO indicated shortage of labour in procurement.

FPO's had diverse commodities for sales in their basket. Though the FPO's sold diverse commodities, Table 7 summarizes the maximum sales of different commodities in the sales basket. Of the 23 sample FPOs, 39.13 per cent of them sold primarily tomatoes, 13.04 per cent sold onion, 17.39 per cent sold onion and tomato, 8.70 per cent sold other vegetables. Banana, papaya, watermelon, grapes & guava were the fruits sold by 5 FPO's. In general FPO's did not face any problem in procurement of the produce. However, certain vegetables high in demand like gourds were not available and hence could not fulfill the need of the customer.

### 3.5 Marketing of the Produce

In most of the FPOs, the CEO monitored the procurement and sale of the produce while the assistant a staff of the FPO was involved in direct marketing. Each FPO faced diverse issues in marketing the produce. Competition from local

vendors/push carts, procuring vegetables from APMC at lower prices due to non-availability of vegetables with member farmers of FPO, problem in marketing of certain produce like capsicum, grapes and flowers, free distribution by philanthropists, unsold produce at the end of the day with almost 10 per cent going waste were some of the challenges faced by FPO's in marketing the produce. The other challenge in marketing was, the FPO's had to cover surrounding villages by following a route map to market the vegetables. These challenges also had a cascading effect on cutting down the profits for the FPO.

### 3.6 Pricing of the Produce and Payment

On pricing, FPO's biggest challenge was the price fluctuated on daily basis and the FPO's had to sell the produce at prevailing market price. The FPO's benchmarked APMC prices to sell their produce. The mode of payment made by FPOs during post COVID-19 business is presented in Table 8. About 18 per cent of the FPO's indicated that the price received was very low. In case on non-availability of vegetables locally, FPOs had to procure vegetables from APMC at a higher prices and had to sell to customers at lower price. Generally as the customers have diverse needs during purchase at an outlet. To fulfill the needs of the diverse choice of the customer and also as a retention strategy FPO has to sell few commodities at a lower price.

Majority of the FPO's (9) had to make spot payments to farmers after procuring which was generally less than Rs. 1000 while 6 FPO's accepted both cash and credit followed by 5 FPO's accepting 50 per cent as cash and 50 per cent as credit and 3 FPO's accepted only credit mode of payment.

**Table 8. Pricing of the produce and payment**

Payment mode	Number of FPOs	Percentage
Cash & spot payment	9	39.13
Cash & credit	6	26.09
50 per cent cash & 50 per cent credit	5	21.74
Credit	3	13.04

**Table 9. Economics of marketing fruits and vegetables during post COVID-19**

Cost item	Cost per day (Rs. )
Procurement	2,63,608
Transport	32,700
Labour	10,450
Miscellaneous	2500
Total Cost	3,85,308
Gross Returns	4,40,539
Net Profits	55,231
Net profit/FPO/day	2907

**Table 10. Challenges faced by the the FPO in marketing of the produce**

Challenges	No of FPO's	Rank
Delivery at customer door step and covering 2-3 villages in a day	18	I
Selling diverse commodities at a low price to attract customers	13	II
Hire of vehicles for transport	12	III
Cash transactions, billing & accounting issues	09	IV
Not having experience in output business	08	V
Competition from local vendors/push carts		VI
Non availability of storage facility/collection centres leading to higher cost of procurement	07	VII
Working capital requirements	06	VIII
Shortage of personell at the FPO level	02	IX
Wastage of produce	01	X

### 3.7 Economics of Marketing Fruits and Vegetables

The major costs incurred by FPO's in marketing of the produce was towards cost of procurement of fruits and vegetables followed by hire of vehicles and transport cost, labour cost and miscellaneous costs which was primarily for food. Additionally, the FPO's had to arrange for working capital. FPO's managed to get the working capital by drawing the money from the existing sources of paid up capital. Economics of marketing fruits and vegetables during post COVID-19 is given in Table 9. On average, the cost incurred by FPO on procuring fruits and vegetables was Rs. 17,874/day, transport & vehicle charges was Rs. 1817/day and labour cost was Rs. 615/day. On daily basis the total cost of marketing fruits and vegetables was Rs. 2,63,608 for 19 FPO's who did retail business

with a gross returns of Rs. 4,40,539/day and net profits of Rs. 55,231/day. The cost of transportation and vehicle hire had major impact on profits. The net profits per day realized by FPO's were in the range of Rs 400 – 13,900. On an average the net profits realized per FPO was Rs. 2907/day (Table 9).

### 3.8 Challenges Faced by FPO's

The challenges faced by FPO's in marketing fruits and vegetables during COVID were diverse. Response elicited from FPO's who initiated business post COVID are summarized in Table 10. Some of the challenges were common to all the FPOs while some were specific to only few FPOs. Majority of the FPOs did not have prior experience in output business and hence reaching customer at customer door steps was the biggest challenge faced by the FPOs

followed by selling diverse horticulture commodities at a lower price to retain customer base. Also, the FPOs faced competition from local vendors who were in the business from long time. Along with the sales challenges were the challenges of unavailability of infrastructure for procurement and storage, vehicles for transport, working capital for procurement and payments and shortage of personnel for business.

#### 4. CONCLUSION AND RECOMMENDATIONS

The present study was undertaken in Karnataka during 2020 to understand the issues and challenges faced by the FPOs in marketing of fruits and vegetables post COVID with an objective to help to streamline issues and ease the situation for FPO whose members are farmers. A first of its kind unanticipated and unimagined situation of COVID-19 has impacted livelihoods and economy at large. To cope with the situation, Governments are finding new ways, approaches and measures to overcome the challenges. With supply chains disruptions in essential sector such as agriculture both producers and consumers were impacted. Hence, it is important to keep supply chain intact specially for perishables like fruits and vegetables. Due to logistic limitations (exports, inter-state, hotel industry & processing), FPO's as institutions got an opportunity to channelize produce to consumers to their door steps by establishing link with producers. FPOs hitherto did not have any experience in output business learnt the art of retail business which generally is considered the toughest. Though FPOs faced several challenges in doing business, several of them found new approaches to deal with the situation. Based on the findings from the study attempt is made to summarize the challenges faced by FPO's in doing business post COVID-19 and suggestions and recommendations are made to create an enabling environment for FPO's to do business more effectively and to equip them to deal with the situation.

1. FPO's are utilizing the existing sources of capital for working capital requirements to do business. Also, the cost of transport, vehicle and labour costs are limiting their profits. Also, lack of personnel will impact upcoming input sales for kharif season. Hence, provision and mechanisms have to evolved to enable FPO's to utilize risk fund available from various sources

2. Though FPO's have learnt the art of doing retail output business, procurement of diverse produce from multiple locations and from multiple sources on daily basis and door to door delivery to consumer will not be sustainable as FPO's have to travel long distance for procurement and distribution. FPO's are just making nominal profits or breaking even. Hence, common selling points such as RSK premises/Gram Panchayat Office/Big grounds at hobli/state level can be designated by local authorities for sales through social distancing
3. Marketing perishables specially in North Karnataka is challenging due to temperature and produce will lose its freshness. Hence, provision of IHR vending machine can help the FPO's for keeping the produce fresh and enhance its shelf life.
4. As the FPO's deals in large volumes, opportunities have to be explored for inter FPO trade. Mapping of surplus & deficit zones will help in inter FPO and inter district movement
5. Digital options have to be explored to aggregate the demand from FPO's members and link them to bulk buyers. In a normal year, perishables such as tomatoes, onion, mango, grapes etc are sent outside the state or for exports and processing. Hence, options have to be explored to move the produce in deficit/high demand areas through inter state movement by trains and exports through air cargo or to processing industry
6. Government has made provisions to FPO's for direct marketing by waiving off the market cess and provisions under WRDA scheme. Additionally, provisions can be made for FPO's to utilize space at APMC's wherever feasible as collection centers to enable them to reduce the cost of business operations
7. Individually FPO's are facing challenges for output marketing. FPO's can be enabled to create a digital trading platform through a federation of FPO's initially at the district managed by professionals who can link produce to markets through FPO brand. Government can create an enabling environment for the same
8. As there is sufficient demand in urban locations, FPO's close to urban centres such as Bengaluru can be linked with

Resident Welfare Associations for sales of perishables

9. With uncertain looming large over the situation and farmers not getting remunerative price for certain vegetables, farmers will be reluctant for cultivation in the next season which will result in shortages and price rise. Hence, planning has to be done to build confidence of farming community in-terms measures undertaken for supply chain management

## CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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