



# Extension and Advisory Services by the Certified Farm Advisors during COVID-19

Assessment Report 1  
Centre for Climate Change and Adaptation (CCA)

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National Institute of Agricultural Extension Management (MANAGE)  
(An organisation of Ministry of Agriculture and Farmers' Welfare, Govt. of India)  
Rajendranagar, Hyderabad – 500 030, Telangana State, India  
[www.manage.gov.in](http://www.manage.gov.in)

## Published by

National Institute of Agricultural Extension Management (MANAGE) (An Autonomous Organisation of Ministry of Agriculture and Farmers' Welfare, Govt. of India) Rajendranagar, Hyderabad – 500 030, Telangana State, India.

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## Citation

Sadalaxmi. A., Vincent A. and Balasubramani.N. (2021). Extension and Advisory Services by the Certified Farm Advisors during COVID-19. MANAGE Assessment Report 1, MANAGE-Centre for Climate Change and Adaptation (CCA), National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India.



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**P Chandra Shekara**  
Director General

## Foreword

The Novel Corona Virus Disease (COVID-19) pandemic has caused significant disruption to the communities both at global and national level. Actions were initiated by Governments to contain the pandemic and its effect on the economies. India declared the nation-wide lockdown which was subsequently extended for achieving satisfactory containment of the pandemic. During these challenging times, Indian Agriculture is one of the sectors which affected significantly. Farming community was looking for support services to cope up this situation to overcome their immediate problems.

It was observed that many public and private sectors have supported farmers in various ways and means. Among others, the Certified Farm Advisors promoted by MANAGE were also in the field and they were providing farm advisories and other services to farmers. In this situations, a brief study was conducted to document the contributions made by the Certified Farm Advisors (CFAs) programme. I am happy to note that the findings of the survey have indicated that Certified Farm Advisors were actively involved in providing farm advisories to the farmers on various crops of their operational area related to crop production, protection and post-harvest during pandemic situation.

They also encouraged the farmers continuously to undertake value addition to avoid glut and linked farmers to various marketing channels viz., e-market, FPOs, mobile marketing, etc. During this adverse condition, CFAs helped the farmers by providing other services such as vehicle passes for easy mobility of farm produce, procuring of farm inputs; personal safety measures, imparted training to the farmers about Do's and Don'ts of COVID-19 through WhatsApp and other electronic platforms, etc., I am glad that the technical competency acquired by the Certified Farm Advisors and their close proximity to farmers have enabled them to provide better advisory services even during the pandemic.

I appreciate Mrs Sadalaxmi A, Consultant (CFA) for taking up a study at an appropriate time to document the advisory services of Certified Farm Advisors. I also congratulate

Dr N Balasubramani for mentoring, guiding the consultant to take up this study and bring out an Assessment Report on "Extension and Advisory Services by the Certified Farm Advisors during COVID-19". I hope that the information presented in the report is useful to all the stakeholders of the agricultural community.

Date: 01.04.2021  
Hyderabad

(P Chandra Shekara)  
Director General

# Abstract

The global food supply chain was severely challenged due to the sudden outbreak of COVID-19 pandemic as it has overlapped with the time of crop harvesting (Rabi crop harvest in India). Also, the lockdown has affected the functioning of markets, trades and transport, coupled with the reverse migration of laborers have worsen the situation further. In this background, the stakeholders of Extension Advisory Service (EAS) have responded effectively to ensure the production and marketing support. Among the various extension stakeholders, the role played by the Certified Farm Advisors (CFAs) of MANAGE was noteworthy in reducing the effects of lockdown on the farming community by linking the farmers to the right markets, arranging the farm inputs, mobilizing the farm machinery for harvesting crops, providing passes for free movement of farm produce to markets, imparting training on agricultural technologies by adopting various innovative ICT tools such as WhatsApp, SMS through mobile, YouTube, Agrisnet portal, Uzhavan app (Tamil Nadu) Odihort (Orissa) etc., They have also used the extension methods such as training, demonstration etc., in addition to the ICT tools to popularise the technologies.

Further, the involvement of CFAs in the implementation of projects and programme of the both central and state governments such as Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) (DBT), Rythu Bandhu Scheme (Telangana state), Jeevani Sanjeevani farmers' shops (Kerala) etc., have enabled farmers to avail the benefits such as Direct benefit Transfer, marketing facilities and other support services. The study clearly indicated that the technically competent Certified Farm Advisors (CFAs) have adapted to the changing the situation and used to acquired competencies and disseminated the knowledge to the farming communities and addressed the problems faced by farmers during the crisis to maximum possible extend. Hence, creation of cadre of expertise on various crops and enterprises based on the need and relevance will be helpful to face COVID-19 like situations and safeguard the interest of farming community.



# Executive Summary

The unrepresented crisis of COVID-19 pandemic has affected the lives of millions and disrupted the food supply chain globally. Agriculture sector in India was also affected severely due to the COVID-19 induced problems such as inadequate logistics, labour shortage, lack of market facilities, infrastructure, traders and buyers. However, the initiatives and interventions of the international and national organizations have enabled the farmers to take necessary precautionary measures to overcome the crisis.

In this challenging time, Extension Advisory Service (EAS) providers such as ICAR, state line departments, ATMA, KVKs, FPOs, agri business companies, NGOs, CSOs, SGHs, input dealers etc., have played an important role by quickly adapting to the crisis. This has enabled the farmers to respond to the supply chain disruptions effectively and timely. Among various players, the extension functionaries trained by MANAGE i.e. Certified Farm Advisors (CFAs) have contributed significantly to deal with the challenges of production, post production and marketing.

Therefore, to assess the extension activities and services provided by the CFAs in details, a study entitled **“Extension and Advisory Services by the Certified Farm Advisors during COVID-19”** was undertaken among 110 CFAs with a structured online questionnaire. The questionnaire was sent to the CFAs through Google Forms and the responses were collected. The data were analyzed using the percentage analysis. Also, the qualitative data were collected through telephonic interaction on one to one basis for further elucidation and discussion.

The study has assessed the wide range of challenges faced by farmers as perceived by CFAs during the lockdown. The major challenges were the Non-availability of labour (72.9%), Supply chain loss (67.7%), Unable to take the produce /product to market (64.6%), Low marketable price (60.4%), No buyers to purchase the produce (45.8%), Non availability of agricultural inputs (39.6%), Difficulty in harvest of farm produce (36.5%), Increased labour wages (22.9%), Decrease in production due to various reasons (18.8%) and increased input cost (14.6%). In spite of all these problems, the advice and information provided by CFAs have helped the farmers significantly to manage their farms, crop production and marketing.

The study also indicates that though there was a reduction in personal (face to face) contact with farmers due to the stringent government regulations, the CFAs have used ICTs tools to disseminate technical knowledge and farm advice through WhatsApp groups, web portal, mobile applications (e.g. Uzhavan app), Audio conferencing Bridge, YouTube etc. This has enabled the farmers to get timely information even during the crisis without having much personal contact.

Further, the study findings reveal majority of the CFAs have also involved in implementation of the government schemes and initiatives such as Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) - Govt. of India, Rythu Bandhu Scheme (Govt. of Telangana), Jeevani Sanjeevani farmers' shops (govt. of Kerala), Special procurement mandis of Jammu and Kashmir etc., to help the farmers to overcome the farming issues during the pandemic.

Moreover, the study revealed that the Certified Farm Advisors have extensive used the ICT platforms to reach out to the farmers. Hence, it is high time to invest in creating IT infrastructure in all developmental departments and develop farmers friendly Apps, tools and build the capacity of extension functionaries for effective use of ICT platforms to harness the advantage of technology especially in the crisis time.



Overall the study elucidates that CFAs are becoming an important source of communication and involved in wide range of activities during the crisis to support farmers at the grassroots levels. Therefore, it is essential for the Government to create adequate number of competent extension professionals by enhancing their technical competency through various professional training and capacity building programmes offered by national and international organisations. This will facilitate them to face any emerging challenges in the future and safeguard the interest of the farmers.

# Prelude

The COVID-19 crisis has impacted the economy of the world at scale and the consequences might have a direct link to food security (Chen et al. 2020). The countries have to protect not only the lives of the people but also save their citizens from the impacts of the socio-economic repercussion that result from the ongoing COVID-19 crisis. FAO (2020) note that the crisis has impacted all sectors, including the functioning of the food system and supply chains. Further, the effects of COVID-19 are expected to be seen among the most vulnerable population including smallholder family farmers and other small-scale food producers, those in informal or seasonal rural employment, urban poor, the elderly, migrants, women and youths, those in conflict zones or suffering under emergencies. In India as well, COVID-19 has affected its citizen and the economic activities were halted right from the date of lockdown 23rd March 2020. To help revive the economic activities, several stimulus measures and interventions have been announced by the government and state governments. Various changes in policies have been brought out by the Government of India to support farmers.

Though the pandemic has restricted the movement of the people and most of the population have limited their movements within the home premises, however, the movement of farmers were not restricted to sell their farm produce. Government of India has allowed the wholesale markets, procurement agencies, farm operations, input shops, agri-machinery hiring centres, and farm implement centres to continue to function despite the lockdown with various protocols and safety measures to keep the food supply intact (Chander, 2020).

However, safe crop production is dependent on dissemination of timely farm information and other advisories as well as market support services. Chen et al (2020) noted that EAS responded quickly to give COVID-19 information to rural communities and to adapt their regular outreach to the “new normal” of social distancing and noncontact communication. Public extension service providers (Departments of Agriculture, Horticulture, Animal Husbandry, ICAR, KVKs, including several private extension players (Corporates, Agri Input Companies, NGOs, SHGs, FPOs, input dealers etc.,) have quickly responded to the information needs of farmers and provided market supports (online marketing) that enabled the farmers to make an informed decision with regard to crops production, post-harvest management and marketing. For example, the extension services of KVKs in sharing of information on markets, availability of critical inputs, maintaining social distance, facilitating the installation of Aarogya Setu app etc., have helped the farmers (M S Meena and S K Singh, 2020). Similarly, the line departments which form a larger frontline extension support system have informed the farmers regarding the availability of farm machinery, post-harvest management facilities, reliable marketing and remunerative prices. Several studies note that the use of WhatsApp has become one of the most essential advisory tools and helped the EAS provider to connect the farmers with timely information. Most of the KVKs use WhatsApp groups, mostly both inter and intragroup for sharing information on the latest/innovative technologies. During the lockdown, the ICAR through its KVK systems has provided advisory on ICT platforms to most of the farmers on the prevailing situations of agriculture, thereby enabling them to market their produce effectively (Mahesh Chander, 2020). Also, the DAESI trained input dealers have used the WhatsApp as an information tool to help the farmers on the management of pests and diseases and sell the farm produce at remunerative prices throughout lockdown period (Vincent and Balasubramani, 2020). This apart, the extension service support of the CFAs played a major role in advising farming community to effectively manage the crops and market the produces at the remunerative prices during the COVID-19 pandemic period.

## **Case 1. CFA as a specialized capacity building programme to create a cadre of technical experts**

National Institute of Agricultural Extension Management (MANAGE) established in 1987, is an apex level autonomous institute under the Ministry of Agriculture & Farmers Welfare, Government of India. MANAGE offers its services in Training, Consultancy, Management Education, Research and Information Services. MANAGE organizes need based Extension Management programs for the Extension functionaries of Agriculture and Allied departments in the country. However, it is being felt that the capacity building program of MANAGE should help the extension functionaries to take forward the proven technologies from National Agriculture Research System (NARS). Hence, MANAGE has launched a new initiative viz., “Certified Farm Advisor/Certified Livestock Advisor” program during 2017 with the collaboration of Indian Council of Agricultural Research (ICAR) institutes for extension officers in agriculture and allied sectors through a systematic approach.

The main objective of this program is to create a cadre of “Certified Farm Advisors/Certified Livestock Advisors” by suitably enhancing the core competencies of public and private extension professionals in appropriate technologies of agriculture and allied sectors to enable them to deliver effective “Technical Advisory Services” and thereby address the field-level problems faced by the farmers.

Certified Farm/Livestock Advisor program is operated in three modules as given below:

### **Module - I**

Deals with sectoral specific latest technologies and management aspects for a period of three months through e – platform.

### **Module – II**

Intensive specialized skill oriented training for a period of 15 days at ICAR institutes (based on the specialization preferred by the extension functionaries)

### **Module – III**

The candidates will try to apply their learning in the field at their place of work with the handholding support of the Mentor Scientist/s from the same Institute where the candidate has undergone Module-II. The candidate will take up module III for a period of eight months, which will help them to develop a holistic understanding on the practical aspects of their specialization. The work carried out by them will be documented and a project report will be submitted. Based on the performance, they will be evaluated by both MANAGE and concerned ICAR institute and successful candidate will be recognized as Certified Farm Advisor on a chosen specialization. By the end of Module-III, the candidate is expected to be competent enough in the chosen specialization and will be able to provide better field advisory services to the farmers.

# Need for the study

India has declared lockdown starting from last week of March 2020 to contain the pandemic. During these challenging times, Indian Agriculture is one of the sectors which was affected severely. As the lockdown has overlapped with the time of crop harvesting, the lockdown derailed harvesting, threshing and marketing operation. Lack of agricultural labour hampered the harvesting and transportation of agricultural produce, which has affected the entire supply chain and worsened the situation. In addition to this, the farmers and farm laborers were not having adequate awareness with regard to precautions and safety measures to be taken to prevent the disease spread. In this COVID - 19 crisis, farmers were looking for better advises or solutions from the extension functionaries to mitigate their immediate problems related to health & safety and farm level problems.

In this context, various stakeholders have supported farmers with several extension and support services, among them, the EAS of the Certified Farm Advisors (CFAs) have also helped farmers to overcome the effects of the lockdown on crop production and marketing effectively and timely. Therefore, an assessment study entitled “**Extension and Advisory Services by the Certified Farm Advisors during COVID-19**” has been undertaken with the following objectives,

1. To identify the challenges encountered by the farmers during COVID- 19 pandemic period.
2. To assess the extension and advisory services provided by the Certified Farm Advisors (CFAs) during COVID- 19.

## Methodology

A total of 370 CFAs have been trained so far by MANAGE. An ex post facto study was undertaken as most of the EAS carried out by the CFAs already taken place. A structured online questionnaire was prepared in order to elicit responses from the CFAs regarding various problems faced by the farmer during

COVID- 19 and extension services offered by them. The questionnaire was prepared with the help of Google forms and the link of which was sent through email to all the 370 CFAs who have completed Module-II in various specializations like Rice, Millets, Pulses, Seed Technology, Organic Farming, Forages, Vegetables, Medicinal and Aromatic Plants, Floriculture, Spices and Fruits. However, the responses were received only from 110 CFAs. The collected data were imported into an excel sheet for further analysis. The data was compiled and analyzed by using the percentage analysis and weighted score average.



# Results and Discussion

## Profile of Certified Farm Advisors (CFAs)

The results illustrate that among the CFA practitioners, most of them who responded for the questionnaire sent through Google Forms belong to the state Tamil Nadu (20%), followed by Kerala (15%), Orissa (9%) among others (Annexure I). Most of CFAs had PG graduation (60%) and followed by UG degrees (28.4%). (Annexure-II). The study further indicates that the majority of the CFAs are Agriculture officers, Horticulture Officers, Assistant Agriculture Officers and Agriculture Inspectors. Interestingly, a few CFAs are also from the senior officials of the line departments.

Though CFAs work at all levels and advice farmers about the good practices to help them to be competent in a changing landscape of food supply chain. The results show that the area of work of CFAs vary largely within the District. About 36% of the CFAs are working at the district level with varying degree of coordination with the CFAs at sub-units like Mandal, Block and Taluk and to some extent village. Also, 22 and 21 % of them work at Mandal and Taluk levels, respectively.

A total of 17% of the CFAs are working at the village level. It is important that while nominating the officials for the CFA, the extension personnel working at village level may be given priority. The state/line departments need to encourage their field extension personnel to enroll for CFA programme, and thereby improving their specific skills to facilitate a better learning atmosphere and to promote agricultural innovations. The roles of CFA in the implementation of development projects have also greater impacts on the farming community. For example, CFAs were associated with the implementation of the Rythu Bandhu in Telangana and Subhiksh Kerala project in Kerala, Agrisnet in Tamil Nadu etc. They were also found to have involved in knowledge dissemination, facilitating learning, creation of awareness and networking for marketing.

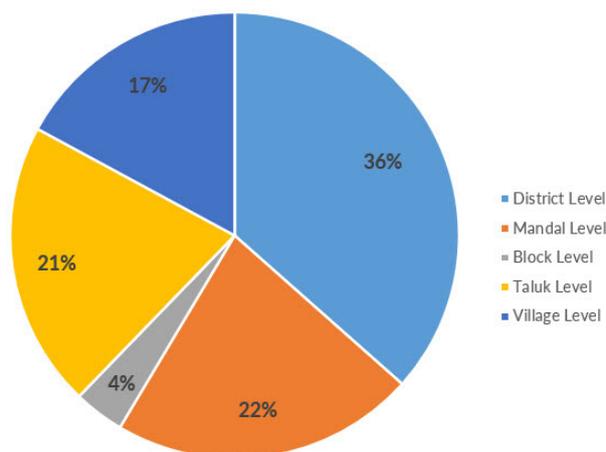


Fig. 1: Place of work

## Impacts of COVID-19 in agriculture as perceived by CFAs

Evidence suggests that CFAs play a major role in the knowledge dissemination to farmers. Also, their direct advisory services and dissemination of the farm specific information help farmers manage their fields effectively and enhance the productivity of the food systems and farm-level income. It is also evident during the challenging times of COVID-19 and associated lockdown imposed in the country from the last week of March to June. A vast majority of the CFAs indicated that COVID-19 has affected in their working areas. CFAs reported that most of the field crops (Paddy, Maize, Pulses, Oilseeds, Millets, etc.,) were cultivated by the farmers and they were affected due to the disruption in the food supply chain.

“Non-availability of traders and logistics for marketing of tomato, musk melons and mangoes in Western Mandals of Chittoor district, Andhra Pradesh were the major challenges faced by farmers during the lockdown periods.

**Mr. Bhaskariah**

Assistant Director of Agriculture (FTC),  
Chittoor, AP

“Labor wages in Anathapuram Mandal increased to Rs.300/- from Rs.200/- due to shortage of labor during lockdown periods

**Ms. Veerankhi kha Jyothirmai**

BTM, Vishakhapatnam, Andhra Pradesh



## Case 2. Market support during the challenging times - Mr. Tapas Chandra Roy, CFA in Millets

Mr. Tapas Chandra Roy, Assistant Agriculture Officer, Koraput, Odisha and Certified Farm Advisor specialization on Millets reported that there was a marketing problem in Koraput, Odisha. To resolve this problem, he has helped around 30-40 farmers to get e-passes to reach out to market without any transportation obstacles. This facilitation has helped farmers to sell tomato at a fair price of Rs.20-25/ kg and water melon Rs. 30-40 per price.

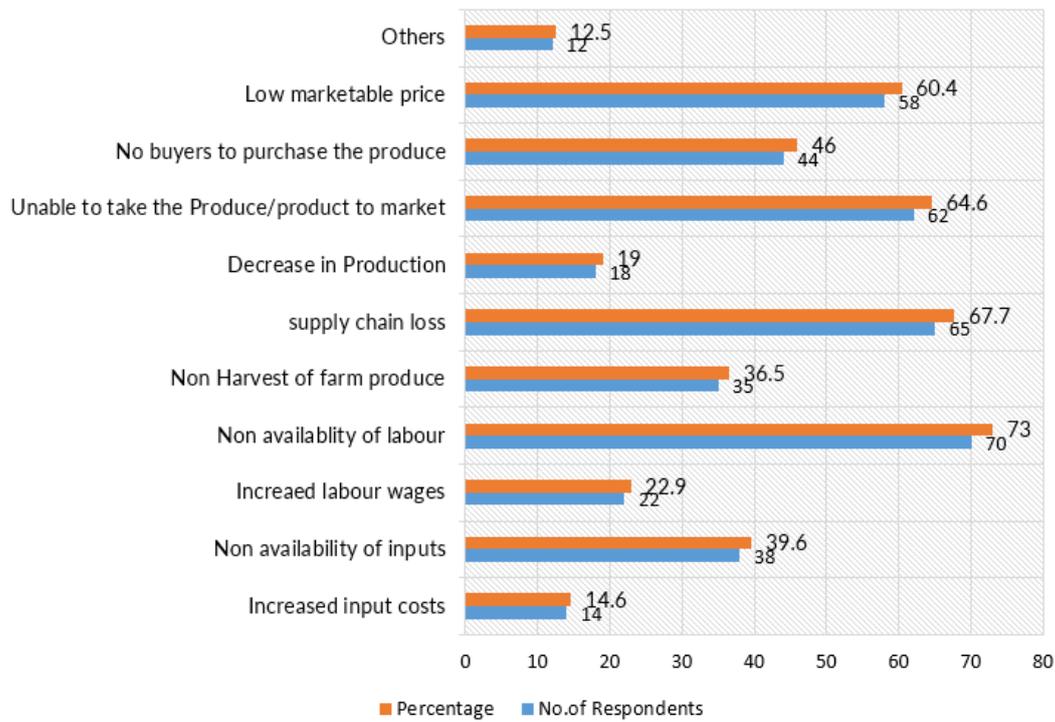


Fig. 2: Types of problems encountered by farmers during COVID 19/ Lockdown

CFAs have indicated various problems faced by farmers such as the non-availability of labour (73%), supply chain loss (67.7%), unable to take the produce /product to market (64.6%), low marketable price (60.4%), non-availability of buyers (46%), non-harvest of farm produce (35.5%), increased in labour wages (22%), decrease in production (19%), increase in input cost (14.6%), etc.

## Options and strategies for communication before and during the lockdown

Communication in particular, rural communication is an interactive process in which information, knowledge and skills, relevant for development are interchanged between farmers, extension and advisory service providers. This information is either shared personally (one to one or one to many) or through the use of tools such as media (mass, print and social) (Del Castello and Braun, 2006). In Agriculture, several stakeholders such as public sectors, private, Non-Governmental Organisations (NGOs), Civil Society Organisations (CSOs), input dealers, community-based institutions etc., communicate to farmers to manage crops effectively within the available resources (Sajesh et al. 2018). There is also a growing cadre of extension professionals in the Indian context, they are private extension stakeholders, private consultancies, Agri Clinics and Agri-Business Centre trained professionals, input dealers trained under Diploma in Agricultural Extension Services (DAESI) etc., one such extension personnel in the extension system is Certified Farm Advisors (CFA). These CFAs provide crop specific information to farmers to enhance farm productivity and income level. FAO (2020) Agricultural extension and advisory services (EAS) systems play an indispensable role at the frontline of the response to the pandemic in rural areas. However, to adapt to the emergency context within the government regulations, EAS providers need to rapidly change their way of operating. In view of this, though the CFAs have reduced their personal contacts with farmers, they have utilized mobile technology-based tools such as WhatsApp to respond to the needs of farmers. Saravanan et al, 2015 stated that improved availability of, and access to, information and communication technologies (ICTs) – especially mobile phones, computers,

radio, internet, and social media increased opportunities for collection, processing, storage, retrieval, managing, and sharing of information in multiple formats.

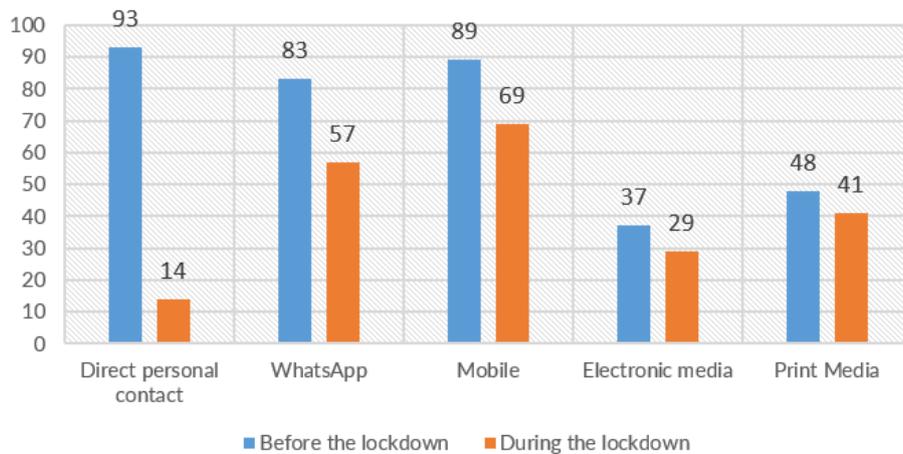


Fig. 3: Distribution of CFAs with respect to use of communication methods before and during the lockdown (in percent)

### Case 3. Advising on Best Practices of Storage for better marketing – facilitating roles of Mr. Abdul Niyas

Mr. Abdul Niyas-Project Officer, NFPP (Nedspice Farmers Partnership Program) and Certified Farm Advisor trainee (expert on Spices) working at Barmer and Jaisalmer districts informed that the non-availability of logistics and labourers were the most pressing problems faced by farmers in his working units. The reverse migration of the labourers had disrupted the food supply chain vastly because there were no people to carry out the farm operations (harvesting) and post-harvest management (loading and unloading) and caused increase in wage rate as well. There were also no Mandis and market facilities to sell the produce. However, Mr. Abdul Niyas, having enhanced his advisory capacity on different areas of agriculture because of CFA, he was able to advise his farmers on the Best Practices of Storage of crops under field conditions (cost effective storage method) and influenced them to adopt this practice as it would help farmers to save post-harvest losses. Later, he facilitated them to sell their produce at NFPP.

The results of the study indicate that 83 % of the CFAs had used WhatsApp for communicating to farmers during lock down, whereas, before the lockdown, only 57 % of the CFAs had used WhatsApp as a communication option to provide advisory services to farmers.



Information of advisory services through e-agriculture



*Pulpatta Agricorners group by Mr. Subair Babu (Agriculture Officer) at Malappuram district*

Also, the use of mobile phones among CFAs for communication of information was increased by 89% during the lockdown from 69% before the lockdown. Similarly, CFAs had used electronic and print media as options to provide advisory services to their farmers, though not to the extent as WhatsApp based advisory services. Also, CFAs had utilized the ICT platforms such as Rythu Yantra app (Telangana state), Uzhavan Mobile app (Tamil Nadu), Audio conferencing Bridge, Pico Projectors etc., to deliver the extension services to the farmers.

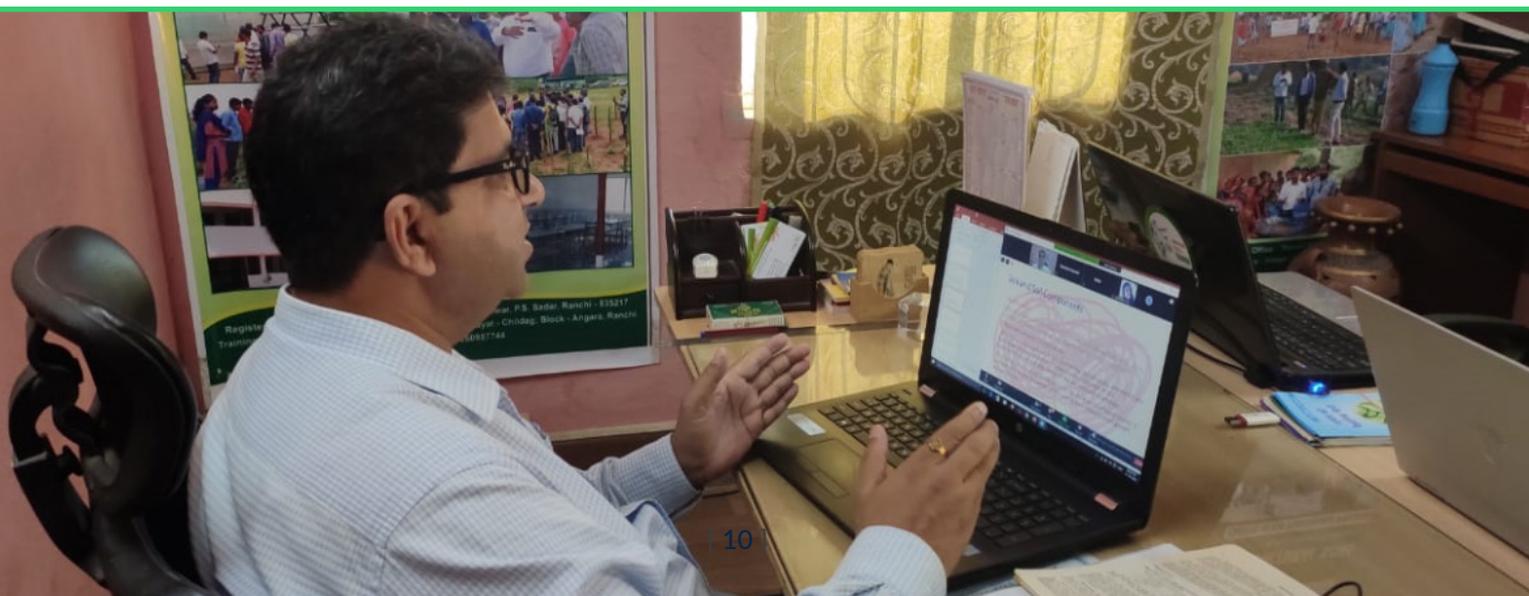
Considering the results of the study, as noted by FAO, the Certified Farm Advisors have used all possible communications channels and reached out to farmers with need based advisories even during strict government regulations and constraints during the lockdown period.

A few major communication channels and innovative extension approaches used by the CFAs are given in the table.

**Table 1. Major communication channels and extension approaches used by CFAs during COVID-19**

S.No.	Details of CFA	Communication methods	Knowledge to farmers
1.	Mr Siddharth Hazra, Territory Business Manager, Bayer Crop Science, Nadia, West Bengal.	Audio bridge campaigning - Is a hardware system that is able to connect multiple videoconferencing systems together into a single conference.	Advised farmers on the crops such as banana, gladioli, rose, onion and conducted demonstrations through WhatsApp group.
2.	Dr P. Ganesha Moorthi, Agriculture Officer, Karur. Certified Farm Advisor (Trainee) Organic Farming	AI-enabled communication through Artificial Intelligence system <i>Agrisnet portal</i>	He has recommended the control measures to those farmers who have sent the images related to pest and diseases to this <i>Agrisnet portal</i> through SMS. Around 150 farmers have benefitted by the <i>Artificial Intelligence System of Agrisnet portal</i> during the lockdown. This has helped farmers to keep themselves healthy and manage their farms effectively without physical contacts.

3.	Mrs C.Girija, Assistant Director of Agriculture, Palakkad, Kerala and Certified Farm Advisor trainee (Vegetable)	Campaigns	<p>Kerala being the consumer state and depend on neighbouring states for most of their agricultural farm produce to meet their demand.</p> <p>Mrs C.Girija is aware of the importance of the fallow lands in Palakkad, not just during the pandemic but long before. However, the COVID-19 outbreak has allowed her to advise farmers to bring all available fallow land into food crop cultivation to help farmers meet their food needs by their own. This measure not only helps farmers to cultivate their foods but also reduces the reliance on the foods which come from neighbouring states or areas.</p>
4.	Ms Abeni Patton, Block Technology Manager, Wokha, Nagaland	Training cum demonstration	<p>As the access to synthetic pesticides reduced because of the lockdown. Ms Abeni Patton has trained her farmers through demonstration to produce bio pesticides including neem oil extraction as a way of managing pests and diseases. This has helped the farmers to manage their crops without synthetic pesticides.</p>
5.	Mr. Ansuman Pattnayak	Method demonstration	<p>Mr. Ansuman Pattnayak organised method demonstration for Windrow vermicompost preparation at Govinda Godhan Gosala Alipada village, Puri district. This has enabled the farmers to produce their own vermicompost and depend less on the external fertilisers.</p>



## Case 4. Virtual training for vegetable growers – Disseminating knowledge at right time

The most pressing challenge to the extension advisory providers is that keeping farmers informed of the knowledge required by them continuously. The COVID-19 situation has further worsened the situation. Knowing this situation, one of the CFA Mr. Subair Babu (Agriculture Officer) at Malappuram district created a WhatsApp platform Pulpatta Agricorners by grouping around 250 vegetable growers in his area. This group has helped to share information on vegetable production and marketing. This WhatsApp platform helped to provide solutions to the personalized queries related to pest and diseases and other advisory needs of group members. He also organized an online training to around 200 vegetable growers through WhatsApp, by inviting an expert from the Kerala Agricultural University. The entire session was recorded and shared among the group members to disseminate the information to other farmers who are not in contact with Mr. Subair Babu. This ICT initiative was lauded by the farmers and the local MLA Mr. Ubaidhulla. This was covered by a local FM news and appreciated the effort of the Certified Farm Advisor, Mr. Subair Babu for the timely and relevant information during the pandemic.



## Case 5. Keeping the knowledge dissemination uninterrupted – A case of mobile conference during the COVID-19 pandemic

Organic agriculture is gaining importance among not only producers, but also consumers. The farmers who shift their cultivation from conventional method to organic method need a constant knowledge on the various components and methods of organic agriculture. Therefore, Dr. Lakhani Hardik Natvarlal, a Deputy Project Director, ATMA project at Junagadh, Gujarat and the Certified Farm Advisor specialized in organic farming has organized two online training on organic agriculture during the lockdown. The theme of the first was on the knowledge required for preparing the field for the kharif season and the second was on the post-harvest management of Mango. These online training was attended by 100 farmers who practice organic agriculture. Dr. Lakhani has indicated that, in addition to the organic farmers, around 460 farmers of FIGs have also attended the online training. He had further helped the farmers by regularly uploading plant protection videos on white fly problems on coconut, procedure of Certified Seed production etc., with an emphasis on COVID -19 guidelines (these can be accessed on <https://youtu.be/Tn9iH5FZ3ol>, <https://youtu.be/YCkVhQZV9js>, <https://youtu.be/eLUjDX6-5SA>)

## Case 6. Reinvigorating knowledge on microgreen for healthy life

Creating awareness through the print media is still a popular mode of extension advisory services as it helps the readers understand the subject. Many CFAs have used print media to create awareness on various available technologies related to farming. Similarly, Dr. Vishal Raina, Agricultural Extension Officer, Department of Agriculture, Jammu & Kashmir and Certified farm Advisor (Vegetables) had published an article on “Microgreens: Quintessence to Pandemic” in Greater Jammu newspaper. In this article he emphasized that the need for overcoming the stress of modern life style, particularly the present scenario of pandemic crisis. Hence, the cultivation of micro greens are the innovative concept suits the human nutrition needs under their local environment, in the most optimal and efficient manner. This subject has attracted the public as this helps in developing the immunity to COVID-19 as it was the need of the hour.



## Case 7. WhatsApp – A unique social media tool for technology dissemination during pandemic

Mobile communication has the potential to improve farmers’ access to agricultural knowledge and information. In particular, WhatsApp is one of the unique social media tool that can be effectively used as an agricultural extension tool and a convenient communication application (Naruka et al. 2017; Thakur et al, 2017). In the light of COVID-19 crisis, the use of WhatsApp for agricultural communication and advisory services had increased and may continue to be the major extension tool in advisory services. Certified Farm Advisors have also created several WhatsApp groups for farmers to share the real time information and farm specific advisories. For example, Dr. Subhashree Priyadarshinee, AHO, Agriculture and Farmers’ Empowerment at Jajpur (Odisha State) and a Certified Farm Advisor trainee (Vegetables) indicated that each of the gram panchayat has a WhatsApp group named Bitana with 200 farmers in each group. She has provided advice to the farming community through these WhatsApp groups. The major advisory shared among the group members during the lockdown were crop production, protection and especially marketing advisories and COVID-19 precautionary measures. This information helped the farmers to be well aware of the situation of COVID-19 and to market the produces at remunerative prices.

## Major crop advisory and extension services provided by CFAs during the lockdown

Extension and advisory service systems have several methods and strategies that directly help farmers to improve the farm system productivity, income level and ecosystem sustainability. Often, the information needs of farmers vary significantly due to changing market demand, climate and preferences of consumers. Therefore, the extension system needs to find out new pathways and modalities to tailor the information that is farm and crop specific. In COVID-19 crisis as well, extension functionaries tried to bridge the information gaps to facilitate the farmers to make an informed decision relating to crop production and marketing. The study results indicated that majority of the CFAs have provided advice on pest and disease management (72%), followed by fertiliser management (71%), selection and availability of seeds (67%), etc. Similarly, in spite of COVID-19 crisis, about 68% of CFAs have adopted training and demonstration as a major extension method, 56% of CFAs have involved in scheme implementation, etc., (Table 2).



*Method demonstration for windrow vermicompost preparation in a goshala using low-cost materials*

**Table 2. Advisory services and extension methods adopted by CFAs during the COVID-19 crisis**

S.No.	Category of advises/ services	Percentage
1	Land preparation	67
2	Time of sowing	61
3	Weed Management	65
4	Fertilizer Management	71
5	Pest and Disease management	72
6	Selection and availability of seeds	67
7	Water Management	66

8	Storage/Warehousing	58
9	Processing and Value Addition	50
10	Marketing of products	62
11	Schemes Implementation	56
12	Extension Management like Training, Demonstration, etc	68
13	others	33

**Table 3. Advisory service support by CFAs during the COVID-19/lockdown**

S. No.	Name of the CFA	Designation	Area of Work	Specialisation in CFA	Advice during COVID-19	Extension approach
<b>I Pest and Disease Management</b>						
1.	Mr Tapas Chandra Roy	Assistant Agriculture Officer	Koraput, Odisha	Millets	He provided advisory services to the farmers on the management of pests and diseases	Krushak Sathies, a lead farmer who has been trained to serve and advice his/her fellow farmers on new technologies in every Gram Panchayat. Also, he made use of the WhatsApp groups created among the farmers at Panchayat level
2.	Mr Bhas-karaiah	Assistant Director of Agriculture	FTC, Chittoor, Andhra Pradesh	Fruits	As information needs on pest and diseases management are essential, there is a need for the extension personnel to advise their farmers on scientific management of crops by recommending appropriate control measures. Mr Bhaskaraiah, being aware of the situation of lockdown, he provided regular advisories to his farmers. Some of them include recommendation of spraying of Chlorpyriphos 50 EC @1ml/lit+ Nuvan @1ml/lit for control of fruit borer in mango, (ii) Spraying Profinophos @2ml/lit after spaying with surf water to control mealybugs in papaya and (iii) to manage papaya plants with viral infections and chlorosis, micronutrient mixture spray i.e formula4@3 gms/lit was recommended	He advised through WhatsApp and phone call during lock down. After lifting the lockdown he visited the farmers' fields on their request and suggested remedial measures. He also wrote articles in Sakshi daily Telugu Newspaper and also conducted training on pruning in Mango. <div data-bbox="1177 1659 1465 1928" data-label="Image"> </div>

II Fertiliser Management						
3.	Dr Deepak Kumar	Executive Director, Nextnode science Pvt. Ltd	Organic farming	Me-hasana, Gujarat	<p>The COVID-19 induced lockdown severely disrupted the labour supply chain. States across the country reported to have affected from the reverse migration as the livelihoods of them were completely deprived due to a shutdown of all economic activities. This situation has resulted in high labour demand for agriculture in some of the states. In this situation.</p> <p>Based on the advice of Dr Deepak Kumar, some of the farmers have applied basal dose fertilizers with seed drills and foliar spray using mechanized sprayer. This resulted in reduction of the number of workers required for the application and can be operated by farmers themselves.</p>	He advised the farmers through Cellular phone.
4.	Mr Hari Mohan Mishra	Deputy Project Director, ATMA	Purnea, Bihar	Seed technology	<p>Knowledge of the application of fertiliser varies from variety to variety. Also, one should be aware of the field nutrient contents to apply the appropriate quantity of fertiliser required for the crops. Mr Hari Mohan Mishra knowing the different paddy variety grown by his farmers, he recommended the fertiliser application that is specific to the paddy variety. For example, for hybrids and high yielding variety of paddy, he advised the farmers to apply N:P:K-120:60:40 and for scented rice cultivar, he advocated the farmers to apply NPK in the ratio of 80:40:20</p>	He advised the farmers over phone calls and through WhatsApp.
III Extension Management System						
5.	Ms Preetha L	Assistant Director of Agriculture	Kollam, Kerala	Vegetables		Ward level meeting

					<p>Training and capacity building are the necessary components of an extension system to remain relevant to the changing global supply chain and market demand. The need for such training, awareness camps and meeting were increased much more during the COVID-19 crisis. Several such training and other related extension camps were organised by CFAs to help farmers overcome the supply chain disruption and sustain agriculture. Ms Preetha L organised a ward level meeting on vegetable cultivation under Subhiksha Keralam which aims at large scale production of paddy, fruits, vegetables, tubers, grains and legumes to achieving self-sufficiency</p>	
<b>IV Marketing Support</b>						
6.	Dr Patu khate Zealing	Assistant Chief Technical Officer, KVK	Peren, Nagaland	Certified Farm Advisor (trainee) Seed Technology	<p>(i) As marketing became a serious issue due to non-availability of buyers and transport, the farmers were forced to sell the produce at throwaway prices. But not all the farmers, especially farmers who are supported by CFAs. Dr Patu khate Zealing has linked his farmers with a local NGO and helped them to sell the produce timely.</p>	Facilitated the market linkage
						Personal contact
					<p>(ii) Value addition helps in increasing the economic value of the produce. Understanding the importance of the value addition, Dr Patu Khate Zeliang, a CFA from Peren region of Nagaland recommended his orange growers to process the raw orange into Juice as there</p>	

					were no buyers to buy the raw oranges from outside of that region due to lockdown. Most of the farmers to whom the knowledge was imparted have adopted the value addition of orange. He indicated that some of the farmers prepared juice and sold for about Rs. 200/ bottle.	
7.	Mr. Abhilash veluthukkal	Agripreneur	Palakkad, Kerala	Certified Farm Advisor trainee (Organic Farming)	He advised his farmers to go for value addition by packing and can sell their produce through consumer interested groups to fetch the fair price and steady income. Also, awareness was created among farmers on the crop-specific value addition such as Gulkand preparation from Rose, Banana chips from Banana and dried chilly, sorting and grading of ginger/turmeric/king chilli etc., to fetch a better price.	Regular training to to SHG members to be technically sound on value addition
<b>V Advisory on storage and warehousing</b>						
8.	Mr Rajesh Sharma	Horticulture Extension Officer,	Sirmour, Himachal Pradesh	Certified Farm Advisor trainee (Floriculture)	As farmers have increasingly faced with the problem of marketing, the need for storage of the produce (perishables like vegetables and fruits) need to be stored. Mr Rajesh Sharma advised his farmers to make use of the packhouse facilities and store the produce till receiving transport facilities.	Linkage with the packhouses

## The extent of adoption and implications for future

Extension service in agriculture is indispensable for the improvement of production and processing; it also enables a flow of information and transfer of knowledge and scientific findings and ensure that the farmers adopt them as a way of improving the productivity and income (Altalb et al. 2015). However, the adoption rate varies due to various factors such as the availability of recommended technologies, perceived advantages, size of the farm, educational status, income level, economic gains, market opportunities, environmental factors etc. Norton and Alwang, 2020 further state that the farmers and farming conditions vary widely even within relatively smaller regions, requiring heterogeneous technologies, flexible packaging, and the option to pick and choose among alternatives. The findings of the present study also illustrate that not all the farmers have adopted the recommended technologies and the extent of adoption varied among farmers. Majority of the (43.3%) of the CFAs have perceived that information/technology disseminated by them were adopted by the farmers ranges from 51-75%. About 24% of the CFAs have perceived that the farmers have adopted technologies and information with the range of 75-100%. On the contrary, about one fifth of the CFAs have perceived that the adoption

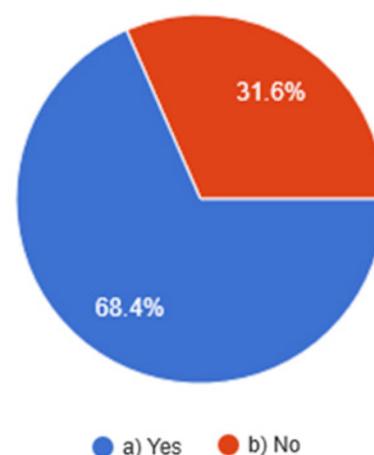
level of technologies and information by farmers was with the range of 26-50%. This signifies that there is a greater need for improving the adoption level of technologies by identifying and emphasizing on the factors that contribute to the adoption process.

**Table 4. Extent of adoption of the recommended technologies or practices by the farmers as perceived by CFAs**

S.No.	The extent of adoption (%)	Percentage of CFAs
1.	Less than 25	8.4
2.	26 - 50	24.2
3.	51 - 75	43.3
4.	76 - 100	24.2

### Participation of CFAs in the implementation of the government programmes during COVID-19

Majority of (68 %) of the CFAs have informed that they involved in the implementation of the government programmes which were designed to help farmers from falling price, inadequate logistics and shortage of labourers etc. CFAs were largely involved in the creation of awareness and knowledge among their farmers about the marketing support and facilities created by the respective state and central governments. Some of them include, procurement of all the produce at MSP; distribution of subsidy seed for fodder crops and Kharif season crops like Rice, Wheat and Maize; created awareness about the vehicle pass for transportation of farm produce to market, involved in the assessment of crop losses, ensured the supply of pesticides for crop protection, sourced vehicles for the movement of the agricultural produce, in a few instances they made tie up with local NGOs, SHGs, FPOs and other marketing agents for the door delivery of perishables. Also, they have created awareness among farmers on the Direct Benefit Transfer (DBT) of the state and central governments. A few examples are discussed in the below table.



*Fig. 4: Participation of CFAs in the implementation of the government programmes during the COVID-19*

**Table 5. CFAs involvement in the implementation of the government programmes during COVID-19**

S.No.	Name of the CFA	Designation	Area of Work	Specialisation in CFA	Schemes/interventions in which participated	Activities and Advisory services extended to farmers
1.	CFAs in Tamil Nadu	-	Throughout Tamil Nadu	-	Uzhavan app (Govt. of Tamil Nadu)	<p><i>Creating awareness on Uzhavan mobile app.</i></p> <p>The CFAs created awareness among their farmers about the provision for selling the produce through Mobile App, where the farmers were made aware of how to sell the produce and get the remuneration (Details discussed as case 8)</p>
2.	Mr R. Suresh	Assistant Director of Agriculture	Ariyalur, Tamil Nadu	Certified Farm Advisor (Rice)	Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) Govt. of India	<p><i>Voice communication through MKissan portal on the importance of Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)</i></p> <p>Mr R. Suresh created publicity through MKissan portal (written message), also with the help Reliance foundation, he created a voice message and communicated to more than 5000 farmers as to how to register for, and get the benefit Pradhan Mantri Kisan Samman Nidhi (PM-KISAN).</p>
3.	Ms C. Girija	Assistant Director of Agriculture	Palakkad, Kerala	Certified Farm Advisor train-ee (Vegetable)	Jeevani Sanjeevani farmers' shops (govt. of Kerala)	<p><i>Market information as a way of saving farmers from the distress sale.</i></p> <p>Ms C.Girija advised his farmers to make use of the Jeevani Sanjeevani farmers' shops as these shops were kept open throughout the lockdown period for uninterrupted supply of vegetables and fruits. The farmers were paid remunerative prices to their produces.</p>
4.	CFAs in Telangana	-	Throughout Telangana	-	Rythu bandhu scheme (Govt. of Telangana)	<p><i>Creating awareness on the financial support of the government.</i></p>

						<p>The CFAs from the state of Telangana have created awareness on the Rythu Bandhu scheme, where the farmers would get the funds up to Rs. 25,000 as a waiver of crop loans and investment support to overcome the devastating effect of the lockdown on agriculture</p>
5.	CFAs in Odisha		Throughout Odisha		Odihort marketing website	<p><i>Creation of awareness on the Odihort for ease of marketing during the pandemic</i></p> <p>CFAs from the state of Odisha have created awareness among farmers about the Odihort marketing website to facilitate farmers to market their produce. Uploading of details about the availability of the products was facilitated by the Horticulture Officer (HO) from all the 30 districts of the state and the FPOs, traders and other aggregators can contact these HOs and purchase the quantity required by them.</p>
6.	CFAs in Kashmir		Throughout Jammu and Kashmir		Special procurement mandis	<p><i>Helping farmer to make an informed marketing decision</i></p> <p>The farmers from across the country suffered during the lockdown due to lack of market facilities (traders, logistics and labourers). Jammu and Kashmir created around 24 special wheat procurement centres for the procurement of wheat in Samba, Kathua districts. CFAs informed their farmers about procurement centres and helped them to sell wheat at these centres at MSP (Rs 1925 per quintal) or sometimes more than MSP. This has helped the farmers to fetch fair prices during the lockdown.</p>



## Case 8. Uzhavan Mobile app as a new normal for addressing the marketing challenges

Uzhavan Mobile app was launched by Tamil Nadu in the year 2018 on a pilot basis to assist farmers in decision making process. The features of the app include real time information on crop prices, weather updates, schemes related information, crop insurance and compensation. It also encompasses the information on the availability of tractor and farm machinery (rental services). Therefore, the farmers can connect to the farm machinery owner or other farmers who possess farm machinery and hire them at a fair rental cost. The other support system of the app is that farmers can know the availability of stock of seeds, fertilisers, and farm machinery (both public and private). As the app was developed both in Tamil and English, thus, the farmers can access the contents/services in the app easily. About 4.5 lakh farmers have downloaded the app so far. During the lockdown, the CFAs in Tamil Nadu have created a large scale awareness among farmers to use this App, which has helped the farmer to sell their produce and realize better farm price.

## Case 9. Jeevani Sanjeevani farmers' shops – Market interface between farmers and consumers

The COVID-19 crisis has opened up new opportunities for extension advisory services. Of the several supportive extension systems during the lockdown, the market advisory systems such as APMCs, FPOs, Community marketing institutions among others have helped farmers to avert the distress sales. One such marketing intervention was the setting up of Jeevani Sanjeevani farmers' shops by Kerala state. This platform was used by the CFAs to help the farmers to avoid the distress sale and also gain remunerative incomes.

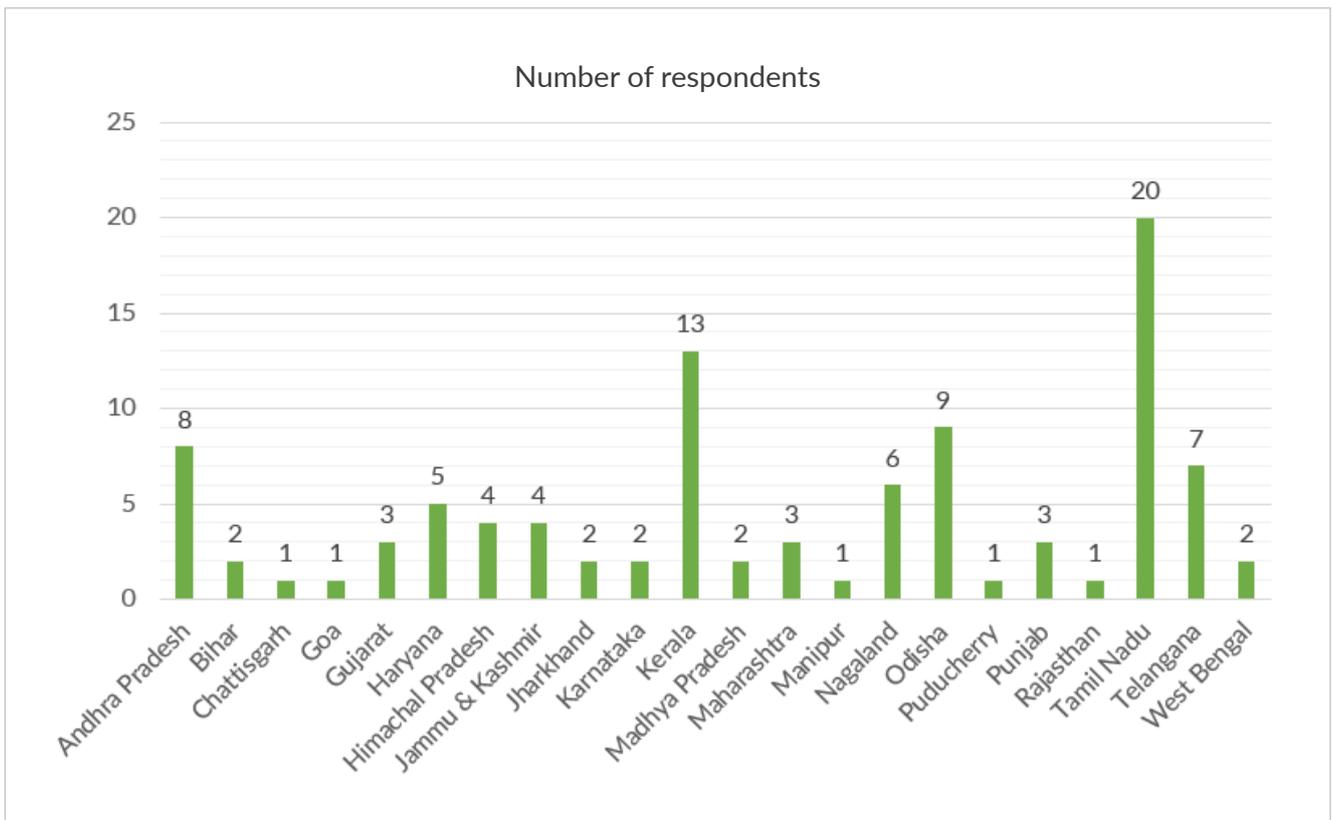
# Conclusion

Though the COVID-19 pandemic has disrupted the entire food supply chain from production to marketing, EAS stakeholders have quickly adapted to the situation and provided several supportive measures that have helped farmers to minimize the risks of lockdown to certain extent. Though the face to face extension communication was affected due to restrictions due to the strict regulations imposed on the movement, the Certified Farm Advisors have adopted innovative communication channels such as WhatsApp groups, mobile, electronic media, print media, communication through web portals and YouTube as means of disseminating information to meet the information needs of farmers. This has helped farmers address not only the farm-related problems, but also marketing issues relating to the lack of market facilities, inadequate logistics, and falling farm gate price. Also, advisories of CFAs have helped the farmers to update their knowledge on various central and state government initiatives relating to the production, post-harvest and market support facilities and also safety measures. The crisis like COVID-19 has illustrated the importance of the professional extension by the trained extension personnel. It is, therefore, the public extension systems may encourage their extension personnel to enhance their technical competencies by enrolling to CFAs and other related professional courses offered by various elite agricultural institutes. This will help them to remain technically sound, motivated, and use different communication methodologies that will be helpful to the farmers not only in the challenging times but also in the future. During the crisis, the CFAs have used various ICT platforms and they may continue to use IT enabled services in the future also. Hence, the policymakers may allocate adequate budget and give proper roadmap for developing many such user friendly ICT platforms, tools and applications to facilitate faster and real-time information to a larger number of farmers.

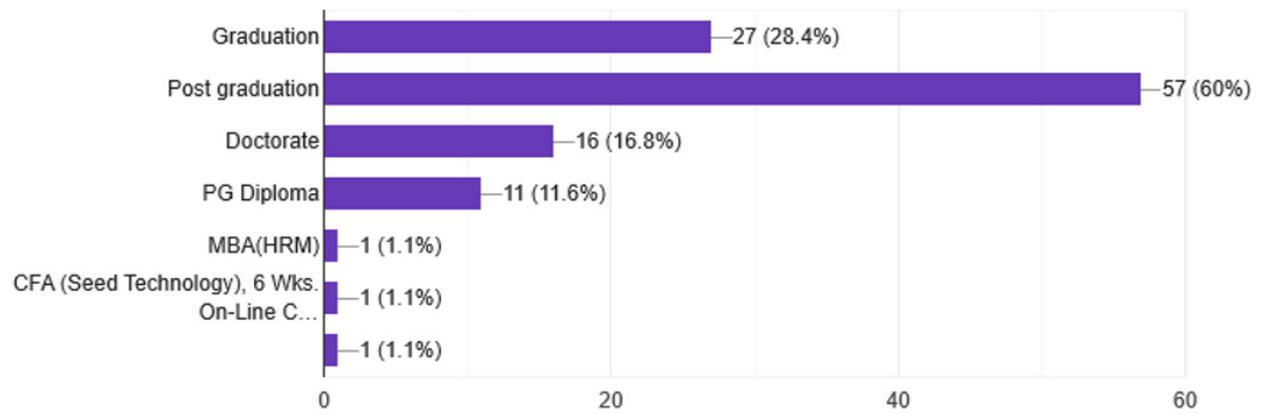


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Educational Qualifications of CFAS







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