Strengthening Kisan Call Centres in India
Policy Paper

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Abbreviations

Agmarknet : Agricultural Marketing Information Network
eNAM : National Agriculture Market
SMS : Short Message Service
IVRS : Interactive Voice Response System
OBD : On-Board Diagnostics
USSD : Unstructured Supplementary Service Data
KCC : Kisan Call Centre
IFFCO : Indian Farmers Fertilizer Cooperative Limited
ICT : Information Communications Technology
FTA : Farm Tele Advisors
ICAR : Indian Council of Agricultural Research
KVK : Krishi Vigyan Kendra
GoI : Government of India
BSNL : Bharat Sanchar Nigam Limited
LAN : Local Area Network
ISDN : Integrated Services Digital Network
KVA UPS : Kilo-Volt-Amperes Uninterruptible Power Supply
FAQ : Frequently Asked Question
INTRODUCTION

Ministry of Agriculture & Farmers’ Welfare, Government of India, with an aim to improve awareness and knowledge efficiency of farmers, developed a comprehensive Information and Communication Technology (ICT) strategy to reach out to farmers in an easy and better way and also for better planning and monitoring of schemes. Such ICT strategies include: websites/portals (Agmarknet, eNAM, Farmers’ Portal, Kisan Sarathi, Soil Health Card Portal, Crop Insurance etc.), use of mobile apps (Kisan Suvidha, Pusa Krishi, Agrimarket, Crop Insurance etc.), use of basic mobile telephony (SMS, IVRS, OBD, USSD) and provision of personalized information through Kisan Call Centres (KCC). KCCs are established for providing personalized information to farmers at a toll free number.

Fig 1. Locations of Kisan Call Centres

INCEPTION

Globally, lack of information has been one of the factors hindering the growth of agricultural sector. Farmers, for example, may lack information on how to respond to new pests and illnesses, or they may be unaware of which local market offers the best price for their produce (Aker & Mbiti, 2014). Furthermore, they may not have access to an independent data source, such...
as a public extension agent, and must rely on an input provider representative. Due to the lack of access to information, output is reduced, input costs are increased, dangerous substances are misused, and profitability is reduced. (Aker & Mbiti, 2014; Muto & Yamano, 2009). In India, only 6.8% of the farmers receive extension support. As an answer to this issue, the Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India launched Kisan Call Centers on January 21, 2004 across the country to deliver personalized extension and advisory services to the farming community. This initiative attempted to answer farmers’ questions over the phone in their native language/dialect. There are call centers for every state which are expected to handle traffic from any part of the country. These call centers handle questions relating to agriculture and associated industries. At present, the KCC services are managed from 21 locations spread across the nation. All KCC locations are accessible by dialing a single nation-wide toll free number 1800-180-1551 through landline as well as mobile numbers of all telecom networks from 6.00 A.M to 10.00 P.M. on all 7 days a week including holidays. The IFFCO Kisan Sanchar Nigam is the execution partner of KCCs.

3 PERFORMANCE

India is among the pioneers in establishing the KCCs. The KCC scheme became a hit with farmers all over the country in its first year of inception itself (Prabhu, 2004). The KCC has become the instant ICT solution for the farmers due to real-time interaction with the advisors that too in local languages with just a mobile phone (Chandra and Malaya, 2011). Studies have proved that farmers are immensely benefitted by following the suggestions given at KCCs (Jaisridhar et al., 2013). Following the success of KCCs in India, many Afro-Asian countries such as

![Fig 2. State-wise distribution of calls received at KCCs](https://data.gov.in)
Madagascar, Senegal, Ghana, Bangladesh, Afghanistan etc started farmers’ call centres. In the year 2020-21, a total of 54,74,446 calls were received in KCCs all over India. Uttar Pradesh (11,80,640 calls) reported the highest number of calls received followed by Maharashtra (5,60,854) (PIB Release ID: 1741969, 03 Aug 2021). Uttar Pradesh, Rajasthan, Maharashtra, Madhya Pradesh and Haryana are consistently receiving more number of calls over the years.

4 FUNCTIONING

The Kisan Call Centre functions at three levels: level I- Farm Tele Advisor; level II- Subject Matter Specialists and Level-III- the Management Group. KCC agents, known as Farm Tele Advisor (FTA), are graduates/ postgraduates in Agriculture or allied sciences and possess excellent communication skills in the respective local language. FTAs attend the calls made by farmers and give replies to their queries. Those queries which could not be answered by FTAs are

- Name
- Address
- Contact No.
- Query


Fig 3. Functioning of KCCs
(Source: https://www.manage.gov.in/kcc/schema.asp)
transferred to subject matter specialists working in State Agriculture Departments, ICAR, KVKs and State Agricultural Universities in a call conferencing mode. A diagrammatic representation of the functioning of KCCs is given in Figure 3. IFFCO Kisan Sanchar Limited manages Kisan Call Center service on behalf of the Department of Agriculture & Cooperation, Ministry of Agriculture. In the year 2020-21, the GoI had earmarked a fund of Rs. 3900 lakhs for KCC of which an expenditure of Rs. 3958.65 lakhs were incurred.

5 AWARENESS AMONG FARMERS

The awareness about the KCCs among the farmers plays a vital role in the success of KCC scheme. In a study in Kerala, Koshy & Kumar (2016) reported that only 62% of the surveyed farmers are aware of KCCs. Goyal et al (2019) found that, 56% of the farmers surveyed in Varanasi district of Uttar Pradesh are not aware of the KCCs. These studies indicate that even after so many of years since inception, the KCCs are yet to reach all the farmers. Therefore, efforts are required from frontline workers in popularizing the benefits of KCCs.

6 INFRASTRUCTURE

The Kisan Call Center infrastructure is split into three parts: a professionally managed Call Center at Level I; a Response Center in each organization, where services of Subject Matter Specialists are made available at Level-II; and the Nodal Cell at Level-III. The Level-I technical infrastructure is the most important and complex. The farmers' call is picked up by a switch at BSNL and transferred to one of eight hunting lines at the Call Center (first come, first served). These calls are picked up by FTAs and the call information is recorded simultaneously. To make this possible, the hunting lines have interface with LAN at the premises of a Call Center. Kisan Call Center has two LAN nodes (each with two PCs, two telephones with headsets and teleconferencing capability, server support, and Internet access). The Call Center provides the whole backup support system, including Uninterrupted Power Supply (for both the server and the nodes), Air-conditioning System, and other logistics. The Nodal Officer ensures that two agriculture graduates are hired as Level-I functionaries and Agri-communicators at the designated Call Center. Call Center Management owns and operates the whole technical infrastructure at Level-I (including a dedicated line with a toll-free number assigned by the Ministry of Agriculture, Government of India). At Level-II, services are provided by a Response Center in each Institution's or Agency's working zone. A dedicated high bandwidth telephone line (preferably 128 kbps ISDN line), a Desktop Computer System with Internet connectivity, one printer, and a 2 KVA UPS system are included in the Level-II infrastructure, as well as appropriate logistic support in the form of an exclusive room with air conditioning. The Nodal Agency organises this at the identified resource institutions. The Level-III operations are overseen by the recognized Nodal institutions. A dedicated high bandwidth telephone line (ideally 128 kbps ISDN line), a Desktop Computer System with Internet connectivity, one printer, a 2 KVA UPS system, and necessary logistic support constitute the Level-III infrastructure. A Senior Officer from the Nodal Institution is supposed to be in charge of the Level-III. The infrastructure also contains
software for call data analysis and reporting (with daily, weekly, and monthly reporting systems, as well as support for crop/enterprise-level, region-level, and issue-level reports). This system necessitates the assistance of a Nodal Institution ICT Facilitator to ensure correct logging, analysis, documentation, and reporting at Level-III. This is organized by the Nodal Institution at their own premises.

### Monitoring & Review

The Nodal Institution must regularly monitor and review the numerous activities of the Kisan Call Centers in order for them to function effectively (Meti et al, 2012). The call barging provision has been made to facilitate listening of call conversation between FTA and the caller by the monitoring officers to ensure the quality of service provided. The calls are also recorded and retained for six months which will be helpful in case of a complaint.

The Kisan Call Center’s daily actions at various levels on farmers’ queries and their resolution, availability of Subject Matter Specialists, call dropouts and their transfer to Level-III, and response to farmers within 72 hours are all documented by the Nodal Institution. Initially, the Nodal Institution held fortnightly meetings with the Heads of Departments of Response Centers to verify correct identification and deployment of Level-II officials, as well as resolution of queries discussed with Subject Matter Specialists and their documentation. Following that, these meetings are held once a month in different Response Centers. The Department of Agriculture & Cooperation, Ministry of Agriculture & Farmers' Welfare, GoI assesses the functioning of all the Kisan Call Centers with the Heads of Nodal Institutions every quarter in each of the Nodal Institution on rotation basis.

Documentation and reporting are the responsibility of the Nodal Institution. The Officer In-Charge of the Nodal Institution compiles reports from the Kisan Call Centers / Response Centers and prepare a consolidated statement on farmers’ queries and answers, crop-wise and/or enterprise-wise, as well as the resolutions given at Level-III, and report to the Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India, via e-mail every two weeks. Each Nodal Institution documents the Kisan Call Center’s proceedings and share them with other Kisan Call Centers in order to compile a database by crop/enterprise and to create Frequently Asked Questions (FAQs).

### Sector-Specific KCCs

- **KCC for aquafarmers**

  In December 2020, the Marine Products Export Development Authority (MPEDA) launched a multilingual call centre for aquafarmers in Vijayawada, Andhra Pradesh. At this call centre, domain experts will respond to aquafarmers’ technical concerns and convey knowledge about effective farming methods 24 hours a day, 7 days a week. The call centre is primarily targeted at Telugu speaking aquafarmers in the state of Andhra Pradesh, who accounts for more than 60% of the Nation's marine product export basket. It can, however, handle calls in both English and Hindi. Aquafarmers can reach to call centre by dialing the toll-free number 1800-425-4648.

- **KCC for dairy farmers**

  In October 2020, the National Dairy Development Board (NDDB) inaugurated 'Pashu Mitra,' a call
centre dedicated to dairy farmers. The call centre will aid in the spread of awareness on scientific dairying. Dairy producers can use the service to get answers to their inquiries on animal health, nutrition, and breeding by dialing 7574 835 051, and their questions will be answered by NDDB experts. On working days, the centre will be operating from 9:30 a.m. to 6:00 p.m. from Monday to Friday. On holidays, farmers can leave a recorded message and will be contacted the next business day.

- **KCC for transportation**

Ministry of Agriculture and Farmers’ Welfare launched All India Agri Transport Call Centre to facilitate inter-state movement of perishables in the situation of lockdown due to the COVID-19 threat. The Call Centre numbers are 18001804200 and 14488. These numbers can be called from any mobile or landline phones any time of the day or night. The service is available around the clock. The Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) of the Government of India established the All India Agri Transport Call Centre to coordinate inter-state movement of perishables such as vegetables and fruits, as well as agri inputs such as seeds, insecticides, and fertiliser. Truck drivers and helpers, traders, retailers, transporters, farmers, manufacturers, and any other stakeholder experiencing problems with interstate movement of agricultural, horticultural, or other perishable items besides seeds and fertilisers should contact the Call Centre for assistance. The vehicle and consignment details, as well as any assistance required, would be forwarded to State Government officials for resolution of concerns. IFFCO Kisan Sanchar Limited manages the phone centre (IKSL).

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9 Farmers’ Queries

<table>
<thead>
<tr>
<th>Query</th>
<th>Number of Queries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Mechanization</td>
<td>2</td>
</tr>
<tr>
<td>Organic Farming</td>
<td>2</td>
</tr>
<tr>
<td>Market Information</td>
<td>7</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
</tr>
<tr>
<td>Sowing Time</td>
<td>12</td>
</tr>
<tr>
<td>Seeds and Planting Material</td>
<td>15</td>
</tr>
<tr>
<td>Government Schemes</td>
<td>16</td>
</tr>
<tr>
<td>Cultural Practices</td>
<td>29</td>
</tr>
<tr>
<td>Varieties</td>
<td>56</td>
</tr>
<tr>
<td>Fertilizer Use and Availability</td>
<td>76</td>
</tr>
<tr>
<td>Weed Management</td>
<td>76</td>
</tr>
<tr>
<td>Nutrient Management</td>
<td>77</td>
</tr>
<tr>
<td>Plant Protection</td>
<td>358</td>
</tr>
<tr>
<td>Weather</td>
<td>650</td>
</tr>
</tbody>
</table>

Fig 4. Types of queries raised by farmers in Nizamabad, Telangana during July 2019 to June 2020

(Data Source: https://data.gov.in)
On calling KCCs, farmers can ask their query on any of the issues/challenges faced by them. The queries can be related to any of the sectors like agriculture, horticulture, animal husbandry and fisheries. As and when the FTAs receive the calls from the farmers, they record the details about the query with respect to the sector, crop, query type etc. The queries raised by the farmers at the KCC are categorized into several types and reported by the FTAs. The different types of queries raised by farmers in Nizamabad district of Telangana state during the agriculture year (July to June) 2019-20 is presented in Figure 5. A total of 1,384 queries were asked by the farmers out of which the highest number of queries were related to weather (47.0%) and plant protection (25.9%), together accounting for 72.8% of the total queries raised. The per cent of weather-related queries in each month is also given in the Figure 6. A perusal of these figures indicates that a conspicuous number of queries raised in all the months are related to weather. Gandhi & Johnson (2018) and Maruti (2018) also reported that the highest number of queries were regarding weather and plant protection measures from their study in Gujarat and Karnataka, respectively.

**Fig 5.** Month-wise distribution of weather-related and other queries in Nizamabad, Telangana during July 2019 to June 2020

(Data Source: https://data.gov.in)

**Fig 6.** Month-wise distribution of weather-related queries
WAY FORWARD

- Separate call centre for weather-related queries

The Figure 6 gives the word cloud of the queries raised during the agricultural year 2019-20 in Nizamabad district of Telangana which clearly indicates that the most number of queries are related to ‘weather’, followed by ‘management’, ‘paddy’, ‘weed’, ‘leaf’ and ‘borer’. This gives an idea that the farmers are more worried about weather followed by management practices. Therefore, creating separate call centre or a separate line for weather-related queries will help in reducing the call waiting period which is currently reported to be 2-3 minutes (Gandhi & Johnson, 2018; Maruti, 2018).

- Using simple, non-scientific language

It is often reported that the FTAs use complex scientific language while answering to the queries raised by the farmers (Chouhan et al., 2011). Most of the time, illiterate farmers will not be able to understand the technical jargons used by the FTAs which sometimes lead to misinterpretation of the solution provided to them by the FTAs. Therefore, care needs to be taken by the FTAs to avoid such scientific terminologies which may not be apprehensible to the farmers. In this direction, FTAs need to be provided with sufficient training in using farmer-friendly language.

Fig 7. Word cloud of the queries raised during the agricultural year 2019-20 in Nizamabad district of Telangana

(Data Source: https://data.gov.in)
Human resource support is critical

Adequate human resource with necessary skillsets is a prerequisite for efficient functioning of a KCC. Several important measures such as call waiting time depends on the number of FTAs engaged in a KCC. At present, different KCCs located at different places in India have 5-68 FTAs (Table 1). From the table, a perusal at the average no. of calls per day per FTA indicates that, there is scope for improving the manpower in some of the KCCs. For instance, FTAs in KCC located in Patna attend 62 calls a day on an average. Tripathi (2015) reported that FTAs were attending as high as 85 calls per day on an average in Tamil Nadu. Similarly, in some of the KCCs, the average no. of calls handled per day per FTA is very low. This suggests that the KCC services are not efficiently used by the farmers in those states. Therefore, measures are needed to be taken to popularize KCC in those states.

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of FTAs</th>
<th>No. of calls in the year</th>
<th>Average no. of calls per month</th>
<th>Average no. of calls per day</th>
<th>Average no. of calls per FTA</th>
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</thead>
<tbody>
<tr>
<td>Patna</td>
<td>15</td>
<td>336394</td>
<td>22426</td>
<td>1869</td>
<td>62</td>
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<td>17123</td>
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</table>
● Upgrading software
Call handling is done by using Agent Openscape Contact Centre, Openscape Desktop and Real Time Viewer softwares. The performance of Openscape Contact Centre is found to be excellent whereas the performance of Openscape Desktop and Real Time Viewer is found to be good-to-excellent. However, software crashing is found to be a major problem hindering the smooth operations of KCC. In addition, the internet connectivity is reported to get slow down during heavy call load, is not fast enough to respond to calls and retrieve and record information; and breaks down frequently (Gandhi & Johnson, 2018). Therefore, software upgradation is necessary for improving the efficiency of KCCs.

● Improving hardware
Each KCC will be equipped with personal computers, headphones, and printer/ scanner. The efficiency of a KCC is proportionate to the ease in handling these hardware units. Though several studies have indicated that the performance of these units is satisfactory, many FTAs have reported that they breakdown frequently. Besides, the headsets were reported to be uncomfortable (Grover, 2017). Therefore, much comfortable hardware including headsets may be provided to the FTAs to improve their efficiency.

● Impartiing training
The newly recruited FTAs require adequate training for improving their call handling skills, communication skills and call handling etiquette. Such trainings are already being provided to the FTAs on their joining. The FTAs recruited for KCCs come with an educational background in agriculture such as graduation or diploma in agriculture. Nevertheless, most of the FTAs are just graduated and require field-oriented initial training for them to function effectively. While answering the queries raised by the farmers, FTAs mostly use their self-knowledge (Gandhi & Johnson, 2018; Maruti, 2018). Therefore, imparting subject-related training to the FTAs is very important to improve the effectiveness of the KCCs. In addition, barring weather-related information, FTAs often face difficulty in providing adequate & up-to-date answers on government schemes and price & market related questions (Gandhi & Johnson, 2018). Therefore, up-to-date information on these areas need to be made available with the FTAs.

● Encouraging private sector participation
Participation of private/ corporates in KCCs is very limited. IFFCO Kisan Sanchar Limited is involved in managing the Kisan Call Center services. Bayer launched a national helpline for farmers in 2014 wherein farmers can place a toll free call on Bayer's national helpline number 1800-120-4049 from both landline and mobile between 09:00 am – 06:00 pm every Monday to Saturday. Calls will be answered by local agri-experts from 11 call centers located in Andhra Pradesh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Punjab, Tamil Nadu, Maharashtra, Jammu & Kashmir and Uttar Pradesh. Besides this, there is no involvement of private players in the functioning of KCCs. Therefore, there is a big void which can be filled by the corporates involved in agriculture. Given their strength in using technology to its most, their participation will help in improving in efficient delivery of advisories.

● Analysing recorded data
When a call lands in a KCC, besides answering the call, the FTA also records the query raised by the calling farmer. The details about the calling farmers, query asked and the answer provided to them are recorded using Kisan Knowledge Management Systems (KKMS) web portal application software. The information at state and district levels is also captured. This has led to availability of
huge data comprising information related to different types of queries asked by the farmers. However, a limited effort has been put towards analysing these data. Tiwari et al (2009) carried out a simple content analysis of the queries asked in Uttar Pradesh & Uttarakhand during 2004-2007. With the advent of natural language processing algorithms and machine learning algorithms, such an analysis will be helpful in identifying the frequent queries raised by the farmers and addressing those issues. Such text analytics algorithms have been successfully used for content analysis of social media (Aggarwal and Wang, 2011; Bai, 2011). The real-time analyses of query data will be helpful in quickly identifying different pest and disease outbreaks.

- **Upgrading Kisan Knowledge Management System**

The Kisan Knowledge Management Systems (KKMS) web portal is used almost all the time by the FTAs for obtaining various information that are needed to be delivered to the calling farmers. FTAs also stated that the web portal is easy to use, clear and well organized. However, often the response from the web portal is slow and the information is not up-to-date many a time (Grover, 2017; Gandhi & Johnson, 2018; Maruti, 2018). Therefore, efforts are needed towards upgrading the KKMS portal with regular updating of the information which eventually will lead to efficient call handling by the FTAs.

- **Involvement of States**

In India, agriculture is a state subject. For improving the services of KCCs, the states are actively associated in many ways such as: supervising the quality of extension services provided; putting in place the revised escalation matrix under KKMS; initiate publicity in print and electronic media locally; coordinating with the State IT Department to get the scheme rolled out through the CSCs and appointment of a Nodal Officer for KCCs; etc. Keeping the KCC agents apprised about new scheme/programmes/contingency plans taken by GOI and State Governments, providing latest versions of guide books and booklets brought out by the State Government and the local Agricultural Universities are also in the listed role of states. Therefore, state governments need to proactively take measures to supply the information regarding the latest schemes/ market information etc. which is currently lacking.

**Recommendations**

- Starting a separate call centre or line to address queries related to weather since most of the queries raised are on weather.
- Increasing number of FTAs in locations receiving more calls to reduce the call waiting time.
- Using up-to-date software and latest hardware for hiccup-less smooth functioning.
- Imparting sufficient subject-related training to FTAs.
- Encouraging use of simple non-technical language by the FTAs which can be quickly understood by the farmers.
- Involving corporates/ private players for efficient use of technology.
- Analysing query-related data using advanced NLP algorithms to develop FAQ manuals.
- Regular updating of KKMS portal since this portal is often used by the FTAs for information.
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PIB Release ID: 1741969, 03 Aug 2021


Locations of 21 Kisan Call Centres