

What worries farmers?

An analysis of the queries raised at Kisan Call Centres

Yashvanth B S*, Soam S K, Srinivasarao Ch

ICAR-National Academy of Agricultural Research Management, Rajendranagar, Hyderabad, Telangana 500 030

Information and Communication Technology (ICT) plays an important role in agriculture. To harness the potential of ICT in Agriculture, Government of India launched the 'Kisan Call Centres (KCCS)' scheme on January 21, 2004 with an aim to answer farmers' queries over telephone. In this study, such queries raised at KCC are used as proxies to find out the major worries of the farmers. Text-analysis is carried out considering the queries raised in each of the months as text corpora. Study found that the farmers are most worried about the weather conditions, followed by management practices, as it is evident from the number of questions (72.8% together) raised on them. This study also suggests some of the ICT tools like push-messages and mobile apps as an alternative to Kisan Call Centre to obtain the required information on weather.

Key words: App, KCC, Queries, Text analysis, Weather

INFORMATION and Communication Technology (ICT) refers to technologies that enable us to access information through telecommunications medium such as the radio, television, cell phone, computers, satellite technology, internet including email, instant messaging, video conferencing and social networking websites which have made it possible for users all over the world to communicate and share ideas and experiences with each other. ICTs in agriculture or e-agriculture involves developing and/or applying innovative ways of using ICTs in the rural domain with a primary focus on agriculture. The benefits of ICTs for increased agricultural productivity and strengthening the agricultural sector include timely and updated information on agriculture-related issues such as the release of new varieties, the emergence of new threats such as diseases, weather forecast, pricing alerts etc.

In order to harness the potential of ICT in Indian Agriculture, Ministry

of Agriculture (now, Ministry of Agriculture and Farmers' Welfare), Government of India launched the scheme 'Kisan Call Centres (KCCs)' on January 21, 2004 with an aim to answer farmers' queries over a telephone call. These centres are working in 14 different locations pan India and function between 6:00 AM to 8:00 PM every day. A countrywide common eleven-digit toll-free number 1800-180-1551 has been allotted for KCC. Replies to the farmers' queries are given in 22 local languages. Till May 2015, 19.6 million calls have been received by the KCC since its inception.

The KCC functions at three levels: Level I- Farm Tele Advisor; Level II- Subject Matter Specialists and Level-III- Management Group.

KCC agents, known as Farm Tele Advisor (FTA), are at least graduates in Agriculture or allied sciences and possess excellent communication skills in the respective local language. FTAs attend the calls and resolve queries of farmers. Those queries which could not be resolved by FTAs

are transferred to subject matter specialists (SMSs) working in State Agriculture Departments, ICAR and State Agricultural Universities in a call conferencing mode. The Management Group at Level III ensures ultimate answering of all the farmers' queries, which are not resolved at Level-II.

The KCC has become an instant ICT solution for the farmers due to real-time interaction with the advisors, that too in local languages with just a mobile phone. Studies have proved that farmers are immensely benefitted by following the suggestions given by FTAs. Though the KCC scheme is active for more than a decade and is a hit with farmers all over the country, the queries raised have not been studied yet. In this regard, this study tries to identify the most common queries raised in KCCs by farmers.

Data

The Department of Agriculture Cooperation and Farmers' Welfare under the Ministry of Agriculture and

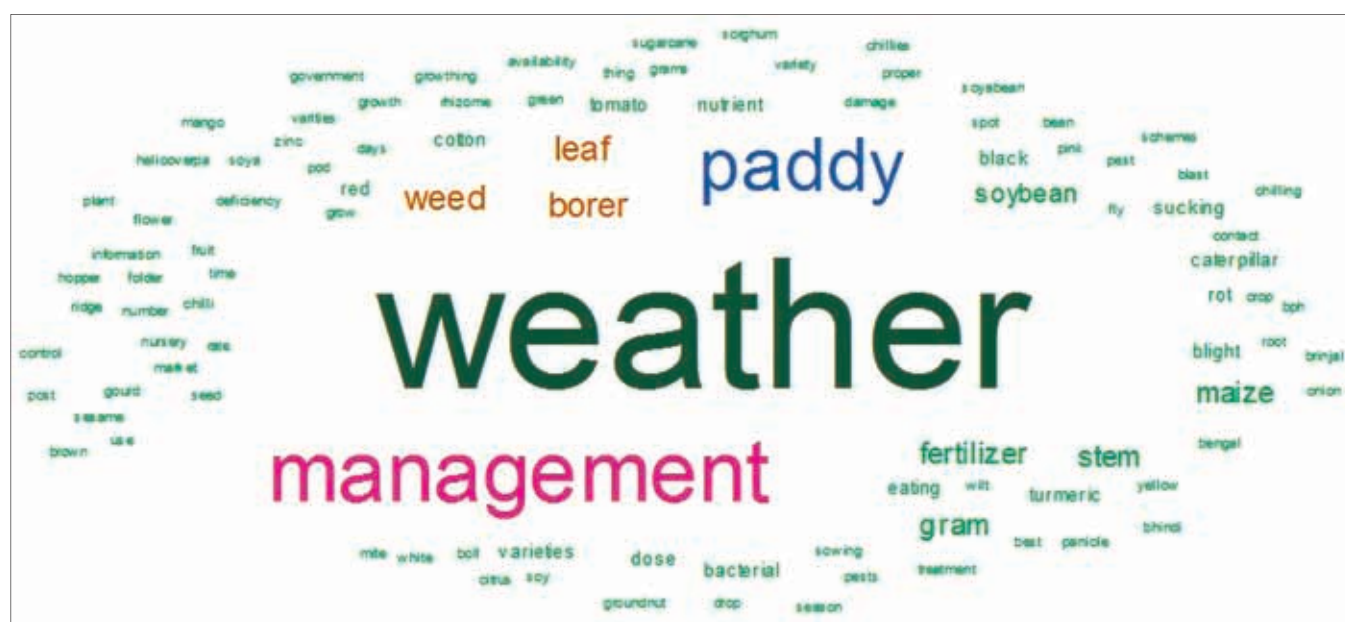
Query Type	No. of Queries
Weather	650
Plant Protection	358
Nutrient Management	77
Fertilizer Use and Availability	76
Weed Management	76
Varieties	56
Cultural Practices	29
Government Schemes	16
Seeds and Planting Material	15
Sowing Time	12
Market Information	7
Agriculture Mechanization	2
Organic Farming	2
Others	8

Fig. 1. Types of queries raised in the agricultural year 2016-17

At the first stage, the frequency data of the queries are analyzed using exploratory data analysis techniques. In the second stage, the text data is analyzed using standard text-analysis procedures.

(25.9%), together accounting for 72.8% of the total queries raised. This underlines the importance of timely communication of weather information to the farmers for timely operations, cost minimization in terms of postponing input application or plant protection operations etc., besides market information for selling the farm produce. All these interventions contribute to reducing input cost and enhanced farmers' income. The study area represents semi-arid tropical ecosystems where problems of climate change impacts, variability in

The word cloud is plotted for the data corresponding to the entire agricultural year 2016-17 which clearly indicates that the most number of queries are related to 'weather', followed by 'management', 'paddy', 'weed', 'leaf' and 'borer' (Fig 2). These results indicate that the farmers are more worried about weather followed by management practices. In word clouds, the size of the word represents the number of times that word appears in the queries; the more a word appears in



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the corpora, bigger will be the size.

The results highlight the need for popularizing other ICT interventions to send weather related information to farmers. The push message service from the mKisan SMS portal of the Government of India and using weather apps in smartphones could be some possible alternatives to send or obtain weather related information.

Push messages

A push message is a text notification that pops up on the mobile screen. Sending out informative push messages is one of the simplest mode of delivering advisories. mKisan SMS portal for farmers has enabled all Central and State government organizations in agriculture and allied sectors to give information/ services/ advisories to farmers through SMS in their own language. Officers from different departments and organizations of Central and State Governments can send advisories to farmers through this portal after registering themselves. On approval of registration request, they can start using this application for reaching out to the farmers under their jurisdiction. Farmers can register themselves for receiving these messages on their mobiles as per their specific needs and relevance at a particular point in time. At present, farmers can choose among different sectors like agriculture, horticulture, sericulture etc., for obtaining the related information. A facility needs to be created and employed to send out weather-related information and weather forecasts to the registered farmers who opt to get weather related information. Information related to rainfall, hailstorm and other vagaries of weather can be sent

out to the registered farmers in advance so as to make the farmers prepared to face the challenges of weather. The advantage of sending out advisories as push messages is that the receiver need not have internet connection and only the information, which the farmer has registered for, is obtained.

Weather Apps

Google Play, the official app store for the Android operating system, throws >250 apps when we search for the word 'weather'. These apps give information on many weather parameters including local weather conditions, hourly weather forecasts for 10-15 days and storm warnings. Real-time information on temperature, wind, humidity, dew point, precipitation, visibility, atmospheric pressure, sunrise and sunset, storm, rain alert etc. can be obtained anytime anywhere using these apps. Several apps provide information in local Indian languages also ('Skymet weather' is available in 9 Indian languages). There is a need to popularize these apps among farmers so that they make use of them and plan their farming activities accordingly. The extension agents working with the farmers need to play an important role in popularizing these apps. The Institutes working closely with the farmers, like *Krishi Vigyana Kendras* and State Departments of Agriculture, need to organize workshops to sensitize farmers in using these apps. With the increase in availability of affordable smartphones and internet, this alternative to KCC will surely be a hit among farmers.

Considering the fact that even after a decade of inception, only 14% of the farmers are aware of KCC, that too in a literate state like Kerala, there

is a long way to go in popularizing use of ICT tools. It is often reported that the farmers complain that their calls are not picked/ responded by the KCC or the networks are busy. With the increase in teledensity to as much as 44.7% in rural India (as on 31 May 2018) the number of calls to be attended by the FTAs will also increase leading to busy lines and unsuccessful calls. In 10 years, the number of calls received by KCC has seen an increase of >2000% from a mere 2.21 lakhs in 2004-05 to 48.01 lakhs in 2014-15. By using push messages and mobile apps as alternatives, the need for calling KCC for getting information related to weather can be avoided. This will also decrease the pressure on FTAs who are attending as high as 85 calls per day on an average in Tamil Nadu. In such situations, these alternatives to KCC are highly beneficial.

SUMMARY

This study uses the text data from the queries raised at KCC from the farmers of Nizamabad district of Telangana during the agricultural year 2016-17 to identify the problems often encountered by them. There were 1,384 queries raised by the farmers of which most of the queries were on weather and plant protection (72.8% together). From the word cloud drawn, it is observed that a noticeable number of queries are related to weather underlining the importance of timely communication of weather information to the farmers. The results highlight the need for popularizing other ICT interventions like push messages and weather apps to send timely weather related information to farmers.

Corresponding e-mail: yashavanthbs@gmail.com

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INDIAN FARMING

Directorate of Knowledge Management in Agriculture, Indian Council of Agricultural Research
Krishi Anusandhan Bhavan I, Pusa, New Delhi 110 012 • indfarm@icar.org.in