



Direct2Farm proves the case for mobile-based agro-advisory services in India

Fraser Norton, Phil Abrahams, Sharbendu Banerjee, Sudhanshu Jain, Arun Jadhav, Catherine Allen, Manish Subharwal and Lucy Karanja

Summary

Smallholder farmers in India are largely dependent on other farmers as their main source of agricultural information, with government extension services geographically limited and agricultural dealers not always trusted to provide impartial advice. Between January and July 2015, 400,000 farmers were registered to receive seasonal, crop/livestock-specific information on their mobile phones via CABI's Direct2Farm (D2F) SMS and voice message service. The service was free and provided targeted, personalized messages based on users' location, language and farming practices, including choice of crops and livestock.

Around 10 million voice messages and 5 million text messages were sent by the D2F service during 2015. Although a significant proportion of these failed to reach their intended targets, around 40% of the initial 400,000 registered farmers became active users of the service, regarding D2F as a valuable and credible source of agricultural information. Around 90% of active users reported sharing the information received with other farmers and recommending the service to them. Over 70% reported taking action on the basis of the information received, including having their soil tested, planning their activities on the basis of weather predictions and purchasing recommended agricultural products. 72% of farmers reported increased productivity and a reduction in crop losses as a result of acting on the information.

Key highlights

- Between January and July 2015, 400,000 farmers in six Indian states were registered to receive free agricultural information in the form of SMS and voice messages via CABI's D2F service.
- Information delivery, which took place between January 2015 and June 2016, was highly targeted, based on farmers' location, language, choice of crops, livestock and farming practices.
- Between September and November 2015, the D2F service carried out 714 information campaigns coinciding with critical periods in the farming calendar, comprising around 10 million voice messages.
- Around 90% of D2F users reported being highly likely to share the messages they received and to recommend the service to others. Of those who shared information, 86% said that the person they shared it with had also reported it as useful.
- In telephone interviews, around 80% of users reported acting on the information received. Actions included getting soil tested, responding to weather predictions and buying recommended varieties of seeds, fertilizers or pesticides.
- Over 70% of active users reported increased productivity and reduced losses as a result of acting on the information received. Smallholder farmers reported getting a better price for their crops in the market. Information regarding the weather was found to be particularly useful.

Context

In much of the developing world, rural farming communities struggle to access timely, relevant and up-to-date agricultural information to support their production and marketing of crops and livestock. In India, government extension services are trusted sources of information but are geographically limited or over-stretched. Agricultural dealers are more prevalent, but are less trusted to provide impartial advice. As a result, most farmers acquire the majority of their agricultural information from other farmers, with limited access to the latest findings from agricultural research, meteorologists or markets.

In this context, the growth of mobile phone networks provides an exciting new way to reach smallholder farmers and complement the work being done by extension services, thus empowering farmers to solve their everyday farming problems and increase productivity. CABI began using mobile technology to support farming in India in 2008, and in 2014 started to scale up the work in six states – Haryana, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar and Jharkhand – in order to investigate further the potential for mobile-based agro-advisory services. The approach encompassed a wide range of farmers, from large landholders to small and marginal farmers, men and women, and from youth to the elderly. While different crops predominated across the six states, wheat was the most commonly grown, followed by vegetables and rice; buffaloes and cows were the most commonly kept livestock.

What we did

In 2014, CABI contracted the Kisan Sanchar organization to recruit 400,000 farmers across the six states, who would be registered to receive information via CABI's D2F mobile-based information service. By March 2015, 300,000 farmers had been registered, with a second cohort of 100,000 added by July.

An effective model for information delivery requires targeted, high quality advice and for the service to be responsive to its users. During the registration process, Kisan Sanchar fieldworkers gathered extensive information on each farmer recruited, including details of their farms, crops, livestock and farming practices, as well as their location, age, language and gender and of course the mobile phone number they could be reached on. This information was used in order to tailor the message delivery process according to the needs of each recipient, ensuring they were not bombarded with messages that had no relevance to their particular farming situation.

The D2F service began distributing free text and voice messages to its registered users in January 2015. Message content was developed and translated into local languages by CABI and then validated by external consultants, before being fed into the D2F delivery system. The timing of the messages followed the locally-relevant farming calendar, with message 'campaigns' used at key points, focussing on particular aspects of crop management and livestock husbandry. By the end of 2015, the service had distributed over 5 million SMS text messages, nearly 10 million voice messages and completed over 700 campaigns. A toll-free, interactive voice response-based telephone service was also made available, enabling farmers to call back and listen to missed voice messages, or speak to an advisor to clarify details.

What impact was achieved?

An interim evaluation of the D2F service was carried out between November 2015 and February 2016, to provide a mid-project assessment of its impact, effectiveness and sustainability. The evaluation team conducted telephone surveys with 2,000 registered users, held focus group discussions and key informant interviews in six communities and had access to service analytics, such as information on the number of messages sent and responses received.

One important finding from the evaluation was that only around 35-40% of messages distributed were reaching a receptive audience, with many farmers' mobile phone numbers gathered during the registration process being unreachable for a variety of reasons. However, the evaluation did reveal that of the original 400,000 farmers recruited, a core of around 40% had become active users who saw D2F as a valued source of information that had given them tangible benefits. Their feedback suggests that the service could be an effective model for information delivery.

The service aimed to stimulate behavioural change, in terms of farmers actively promoting the service, acting on advice received and valuing it as a credible information source. The sharing of information with other farmers is a good indicator that the information is valued, and in this context, around 90% of D2F users reported being highly likely to share information with others. Of those who shared information, 86% reported that the person they shared it with said it was useful. Similarly, nearly 90% of farmers who confirmed receiving messages said that they had recommended the service to others, with small and medium farmers citing the accuracy of the information, increased knowledge and yield benefits as reasons for recommending the service.

Engagement with farmers by the evaluation team found many accounts of actions taken in response to the messages, although it proved difficult to pin down specific actions to CABI campaigns because of information distributed by other service providers and the difficulty users had in recalling the origin of messages. In telephone interviews, of those who were able to identify CABI as the source, 79% reported acting on the information, with large farmers more likely to act than small or medium ones and men more likely to act than women.

Actions taken by farmers in response to receiving a message included getting soil tested, responding to weather predictions and purchasing recommended varieties of seeds, pesticides or fertilizers. Around three-quarters of users said the information had helped them to increase productivity and minimize losses. Small farmers reported getting a better price for their crop in the market and marginal farmers reported taking action relating to the timing of their harvest. Of those who said the messages had not been useful, the main reasons were that the information contradicted their traditional practices or the advice had not been timely. When specific agrochemicals were recommended, some farmers were unable to act on the advice because the products were unavailable at their local dealer.

For example



Rajesh, a 27 year old farmer from Mahendargarh district in Haryana, cultivates mustard, wheat, pea and onion, depending entirely on crop production to support his livelihood. "Information about, and availability of good pesticides is essential to ensure that what I'm growing isn't consumed by insects," he says. Previously relying on knowledge passed on from older farmers, in 2015 he began using CABI's D2F service having learned about it from his uncle.

Knowledge gained from the mobile service has helped him to improve his farming operation, with significant financial benefits. "I found that my produce was of much better quality, as compared to others," he says. "I could sell my onion crop at Rs 10-12 per kg compared to Rs 5-7 per kg by the other sellers." At the time of the evaluation, Rajesh had sold more than 500 kg of onions, making good money.

Way forward

The most significant problem faced by the D2F service has been the large number of messages that failed to reach users. This was partly caused by flaws in the recruitment process, for example if users' mobile numbers were not accurately recorded. An automated system for number registration would help to solve this problem. In addition, the service lacked a monitoring and feedback process which would have detected the problem of failing messages and enabled CABI to act on it. Establishing such a system would enable CABI to be more responsive to users' experience and needs, as well as helping to root out any invalid numbers.

Recognizing that there was no system to monitor how many SMS text messages were actually received by users, D2F switched to an entirely voice message based system from July 2015 as this provided better service analytics. However, in the evaluation exercise farmers expressed a preference for texts over voice messages, with a text message recall rate of 84% despite the service having been withdrawn over five months before the evaluation took place. In contrast, only 45% of users could recall voice messages, with farmers often too busy at the time they received the call and unaware that they could call back and hear the message later; only 7% of farmers reported using the toll-free number to do so. Despite low literacy rates, farmers valued being able to save texts on their phone to read later, and being able to show them to other people, including agricultural dealers and government extension workers. Thus, while voice messages provide better service analytics, they fit less well with users' preferences and a mix of voice and text should be considered in future.

While existing users have been recommending the service to their peers, CABI has not actively promoted the service or the toll-free number that would allow new users to register. For the service to be sustainable, more needs to be done to increase the number of active users, requiring a cost-effective recruitment and registration process reaching out in a targeted way so that farmers who register are likely to remain engaged. This requires a more nuanced and market-driven understanding of the characteristics of potential users. In particular, this process needs to maximize the number of users who would be willing to pay for the service, which the evaluation of D2F users suggests is currently very low. The role of other stakeholders, including government extension services, mobile phone companies, research organizations and private agrochemical manufacturers, in developing an effective and sustainable service can now be explored.

References

Evaluation of CABI D2F Mobile Agri-Advisory Service Scale Up in India, IMC Worldwide, 2016

Acknowledgements

CABI is an international intergovernmental organisation, and we gratefully acknowledge the core financial support from our member countries (and lead agencies) including the United Kingdom (Department for International Development), China (Chinese Ministry of Agriculture), Australia (Australian Centre for International Agricultural Research), Canada (Agriculture and Agri-Food Canada), Netherlands (Directorate-General for International Cooperation), and Switzerland (Swiss Agency for Development and Cooperation).

This case study was produced as part of the activities of the project entitled 'Direct2Farm Scale up Project', financed by DFID. CABI collaborated with Kisan Sanchar who profiled farmers at the ground level along with a baseline study and IMC was the Monitoring and Evaluation partner for the project. CABI also partnered with Wipro who developed a customer relationship management (CRM) system which captured farmer data and could be used for disseminating content. With the help of our partner VAS2Nets, we have started disseminating content over SMS on the MTN network in Nigeria.

We also wish to acknowledge the efforts of our content team (subject matter experts) Dr Amitabh Bandopadhyaya (livestock expert), Dr IPS Ahlawat (agronomy expert), Dr Poonam Batra (entomology expert), Dr Devaram Bajya (entomology expert) for designing the content as the farmer needs with regards to the scope of this project. The authors also thank Mr Kamal Jeet and his team from Kisan Sanchar for their constant support during the implementation of the project activities in their areas of jurisdiction.

Project donors



Project partners



Authors

Fraser Norton, Phil Abrahams, Sharbendu Banerjee, Sudhanshu Jain, Arun Jadhav, Catherine Allen, Manish Subharwal and Lucy Karanja

Editorial team

Mike Davison

Arun Jadhav (Technical editor)

How to cite this paper

Norton, F., Abrahams, P., Banerjee, S., Jain, S., Jadhav, A., Allen, C., Subharwal, M., Karanja, L. 2016. Direct2Farm proves the case for mobile-based agro-advisory services in India. CABI Study Brief 21. DOI: <http://dx.doi.org/10.1079/CABICOMM-60-1902>