

[HOME \(HTTPS://LEISAINDIA.ORG/\)](https://leisaindia.org/)[ABOUT US \(HTTPS://LEISAINDIA.ORG/ABOUT-US/\)](https://leisaindia.org/about-us/)[MAGAZINES \(HTTPS://LEISAINDIA.ORG/CATEGORY/MAGAZINES/\)](https://leisaindia.org/category/magazines/)[SERVICES \(HTTPS://LEISAINDIA.ORG/SERVICES-2/\)](https://leisaindia.org/services-2/)[IMPACT \(HTTPS://LEISAINDIA.ORG/IMPACT/\)](https://leisaindia.org/impact/)[GUIDE TO AUTHORS \(HTTPS://LEISAINDIA.ORG/GUIDE-TO-AUTHORS/\)](https://leisaindia.org/guide-to-authors/)[GUIDE TO ADVERTISERS \(HTTPS://LEISAINDIA.ORG/GUIDE-TO-ADVERTISERS/\)](https://leisaindia.org/guide-to-advertisers/)[CONTACT US \(HTTPS://LEISAINDIA.ORG/CONTACT-US/\)](https://leisaindia.org/contact-us/)[LEISA INDIA \(https://leisaindia.org\)](https://leisaindia.org/) > [Articles \(https://leisaindia.org/category/articles/\)](https://leisaindia.org/category/articles/) > Digital Platform for promoting improved technologies

# Digital Platform for promoting improved technologies

**Bankey Bihari, Rajesh Bishnoi, Lakhan Singhand Suresh Kumar**

*Mobile phone, owing to its affordability, accessibility and widespread network is emerging as a preferred digital tool for information dissemination for smallholder farmers. However, the adoption rates are found to be higher when supplemented with non-digital approaches.*

Extension services provided by the government institutions is crucial in linking farmers with the developing science and technology. Serving as farm advisory, they also educate farmers about good agricultural and crop management practices, and help farmers in coping with changing climatic conditions. But the existing extension machinery is neither sufficient nor accessible, especially to those living in remote and hilly regions. Also, this system mostly deals with production enhancement, while ignoring marketing aspect.

Digital agriculture can directly support farmer's access to timely and relevant information, as well as empower the farming community through creation and sharing of knowledge. In the past, television and radio were the main electronic broadcast technologies used to reach rural communities; however, in the past two decades, Internet and mobile-based channels have emerged. ICTs now include computer-based applications and such communication tools as social media, digital information repositories (online or offline), and digital photography and video, as well as mobile phones.

Mobile phone, owing to its affordability, accessibility, minimum skill requirement, widespread network etc., has emerged as an important digital tool for smallholder farmers. There are a number of initiatives using mobiles to communicate information directly to farmers; these include IKSL (IFFCO Kisan Sanchar Ltd. in collaboration with Airtel), Mandi on Mobile (BSNL and Uttar Pradesh Marketing Board), Reuters Market Light, and Nokia Life Tools and mKRISHI®.



Transect walk during data collection

## Information need assessment

To address the information needs of farmers, relevant content is a key component of ICT projects. The extent to which content is customized and localized to a farmer's condition influences its relevance. Keeping this in mind, to develop a platform to be useful to farmers, first a baseline survey was done to understand the information needs of the farmers.

The baseline survey was conducted during 2016-17 in 21 villages of three blocks of Dehradun district namely; Vikasnagar, Kalsi and Raipur. Information on major crops of the different villages were obtained. It was found that maize, mandua, pigeon pea, rice, lobia etc., in Kharif; wheat, barley, gram, lentil, mustard, toria etc., in Rabi season, were the dominant crops. Regarding horticultural crops, fruits like mango, guava, jackfruit, litchi, lemon and vegetables like tomato, ginger, colocasia, chilli, peas, turmeric etc., were grown by the farmers in the

area under rainfed situation. Major sources of irrigation were *guh*, river etc., in the project area.

*A mix of digital and non-digital approach is needed for technology dissemination and better adoption*



Focused group discussion with app users

The survey highlighted that farmers have limited access to extension services from the line departments. Their source of information has been newspaper, television and radio.

The survey also revealed that 85 per cent of the farmers were using mobiles. Their mobile type was android and IVR. Majority of the farmers were using IVR type of mobile sets.

With regard to information needs, it was found that almost all the farmers of the project area were interested about crop related information (cereal and pulses) and crop protection. More than 83% were keen to know about natural resource management. Around 3/4ths of them expressed their demand for information on horticultural crops, followed by soil health related technologies.

More than 50 per cent of the farmers were having a need for information on the market, animal husbandry and different agricultural development schemes. Need for weather related information was also expressed during the interactions.

### **mKRISHI®PAWS**

Subsequent to the baseline survey, ICT network on Personalized Advisory on Water and Soil (PAWS) was developed at ICAR-IISWC, Dehradun, including different stakeholders like farmers, input dealers, extension workers and researchers especially working in remote and hilly regions. This was developed to primarily share knowledge on soil and water conservation. mKRISHI®PAWS was developed with technical support of Tata Consultancy Services Limited for disseminating agriculture and soil and water conservation related messages/best practices among farmers of north western Himalayan region. Services provided and the medium used by different stakeholders is indicated in Table 1.

**Table 1: Service Matrix – Different type of users**

Sl. No.	Stakeholder/User	Medium	Available services for Pilot project
1	Agro Experts	Web Console	<p><b>Web console services:</b></p> <ol style="list-style-type: none"> <li>1) Farmer Registration (includes personal info., land info., crop info., soil info.)</li> <li>2) Soil &amp; Water Management measured (Add, delete, modify FAQs for digital database and mobile app farmers)</li> <li>3) Photo Gallery – (for mobile app farmers)</li> <li>4) Advisory: (Will allow to answer the queries from Mobile app farmers in local language text SMSs)</li> <li>5) Text and Voice Alerts</li> <li>6) Reports</li> </ol> <p><b>Mobile app features:</b></p> <ol style="list-style-type: none"> <li>1) Raise queries through recording from mobile app, also can share photographs with queries.</li> </ol>
2	Mobile App farmers	Android Mobile App, Java App – (Internet)	<ol style="list-style-type: none"> <li>2) Weather information.</li> <li>3) Soil health Card (for limited no. of farmers after soil testing)</li> <li>4) FAQs and photo gallery.</li> <li>5) Feedback.</li> </ol>

3	<b>Non Mobile App farmers</b>	<b>Normal Mobile phones (without internet)</b>	<p><b>Normal phone users:</b></p> <ol style="list-style-type: none"> <li>1) Will receive periodic text SMS related to soil and water conservation (crop specific).</li> <li>2) Will receive periodic voice alerts related to soil and water conservation (crop specific).</li> </ol>
---	-------------------------------	--	--

**Content Development**

Content has been developed based on the present agroecosystem. Standard messages were developed, refined and sent by the institute project team. Three to four messages per week are sent based on the season and crop growing stages. Totally, 136 specific messages related to different agricultural aspects were sent to the registered farmers and other stakeholders including extension workers, input dealers and development functionaries.



Screenshot of mKrishi PAWS app

Content has been categorized into different components/themes. 44 messages related to plant protection were developed and sent to the farmers through mobile followed by crop production technologies (35 messages) and soil and water conservation aspects (21 messages).

**Use and outreach**

The service provided through app is based on personal information of the farmers, location of the villages, crops grown, soil conditions and economic status of the farmers. Farmers have to register on the app through his/her mobile number.

Only android users can download and access the app after registration. IVR users can only receive the messages and alerts. They received periodic text SMS and periodic voice alerts related to soil and water conservation (crop specific).

Farmers can raise questions, send the pictures of crops affected, audio messages through mKRISHI@PAWS mobile App and the questions are answered by experts through web console services. Also voice and text alerts are shared with all the farmers. The platform also provides farmers access to photo gallery, weather information, soil health cards. Farmers can send their feedback and get responses.

The app is bilingual and is available in Hindi and English. Users can download the mKRISHI PAWS app from the link: <https://www.tcsmkrisi.com/app/mpaws/> (<https://www.tcsmkrisi.com/app/mpaws/>). Presently more than 400 farmers in the hilly region have downloaded this app.

**Feedback and impact**

Messages were analyzed on the following parameters viz, need based content, appropriateness, practicability, understandability, length and quality of the messages. Technical terms sent and their clarity to the farmers was also analyzed by interacting with 240 farmers. Majority (80.41%) of the farmers expressed that the messages sent was need based. Around 85% of the farmers expressed that the messages were appropriate to their needs. Majority (77.50%) of the farmers expressed that the messages were practical and were applicable to their farm requirements. Majority of the farmers expressed that it was easy to understand the content received on their mobiles, the quality of messages was good with simple use of technical terms.

Impact of mKRISHI@ PAWS service was analyzed in terms of technology application in farmers fields. For doing this, farmers in two blocks with different access to information were compared. Farmers in Kalsi Block in Dehradun were sent only text messages, whereas farmers in Raipur block were supplemented with other methods of capacity building, besides being sent text messages.

In the first set of villages in Kalsi Block, Dehradun, where only text messages were sent to the respondents, the highest rate of adoption was found to be crop protection measures. Around 45% of the farmers practised the information received as messages. Around 25% of the farmers could use soil nutrition information followed by 20 per cent farmers who followed the agronomical package of practices received through text message. NRM technologies in soil and water conservation were the least practiced in the field. Only 10% farmers could adopt the NRM practices shared through the app.

In the second set of villages of Raipur Block, Dehradun, along with text messages, exposure visits, meetings, group discussions and trainings on soil and water conservation and other components were organized for enriching their knowledge. The results were encouraging. More than 91% of the farmers adopted crop protection technologies, 83% used weather information, 66% used soil nutrition information, and 45% adopted latest agronomical practices on their field.

The study clearly shows that while digital tools help in wider outreach and ease of access, yet it is more helpful to the educated and resource rich farmers. Resource poor and comparatively less educated farmers, along with information also need inputs, technical guidance, motivation, persuasion, trainings and other support on a regular basis for adoption of agriculture and rural innovations. Also, technologies and practices are highly location and site specific which cannot be explained through messages only. Hence, messages alone do not help in adoption of practices. A mix of digital and non- digital approach for technology dissemination and adoption is the need.

**Dr. Bankey Bihari,**

Principal Scientist (Agricultural Extension) and I/c Head (HRD&SS),

Email: biharibankey\_bankey@yahoo.co.in (mailto:biharibankey\_bankey@yahoo.co.in)

**Dr. Rajesh Bishnoi,**

Scientist (Agricultural Extension),

Email: rajesh3017@gmail.com (mailto:rajesh3017@gmail.com)

**Shri Suresh Kumar,**

ACTO (Agricultural Extension)

ICAR-IISWC, Dehradun

Email: sureshiiswc@gmail.com (mailto:sureshiiswc@gmail.com)

**Dr. Lakhani Singh,**

Director, ICAR-Agricultural Technology Application Research Institute (ATARI) (Zone-VIII),

Pune, Maharashtra

Email : lakhanextn@gmail.com (mailto:lakhanextn@gmail.com)

HOME  
([HTTPS://LEISAINDIA.ORG/](https://leisaindia.org/))

ABOUT US  
([HTTPS://LEISAINDIA.ORG/ABOUT-US/](https://leisaindia.org/about-us/))

MAGAZINES  
([HTTPS://LEISAINDIA.ORG/CATEGORY/MAGAZINES/](https://leisaindia.org/category/magazines/))

SERVICES  
([HTTPS://LEISAINDIA.ORG/SERVICES-2/](https://leisaindia.org/services-2/))

IMPACT  
([HTTPS://LEISAINDIA.ORG/IMPACT/](https://leisaindia.org/impact/))

GUIDE TO AUTHORS  
([HTTPS://LEISAINDIA.ORG/GUIDE-TO-AUTHORS/](https://leisaindia.org/guide-to-authors/))

GUIDE TO ADVERTISERS  
([HTTPS://LEISAINDIA.ORG/GUIDE-TO-ADVERTISERS/](https://leisaindia.org/guide-to-advertisers/))

CONTACT US  
([HTTPS://LEISAINDIA.ORG/CONTACT-US/](https://leisaindia.org/contact-us/))

## AME Foundation

AME Foundation is a resource organization, motivated by a deep-going concern for improving the farm livelihoods in fragile ecosystems.

Twenty five years ago, in 1982, AME was set up in The Netherlands, in response to worldwide concerns regarding environmental degradation, in the wake of the Green Revolution. It migrated to Pondicherry, India, in 1986, intensifying its hands-on training in sustainable agriculture. With a growing realization of the importance of rehabilitating the resource poor farmers in fragile dry farming situations, it moved on to the Deccan Plateau, based in Bangalore, in 1994. AME was transformed into a charitable Indian Trust, as AME Foundation, in 2001.

[READ MORE \(HTTP://AMEFOUND.ORG/AME-FOUNDATION/\)](http://amefound.org/ame-foundation/)

## Contact Us

### AME Foundation

No. 204, 100 Feet Ring Road,  
3rd Phase, Banashankari 2nd Block,  
3rd Stage,  
Bangalore – 560 085, India  
Tel: +91-080- 2669 9512,  
+91-080- 2669 9522  
Fax: +91-080- 2669 9410  
E-mail: [leisaindia@yahoo.co.in](mailto:leisaindia@yahoo.co.in)

Supported by



A member of



Network

Copyright©2020 Leisa India, All Rights Reserved. Powered by Dhyeya (<http://www.dhyeya.in>)

(<http://www.dhyeya.in>)

(<http://www.dhyeya.in>)

(<http://www.dhyeya.in>)

(<http://www.dhyeya.in>)