Reaching Farmers through the Cyber Corridor

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Abstract

India is on the track to embark upon a "Cyber revolution" with effective reach and access through the use of Information and Communication Technologies (ICTs). With the effective progress made in agriculture, information technology and Cyber extension has the potential to play a vital role in transforming India into a "cyber-enabled agriculture" in the 21st century. The present paper deals with the important ICT tools used in Bihar Agricultural University for reaching the farmers, to enable better farming in the state.

Introduction

The farmers largely depend on extension personnel to get proper advice to cultivate the crop as well as information on latest technologies in agriculture and allied disciplines. The information desired may relate to different schemes run by the government, crops, technologies, seeds, fertilizers, pesticides, availability of fertilizers, seedlings, bio pesticides, soil fertility, pest and disease diagnosis and so on. Agricultural marketing information is also an integral component for farmers helping them to increase their profits and also to make farming sustainable.

In the state of Bihar, more than eighty percent of the population lives in villages and they are mostly dependent on agriculture and agrarian based enterprises for survival (GoI, 2008). They lack access to relevant information because the IT infrastructure has not penetrated into the villages. With the power of ICTs, the farmer would be able to get rapid access to information relating to health, education, business, employment etc. Bihar Agricultural University, Sabour has successfully leveraged the potential of ICTs towards better farming in the state reducing the need of extension personnel to reach the farmers. The initiatives of the University are discussed below:

Videoconferencing in Technology Transfer

A videoconferencing is a set of interactive telecommunication technologies using audio and video to bring people at different sites together for a meeting. This is as

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simple as a conversation between two people in private offices (point-to-point) or involving several sites (multi-point) with more than one person in large rooms at different sites. Besides the audio and video transmission of people, video conferencing is also used as a medium to transfer documents, computer-displayed information and presentations. Videoconferencing facility was started in the University after the creation of Media Lab facility at the University headquarters which was followed by the creation of high-bandwidth enabled training rooms at twenty Krishi Vigyan Kendras affiliated to the university. The videoconferencing facilities have enabled the farmers in the district to get expertise on various technologies of the university at their locations. The farmers are regularly trained on their areas of interest like cultivation practices and recommendations related to crop production, animal husbandry, milk production, fisheries, honey-bee production, mushroom production and other important remunerative avenues to increase per capita income and progressiveness. The technologies which were earlier confined to the headquarters alone are now being disseminated on a large scale through the use of videoconferencing.

Table 1. No. of Training Programs organized and farmers' participation in video conferencing offered by the KVKs

S.No.	KVK	No. of Trainings	No. of Farmers who participated
1.	Katihar	65	1625
2.	Harnaut (Nalanda)	66	1650
3.	Saharsa	63	1576
4.	Aurangabad	65	1619
5.	Banka	25	502
6.	Araria	22	624
7.	Aurangabad	22	575
8.	Munger	24	625
9.	Katihar	26	588
10.	Saharsa	27	603
11.	Barh (Patna)	25	594
12.	Gaya	28	608
13.	Nalanda	28	588
14.	Purnea	24	610
		Total	**12387**

From the table, it is quite clear that more than 12,000 farmers were directly benefitted by the training provided by the scientists to the farmers through video conferencing facility. The benefits attributed to the video-conferencing facility provided by the university are briefly described below:

Closer contact with Farmers

The use of videoconferencing is the next driver for productivity because it is quite easy for the scientists to keep in closer contact with the farmers. This closeness has led to new ideas on how to speed up the development of new products and services in the agricultural sector.

Improves communication & reinforces relationships

During a videoconference, one can see the facial expressions and body language of conference participants. These are both important aspects of communication that are lost with a basic telephone call. The video conferencing facility enables better interaction and connect better with the advice suggested.

Reduces travel expenses

In today's scenario cutting down the travel expenses and time of the scientists is of utmost importance. Video-conferencing provides a suitable medium for the university scientists to stay connected with the farmers without having to visit them personally.

Improves Effectiveness

We all know that "a picture is worth a thousand words." Videoconferencing is the perfect example of how true this statement is. A live video call is much more effective than a phone call in many situations. The benefit attributed to the video-conferencing by the KVKs has improved the effectiveness of not only the farmers but also the scientists associated with the university.

Saves Time

The video conferencing facility has enabled saving of time of all the people engaged in the process.

The video conferencing facility has not only facilitated better interaction between the scientists and the farmers but also helped the policy makers have a better know-how of the farmers along with regular monitoring and feedback.

Mobile Messaging services

a. Voice Krishi Vigyan Kendra (vKVK)

vKVK is a platform that connects KVKs with farmers through internet and mobile technology. The main objective lies in bridging the gap between the farmers and the KVK expert. The university is utilizing vKVK services to provide web and

cell phone based multimodal agricultural advisory system. It allows the scientists of the university to send SMSs and voice based agro-advisories in the local dialect to the farmers' mobile phone. In a regular KVK, agricultural experts convey agri-information to their constituent farmers through physical contact when they meet each other during field visits, demonstrations, farmers' fairs etc. This service allows the agriculture expert to record and send messages to registered farmers using a web based interface (Web to mobile) or a mobile phone (mobile to mobile). The farmer can call up and speak to the expert in the KVKs (mobile to mobile). The agricultural expert can also send short messages (SMS) to the designated farmers of the concerned KVKs. With the advent of this system, the extension officer and farmer are not constrained by the problem of illiteracy. The advent of mobile telephony has bridged the gap that existed between the rural communities and extension agencies in transfer of information.

b. Mobile based Agro-Advisory Services through 'mKisan Portal'

The mKisan is a dedicated portal of the Department of Agriculture & Cooperation, Government of India which has helped in widening the outreach of scientists, experts and Government officers posted down to the Block level to disseminate information and to provide advisories to farmers through their mobile telephones. Being an instant and non-intrusive medium of communication, the SMS advisories and alerts are enabling farmers to take informed decisions relating to different aspects of farming including crop production and marketing, animal husbandry, dairy and fisheries. The farmers are also opting to receive SMS messages customized to their specific requirements. Weather forecast and alerts are enabling farmers in planning farming operations effectively and taking the best suited action to deal with adverse weather conditions.

Advisories on disease/pest outbreak are helping the farmers to take immediate action to secure their crops and animals. Advisories on best practices, such as selection of better suited crop variety/ animal breed, is further leading to better farm productivity and higher income to the farmers. Timely market information is provided through SMS which is enabling the farmer better bargaining power and a position to take better decisions about sale of his produce. SMS advisories also include soil test results, selection of fertilizer and its dosage, and information on various programmes so that farmers can make the best use of assistance and know-how being made available by the Government. Farmers from respective Krishi Vigyan Kendras, colleges and research institutes under the jurisdiction of Bihar Agricultural University are sending farm advisories on a regular basis. Officers of various departments, experts and scientists in research institutions and in the field are using

this portal for disseminating information, giving topic wise and seasonal advisories and providing services through SMSs to farmers in their local languages.

Farmers Helpline

a. Farmers Helpline on dedicated toll free number

The Kisan Helpline is a dedicated toll free number provisioned for the farmers which is operational from 10 am to 7 pm on weekdays. The scientists of different disciplines resolve the agriculture and allied problems of farmers through the Help Line and/or by visiting the farmers' field.

b. Farmers Helpline on email

A need was felt to cater to the needs of those farmers who wish to get their answers through e-mail service. Keeping this in view, a dedicated email id is operational for solving the queries over email.

Community Radio Station

Community Radio is a radio service offering a third model of radio broadcasting in addition to commercial and public broadcasting offered by the Extension Departments and the Directorate. Community Radio Station has the potential for education & social development. It is found to be an economical tool to reach the masses and have quick communication. The Community Radio Station located at Krishi Vigyan Kendra, Barh (Patna) is serving the geographic communities and communities of interest located in its vicinity. It was launched in the year 2011 on 91.2 FM radio bandwidth. It is broadcasting content which is popular and relevant to a local, specific audience. The Community Radio Station is very much operated, owned, and influenced by the communities it serves. It is also planned in the future to work in conjunction with phone/mobile and Internet to make it a two-way interactive system. As agriculture is highly location specific, localized community radio which is demand driven and need based is the need of the time. Apart from agriculture, key issues such as health, hygiene, food security, livelihood security, social issues etc. related with farmer's day-to-day life are also addressed. The content is created mostly in the local dialect for ease of understanding. The radio runs two hours in a day. The morning hour consists of Krishak Manch, Mahila Jagat and Lok Rang programmes while the evening hour has features like Bal Manch, Lok Rang and Krishak Manch.

An audience analysis of the Community Radio listeners on the perceived main message of the programme and shift from traditional to value added agricultural production technologies offered through community radio is discussed below:

Table 2. Perceived Main Messages of the Programme

Main message	Frequency (n=213*)	Ranking
Importance of health and proper nutrition/sanitation	21	5
Importance of adopting new technologies in agriculture like mushroom cultivation, vermicomposting and honeybee rearing	33	2
Dairying and animal husbandry practices	29	4=
Organic farming	16	6
Government schemes	29	4=
Orchard cultivation	32	3
Agro forestry and plantation of trees on the bunds	15	7
Plant protection measures and alert on diseases/pests	38	1

*Respondents were permitted more than one response

The main message/ central theme perceived from the programme which was ranked first is plant protection measures and alert on diseases/ pests infesting the crops. It was followed by practical aspects concerning the importance of adopting new technologies in agriculture like mushroom cultivation, vermicomposting and honeybee rearing among a few on the second slot. Horticultural aspect like cultivation of orchard was ranked third. Information on various government schemes for the social sector and practices like dairying and animal husbandry ranked fourth. The importance of health and proper nutrition/ sanitation was ranked fifth followed by newer methods like organic farming at the sixth rank. Various methods on agro forestry and plantation of trees on the bunds were ranked last.

Table 3: Need for a shift from Traditional Farming Practices to Value-added Agricultural Production Technologies

Need for a shift	Frequency (n=75)	Percentage
Strongly agree	43	57.33
Agree	21	28.00
Not sure	5	6.66
Disagree	8	10.66
Strongly disagree	2	2.66

The respondents were quizzed on whether a need is felt for a shift from traditional farming practices to value-added agricultural production technologies. The respondents who 'Strongly agreed' to this comprised the maximum (57.33%) followed by 'Agree' (28%). The respondents disagreeing to the statement were 10.66%, followed by respondents who were not sure (6.66%) and who strongly disagreed with the statement (2.66%).

Kisan Gyan Rath

This is a mobile multidimensional knowledge resource center van equipped with, an inbuilt soil laboratory, demonstration unit, and facility for video streaming of different agricultural practices, and accompanied by a team of scientists. The video streaming has generated interest among the farmers to learn the practices by observing them on the screen. It also disseminates information relating to different government schemes among the farmers. The Kisan Gyan Rath is under the supervision and control of the respective KVKs under the jurisdiction of BAU, Sabour for a period of 30 days in which it visits 15-20 villages in the district with innovative solutions offered by the scientists along with mobile soil testing facilities.

Conclusion

ICT application for extension in the university has a long way to go. The main aim is to facilitate the farmers with the right piece of information at the right time using mobile phone, internet, video, radio etc. as the delivery mechanism. The integration of ICTs in extension programmes is generating increased interest and awareness both among the farmers and the extension professionals. The future lies in the use of intelligence at each stage with a centralized database for ease of access and delivery.

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