

ICTs for Enhancing Agriculture Income

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ABSTRACT

India is a land of villages having a major chunk of population (58.6%) depending on agriculture as their main source of livelihood. Farmers are the one who are working hard with low income. To feed the growing population of our country to retain and to attract people towards farming, it is utmost important to take necessary appropriate measures.

In this context, Information and Communication Technology (ICT) is one such important tool to help the farmers in doubling their income from agriculture as well as to communicate information to a large number of people in shortest time. ICTs should not be treated as a luxury to privileged few but treated as critical tools to the people across the country as they bring new ways of doing things and instruments that can reduce farmers transport costs, facilitate commodity trade thereby increasing agriculture production and income and contributing to poverty eradication. Major sources of information are television, radio, newspaper, social media, fellow farmers, government/private extension services, financial institutions, input dealers, seed companies, friends and relatives. ICTs have shown evidence for easier access to markets and information resources. The Important services that can be provided through ICT are e-marketing, e-education, e-extension, e-commerce, kisan call centres, forecasting weather information, providing up-to-date package of practices & other information to farmers, early warning system about disease/pest incidences. In the field of agriculture too, ICTs can play an important role in disseminating information. Prevailing important ICT tools are AGRISNET, Digital green, e-sagu, e-krishi portal, IKSL, Agmarknet, ikisan, Digital media and many. In this technology world, making effective use of innovations, calls for helping the farmers to double their income by incorporating advanced technologies for solving their problems.

INTRODUCTION

India currently has several public and private active information and communication technology (ICT) initiatives with objectives to support and provide assistance to farmers, but analysis on how ICT is helping farmers to enhance productivity, better cope with the weather variability and attain better prices for their produce is limited. Information on how small farmers and women engaged in agriculture are being helped by agricultural information dissemination via ICT.

Indian Agriculture contributes to 7.62 per cent of India's GDP. ICTs should be integrated to be effectively used in agriculture development as facilitating tools to boost its impact to the lives of farmers. Information and Communication Technologies (ICTs) have shown evidence for easier access to markets and information resources. The role of ICTs to stimulate agriculture, enhance food security and support rural livelihoods is increasingly recognized and was officially endorsed

at the World Summit on the Information Society (WSIS) 2003-2005. The computers, internet, Geographical Information Systems (GPS), mobile phones, as well as traditional media such as radio or TV stimulates participation enhances value to productivity. Evidence of the contribution of ICT to agricultural development and poverty alleviation is becoming increasingly available. In the past two decades, a number of international agencies including CTA and its partners have been involved in projects and policy support programmes and consistently monitor the progress and impact of the use of ICTs in agriculture.

The application of Information and Communication Technology (ICT) can play a pivotal role in efficient dissemination of information. The ICT can deliver fast, reliable and accurate information in a user-friendly manner for practical utilisation by the end user. The information disseminated facilitates the farmers to decide what and when to plan, how to cultivate, when and how to harvest, what post-harvest management practices to

follow, when and where to market the produce etc. (USAID, 2010).

In addition, the cost involved in face-to-face information dissemination at the right time and the difficulties of reaching the target audiences have also created the urgency to introduce ICT for this purpose. It is only through the introduction of ICT that information can also be updated and extended at the lowest cost. There are several ICT models available in Indian agriculture, which have made significant difference to agricultural operations (Meera, Jhamtani, & Rao, 2004).

The important services that can be provided through ICT are e-marketing, e-education, e-extension, e-commerce, KCCs, forecasting weather information, providing up-to-date package of practice & other information to farmers, early

warning system, disease / pest problems as well as websites established by Agricultural Research Institutions on latest information to extension workers.

Sources of information for farmers

The survey conducted by National Sample Survey Organization (NSSO) found that the main source of information for the farmers was 'other progressive farmers' followed by input dealers, radio and television. A study by Indian Council for Research on International Economic Relations (ICRIER) also found that the farmers have access to a wide range of information source like television, radio, newspaper, other farmers, government extension services, traders, input dealer, seed companies and relatives.

Table 1
Sources of information for Indian farmers

(N=183)

Sl.No.	Source of Information	Total	Per cent
1	Mobile phone	183	100
2	Mobile -phone-enabled service	138	75.4
3	Television	118	64.5
4	Newspaper	98	53.6
5	Kiosk	51	27.9
6	Other farmers	43	23.5
7	Radio	37	20.2
8	Input dealers	42	23.0
9	Extension workers	121	66.1

Source: Mittal *et al.*, (2010).

Table 2
Different ICT initiatives in Indian Agriculture

Sl. No.	ICT initiative	Description
1	AGRISNET	An infrastructure network existing at block level facilitating agricultural offices, agricultural extension services and agribusiness activities to enhance rural development. http://www.tnagrisnet.tn.gov.in
2	Digital green	The agriculture information of local relevance is disseminated through digital video. The system consists of a digital video database prepared for farmers by farmers with the help of experts. The recordings are shown to individuals or small groups using laptops, DVD player, television and to communities through village cable network. http://www.digitalgreen.org

3	eSagu	eSagu provides personalised expert advice in a timely manner from sowing stage to harvest for small and marginal farmers at their door -step. The farm situation is brought to the expert in the form of digital photographs and text information. The expert advice after analysing the situation is prepared and is delivered to the concerned farmer on the same day or subsequent day. http://agriculture.iiit.ac.in/esagu2016/esagu.php
4	e-krishi portal	This portal developed by the University of Agricultural Sciences Bengaluru to provide information on various crops of agriculture, horticulture, sericulture, forestry, animal sciences and farm mechanization also it provides information on market prices and government schemes & programmes. In addition krishi news, progressive farmers success stories and web linkages on SAUs, ICAR Institutes, etc. http://e-krishiuasb.karnataka.gov.in
5	IKSL	The relevant information is delivered to the farmers on mobile phones through five voice message in local language. Customized solutions are provided to the farmers through helpline. The farmers can also speak to the experts on specific subject through special 'phone-in' programmes. http://www.iffcokisan.com/
6	Agmarknet	This initiative provides daily market price and arrival information in respect of more than 300 commodities and 2000 varieties in eight local languages. The wide range of information on prices, arrival and other related aspects like grades, standards, packaging, etc. is collected and disseminated by networking major agricultural produce markets operating in the country. http://agmarknet.gov.in/
7	iKisan	iKisan is a one -stop solution for farmers in providing information on crops, crop management techniques, fertilizers, pesticides and other related information like market updates and weather forecasts. http://www.ikisan.com/
8	Digital Mandi	Digital Mandi is an electronic trading platform for agri -commodities to bring the benefit of ICT to farmers and traders by eliminating geographical barriers and temporal limitation and removing cash crunch through active participation of various financial institutions. Digital Mandi is inspired by the vision of Media Labs Asia sustainable village through culturally appropriate use of new technologies. http://digitalmandi.iitk.ac.in
9	Akashganga	The initiative facilitates timely collection of milk, proper payments and generates higher income for dairy farmers. The system includes weighing of milk electronically, fat testing, capturing unique ID by the software and printing of pay slip and payment settlement. http://akashganga.in/
10	aAQUA	aAQUA is a multilingual online problem solving system that facilitate farmers getting their queries answered by experts. The reply to the queries raised by the farmers is sent in one to three days depending on the nature of the problem. https://aqua.persistent.co.in
11	e-Krishi	The communication network established under eKrishi is utilised to building farmers institutions, policy research for agriculture and working for ecological and economic sustainability in agriculture. http://csa-india.org/
12	Kisan Mitra	The initiative provide information on daily market prices, weather updates, crop advisories, agri-related news, etc. The information is also available on other sections such as loans, insurance, Mandi database, cold storage and warehouses, etc. The farmers can also get motivated and take benefits from the success stories of other fellow farmers reported on the website. http://krishakmitra.com/

13	Haryali Kisan	Bazar HKB has set up centre across different states to provide solutions to wide range of problems of farmers under one roof including agri -inputs, financial services, farm -output services and round the clock expert advice. The centres provide information on crops, latest technologies, weather forecast, market prices, customised services based on the farmer database maintained under the initiatives. https://www.dcmshriram.com/haryali-kisaan-bazaar
14	Fisher Friend	Mobile Advisory - The information relevant for fishermen is provided in local language through mobile phones. The information covered are wave height, wind speed and direction, potential fishing zones, relevant news, government schemes and market price. http://www.mssrf.org/mssrfoldsite/?q=ffma
15	KCC	The Kisan Call Centre utilises telecom infrastructure to provide customised information on various aspects of agriculture in local language using toll free number 1800-180-1551. https://dackkms.gov.in
16	e-choupal	An initiative by ITC provides alternative marketing channel, information on weather, agricultural practices, input sales, etc. It is a kiosk located in a village and equipped with computer with internet access managed by trained sanchalak. http://www.itcportal.com/businesses/agri-business/e-choupal.aspx
17	AgriMedia Video App	This application is specially designed for farmers and agricultural professional persons developed by Digital AgriMedia. This App can be downloaded from Google Play Store. It is simple concept like Mobile Krishi TV where farmers can get all agriculture information and education in Audio -Video format. Agri Video films could be watched to get solution for better package of practices. http://agrimediafilm.com/
18	e-agri kiosk	An initiative by NABARD and Central Agricultural University. Touch screen kiosk for technology transfer among tribal farmers of Arunachal Pradesh.

Main problems in adoption of ICT are ICT Illiteracy, availability of relevant and localized contents in their own languages, easy and affordable accessibility.

CONCLUSION

Use of ICTs provides excellent opportunity to Agricultural Extension as a discipline, as an Outreach agent and as a tool to enhance the agriculture income. We must effectively use these opportunities and redefine our critical importance to our ultimate clients - The Farming Community. Some initiatives are suggested to implement effective use of ICTs for enhancing agriculture income are:

- Government should set-up at least one ICT centre in every district.
- Each ICT centre should have computers with IT equipped for ready access to farmers.
- Providing training on agriculture information, awareness and education using ICT with supporting staff in each of these ICT centres.
- Advanced information about adverse weather condition, so that farmers can take precautionary measures.
- Real time and near real times pricing and market information.
- Information dissemination about various government schemes.
- Information regarding agri-finance, agri-clinicals and agri-business.
- Formation of online commodity based Farmer Communities.

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REFERENCES

1. ANONYMOUS (2008-09), Agricultural Statistics at a Glance, Ministry of Agriculture, Government of India, New Delhi
2. BAHL, MELA (2008), "S&T for Rural India and Inclusive Growth: ICT in Agricultural Marketing".
3. JENSEN, ROBER T. (2007), "The Digital Provide: Information (Technology), Market Performance and Welfare in South Indian Fisheries Sector", Quarterly Journal of Economics, Vol.122, No.3, pp.879-924.
4. MEERA, SHAIK N., ANITA JHAMTANI AND D.U.M. RAO (2004), Information and Communication Technology in Agricultural Development: A Comparative Analysis of Three Projects from India, Agricultural Research and Extension Network, Network Paper No. 135.
5. MITTAL, SURABHI, SANJAY GANDHI AND GAURAV TRIPATHI (2010), Socio-Economic Impact of Mobile Phones on Indian Agriculture, Indian Council for Research on International Economic Relations, Working Paper No. 246, February.
6. USAID (2010), ICT to Enhance Farm Extension Service in Africa, Briefing Paper, November 2010.

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