

Appropriate knowledge and tools for smallholder farmers



Farmers need access to appropriate information and knowledge

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Public funded agricultural extension is often inadequate in terms of infrastructure and human resources to meet the needs of smallholder farmers. For a more food secure world, it is imperative that millions of resource-poor small farms in developing countries significantly raise their agricultural productivity, are more resilient to shocks and seize opportunities to increase their incomes. To do so, farmers need access to, and be able to effectively use, appropriate information and knowledge in a timely manner according to their own situations.

The development of ICTs is helping extension become more efficient and farmer-friendly, with real-time advice. But the challenge is how to scale up pilot projects to reach millions of smallholders. With this issue in mind, the Second Global Conference on Agricultural Research for Development (GCARD2) highlighted examples of knowledge access as a way to unlock the potential of smallholder agriculture.

ICT innovations for agriculture

To meet the challenge of providing smallholders in India and sub-Saharan Africa with the right information at the right time, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has opened a Centre of Excellence (COE) in ICT innovations for agriculture. The COE has developed many information systems, linking research, extension and markets. In south India, for example, ICRISAT provides internet-equipped village knowledge centres with up-to-date information on best farming practices, including methods of climate adaptation, crop rotation, diversification and pest management for crops such as millet or sorghum. These platforms have helped around 46,000 farmers in 21 villages in one of the poorest regions of south central India, including women, become more food secure and resilient to drought.

Together with the Indian Institute of Technology (IITK), ICRISAT has also set up a knowledge-sharing platform enabling mediated voice communication, via mobile phones, between agriculture experts and farmers. The project is currently serving nearly 20,000 farmers in south India, who are regularly receiving timely crop advisories from farmer knowledge centres (*Krishi Vignan Kendras*). "Earlier we used to take advice from the shop dealer on mixing of pesticides," explains Satyanarayana Reddy, a farmer from Jaanampeta. "Now, with ICRISAT's information advisory service, we are able to figure out the accurate dosage. It saves money." Plans are currently underway to replicate and expand this voice message model across Asia and Africa.

Unlocking knowledge



Women filming algae as fertiliser application

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Providing free web-based access to research is another priority for international research and development centres. Housing more than 5,700 research documents, including journal articles, conference papers, theses, and monographs, an Open Access Repository launched by ICRISAT provides an easy interface for researchers, practitioners, or web-connected farmers to use, build on and share research conducted at ICRISAT. Since its creation in May 2011 more than 144,000 documents have been downloaded by people from more than 70 countries, with around 6,000 unique users visiting the Repository every month.

A virtual knowledge series platform, known as KSI (Knowledge Sharing and Innovation) Connect, enables ICRISAT to highlight their most interesting projects to a global audience. This platform also allows experts across the globe to share their project experiences. KSI Connect provides agricultural stakeholders with direct access to technical experts and the latest scientific innovations in agriculture, without having to participate in face-to-face training sessions. Since its launch in July 2012, more than 100 videos have been uploaded and more than 3,000 users visit the site each month.

ICRISAT is also a partner in the Coherence in Information for Agricultural Research for Development (CIARD) initiative, which aims to put all agricultural information in the public domain, making it more openly and easily available. From across its partner organisations, CIARD has collated more than 6 million documents that can be accessed by information managers for value-added information services, such as those used by ICRISAT, targeted to a group of farmers engaged in producing a particular crop or following a common farming system.

Developing a new rural knowledge economy



Women listening to livestock farming advice

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ICRISAT also believes that the next generation of ICT innovations should go beyond providing agro-advisory information to providing quality inputs (seeds, fertilisers, pesticides, credit and insurance) and other services such as access to markets and information on farmer and agribusiness entrepreneur support systems. Providing these knowledge services could be financially viable for info-entrepreneurs through fees for providing the service, or for the private sector looking to develop their supply chain. An expert from ICRISAT's advisory service stated that ICT-enabled information services would be useful in creating a para-extension worker out of a rural youth, with only marginal investment.

For example, with a complete suite of applications - touch screen and apps, self guided instructions, enabling virtual transactions, integrated GPRS, camera for capturing pictures and videos - tablets and smartphones have the potential to transform the way agricultural information is shared and created. The COE - following on from discussions held at GCARD2 - is currently exploring tablet-mediated agro-advisory enterprise models to improve the quality and convenience of affordable agricultural advice services. Research is also focusing on how to create a sustainable communication network that would allow multidisciplinary institutions to converge science, technology and value chain approaches. The COE aims to incubate such platforms in the poorest and drought-prone regions of south central Asia and sub-Saharan Africa to enable increasing numbers of smallholders to be more food-secure and prosperous.

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