



Greenphalet™ for Empowering Small Farmers

Experiences from Icrisat

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Introduction

The new Sustainable Development Goals (SDG's) have once again underlined the importance of agriculture development if want to achieve global food & nutrition security and end poverty. The demand for food is expected to continue to grow as a result both of population growth and rising incomes and the world will need to produce 70 percent more food for an additional 2.3 billion people by 2050 (FAO). The current yields in the smallholder farmers' fields are well below their potential; the yield gaps vary by anything between 100-300% across different crops. Among other the important factors lack of awareness and lack of access to high quality inputs such as seed, fertilizer, and agro-chemicals etc cannot be ignored. As per the National Sample Survey Organization (NSSO, 2005) 60 per cent of farmers do not have access to any source of information for advanced agricultural technologies resulting in huge adoption gap. Furthermore, the gap between the public extension personals to farmer which is expected to be 1:2000 (Dileepkumar, 2012), which mean there is only one public extension officer per farmer and with this ratio meeting the information needs of the small holder farmers becomes even more challenging. Above all the massive geographical distance coupled with lack of infrastructure like roads and electricity poses additional constraints. In this scenario it is imperative that smallholder farmers needs to have access to right information at the right time through the right and channel in order to make informed decision (Dileepkumar, 2012). This is where the mobile technology which over the year have become the integral part of business world and have multiplied the working efficiency in terms of real time communication, information and data sharing, having



virtual presence and reach. The fact that with minimum infrastructure availability at the individual level mobile phones have the capability to connect any individual with the entire world on a click of button makes it a powerful tool to have access to desired information. Huge penetration of mobile phones with subscription base of 557.27 million in urban and 403.31 million in rural India (TRAI, Feb, 2015) with monthly growth rate of 0.69% and 1.11% respectively have paved the way for using the mobile technology as medium to provide and have access to various information services related to agriculture and related field.

In this paper, the authors have tried to present the experiences of ICRISAT by highlighting few pilot projects on mobile mediated extension services for small farmers and how these interventions have enabled ICRISAT to link the smallholder farmers to with latest research and development works and enabled them to take informed decision. The presenter will also provide an insight into how the data collected from these mobile mediated interventions can be used to create a market for private sector and empower the farmers to connect to the market and increase their profitability.

Discussion:

The paper especially discusses about following key initiatives and learning from it:

1. vKVK (Virtual Krishi Vigyan Kendra)

vKVK (Virtual Krishi Vigyan Kendra), a loud based voice messaging system that allows Agro-advisories to be sent to the farmers' cell phone directly and this is demand driven. vKVK is a platform that connects Krishi Vigyan Kendra's with farmers of their jurisdiction, through internet and mobile technology. This system allows farmers to send agro based queries using simple IVRS based options, thus allowing farmers with feature phones also to send their request to the experts. Also a agricultural expert can transmit a voice-based advisory to be transmitted to farmers who need pickup the call to listen to the clarifications for their queries. Also scheduled recorded messages were transmitted through this platform to all farmers under the guidance of KVK experts. This platform was tested in some selected districts of Uttar Pradesh, Uttarakhand and Karnataka (ICRISAT, 2012). ICRISAT's M4D consortium project has served nearly 10,000 farmers: regularly sending useful crop advisories as voice messages. However, the limitation in implementing vKVK was mainly the cell phone possessed by farmers which in many cases doesn't supports any other fonts other than English.



2. Krishi Vani – powered by the GreenSIM

Taking learning's from the vKVK project and to achieve the financial sustainability to voice based advisory services to the farming community ICRISAT partnered with IFFCO Kisan Sanchar Limited (IKSL) and Airtel to provide voice based information and advisory services to the farmers naming it "Krishi Vani – powered by the GreenSIM". Krishi Vani (Push-based ICT enabled knowledge base) is a mobile mediated agro-advisory platform that delivers voice messages in 16 categories (weather, market, crop information, government schemes, nutrition, health etc.) in regional languages. The platform is built on public-private partnerships to ensure financial sustainability. Through this application, generic advisories are delivered to groups of farmers in a location through the mobile phone owned by them and enabled by Green SIM. The services are in the form of free voice messages 28 per week per farmer in 16 categories delivered in local dialects.

ICRISAT along with partners implemented the "Krishi Vani – powered by the GreenSIM" in 3 different experimental hubs i.e. Aadarsha Mahila Samaikhya; a women Microfinance Group in Adakkal, Mehubnagar, Rural Development Trust; a NGO in Anantapur and Government of Karnataka under the Bhoochetana Program. A total of around 8000 GreenSIM cards were distributed to small famers in all the 3 locations which have provided interesting results. The free voice based advisory services have not only allowed the farmer to access the information at the time but also allowed them to take preventive measure to save their yearlong hard work. Some of the testimonials from the farmers are highlighted below:

Last time, our whole groundnut crop was destroyed due to unexpected rain, but this season a voice message received on my mobile phone on weather forecast saved our crop as we were able to harvest three days ahead of the original harvest date. It saved us our season-long efforts and hard work," said Chandrakala, a Women Farmer from Addakal region of India.

"We used to take advice and recommendations from agricultural input dealers and received mixed results. But now with ICRISAT's information advisory services we are getting precise application recommendations in our farms. It saves money and gives us better yield and income," says Narmadamma another women from Addakal'.

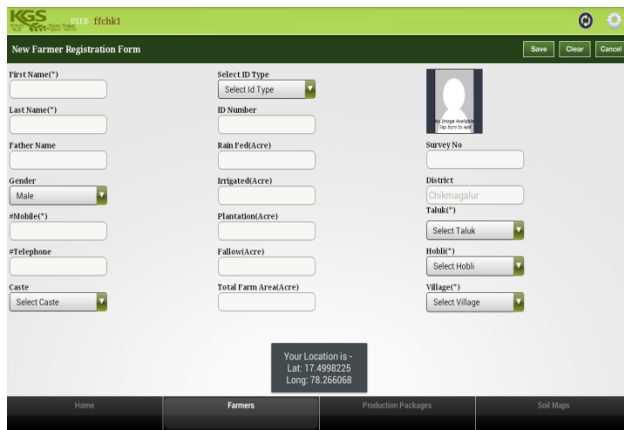
"Krishi vani – powered by the GreenSIM" has also created a new cadre of extension professional called *info-entrepreneurs* out of its business model. While distributing the GreenSIM cards

Airtel provides an opportunity to a rural youth or women from the local community engaged in this distribution channel to earn incentive of Rs 10 on each GreenSIM card sold which cost Rs 86 and comes with a talk time of Rs 82. This model allowed the rural youth/women to earn extra money and have some additional income.

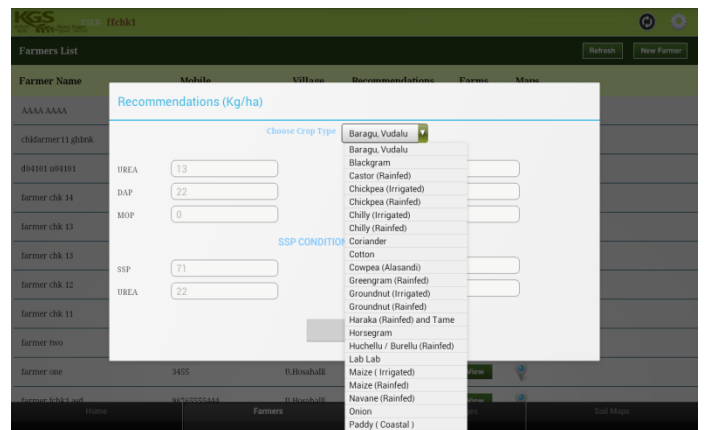
3. Krishi Gyan Sagar (Pull-based ICT enabled knowledge base)

An extended platform of Krishi Vani – powered by the Green SIM, Krishi Gyan Sagar application is android based application which supports android based smartphone and tablets. The application initially was launched basic modules with consists of soil health module with customized fertilizer recommendation; crop knowledge base; integrated pest management practices; farmer-field-crop record database, training and field visit recording modules for the extension workers etc. In addition to these features the web based application provides report generation feature which helps to generate quick reports like; number of farmers registered, their cropping pattern and landholding details, village wise farmers registered, subsidy availed, training conducted and field visit made by the extension workers etc. Screenshot of the application module is given under:

Farmer Registration module



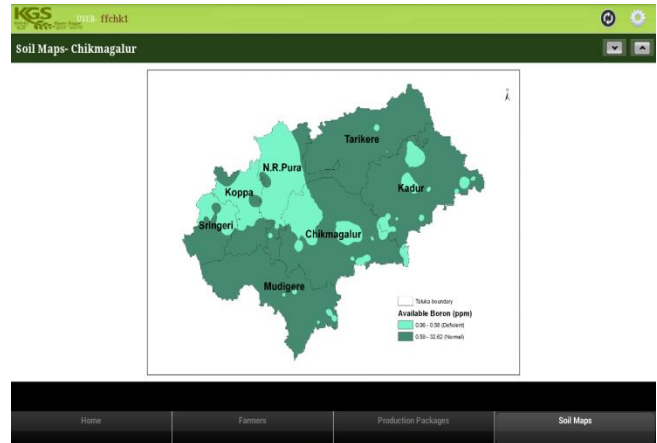
Fertilizer Recommendation module



Crop Knowledge Bank in Local Language



Soil Health Module



Over the period of time the web application of Krishi Gyan Sagar will create a large amount of data from farmers baseline survey including his cropping patter, pesticides and fertilizer usage, inputs needs, etc that it can serve as intelligence for the private sector inputs dealers and at the same this data can also empower the farmers, FPO and SHG' to come together and increase the bargaining power of the smallholder farmers to get better price for their produce and enhance their profitability.

4. GREENPHABLET

Moving ahead with the Krishi Gyan Sagar application ICRISAT along with partners launched a low-cost, water resistant; dust and shatterproof GreenPHABLET (combination of Phone + Tablet) which cost USD 299, however this is the initial price and the institute is trying to bring down the cost so that it is affordable by individual farmers in near future. Currently it is intended to be used by the public extension workers and progressive farmers. The device will act like ecosystem of agricultural information and services for the farming community right from having access to inputs at lower price, better price for their produce, and link them to research, subject matter experts, markets and thus putting them on the path to prosperity. The device comes with following specifications:

GreenPHABLET™ | GreenPhablet - powered by the Green SIM



Configuration details

CPU: MTK6589W, 1.2Ghz, Quad Core (Cortex -A7)
RAM: 1 GB
ROM: 8 GB
Primary Camera: 2.0 Mp
Secondary Camera: 8.0 Mp
Display: 7" IPS, multi touch
Connectivity: Wifi , Bluetooth, GPS, NFC
Cellular: 2G(triband) /3G(WCDMA)(HSPA)
Battery: 10,000 MAh
Operating System: Android - 4.2 (Jelly Bean)

Features

Dust Proof/Water Proof: IP66 Standard certified
Drop Proof: 1.5 M height, tested and certified
Shake Proof: 1-9Hz/1.0m, 19-200 Hz/1.0g
Operating temp: -20 to +60 degree
Non operating temp: After -40 to +80 degrees
Max Altitude: 4500M
Relative humidity: 5% to 95%

Colors



Water Resistant

UV Resistant

Shock Proof

Break Proof

3G

Bluetooth

GPS

Wi Fi

Android

32 GB



Conclusion

With these initiatives over the years it is established fact that although the mobile technology may not be the sole solution to all agricultural related issues but it definitely has the potential to bring right information at the right time on to the fingertips of farmers and bridge the gap between agricultural research-extension-market. Many Focused Group Discussion's [FDG] were organized and the utilization of GreenPHABLET was expressed by all stake holders. With mobile phone becoming more affordably over the years and ambitious vision Digital India of current government it may be possible to connect each farmer with other agricultural stakeholders and empower the small farmers to practices sustainable and subsistence agriculture so that they can contribute more efficiently in the fight against hunger, nutrition security and poverty.

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