Review Article

Role of App's in Transfer of Agriculture Technologies

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Abstract:

In an era characterized by rapid technological advancements and the growing significance of agriculture in India's economy, a suite of mobile applications has emerged to revolutionize the way farmers engage with and manage their agricultural practices. Agriculture sector is a cornerstone of the global economy, providing food, raw materials, and employment for billions of people worldwide. As the demands on agriculture intensify due to population growth, climate change, and the need for sustainable practices, the dissemination of information and technology has become crucial. The advent of mobile applications has revolutionized the way agricultural knowledge is shared, bringing a transformative impact to farmers, researchers, policymakers, and other stakeholders. In recent years, nearly all Indian farmers possess mobile phones, with 50% being smartphones equipped with internet connections, enabling the use of various agricultural applications. These apps empower farmers with real-time data, expert advice, and community support, bridging information gaps and fostering innovation. By using the application, users can quickly get information on planting activity, variety details, and fertilizer recommendation, inter cultivation, pest control and harvest and storage. The application acts as a ready to use guide for the farming community. By enhancing productivity, market access, and sustainability, they address key challenges in agriculture. Despite barriers like digital divides and language limitations, mobile apps continue to reshape the agricultural landscape globally. This article concludes the pivotal role of different mobile apps in transferring agricultural information and technology, emphasizing their contributions to productivity, sustainability, and economic growth.

Keywords: Agriculture, mobile phone, farmers, Apps

Introduction:

The term "e-agriculture" is still quite new, we fully expect that it will evolve as our understanding of the industry grows. The goal of the emerging field of "e-agriculture" is to enhance information and communication infrastructure in order to progress agricultural and rural development. The key steps of the agricultural industry are crop growing, water management, fertiliser application, pest control, harvesting, food transfer, safety and quality management, and marketing. Each and every system used to gather knowledge and information for drawing conclusions in any field should provide accurate, comprehensive, and concise information promptly. The system's output must be usable, simple to use, reasonably priced, and adequately protected from unauthorised access. To make it possible for locals to share knowledge about e-agriculture, including resources, ideas, and insights, and to make sure the knowledge gathered is consistently and widely. The term "e Agriculture," which refers to farming, knowledge transfer, and answers provided or augmented through the Internet and modern devices, is a developing field at the convergence of agricultural analytics, agricultural productivity, and entrepreneurship. In more detail, it includes the conception, design, creation, testing, and implementation of fresh (new) approaches to the use of current or developing information and communication technologies (ICTs). The majority of farmers have access to a number of information sources that they check frequently for agricultural information, even though these are not always the most current, reliable, or helpful sources. The most popular information sources continue to be the media (TV, radio, newspapers), other farmers,The Role of Mobile Applications in Agriculture Over the past decade, mobile applications have emerged as an indispensable tool for smallholder farmers, bridging the gap between traditional farming practices and the fast-paced digital era. By leveraging the ubiquity of smartphones and the Internet, these applications have transformed the way farmers access and exchange information, empowering them with unprecedented capabilities. Mobile phones enable farmers to access this information from a host of information providers such as scientists from seed and pesticide companies, cooperative committee office-bearers, input dealers, government agriculture extension officers, market-commission agents/traders, veterinary doctors, and so on.

Indian Scenario of Mobile Phone Users:

In India, increased penetration of mobile handsets, large number of potential users, increased spread of

communication, and low cost of usage lead to growth of large number of mobile based information delivery models for the farming sector. Strategic reforms in telecommunications sector since 1990s have facilitated strong ICT infrastructure in India. This increasing penetration of mobile networks in India therefore presents an opportunity to make useful information more widely available. High resolution cameras, high definition video with huge amount of memory; internet browsing through handset and 3G, 4G, 5G and Wireless LAN connectivity are common to find on smart phones these days. As on in early 2025, India had an estimated 1.12 billion cellular mobile connections, representing 76.6% of the total population. This includes over 806 million active digital users, with the majority being mobile internet users. The number of internet users is projected to exceed 900 million by 2025, with a substantial portion accessing the internet via mobile devices.

According to a report from the Internet and Mobile Association of India (IAMAI) and Kantar, a market research firm. The report stated that 732 million people in India, accounting for almost 83 per cent of internet users, consume the internet to access over-the-top (OTT) audio and video content. Other major use cases include online communication, social media, and online gaming, according to the Internet in India Report 2024.

For most developing nations the farming community which includes farmers, producers, traders and others directly or indirectly involved are not adequately educated. The use of ICT tools in agriculture sector for rural farmers while emerging as a potential for improving the livelihoods of farmers is still not been adopted fully by all farmers, (World Bank 2011). However, research has shown that they have keen interest in learning to operate and use technology which will enable them to take constructive and in time decisions about their farming (Aguero, 2009, Armstrong et al. 2012, Armstrong et al. 2012b). Hence, there is an immense opportunity to enhance the broadcasting of agricultural information that farmers receive through the use of Information and Communication Technologies (ICT), (Leye 2009, Ballantyne et al. 2010, Armstrong et al. 2011, and Kirk et al. 2011). This has already been the case for farming communities in developed nations like Europe, America, Australia, New Zealand, South Africa, where farmers are well educated and farming practices reliant technologies and smart farming systems are used. In such scenarios applications supporting advanced embedded systems are being deployed successfully which helps increase productivity as well. The mobile applications are indeed going to help the farmers intheir activities to ensure they stay well balanced and focused (Aker 2010).Similarl, the majority of farmers do not have access to a communication platform that provides market trends and other current updates. Mobility has been suggested to have an important role in sustainable rural poverty reduction (Silarszky 2008 and Muto 2009) which would indicate the huge potential of mobility to improve agricultural productivity.

The Role of Mobile Apps in Smart Agriculture

Mobile apps in agriculture speed up operations. With the rise of modern technology, farmers have become more accustomed to the accessibility and profits they provide. Mobile app functionality allows farmers to adapt to the customer's demand and boost production profitability. The critical issues apps solve vary from land management to overall crop quality monitoring. Here's a more detailed look at the role of mobile apps in transferring agricultural technology:

1. **Information Access and Knowledge Dissemination:**

- **Timely Information:** Mobile apps enable farmers to access crucial information like weather forecasts, market prices, and best agricultural practices, empowering them to make informed decisions.
- **Localized Information:** Apps can provide tailored information based on specific regions and crop types, ensuring that farmers receive relevant and accurate data.
- **Educational Resources:** Apps can serve as a platform for disseminating knowledge on various aspects of farming, including crop management, pest control, and irrigation techniques.
- **Extension Services:** Apps can facilitate communication between farmers and agricultural extension officers, enabling them to seek advice and guidance.

2. **Improved Agricultural Practices:**

- **Precision Farming:** Apps can help farmers implement precision farming techniques by providing real-time data on soil conditions, crop health, and resource utilization.
- **Resource Management:** Apps can assist farmers in optimizing resource allocation, such as water and fertilizer, leading to reduced waste and improved efficiency.
- **Crop Management:** Apps can help farmers monitor crop growth, identify potential problems, and implement timely interventions.
- **Livestock Management:** Apps can provide information on livestock health, feeding schedules, and breeding practices.

3. **Market Access and Economic Empowerment:**

- **Market Information:** Apps can provide farmers with real-time market prices and demand information, enabling them to make informed decisions about selling their produce.

- **E-commerce Platforms:** Some apps facilitate online trading and direct sales, connecting farmers with buyers and reducing reliance on intermediaries.
- **Financial Services:** Apps can provide access to financial services, such as loans and insurance, empowering farmers to invest in their farms.
- **Farm accounting:** Accounting apps are designed to help business employees in any sector manage business financial and economic performance. The same case concerns the agriculture sector. The farm accounting app provides a structured view of the farm's financial health by offering features for recording expenses, income, and transactions. Based on financial reports, making investment decisions is much easier for farmers.

4. PS tracking systems

- The GPS tracking system is used in any agricultural activity, from livestock monitoring and machinery integration to automated data collection and analysis.
- GPS tracking systems provide enhanced precision in farming by delivering more accurate maps of their fields.
- Such maps usually show the data on parameters the farmers may find difficult to see and assess. These are soil properties, moisture levels, crop irrigation, and planting. The farmers can pay attention to specific requirements of different zones within the field and improve overall crop performance.

Beneficial Features of Agriculture Apps

The functionality of agriculture mobile applications varies depending on their type. Each type of app requires a different development and design approach. On the one hand, adding every second feature into one app doesn't necessarily help businesses function properly. There is no guarantee that the company will use every feature. Furthermore, the more features the app has, the higher its price is. On the other hand, it also doesn't mean a multi-functional app isn't a good solution. The choice of the app depends on the business goals the clients want to achieve and the areas they want to improve.

So, let's examine the features that can benefit business owners in the agricultural sector. Then, considering your vision, requirements, and business needs, you can consult with a development team on the must-to-integrate features for your product.

Top features of agricultural mobile apps

1. Organization

Organization in the agricultural sector is critical, so you should carefully consider how to visualize this feature in the app. Farmers should be able to create detailed profiles, including their farm size, crop types, location, and critical parameters, from weather conditions to farming techniques.

2. Discussion board and history

If the app is oriented toward collaboration between specialists, consider integrating discussion boards. The discussions should be sorted by topics and statuses, like "the most popular," "recent," and "by date."

3. GPS tracking

GPS tracking allows farmers to manage their farming activities and inventory wherever they are. Farmers do not always have the opportunity to control their farms physically, so the GPS provides them with benefits.

4. Day planner

Implement the day planner to allow farmers to create, schedule, and monitor activity easily. They can assign tasks to other employees, add tags and labels, and include the necessary resources and time for completion.

5. Communication tools

Chat and notification systems are key ones. They let farmers communicate seamlessly with many stakeholders, from suppliers to experts. Alerts help them stay informed about task statuses and provide them with reminders, key updates, and new messages from agricultural specialists.

6. Documentation sharing

A centralized space for shared resources allows users to access needed documentation and media for efficient task completion. This is a critical feature for accessing, uploading, and sharing necessary resources. The advanced search function is beneficial for searching more specific queries and filtering them by category, date, file type, and keywords.

7. Accounting tracking

Having production costs at hand will never hurt. An integrated financial tracking feature helps farmers manage profitability relevantly, minimize costs when needed, and enhance revenues from specific fields. Farmers can better analyze their cash flows, submit reports, and file taxes with this feature.

8. Digital receipts

Through receipts, you can track your transactions, purchases, sales, and other financial activities. Receipts simplify the budget monitoring process and help farmers efficiently plan their expenses. Digital receipts provide transparency in all aspects while presenting clear documentation and audit trails used for internal or external business reviews. Plus, receipts serve as legal proof for accurate tax reporting and compliance with local and state tax regulations. When the saved receipts are in the system, the farmers can always retrieve them for customers, thus showing a well-managed finance management process.

9. Inventory management

With inventory management, the farmers get a systematic approach to controlling and optimizing their assets and resources critical for agricultural operations. They can see the detailed record of their stock levels and maintain the stock up to the analytics of their current and future demands. The farmers efficiently control their inputs from seeds to fertilizers, manage the farming machines, and track products for the livestock. Inventory management allows farmers to track their sales and purchases, and through a database of supplies, they can check the historical data of the stock levels.

Advantages of Mobile Applications

The advantages of mobile apps include: affordability, wide ownership, voice communication, and instant and convenient service delivery. Due to these, there is explosion across the world in the number of mobile apps, facilitated by the evolution of mobile networks and by the increasing functions and falling prices of mobile handsets (World Bank, 2012). All types of information on crop, soil, climate, rainfall, seeds, and machinery at any point in time, and any number of times is available on finger tips of farmers. For farmers, and their advisers, software tools can facilitate effective farm management by recording data efficiently, analysing it, and generating a series of evidence-based recommendations. The available information is compiled and very well organized that farmer does not have to waste time while retrieving and referring. The market connectivity is also improved with the visibility and knowledge of the potential buyers and sellers in the locality with an opportunity to develop direct contacts. The commodity prices can be delivered in a real time mode. Mobility can assist the farmers in better warehousing facility by updating their stock, track the dead stock, make note of the purchase requirements and thereby honoring the delivery commitments in a timely manner and getting the stock reach the end consumer and at the same time ensuring quality. Cell phones have a greater impact on price dispersion for participants who are further away from their markets, and for those with worse roads. In addition to it, the farmers can be well updated about their investments, track orders made on purchases, view bank statements, be well informed of insurance details and deadlines and thereby plan the production effectively.

Useful agricultural mobile apps

The various app categories used for agriculture, farm related tasks, and future technology transfer were discussed in this article. It is readily available for no cost download from the Google Play Store or the App Store. There are more numbers of Android-based mobile applications made by different companies, state and central government, research institute, Universities etc. In this connection some of the important Android based mobile applications are as given below :

PM-KISAN app:

Funds are instantly sent into eligible farmers' bank accounts under the PM KISAN Scheme's Direct Benefit Transfer mechanism. With the Farmers Corner of the site, farmers can self-register. To increase the program's accessibility, the PM-KISAN Mobile App was introduced. Through it, farmers may check the progress of their applications, update or change their names in accordance with their Aadhar cards, and monitor a history of bank account credits. The maximum amount of Rs. 6000/- per annum for cultivation purpose in several state have been received in each and every farmers those have been registered under PM-KISAN scheme.

Kisan Suvidha

Kisan Suvidha is an omnibus mobile app developed to help farmers by providing relevant information. The app provides

information to farmers on weather, market prices, dealers, plant protection, IPM practices, seeds, expert advisory, Soil Health Card, godowns and cold storage. The information is currently provided in English, Hindi, Tamil, Gujarati, Odia and Marathi.

eMandi

It is a sophisticated mobile application that facilitates seamless online trading of commodities across the APMCs (Agricultural Produce Market Committee). It integrates all major APMCs across India with the major markets. This application provides transaction logging & streaming of market data. It allows SMS based authenticated trading. It provides direct purchases by traders from farmers without commission agents. It also has stock and inventory tracking of each commission agents and trader's inventory. It is integrated with mobility solutions using SMS, Windows Mobile, Android and iOS.

AGMARKNET

Agmarknet portal is a govt. of India portal on agricultural marketing backed by a wide area information network connecting agricultural markets, State Marketing boards/Directorates.

Meghdoot

Meghdoot, a joint initiative of India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM) and Indian Council OF Agricultural Research (ICAR) aims to deliver critical information to farmers through a simple and easy to use mobile application.

e-NAM app

National Agriculture Market (eNAM) is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities.

Pusa Krishi

This mobile app was launched for farmers in order to take the technology to farm fields. Provides information related to new varieties of crops developed by the Indian Council of Agricultural Research (ICAR), resource conserving cultivation practices, farm machinery and its implementation and production technologies, to the farmers A feedback section enables farmers to have a real time conversation with the stakeholders

e-sahamathi app

Karnataka government will soon launch a mobile app to help farmers sell their produce directly to retail chains such as Big Basket, Reliance Fresh, Nature's Basket and Ninja cart. The e-Sahamathi app, developed by the e-governance department with the help of National Informatics Centre (NIC), will enable farmers to give their consent to interested retailers to contact them to negotiate a deal for their produce. The app will also help companies selling seeds, fertilizers, pesticides and bank loans to offer their produce or services to consenting farmers.

MyAgriGuru

MyAgriGuru connects farmers and agri experts across the country. The farmer agri-expert interactions cover over 90 diverse crops – ranging from Cotton, Wheat, and Tomato to non-traditional crops like Tulsi, Aloevera, Flowers etc.

mKrishi Fisheries App

INCOIS generates Potential Fishing Zone (PFZ), a fish shoals prediction information based on the remote sensing data received from NOAA satellites, sea surface temperature and the presence of phytoplankton which form the food of several fish species. The app consolidates this information and presents advisories in local language. Mumbai Research Centre of ICAR- CMFRI piloted this service in 56 fishermen societies in Raigad, Maharashtra. This service is available only to registered users.

mKisan app

With the help of C-DAC Pune, a member of the internal IT group of DAC, built this app. The mKisan SMS Portal for Farmers enables all Central and State government entities in agriculture and allied sectors to provide farmers with information/services/advice by SMS in their preferred language, agricultural methods, and location.

Havaamana Krishi

"Havaamaana-Krishi" is an Agrometeorological Application that provides information on weather, short range weather forecast and agromet advisory for seven districts under the jurisdiction of UAS Dharwad in north Karnataka, India. The seven districts are: Bagalkot, Belagavi (Belgaum), Dharwad, Gadag, Haveri, Uttara Kannada and Vijayapura.

ShetkariMasik Android App

"Shetkari Masik" is one of the popular monthly magazines in the Agriculture sector, published since 1965 by the Department of Agriculture, Maharashtra. The Android app for Shetkari magazine has a very simple interface and requires mobile internet or Wi-Fi connectivity to register and download the issues. Once downloaded, the magazine can be read without internet connectivity.

APEDA Farmer Connect

This mobile app allows a farmer to apply online for farm registration and approval by state government and lab sampling by authorized laboratories. The farmer can track status of applications. An authorised State Government Ofcer, farmer or registered laboratory can login to access the information.

IFFCO Kisan Agriculture

This app enables access to various modules including agricultural advisory, weather, market prices, agriculture information library in the form of text, images, audio and videos in the selected language. The app also offers helpline numbers to get in touch with Kisan Call Centre Services. The app supports eleven languages across India including English.

Kisan Yojana:

Agricultural News Network (ANN) is the company that created the Kisan Yojana app. As of now, it supports eight Indian states: Maharashtra, Gujarat, Karnataka, Andhra Pradesh, Uttar Pradesh, Bihar, and Jharkhand (accessed on 2 Feb 2016). This app provides information on the policies and services the government offers to farmers and rural residents

Plantix

Plantix is a mobile app for plant disease diagnostics and monitoring. The App provides users worldwide with customized information concerning best practices, information on preventive measures and independent options for action. Plantix offers the possibility to send pictures of affected plants directly via smartphone and guides through an identication process to determine the plant disease in a very simple manner. All pictures sent via the Mobile App are tagged with coordinates, which enables real time monitoring of pest and diseases.

Soil Health Card (SHC) Mobile App

Soil Health Card (SHC) Scheme is a Government of India scheme promoted by the Department of Agriculture, Co-operation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare and being implemented in the States and Union Territories. A Soil Health Card gives soil nutrient status to each farmer for his/her land holding and also gives advice on fertilizer dosage and soil amendments needed to maintain soil health in the long run. Soil Health Card will be issued to all landholders every three years and this will enable capture of the pattern of soil fertility changes occurring due to nutrient uptake by plants or other natural causes. This will also help to take corrective measures on the soil nutrient deciencies identied in soil health cards.

CROP INFO

Nirantara Livelihood Resources Private Ltd., a company based in Bangalore, Karnataka, created it. The Crop Info App provides commercially important agricultural and horticultural crops' production technology on your smartphone. It provides details about the market, available options for processing, production variables, and technologies for use after harvest. For agricultural and horticultural university students and faculty, subject matter experts and extension officers from the departments of agriculture and horticulture, business professionals, farmers, and anyone else interested in crop cultivation, the Crop Info app was developed specifically for them

Krishi Jagran:

This newly released app, Krishi Jagran, offers topical agri news, cultivation instructions, a crop calendar, comprehensive information on crop protection, pest and disease management, subsidies, a career in agriculture, and all the knowledge necessary for farm mechanisation.

Kheti-Badi:

A social initiative app called Kheti-Badi attempts to help and promote "Organic Farming" and provide crucial information about problems affecting Indian farmers. This app assists farmers in making the transition from chemical to organic farming. Sadly, there are presently just four languages available for this software (Hindi, English, Marathi, and Gujarati).

Shetkari:

For Indian farmers, there is a multipurpose mobile app called Shetkari Mitra. It offers expertise and information on government programmes, crop management, Agri-Business & Guidelines, market prices, and agricultural success stories. Users of this Android software will get access to magazines via their mobile devices, the internet, or Wi-Fi.

Kisan Mitra:

"Kisan Mitra" Gujarati apps is designed and developed by Navsari Agricultural University to fulfill the need of farmers community in the area of Agriculture, Horticulture, Veterinary. The content is prepared and compiled by Research Scientist Group of Navsari Agricultural University in Gujarati native language

Krishi Video Advice mobile app

Krishi Video Advice project aims to provide advisory services related to agriculture and allied sector on farming issues with the help of a mobile app/smartphone/tab. The project has been conceptualized by MANAGE to bridge the information gap between the farmer and the expert. The mobile app works on all smart phones or tabs having android operating system. Any farmer/extension officer can use the mobile app to capture three images of the crop live from the farmers field itself and upload the same. The Kisan Call centre (KCC) expert will provide advice based on the crop images

Arka Bagwani app

Arka Bagwani is an official app from ICAR-IIHR,Bengaluru which showcases all the technologies and researches which are useful for the farmers. Arka Bagwani app is now available in 3 languages English, Kannada & Hindi.

Mango Cultivation app

The mobile app on mango cultivation is developed at Indian Institute of Horticultural Research (IIHR), Bangalore. This mobile app has been developed for the benefit of farmers and stakeholders involved in mango cultivation. The application includes crop production including soil & climate requirement, propagation, spacing, planting, training & pruning, INM, irrigation and harvesting. The crop management aspects comprises of disease management for the various diseases affecting mango crops, viz., anthracnose, blossom blight, leaf blight, powdery mildew, dieback, etc., and the pest management modules comprises of infestation of fruit fly , mango hopper, stone weevil, mealy bug, shoot borer, stem borer, etc.

Papaya Cultivation app

The Mobile app on Papaya cultivation has been developed at Indian Institute of Horticultural Research (IIHR) Bangalore, which provides crop management solutions such as crop production aspects, disease management, pest management and new release varieties information.

Bele Darshak Karnataka-2020-21

The Karnataka Government wants to have a clear picture of the crops sown and the type of irrigation adopted for the same across all the farm lands in the state. The vision of the project is to be the means to create one single, verified source of truth for Farmer and Crop data in the state that can be utilized by multiple departments and other agents in the eco-system (such as Banks, Insurance agencies etc). This will ensure consistency in records across all databases like Parihara, RTC, Samrakhshane, etc. The goal is to ensure that all the systems have access to accurate & up-to-date Farmer & crop data in a timely manner.

Krishi Yantradhaare Driver app

Agriculture Department the Government of Karnataka has decided to establish Custom Hire Service Centre (CHSC) at hobli-level, with an objective to assist the small and marginal farmers to provide machineries at their door steps. “Krushi Yantradhaare Driver App” app gives Transparency to driver to complete the bookings and reach to their specific farm for which the booking has been done.

Special Features

- Navigation to reach the appropriate farm.
- Offline feature in case of no internet.
- showing proper machinery information and delivery address.
- Quality service.
- Online Payment and Cash Payment.
- Multi Language.

Objectives:

- To provide machineries at farm gate.
- To enhance the production and productivity of the crops.
- To provide services of High- Tech machineries to small and marginal farmers in time.
- To mitigate problem of labor.
- Available at reasonable rentals.
- To increase profitability of the farmers.

BHOOMI_MRTC app , Karnataka

Karnataka Bhoomi App provides more relevant RTC and More information in simple steps, bhoomi RTC land records are more apps are there, but in this app you can get more speed process like website are bhoomi.com Karnataka high speed with low time consume. Karnataka bhoomi also provides efficient ways to get more benefits to gain useful information in your finger within seconds, in Karnataka state it also another names like ಭೂಮಿ ಸರವ, ಭೂಮಿ ಪಹಣಿ etc.

Cashew India App

The app is developed by Dr. Mohana, G.S and his team at the ICAR-Directorate of Cashew Research, Puttur, Karnataka state, India with the inputs from centers of All India Coordinated Research Project on Cashew in different states of the country. The app is developed under the program on Mission for Integrated Development of Horticulture (MIDH), Ministry of Agriculture and Farmers Welfare, Government of India. The financial support was provided through Directorate of Cashew and Cocoa Development (DCCD),Cochin, Kerala.

Farm Calculators App

For Precision farming use of exact quantity of Seeds, Fertilizers and Fertilizers is very important to enhance yield with minimal use of these inputs without effecting soil health. Hence, this farm calculator to farming community to save costs by calculating exact quantity requirement of Fertilizers, Pesticides and Seeds required for Farm for sustainability in farming.

1. Fertilizers (NPK) Calculator: Calculate exact quantity of NPK fertilizers required per unit area based on recommendation or soil testing, which saves costs and avoids excess use of fertilizers and degradation of soil health.

2. Pesticides/Fungicides/Herbicides Calculator: Apply exact quantity of Pesticides/Fungicides/Herbicides of different company pesticides with different active ingredients (a.i) to manage your pests/diseases/weeds at your farm and minimize excess use of these agriculture inputs

3. Plant Population Calculator: Calculate exact number of seeds for your field crops or plats required for unit area for your horticulture crops.

4. Seed Rate Calculator: Calculate exact quantity of seeds required for your farm based on seed test weight and germination of the seeds.

5. Seed Blending Calculator: Calculate blending of seeds of marginal lots with high germination lots to avoid wastage of marginal seed lots according to Karl Pearson square method. This could be also used as wine blending calculator.

Crop Doctor app

Crop Doctor is an android based mobile application for the farmers in national level. The objective of this application is to wider reach and easy accessibility of crop information and service among farmers. It disseminates disease, insect, nutrient deficiency of crop information to the farmers as required. Crop Doctor Covered almost all major crops of Paddy, vegetables, pulses and Oil seed. App is Unicode supported and bilingual i. e., both in English and Hindi as well. Farmers can query the information with image from various nutrient deficiencies, disease, insects affected for obtaining the solution as required. In new version of crop doctor farmer can also access the information related Agriculture Schemes, Farm Implements, Agriculture News etc. Crop doctor app is developed by IGKV-NIC Raipur, Chhattisgarh.

Pashu Poshan app

The "Basic Guide to Good Dairy Husbandry Practices" provides some vital clues to the dairy farmer on important aspects of dairying developed at NDDB, Anand.

Kayaka Mitra app

It's a central government app in which farmers and agricultural labours can apply for 100 days jobs per year under MGNERGA scheme through KAYAKA Mitra app without hassle risk of visiting Grama Panchayats.

Conclusion

Mobile technology is transforming access to information among farming masses. Emergence of digital revolution and internet penetration in the rural areas has enthralled farmers to access to new apps that would keep pace with the modern technology. A number of new apps are emerging in response to new requirements and challenges in agriculture and allied sector. As the number of apps continue to increase it is important to be selective in choosing the app, review and ensure that the App provides credible and current information and meets requirements. Since agricultural work is context-based, which is primarily distinguishable by different geographical locations, smart phone applications already available in one scope of context can be developed to fit other crops or countries or regions. Hence, mobile app should aim at holistic rural development and forge closer links between farmers and consumers through gender-sensitive technology, training and capacity building of the farmers through technology-driven platforms for income generation activities.

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