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Mobile Apps Empowering Farmers

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About the Publication:

Extension Digest is a publication from the National Institute of Agricultural Extension Management (MANAGE). The purpose is to disseminate information on extension systems and practices, research on extension methods, efficient organisation of technology transfer, current concerns and new developments in the area of agriculture.

December 2017

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Foreword

Timely access to information is a crucial requirement for decision making in agriculture and allied sectors. Information and Communication technologies (ICTs) are facilitating faster access and exchange of information. Among ICTs there has been increasing use of mobile phones with a number of services provided by various agencies. Mobile phones have penetrated rural India bridging the digital divide, resulting in development of a number of mobile applications by government departments, agricultural institutions and the private sector. There are a number of mobile apps which specifically attempt to address farmers concerns. Farmers are using these apps to find out the market price of commodities, weather, plant protection and other advisory.

With the increase in the number of apps for farmers, it is important to improve awareness on the specific information and services provided by these apps. With this in view, the present issue of the Digest covers various mobile apps, which enable access to agricultural information related to inputs, production, marketing and related areas.

I am sure that this Extension Digest issue will be helpful for all actors in the agriculture and allied sectors and agricultural extension professionals.

Smt. V. Usha Rani, IAS
Director General, MANAGE

Mobile Apps in Agriculture and Allied Sectors

Agriculture plays a vital role in the Indian economy with over 58 per cent of rural households depending on agriculture as their principal means of livelihood. Agriculture, along with fisheries and forestry, is one of the largest contributors to the Gross Domestic Product (GDP) in India.

The need for timely access to information for decision making in agriculture and allied sectors needs no emphasis. Keeping this is view various options have been explored for transferring information to farmers in a timely and cost effective manner. The potential of Information and Communication Technologies (ICTs) in enabling access to and exchange of information for farmers is evident. Among ICTs, there has been increasing use of mobile phones which is changing the agricultural communication process. The introduction of mobile phones has resulted in new services and applications. In the agriculture sector, these include access to market information, weather information, monitoring plant health, education, other services etc.

As on 31 July 2017 the number of telephone subscribers was 1210.71 million (1186.79 million wireless and 23.92 million fixed land line telephones) as estimated by the Telecom Regulatory Authority of India (TRAI, 2017). The tele-density has reached 93.88 per cent as of July 2017. However, there is huge gap between urban and rural tele-density, 173.21 and 57.45 respectively. According to IDC, India has the fastest-growing smartphone market in the world, accounting for 27.5 million devices sold in the second quarter of 2016, up 17 percent from the previous quarter. Mobile subscriptions are expected to reach 1.4 billion by 2021, according to the Ericsson Mobility Report of June 2016. (CNBC, 2016).

The growth of mobile communication technology is creating a number of opportunities for social empowerment, and grassroots innovation in developing countries. One of the areas with potential impact is in the contribution of mobile applications to Agricultural and Rural Development (ARD), by providing access to information, markets, and services to rural inhabitants (World Bank, 2012).

Studies reveal that mobile phones have a positive impact on sustainable poverty reduction and identify accessibility as the main challenge in harnessing the full potential (Bhavnani et al., 2008).

According to 'The Rising Connected Consumer in Rural India', a study by the Boston Consulting Group, up to 300 million Indian consumers are expected to be online by 2020. More than half of the new Internet users are expected to come from rural communities. Cheaper mobile handsets, spread of wireless data networks, and evolving consumer preferences will all drive rural penetration and usage. (BCG, 2016).

The advantages of mobile phones 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).

The introduction of mobile phones has led to the development of new services and applications in agriculture for the benefit of farmers and other stakeholders. Services that started with occasional messages have evolved to multimodal and multimedia delivery of advisory and to m-agriculture applications for smartphones. These services are addressing the information and communication

gap between farmers and extension personnel and giving a bargaining position to farmers (Saravanan, 2014). Access to information on new varieties, inputs such as seed, fertilizers, machinery, price information, weather, pests and diseases, nutrient management at the right time can help farmers get access to crucial information to support activities from production to marketing.

Mobile apps

There is an increasing number of mobile apps providing access to agriculture and allied sector information. A mobile application is a software on a mobile phone handset or tablet computer that enables a user to access specific information; make payments and other transactions; send messages; etc. The application (app) is downloaded (for free or for payment) from a wireless network from an online store and may require a live connection to function effectively.

The main advantages of mobile apps for farmers are, easy to access information on farmers mobile. The information is stored in the mobile handset itself for easy access, for example the details of package of practices, pest and disease information and scheme related information etc. Wherever the information is dynamic in nature, for example weather details, market prices, advisory services, the mobile app requires Internet connectivity to fetch the data from the back-end server databases. The mobile services, particularly the SMS service is only a one-way information provider to the farming community. The farmer needs two-way-communication and dynamic information for day-to-day farming.

Farmers need timely information in response to their specific needs. There are mobile applications that provide latest agricultural information about trends, equipment, technologies and methods being used, help identify pests and diseases, provide real-time data about weather, early warnings about storms, local markets offering best prices, seeds, fertilizers etc. In addition, farmers can also interact and get guidance from agriculture experts across the country via the apps. These apps help in providing market information, facilitating market links, providing access to extension services, farm related information etc.

Government of India has launched a number of web and mobile based applications for dissemination of information on agriculture related activities, free of cost, for the benefit of farmers and other stakeholders. These apps can be downloaded from the official website mkisan.gov.in or from the Google play store. There are apps also developed by agricultural institutions, private sector, NGOs. These apps are disseminating information from agricultural research and extension to farmers and other stakeholders and facilitating exchange of information among stakeholders.

This issue details information on mobile apps developed by various institutions to provide access to agricultural and allied information along the agricultural value chain. These apps can be downloaded from Google Play Store / respective web URL given along with mobile app details in the following pages.

Mobile Apps along the Value Chain

Production Technology and Agro Advisory Services

1. Kisan Suvidha

http://mkisan.gov.in/downloadmobileapps.aspx

Developed by: Ministry of Agriculture & Farmers Welfare, Govt. of India

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.

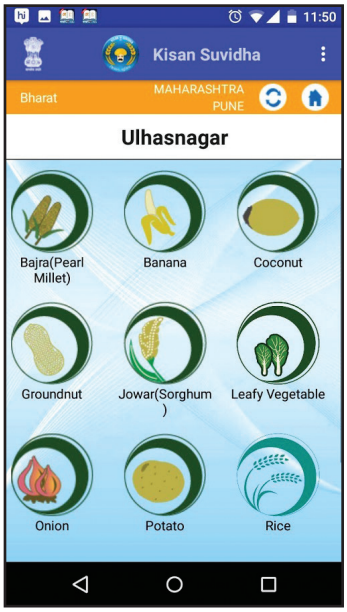
Features

- **Weather** Weather information includes details of humidity, temperature, wind and rainfall for the current day and the forecast for the next five days. Unique features include extreme weather alerts like hailstorm or unseasonal rains.
- **Market Price:** Provides latest market price of commodities in the nearest mandi and the maximum price in the district, state as well as in India. Prices are given of crops traded in a registered agriculture market or mandi of the particular district.
- **Agro Advisory:** Agro advisory section shows messages for farmers from agriculture officials and state universities in the local language.
- **Soil Health Card:** Information pertaining to soil health is available for farmers who have registered.
- **Dealers Information:** Provides information on seed, pesticides, fertilizer, farm machinery dealers.
- **Plant protection:** This section gives pest, weed and disease-related information as well as management practices for each stage of crop development from Seedling/nursery to harvesting. One can also upload a picture of the affected crop and get a response.
- **Call to KCC:** The app also directly connects the farmer with the Kisan Call Centre where technical graduates answer farmers' queries.
- **Cold stores and Godowns:** Information on cold stores and godowns is also added.

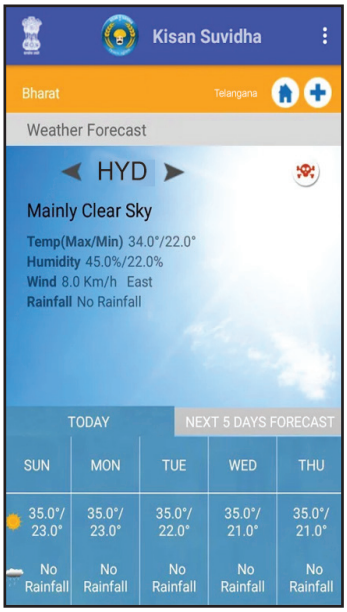
To begin with, a farmer has to register his/her mobile number, choose a language and also enter details of the state, district and block.

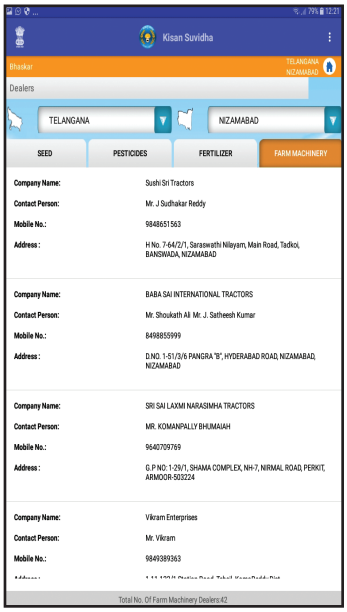
Kisan Suvidha
MANAGE
TELANGANA
WARANGAL RURAL
Weather
Dealers
Market Price
Plant Protection
Agro Advisory
Call to KCC
Soil Health Card
Cold Store & Godown
Department of Agriculture Cooperation and Farmers Welefare
Ministry of Agriculture and Farmers Welefare
Goverment Of India

Kisan Suvidha
Registration
English
Name
Mobile
Select State
Select District
Select Block
REGISTER


Kisan Suvidha
Bharat
MAHARASHTRA
PUNE
Ulhasnagar
Bajra(Pearl Millet)
Banana
Coconut
Groundnut
Jowar(Sorghum)
Leafy Vegetable
Onion
Potato
Rice

Kisan Suvidha
Plant Protection >> Paddy (Dhan) >> Crop Stage
Seedling/Nursery
Vegetative Growth
Flowering/Reproductive
Harvesting/Ripening


Kisan Suvidha
Bharat
Telangana
Weather Forecast
HYD
Mainly Clear Sky
Temp(Max/Min) 34.0°/22.0°
Humidity 45.0%/22.0%
Wind 8.0 Km/h East
Rainfall No Rainfall
TODAY
NEXT 5 DAYS FORECAST
SUN
MON
TUE
WED
THU
35.0°/ 23.0°
35.0°/ 23.0°
35.0°/ 22.0°
35.0°/ 21.0°
35.0°/ 21.0°
No Rainfall


Kisan Suvidha
Dealers
TELANGANA
NIZAMABAD
SEED
PESTICIDES
FERTILIZER
FARM MACHINERY

2. Pusa Krishi

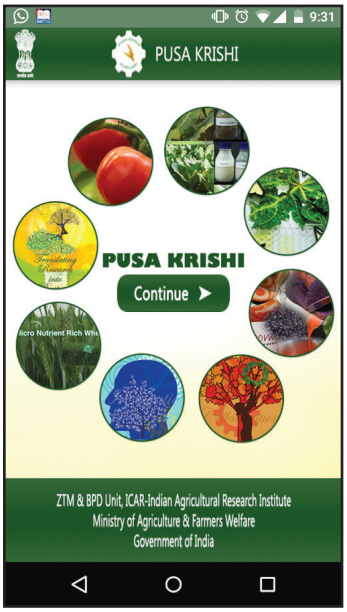
http://mkisan.gov.in/mApp/Pusa-Krishi.apk

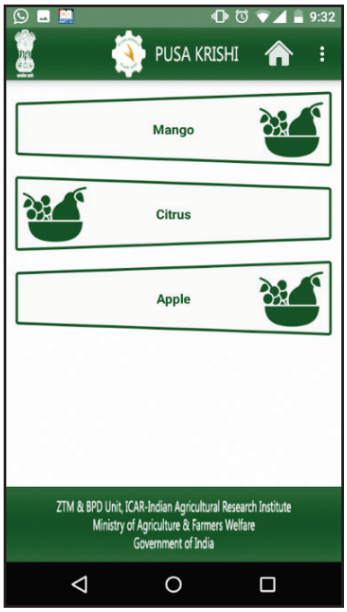
Developed by: Ministry of Agriculture & Farmers Welfare, Govt. of India

This mobile app was launched for farmers in order to take the technology to farm fields.

Features

- 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.





3. Soil Health Card (SHC) Mobile App

https://play.google.com/store/apps/details?id=com.nic.soilhealthcard&hl=en

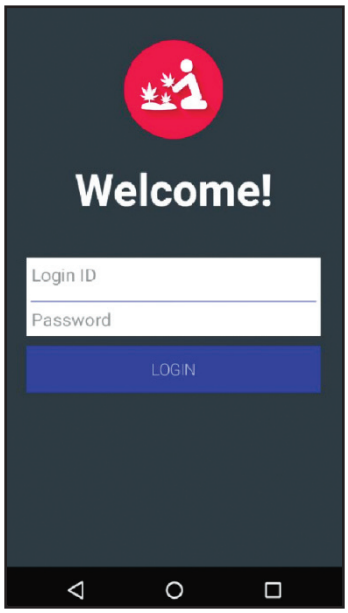
Developed by: Ministry of Agriculture & Farmers Welfare, Govt. of India

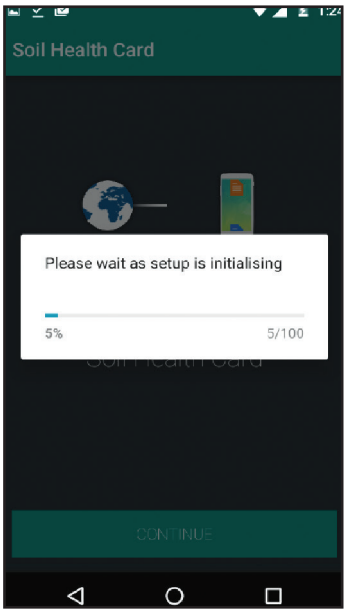
Soil Health Card (SHC) Scheme is a Government of India scheme promoted by the Department of Agriculture, Co-operation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare and being implemented in the States and Union Territories. A Soil Health Card gives soil nutrient status to each farmer for 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 deficiencies identified in soil health cards.

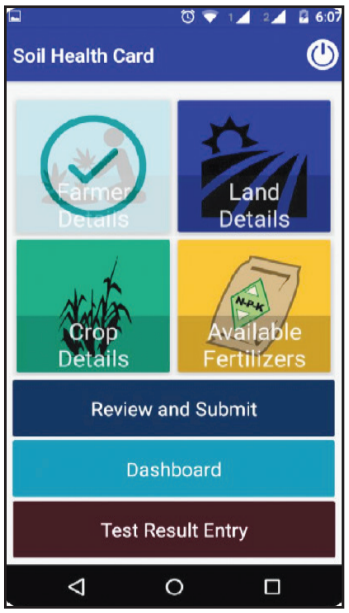
Soil Samples are collected from fields of farmers on Grid basis - 10 ha grid in rain-fed areas and 2.5 ha grid in irrigated areas. The sample details along with their location details are registered in the Application portal by the concerned officials and a unique Sample ID is generated for each soil sample. The samples are tested in the labs and the test results are entered by the respective Soil Testing Lab officials. Based on the available nutrients in the soil, the crop-wise required quantity of nutrients are calculated using Soil Testing Crop Response formulae developed by ICAR method or General Fertilizer Recommendations given by State Governments / State Agricultural Universities (SAUs). Then, according to required nutrients, corresponding crop-wise Fertilizer Quantities are calculated by the application and printed in the Soil Health Card.

To further simplify the data entry work for Sample registration, NIC has designed and developed an android mobile phone application for Soil Health Card. This application captures Latitude and Longitude automatically when "Location" is on. The farmer details, land details, crop details and fertilizer details can be entered using this mobile app.

Logging in to the Application



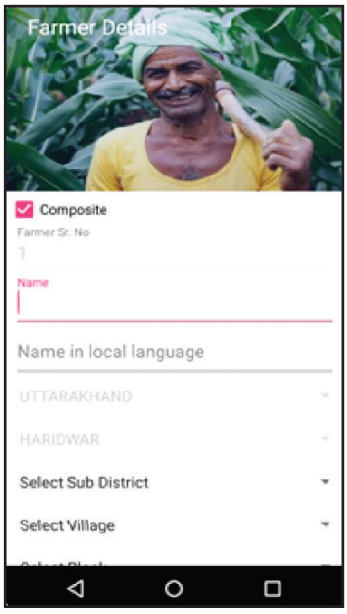


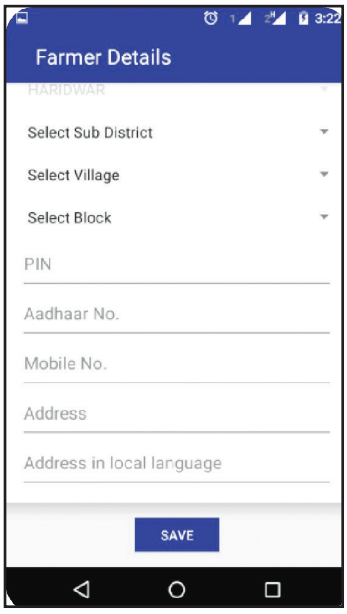


Dashboard: The dashboard contains the following icons, each of which is a link to the respective section: Farmer Details, Land Details, Crop Details, Available Fertilizers, Review and Submit, Dashboard, Test Result Entry, Notifications etc.

Farmer Details

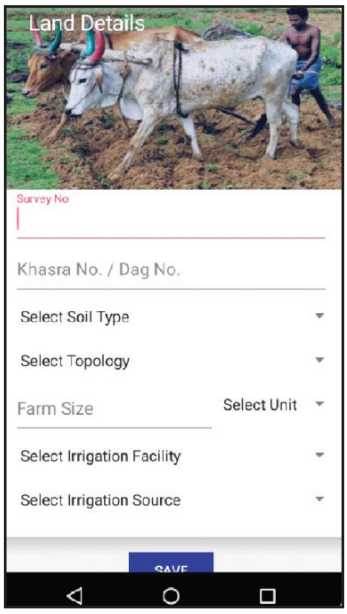
Farmer details capture Aadhaar Number; Mobile Number; Address; Address in the local Language. After entering all the above values one has to click the Save Button.

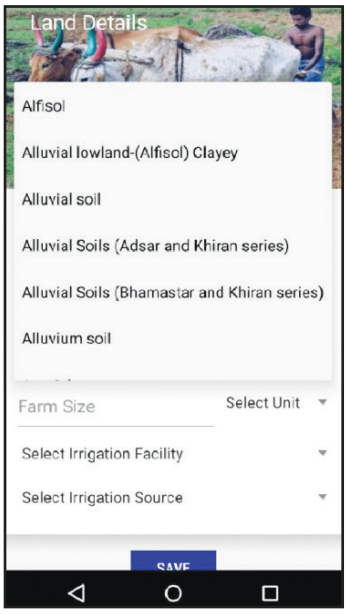


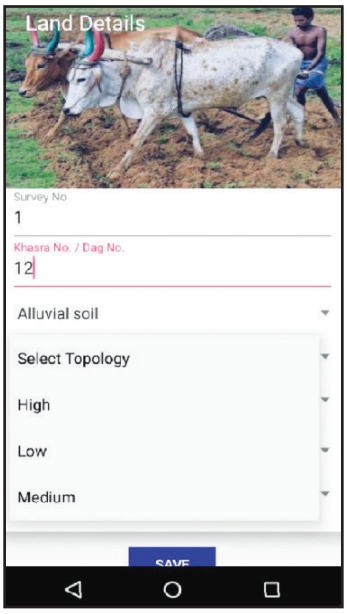


Land Details

This includes soil type, irrigation facility, irrigation source.

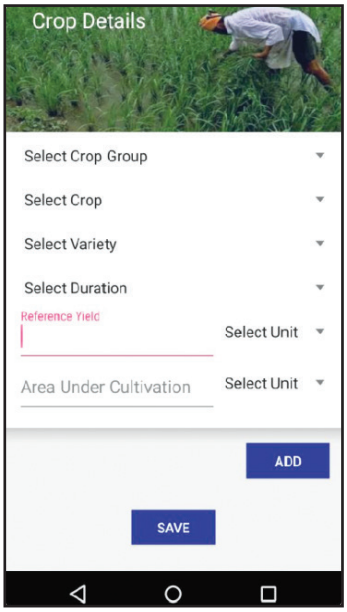


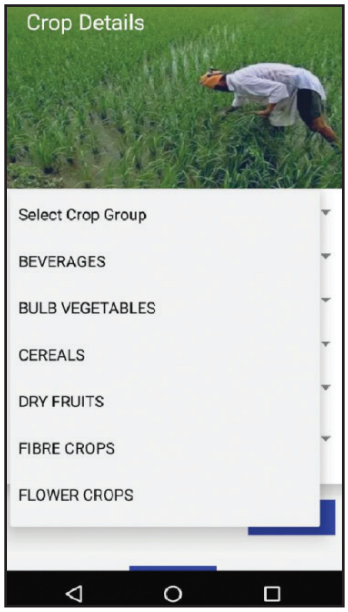


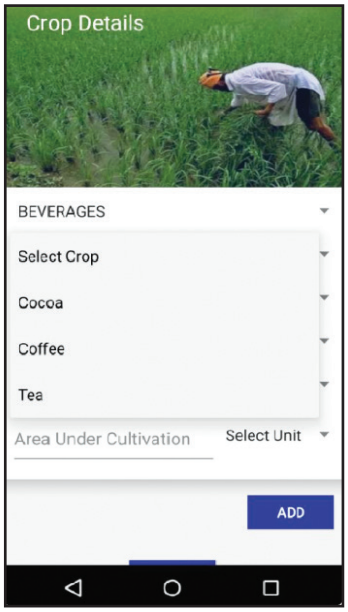


Crop Details

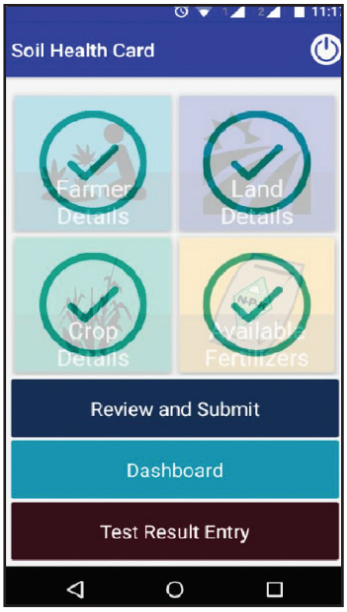
Here one can select crop group, crop, variety, duration.

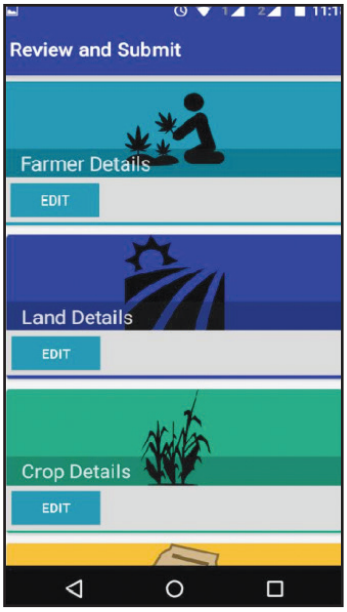






Review and Submit





4. Crop Cutting Experiments-Agri Mobile App

http://agri-insurance.gov.in/CCEAppVersions.aspx

Developed by: Ministry of Agriculture and Farmers Welfare, Govt. of India

This app is for capturing crop cutting experiment data. The app works in both Online and Offline mode. Internet is required only to download this app and for registration. After that Crop Cutting Experiment (CCE) data can be entered using this app without internet connection. As and when internet connectivity is available, data can be pushed to the server.

Registration in CCE Agri

Step 1: Select the registration level (State, District, Block) in the registration form.

Step 2: Complete the registration form by filling all the details in the registration form and then click on submit button.

Step 3: One user per State will be authorized by Central level and that State level user will further approve users of District and Block levels.

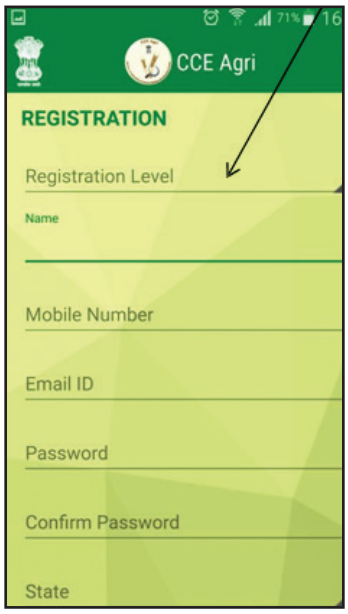
After Registration, Approval of the User is required to login and enter CCE data. The Block level user is approved by the District/State Level User; the District User is approved by the State Level User and the State Level User is approved by the Central Level User.

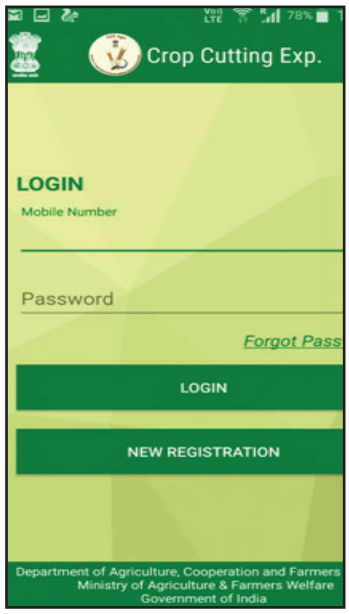
Pending: Shows the list of Pending Users for Approval

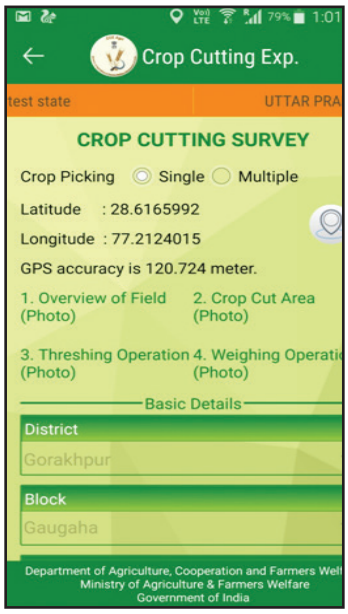
Approved: Shows the list of Approved Users

Rejected: Shows the list of rejected users with reasons for rejection

There are four options available on the home screen viz., 1. CCE Survey; 2. Saved CCE Data; 3. View Sent CCE Data and 4. Approve User* (**Approve User option is available for State and District level users only who can approve the block level users).*



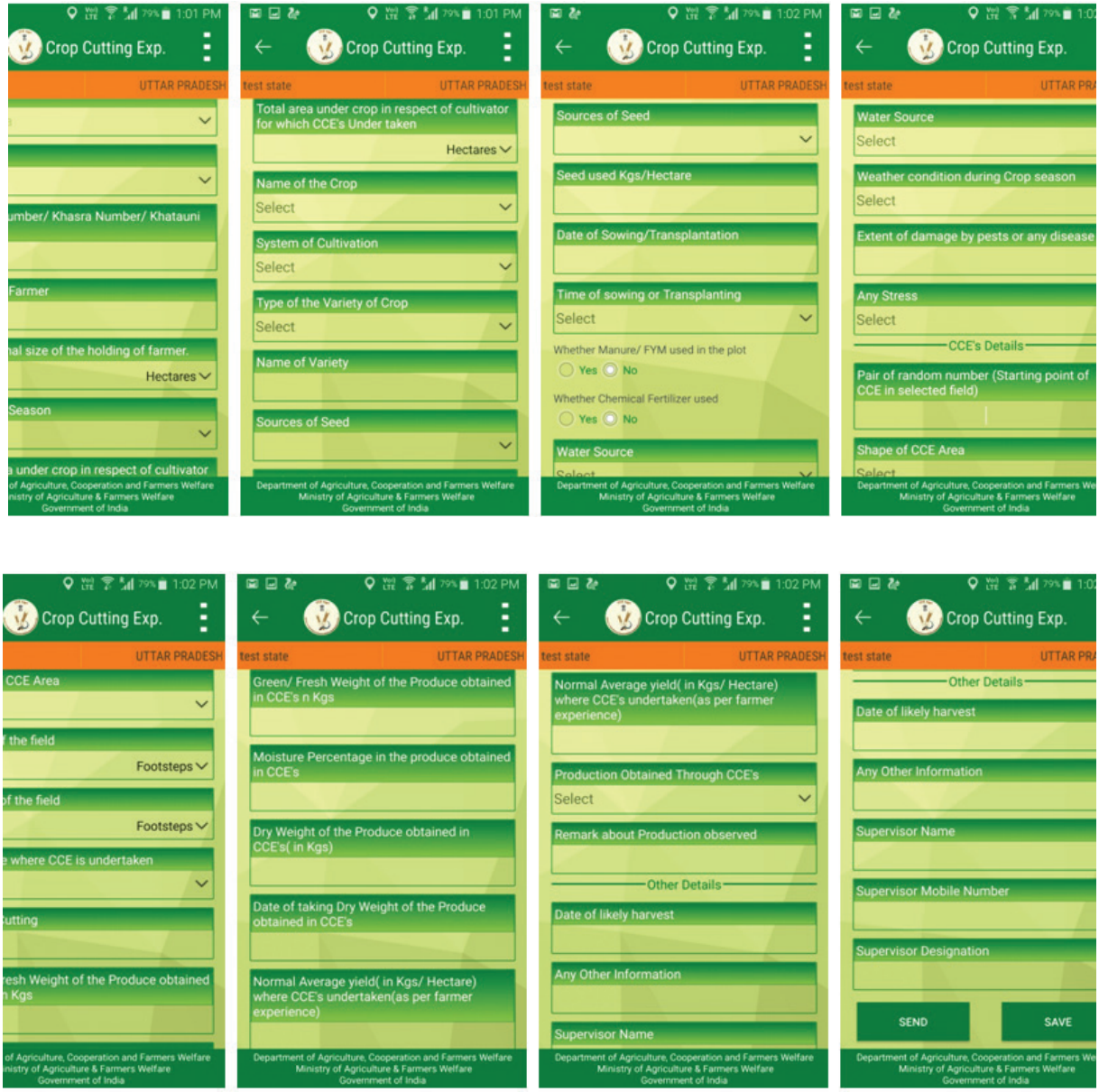




In Crop Cutting Survey Form, the mobile automatically captures GPS coordinates and then further information can be filled. One can click on Add Photo button to capture a photograph (minimum 1 and maximum 4).

After entering data, there are two options:

Send: Data can be pushed to the server if internet connection is available.



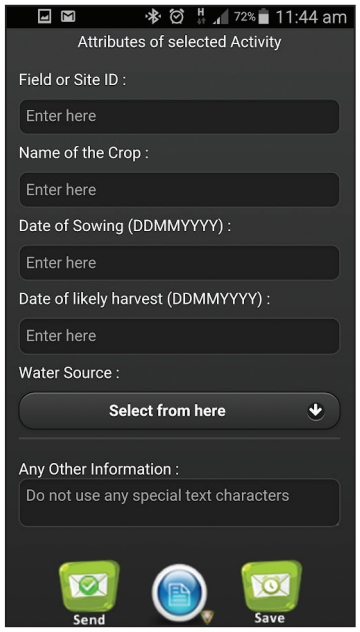
Save & Send Later: Data can be saved to the mobile and sent later on as and when internet connection is available.

Saved CCE Survey data is the CCE data saved in mobile. When internet connection is available, one can click on 'Send' button to push the saved data to the server. View Sent CCE Data shows the list of data sent from the mobile to the server.

5. Bhuvan Hailstorm App

https://play.google.com/store/apps/details?id=isro.nrsc.BhuvanHailstorm&hl=en;
https://apps.mgov.gov.in/descp.do?appid=1029
Developed by: Ministry of Agriculture & Farmers Welfare, Govt. of India

This mobile app has been developed to capture crop loss, which has happened due to hailstorm, along with photographs and geographical locations. An Agriculture Officer would go to the field with a mobile or tablet loaded with this mobile app, and collect field data for hailstorm damage assessment.



Features

- This mobile app is able to capture the photograph of the field with latitude and longitude, name of the crop, date of sowing, date of likely harvesting, source of irrigation.
- The captured data gets automatically plotted to Bhuvan Portal and analysis can be done easily.

6. Crop Insurance

https://play.google.com/store/apps/details?id=mgov.gov.farmer&hl=en
Developed by: Department of Agriculture & Farmers Welfare (DAC&FW)

This app provides details of crop insurance.

Features

- Crop Insurance mobile app can be used to calculate the Insurance Premium for notified crops based on area, coverage amount and loan amount in case of loanee farmer.
- It can also be used to get details of normal sum insured, extended sum insured, premium details and subsidy information of any notified crop in any notified area.

This app is available in Hindi and English as of now and can be convered to regional languages by filling translated texts in a web form available at : www.farmer.gov.in/insurance/appTrans.aspx. mKisan credentials can be used to login in to this form.

Plant Pest and Disease Management

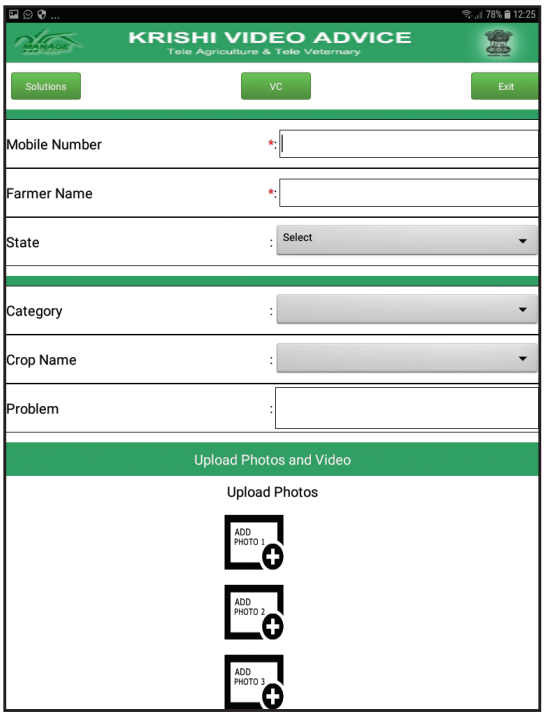
7. Krishi Video Advice mobile app

www.krishivideoadvise.gov.in; https://www.manage.gov.in/krishivideo.apk

Developed by: MANAGE with NIC, Hyderabad

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 advise based on the crop images.



Features

- Farmers who have smartphones/tab can use the mobile app to capture images of the infected crop or animal and submit the details for expert advise.
- The expert at Kisan Call centre will examine the farmer's query and send the advise to the farmer.
- Farmers can see the advise received from the expert on the mobile phone/tab and all the advise will be stored on the mobile phone/tab for future reference.
- The farmer can also have a live video conference with the expert at the KCC for advise on farm issues. The tab/smartphone should have 3G connectivity.

This system can be used by farmers, farmer groups, commodity groups, NGOs and officials who are involved in rendering extension services to farmers.

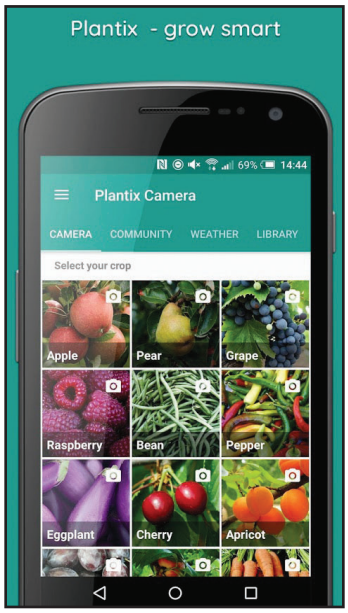
8. Plantix

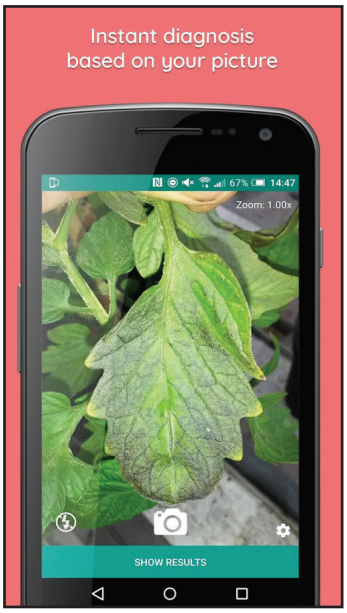
https://play.google.com/store/apps/details?id=com.peat.GartenBank&hl=en

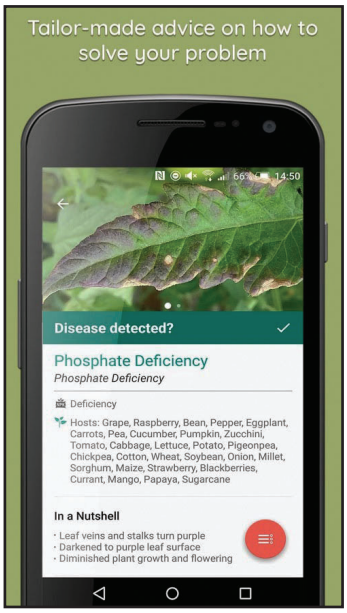
Developed by: PEAT, Germany

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 identification 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.

The resulting metadata provides valuable insights into the spatial distribution of cultivated crops and most significant plant diseases e.g. in the form of high resolution maps. Furthermore Plantix aims to get a deeper understanding of the relations between plant diseases and geofactors by the intersection of the gathered information.







Features

- Real-time diagnosis: Uploaded crop photos are analyzed using image-recognition technology that uses a database of half a million pictures covering 30 crops and offers prescriptions for over 120 crop diseases
- Weather information system
- Community feature facilitates interactions.
- Smallholder farmers as end-users: Free of cost, with an easy-to-use dashboard in local languages.

Plantix app developed by PEAT was cutomized in collaboration with ICRISAT and State Agricultural University for local crop needs and was launched in Telugu. This has been demonstrated successfully with farmers in Andhra Pradesh and Telangana.

9. IFFCO Kisan Agriculture

https://play.google.com/store/apps/details?id=com.IFFCOKisan&hl=en

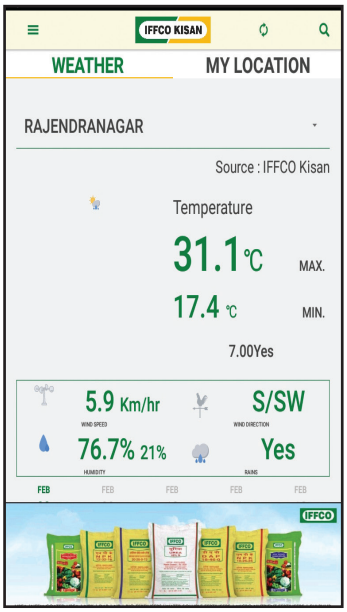
Developed by: IFFCO Kisan, a subsidiary of Indian Farmers' Fertilizer Cooperative Ltd.

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.

Features

- **Weather.** This section provides access to weather forecast for the next 5 days with temperature, humidity, rainfall possibility, expected wind speed & its direction in the set preferred location. Farmers may add and remove preferred locations for weather forecast.
- **Market Price**. Farmers can get access to mandi prices for their produce, market status and prevailing prices along with quantities, price trends. Source of the data is AGMARKNET & NCDEX.
- **Agricultural Advisory**. Crop specific advisory service and alerts are provided for various agro-climatic zones based on research by industry experts in text and audio clip.
- **Ask the Experts.** Farmers can talk to Agriculture experts for advice. They can take a photo of the plant or concerned area/ disease and send it to experts for personalized agriculture solutions through voice call.
- **Agri Library**. An agriculture information library for information on crops, field preparation, water management, agriculture diseases management, etc.
- **Market Place.** This is the buyer and seller meeting platform, where a buyer or a seller can register their buying or selling requirements.

Farmers can set their preferences based on their interests and need; on weather, mandi, advisory, Gyan Bhandar, etc. The Profile Section enables farmers to update personal data, i.e. crop details, land details, animal details.



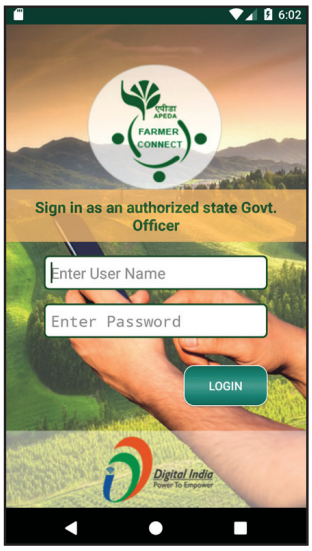
10. APEDA Farmer Connect

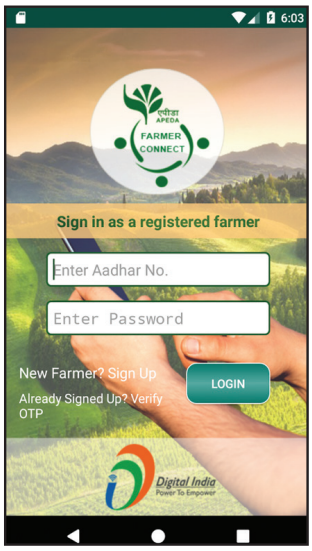
https://play.google.com/store/apps/details?id=in.gov.apeda.apedaapp&hl=en

Developed by: Agricultural and Processed Food Products Export Development Authority (APEDA)

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 Officer, farmer or registered laboratory can login to access the information.

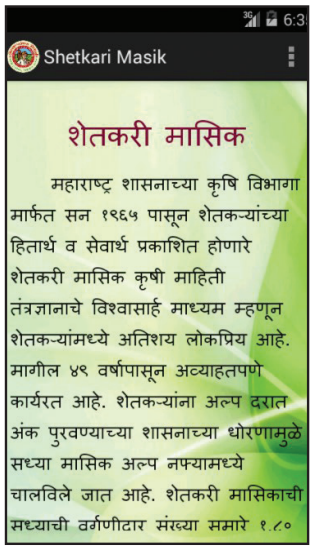
The Mobile app also assists State Horticulture Departments to capture details of farmers, their farms and products & farm inspections etc. in real time straight from the field. This app has in-built GPS capabilities to identify the farm location.

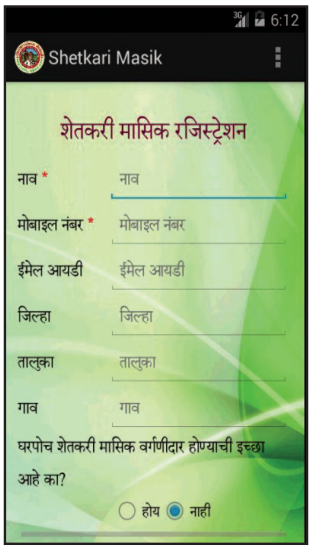


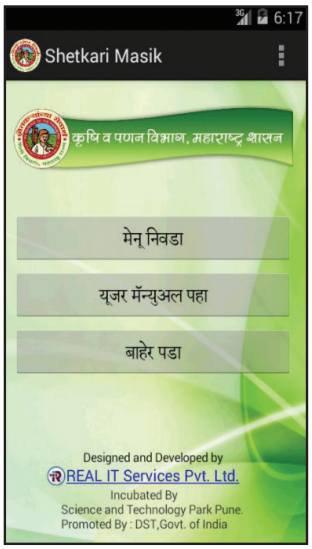


11. Shetkari Masik Android App

"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.







12. Krishi Vigyan

https://play.google.com/store/apps/details?id=com.krishi.krushivision&hl=en

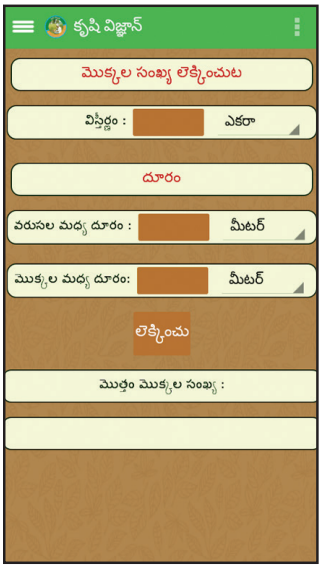
Developed by: Krishi Vigyan Kendra (KVK), Amadalavalasa, Andhra Pradesh

This app provides information in Telugu on modern scientific management practices for Agriculture & Horticulture crops growing in Andhra Pradesh, along with photographs. It helps farmers and extension workers in identification of field level problems like nutrient deficiency, pest & diseases and to take decisions at the right time.

Features:

- Farm Calculator enables users to calculate plant population for a desired area with different spacing requirements
- Farmers call center toll free numbers organized by the Agriculture University and allied sectors are enabled in the app. Through this farmers can directly talk to scientists and experts to clarify field level problems and queries.
- Links to Technology Videos developed by ICAR Institutions, State Agricultural Universities & success stories of progressive farmers on YouTube are enabled in the app, crop-wise for direct access.
- Contact details of Research Stations, Krishi Vigyan Kendras & DAATTCs working under ANGRAU are available.

The App is free of cost & works offline (Internet is required for Registration only).



13. Havaamana Krishi

https://play.google.com/store/apps/details?id=com.uasd.havaamana&hl=en

Developed by: AICRP on Agrometeorology, Vijayapura Centre, University of Agricultural Sciences, Dharwad.

"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.

The information provided in this Application is meant for use by farmers to save their crop from adverse weather conditions by adopting timely agricultural operations in the field and horticultural crops as well as animal husbandry in the region. The information is available both in vernacular Kannada and in English. In Bagalkot district, this technology is being used to schedule harvesting of soybean and turmeric. Spraying of pomegranate, timing of pruning, and post-harvest operation in grapes are based on real-time weather forecasts. This has helped them to reduce crop losses and increase profits.

Weather data: The meteorological data collected at representative Agricultural Research Stations of the seven districts are presented. The data corresponds to past 24 hours at 8.30 a.m. of the date mentioned on the screen as observed at the specific research station(s).

Weather forecast: The qualitative short range weather forecast for the seven districts is prepared using the synoptic weather forecast maps of India Meteorological Department (IMD) and NCEP (National Centers for Environmental Prediction) along with the dynamics of infrared and water vapor channel satellite imageries of IMD and Dundee/eumetsat websites as applicable to peninsular India. The forecasts are updated every day. If necessary emergency updates are also provided, as nowcasts.

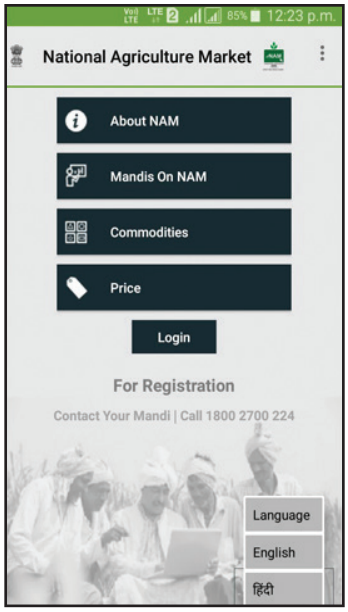
Agrometeorological advisory bulletins prepared by the Agromet Field Units (AMFUs) of Gramin Krishi Mausam Seva (GKMS) Project are included. These are based on the quantitative forecasts issued by the Meteorological Centre, Bengaluru of IMD, Govt. of India. **Credits:** Dr. H.Venkatesh & Er. Achyutha Hosahalli

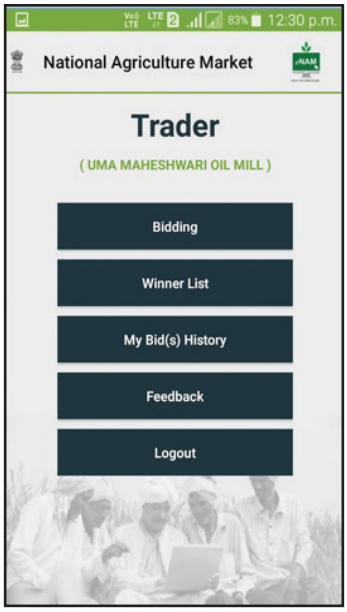
Marketing

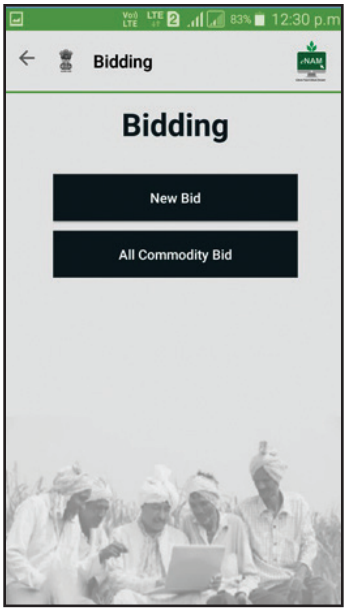
14. eNAM Mobile App

https://play.google.com/store/apps/details?id=in.gov.enam&hl=en
Developed by: Small Farmers' Agribusiness Consortium (SFAC), Ministry of Agriculture & Farmers Welfare, Govt. of India

National Agriculture Market (NAM) is a pan-India electronic trading portal promoted by Government of India which networks the existing mandis to create a unified national market for agricultural commodities. The purpose of the Mobile App is to facilitate remote bidding by traders and access to arrivals and price related information to farmers and other stake holders on their smart phones.





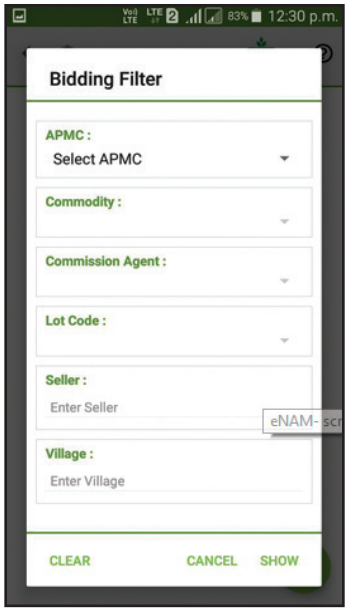


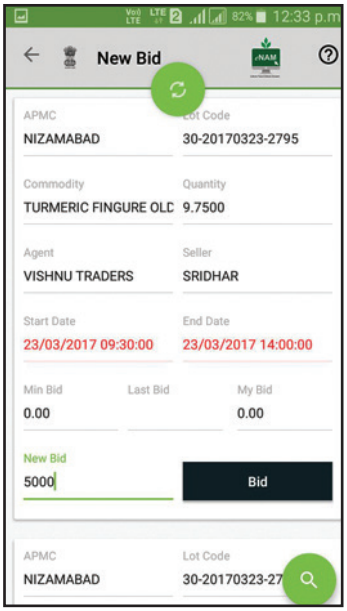
Features

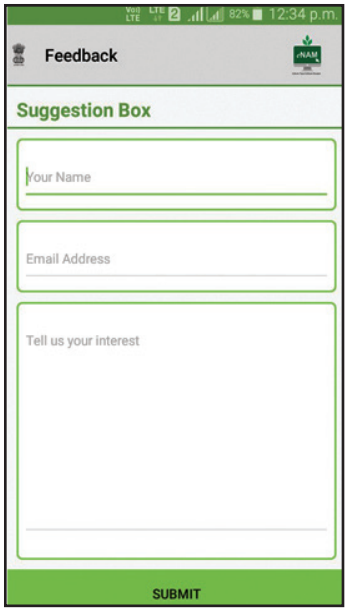
The e-NAM mobile app v1.0 is released with limited features of bidding by the traders and viewing the information related to the trade on e-NAM. This App is not a replica of the e-NAM Application as available in web version. The following functions are available in the mobile app:

For Traders

- Can bid for the lot available for trade.
- Can enter fresh bid and/or change the last bid price.
- Can see minimum and maximum bid price in case of open auction
- Can View winner list, bid history and share feedback.







For Farmers and other users:

- Can view state wise list of e-NAM mandis.
- Can view mandi wise arrivals.
- Can view minimum and maximum prices prevailing in any mandi.

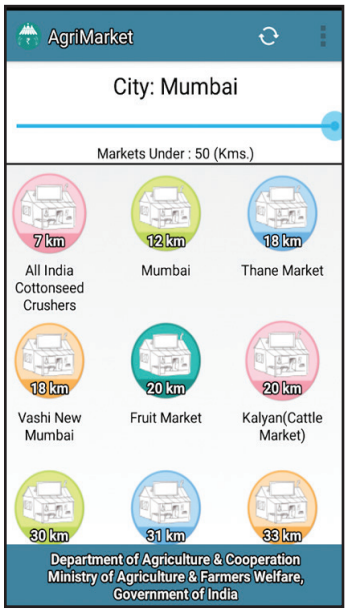
Audience: Farmers, Traders, Commission Agents, Processors, Exporters, mandi functionaries and other stakeholders in the agriculture supply chain.

15. AgriMarket

https://apps.mgov.gov.in/descp.do?appid=989

Developed by : Ministry of Agriculture & Farmers Welfare, Govt. of India

The app has been developed with an aim to keep farmers abreast of crop prices.



Features

- AgriMarket mobile app can be used to get the market price of crops in the markets within 50 km of the device's location.
- This app automatically captures the location of the person using mobile GPS and fetches the market price of crops in those markets which fall within the range of 50 km. There is another option to get prices of any market and any crop in case the person does not want to use GPS location.
- The prices of agri commodities are sourced from the AGMARKNET portal. The app is available in Hindi and English.

16. Digital Mandi India

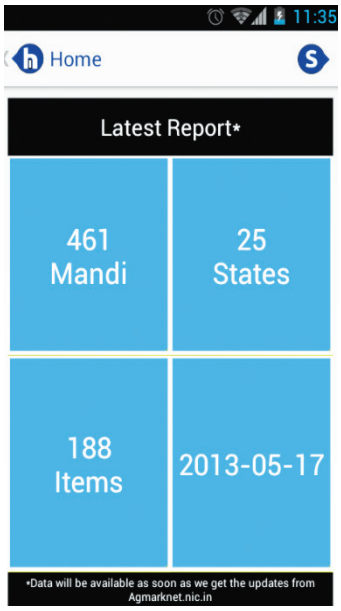
https://play.google.com/store/apps/details?id=com.appkiddo.smartfarmer&hl=en

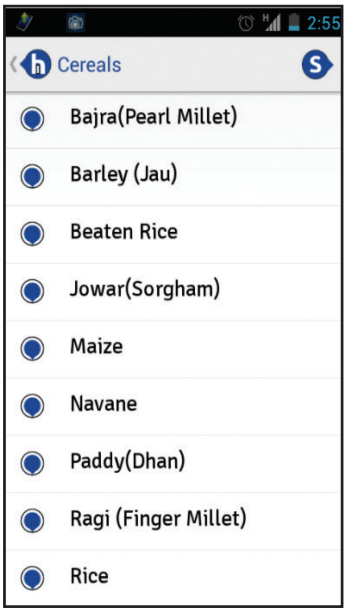
Developed by: Appkiddo

This App helps in checking the latest Mandi prices of agricultural commodities reported from different states and districts/mandis in India. One can get commodity wise categorization or state wise categorization.

Features

- One can Browse through various commodity categories and get the selected commodity's price reported by various states/by mandis
- One can browse prices in different states/ mandis
- Simplified flow to reach the selected commodity's mandi price.
- Copy the mandi price of a commodity and share the price on social media
- Sync data from the Indian government portal Agmarknet.nic.in





17. Loop

https://play.google.com/store/apps/details?id=loop.org.digitalgreen.loop&hl=en

Developed by: Digital Green

Loop is a mobile phone application launched by Digital Green, in Bihar, to improve smallholder farmers' access to markets and to help them realize high income from sale of their vegetables. The app improves farmers' access to markets by helping them to aggregate their perishable produce.

Aggregators determine the market offering the best price, arrange transport, sell the produce, complete the transaction on behalf of farmers and disburse payment to farmers the same day. Loop enables aggregators to record collections, sale, transportation, trader details and sends farmers receipts by text messages when sales are completed.

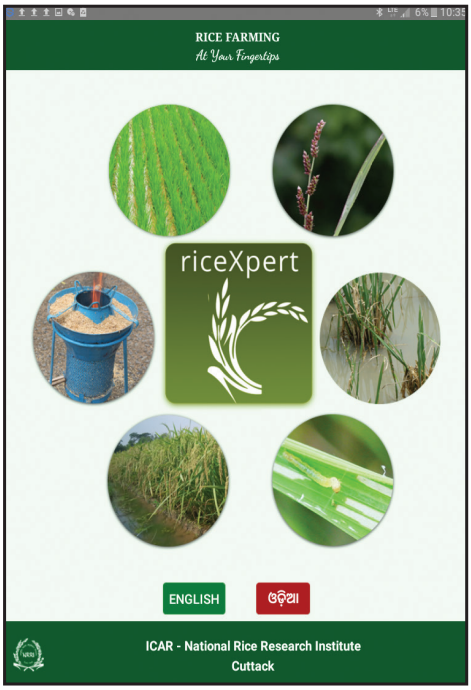
Crop Specific Apps

18. riceXpert

https://play.google.com/store/apps/details?id=com.icar.ricexpert&hl=en

Developed by: ICAR-National Rice Research Institute (NRRI), Cuttack.

NRRI Cuttack has developed the mobile App *'riceXpert'* bilingual (English and Odia) on Android platform with a view to reach the latest rice technologies to the rice farmers in real time basis. The download link is also provided in the web portal www.nrri.in and www.crri.nic.in.



Front Screen of "riceXpert" app

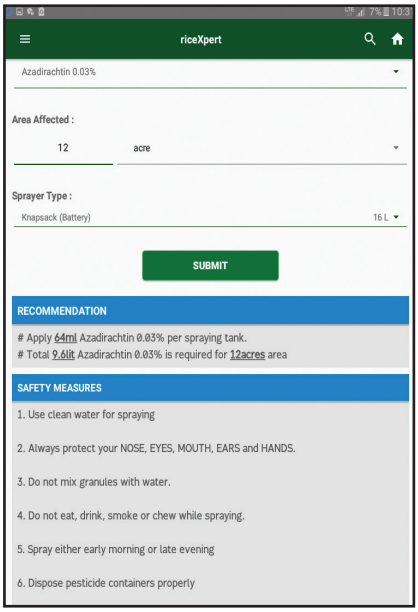
Main Menu Page of 'riceXpert' app

Features

- Provides real time diagnosis of insect pests, diseases, nematodes, weeds, nutrient deficiencies and toxicities to farmers.
- It has other features like rice varieties, agricultural implements, news, expert consultation through e-advisory services module, weather information.
- Customized Pest Solution
- Fertilizer recommendation based on cropped area and rice ecology
- Farmers and farm women can use this App as a diagnostic tool in their rice fields and also make customized queries through text, uploading photo or recorded voice which would be addressed by a panel of experts on real time basis with quick solution along with recommendations through sms.

- Also provides a platform for the farmers who have no organized way to sell their products. Farmers can post their rice or rice related products for display to buyers. The buyer can access the detailed information about the products through the app and get the products at the best prices through direct interaction.

Uploading provision of problems through text, image or recorded voice of users



Instant Pest Solution with safety measures during spraying

The App is also a useful tool for the researchers, scientists, students and village level workers working on rice crop.

Around 1000 queries have been received from the Indian users through e-rice advisories module of the app covering 16 major states of India and the queries are being addressed by the panel of experts and the solutions are being sent through SMS (Dr. S D Mohapatra, Principal Scientist & Nodal Officer (riceXpert), Dr. A K Nayak, Principal Scientist & Head, Crop Production and Dr. H Pathak, Director, NRRI, Cuttack)

19. Mana Verusanaga App

https://play.google.com/store/apps/details?id=com.kishan.agri&hl=en
Developed by: Regional Agricultural Research Station, Tirupati, Acharya N.G.Ranga Agricultural University, Andhra Pradesh, India

Provides detailed information to the farmers and extension personnel on all aspects of groundnut cultivation.

Features

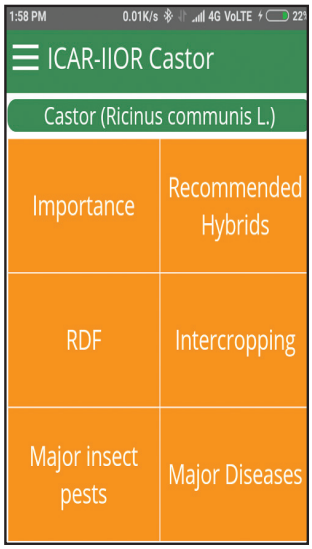
- The app is offline and in Telugu language with seed to seed information.
- Users need to register once even by sending SMS.
- The content includes varieties, seeds, nutrient management, pest and diseases, farm mechanization, value addition and contact details with photographs.

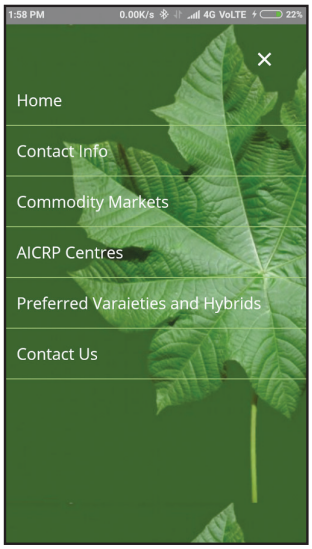
20. Mobile App on Castor

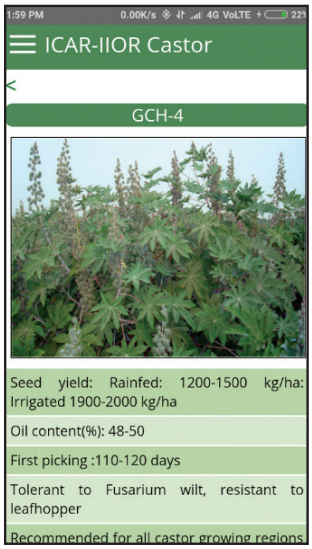
https://play.google.com/store/apps/details?id=in.org.icar_iior.icariiorcastor&hl=en

Developed by: ICAR - Indian Institute of Oilseeds Research (IIOR)

This mobile app provides information on castor production technologies, recommended hybrid varieties, intercropping, major insects, pests and diseases and its remedies to castor farmers.





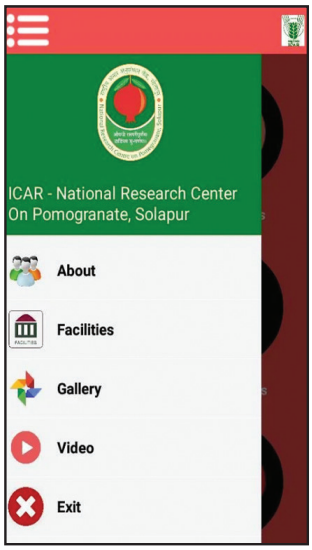


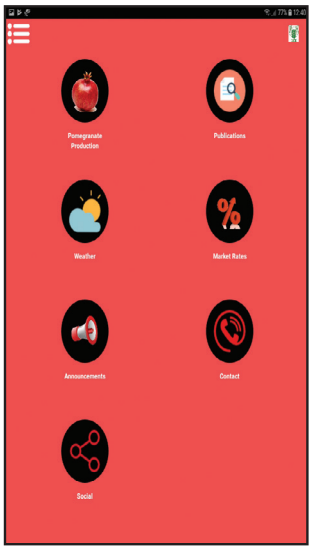
21. Solapur Anar

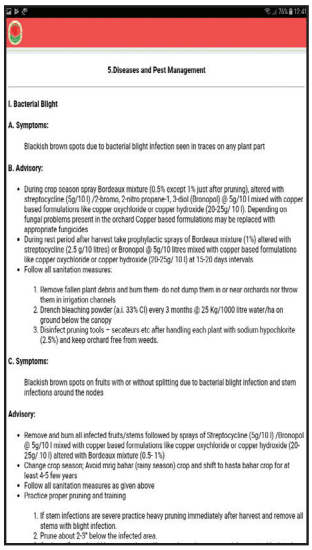
https://play.google.com/store/apps/details?id=com.icarnrcp.solapuranar&hl=en

Developed by: ICAR - National Research Centre on Pomegranate (NRCP), Solapur

This app aims to educate pomegranate growers about scientific pomegranate production practices. The app includes publications for download from ICAR-NRCP website. Weather forecast of the region, on the go daily market rates of pomegranate from across India, announcement from National Research Centre on Pomegranate regarding upcoming programmes such as trainings, seminar etc., contact with NRCP scientists for all problems related to pomegranate. The app is available in English, Hindi and Marathi and is free to download for pomegranate growers, researchers, extension personnel, industry and students.





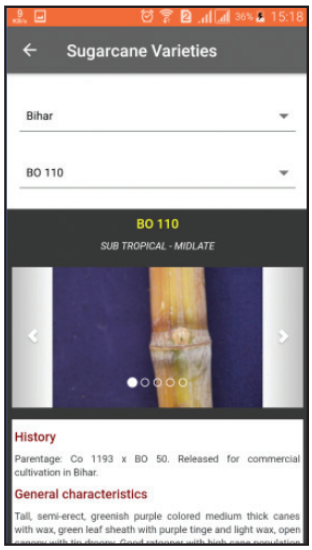


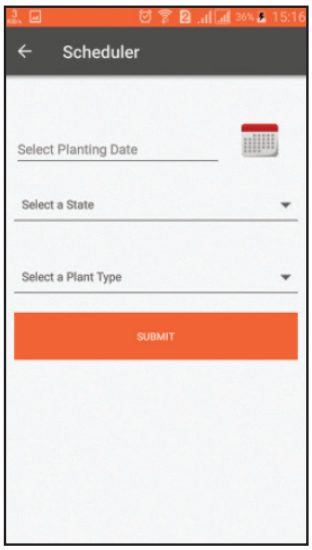
22. Cane Adviser

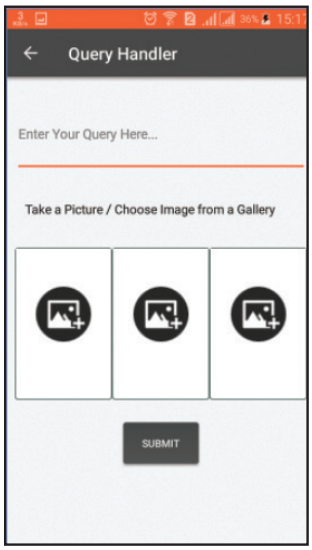
https://play.google.com/store/apps/details?id=sugarcane.cdac.com.sugarcane&hl=enI

Developed by: ICAR-Sugarcane Breeding Institute, Coimbatore, Tamil Nadu, India

Cane Adviser is a mobile app for cane growers and millers. It gives gives details from planting to harvest with text and graphics for tropical and sub-tropical India. The features of the app include static as well as dynamic platforms. The content runs to over 220 pages with 650 digital stills relevant to the content.







Features

- This app is unique in terms of a Scheduler app and Query handler. The scheduler app is tailor-made for each individual registered user. Through the Scheduler, cane growers can register their date of planting and receive continued advice and reminder messages on the calendar of cultural operations on real-time mode.
- A Query handler helps to raise queries as text messages or in graphic form and receive replies via SMS / email.

The app is available in English, Hindi and Tamil. (Dr. T. Rajula Shanthy, Head, Extension, Sugarcane Breeding Institute, Coimbatore, India)

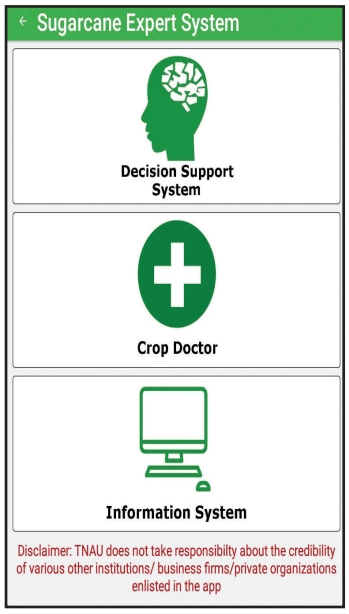
23. Expert Systems for various crops

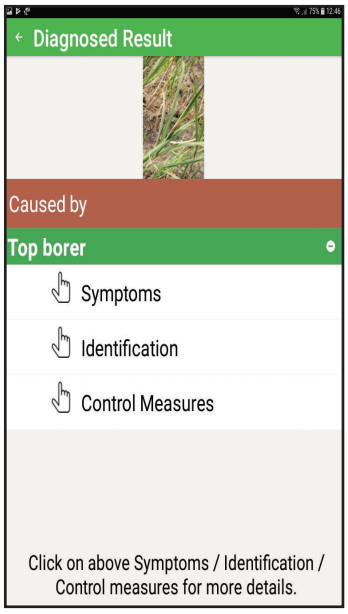
Sugarcane Expert System

https://play.google.com/store/apps/details?id=com.cdac.tnau_sugarcane_eng&hl=en

Developed by: Tamil Nadu Agricultural University (TNAU), Coimbatore and C-DAC Hyderabad

Sugarcane expert system is a mobile app that covers aspects related to cultivation practices, irrigation management, nutrient management for sugarcane, crop protection, farm implements, post harvest technology, marketing, institutions and schemes and related links for Sugarcane.



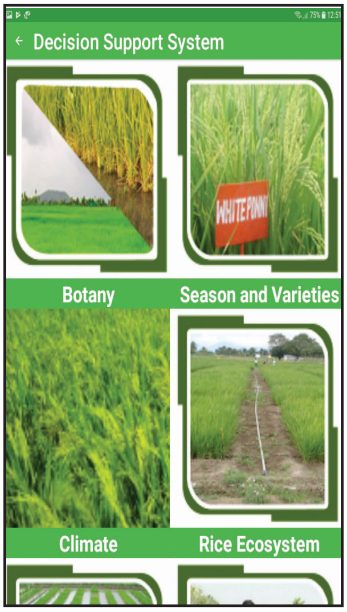


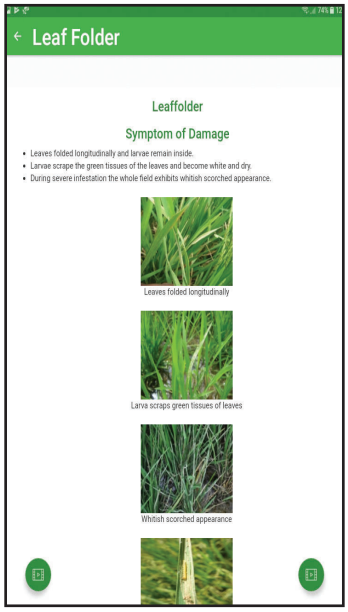
Paddy Expert System

https://play.google.com/store/apps/details?id=com.cdac.tnau_paddy_eng&hl=en

Developed by: Tamil Nadu Agricultural University (TNAU), Coimbatore and C-DAC, Hyderabad

Paddy expert system app covers nursery management for paddy, cultivation practices, nutrient management, crop protection, farm implements, post harvest technology, marketing and schemes.



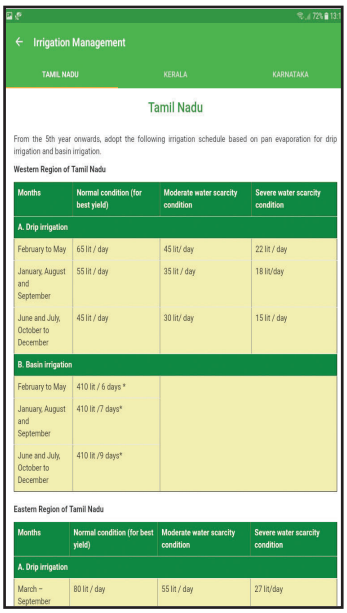


Coconut Expert System

https://play.google.com/store/apps/details?id=com.cdac.tnau_coconut_eng

Developed by: Tamil Nadu Agricultural University (TNAU), Coimbatore and C-DAC, Hyderabad

Coconut expert system app covers cultivation practices for coconut, irrigation management for coconut, nutrient management, pest and disease management, farm implements, harvest and post harvest technologies, coconut processing, schemes and services, marketing and institutions for coconut.



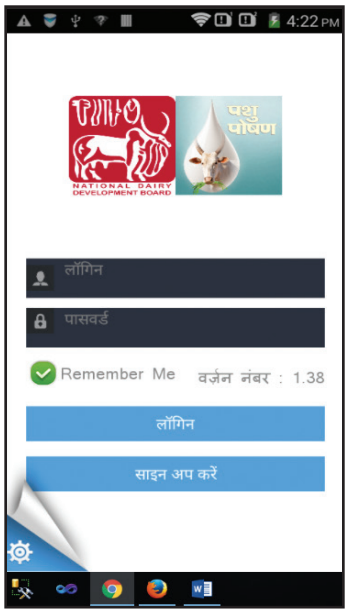
Allied Sector Apps

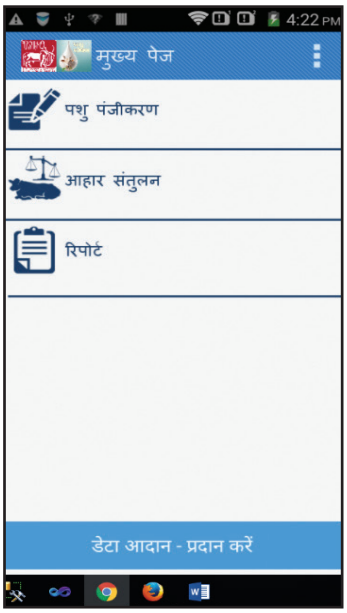
24. Pashu Poshan

https://play.google.com/store/apps/details?id=coop.nddb.pashu_poshan&hl=en
Developed by: National Dairy Development Board (NDDB)

With the help of this app, balanced ration can be formulated while optimizing the cost considering animal profile, i.e. cattle or buffalo, age, milk production, milk fat, and feeding regime etc. and milk producers are advised to adjust the quantity of locally available feed ingredients offered to their animals along with mineral mixture.

Through this app a dairy farmer can know the correct quantity and mix of the feed and fodder to be fed to the milch animals.





25. Cattle Expert System

https://play.google.com/store/apps/details?id=com.cdac.tnau_cattle_eng
Developed by TNAU, Coimbatore and C-DAC, Hyderabad

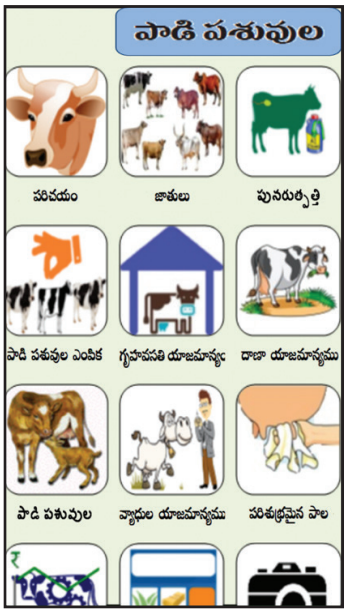
Cattle expert system is a mobile app that covers feeding management for cattle and buffalo, breeding management, disease and control management, production technology, calf management, general care and management, practices etc. for cattle and buffalo.

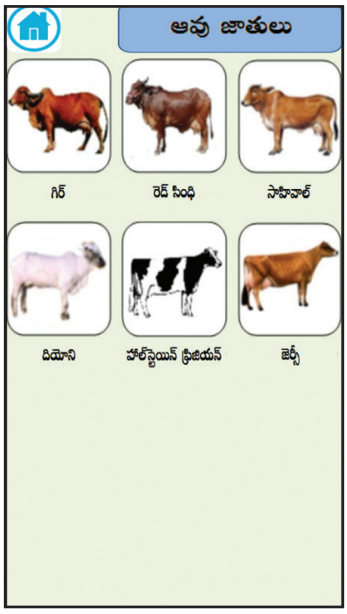
26. Dairy Telugu and Dairy Kannada

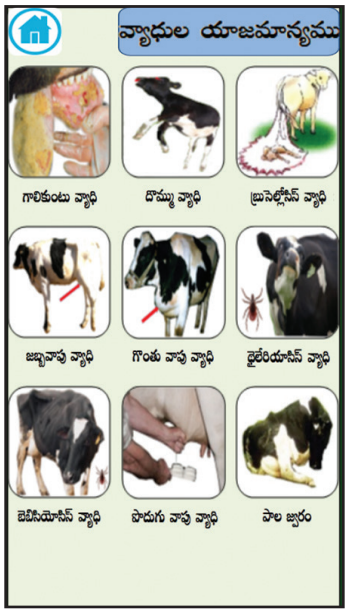
https://play.google.com/store/apps/details?id=com.agri.telugudairy&hl=en
https://play.google.com/store/apps/details?id=com.agri.dairy&hl=en
Developed by: Jayalaxmi Agrotech

These apps are equipped with analytics and decision support system with language support. The mobile app content is presented in the form of interactive audio video content, to help farmers understand easily.

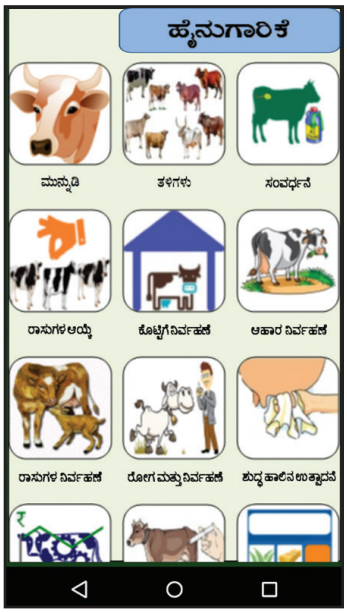
Telugu:

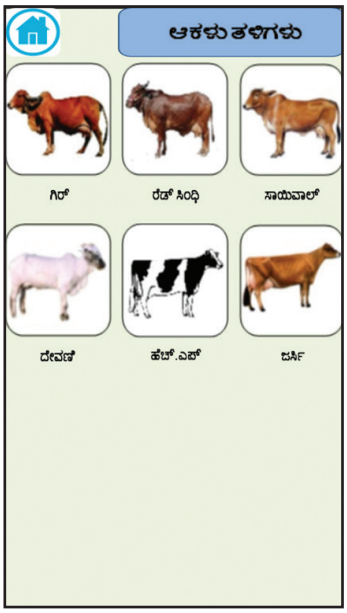






Kannada:





27. mKrishi Fisheries App

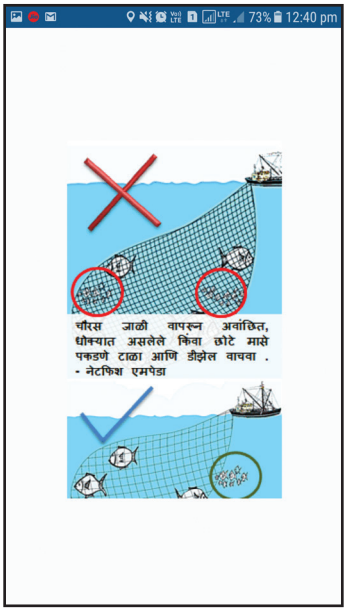
https://play.google.com/store/apps/details?id=com.tcs.fish.mkrishi&hl=en

Developed by: Tata Consultancy Services (TCS) Innovation Lab – Mumbai, in collaboration with ICAR- Central Marine Fisheries Research Institute and Indian National Centre for Ocean Information Services (INCOIS) Hyderabad.

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.

Fishermen can use this service to plan their fishing trip and venture into sea, only if PFZ was in their vicinity which helps to reduce unnecessary trips and the associated cost of diesel, ice and labour. The app uses the user and device information such as location, language to customize the information delivery. In a study ICAR- CMFRI estimated that it resulted in the saving of upto 30 per cent in diesel costs.

mKRISHI Fisheries mobile app developed by CMFRI has won the prestigious National Contest on Social Innovation 2016 hosted by Ministry of External Affairs (http://www.cmfri.org.in/events/mkrishi-fisheries-mobile-app-developed-by-cmfri-won-national-contest-on-social-innovation-2016)



28. Fisher Friendly Mobile Application (FEMA)

https://play.google.com/store/apps/details?id=com.mssrf.ffma&hl=en

Developed by: MS Swaminathan Research Foundation in partnership with Qualcomm and INCOIS

The app provides vulnerable fishermen access to knowledge and information services on weather, potential fishing zones, ocean state forecasts, disaster alerts and market related information. The application is a decision support tool for the fisher community to make informed decisions about their own personal safety and the safety of their boats, as well as make smart choices for fishing and marketing their catch. FFMA is being used by fisher folk in six states including Tamil Nadu, Puducherry, Andhra Pradesh, Kerala, Odisha, and West Bengal.

Other Apps Providing Agro Advisory

29. RML Farmer

https://play.google.com/store/apps/details?id=com.rml.Activities&hl=en
Developed by: RML AgTech

Farmer can access information related to weather forecast, market price, crop advisory, farm related news as per their location in their preferred language. The app gives personalized recommendations, keeps track of pest and disease attack.

Features

- Provides pest, weed, disease management solutions
- Enables a farmer to identify lucrative mandis across India to sell their produce
- Provides solutions for farm nutrient requirements
- Enables farmers to get soil test done and get a detailed analysis
- Farmers can take images of pest infected crop and share with agri experts at RML for resolution.
- Agricultural information library enables farmers to get information related to crops, mechanization, etc.

30. MyAgriGuru

https://play.google.com/store/apps/details?id=com.myagriguru&hl=en
Developed by: Mahindra Agri Solutions, Mahindra and Mahindra

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

Features

- Through the peer-to-peer sharing platform, a farmer can connect with other farmers and agri-experts and start a conversation. This interaction is open and visible to other users also. Farmers can share their images as well as videos in the interactions, share their success stories with other farmers through this platform.

- Agri Advisory covers agronomic activity calendar, crop health diagnosis, new technologies and innovative practices of the crop.
- Farmers can update themselves on the latest agricultural news and happenings across the country, as well as practical notes on non-traditional crop farming.

MyAgriGuru also provide APMC mandi prices across the country, exchange traded agri-commodity prices as well as weather forecast to farmers. The app is currently available in Hindi and English, with more languages proposed to be added.

31. Rythu Nestham

https://play.google.com/store/apps/details?id=rutherford.apps.raithunestam&hl=en
Developed by: Rythu Nestham Foundation

Rythunestham is a mobile app which helps farmers in organic farming. The mobile app is available in both English and Telugu.

Features:

- Information on organic cultivation techniques.
- Provides procedures for the protection of crops.
- Crop Insurance Information.
- Nearest stores, help centers and research labs.
- Daily market rates of commodities.
- Weather forecast in the particular region.
- Chatting and support facility for farmers.
- Success stories of organic farmers.

32. Kultivate

https://play.google.com/store/apps/details?id=com.ionicframework.kultivate679690&hl=en
Developed by: Gowthaman Ramasamy

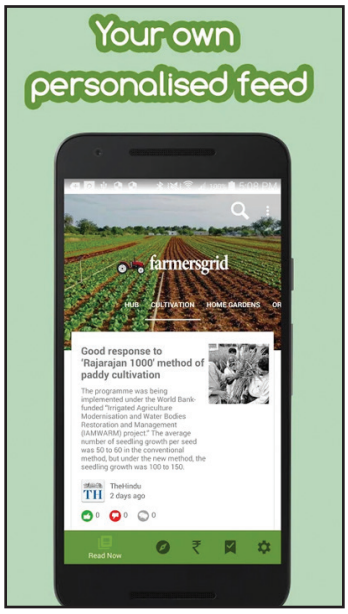
Kultivate is a software platform aiming to fill the gap in traditional agricultural extension to make "Smart Agriculture Extension Easy for Everyone" or E3. The platform enables a crop expert in the country to provide precise crop advisory to his/her member farmers. Kultivate equips the experts with the weather, remote sensing, epidemiological and market price data to customize the advisory to the farmer's field. It helps to communicate with a farmer via his mobile phone. It continuously collects vital crop data and generates intelligence automatically to provide personalized scientific advisory to farmers. Kultivate has been incubated by MANAGE AC&ABC incubation center. One can register as a farmer, consultant or supervisor. Kultivate helped farmers to increase their yield with reduction in the cost of cultivation (Dr. Gowthaman Ramasamy).

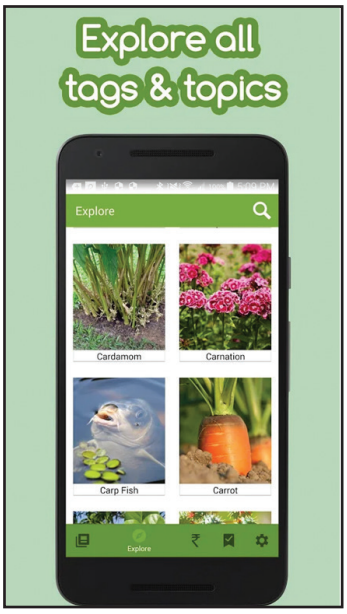
33. FarmersGrid

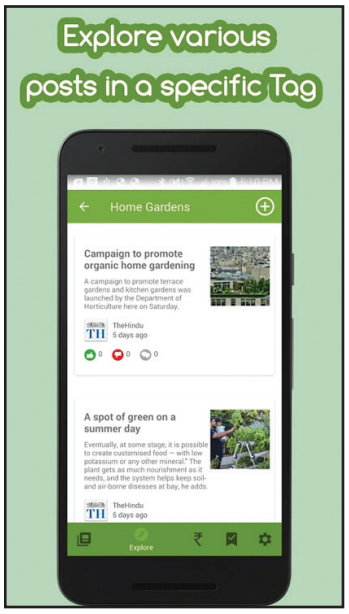
https://play.google.com/store/apps/details?id=com.adish.farmersgrid&hl=en feedback@farmersgrid.com

Farmersgrid provides information on agriculture & farming. The app includes content on topics like organic farming, gardening, sustainability, growing different crops & vegetables, productivity improvement, tips, tools etc.

Farmersgrid app also gives an opportunity to connect with different farmers, learn and share knowledge. One can also view the market prices of commodities with the data provided by AGMARKNET. One can also personalise content with interested tags or products and signup for automated Email Newsletters for new posts.







As seen, in the earlier pages, mobile technology is transforming access to information. A number of new apps are emerging in response to new requirements and challenges. 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.

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