



IGKV
RAIPUR(C.G.)

Indira Gandhi Krishi Vishwavidyalaya

Crop Doctor 2.0

**Innovative and Transformative Smart Farming
Using
Artificial Intelligence
(User Manual)**

For
IGKV, Raipur (C.G.)



Conventions

The document follows the font sizes and setting as per below :

Chapter Heading - Times New Roman,16 pt,Bold

Sub Heading - Times New Roman,14 pt,Bold

Sub Heading Level 1 - Times New Roman,14 pt,Bold

Sub Heading Level 2- Times New Roman,14 pt,Bold

Body Text - Times New Roman,14 pt,

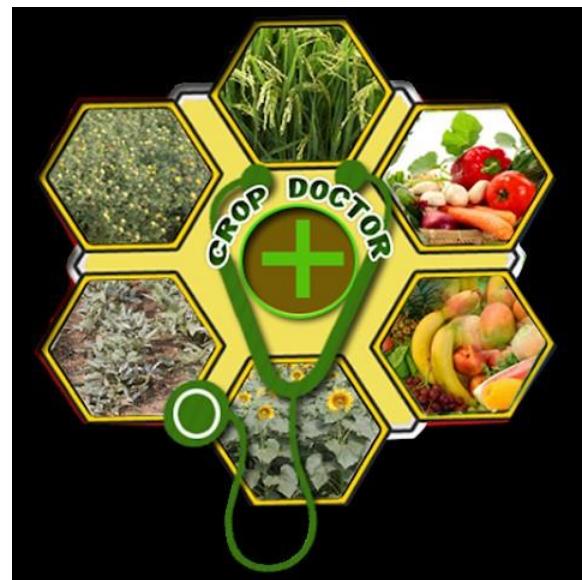
Abbreviations

Below is the descriptive list of abbreviations used in the document.

Term	Description
IGKV	Indira Gandhi Krishi Vishwavidyalaya, Raipur
NIC	National Informatics Centre

CROP DOCTOR 2.0

USER MANUAL



Crop Doctor 2.0 - Innovative and Transformative smart farming using artificial intelligence

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1. Introduction

This User Manual (UM) provides the information necessary for <types of users> to effectively use the <System Name (Acronym)>.

1.1 Overview

Instructions: “Crop Doctor 2” is an application which is developed by Indira Gandhi Krishi Vishwavidyalaya (IGKV) the agriculture university in Chhattisgarh and National informatics Center (NIC) for information, knowledge and problem solution for almost all majors crops.

- It is AI (artificial intelligence) based
- Voice Activated Application
- Diagnosing diseases
- Provide recommendations for treatments
- User access mode (e.g., graphical user interface)
- System environment or special conditions

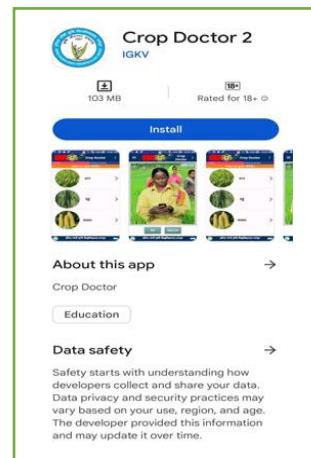
2. Getting Started

Instructions: Provide clear instructions on how to download, install, and set up the mobile application. Include any system requirements and compatibility information if necessary.

2.1 Installation and Setup

Instructions: To install the "Crop Doctor 2" mobile application, you can follow these general steps:

1. Open the **Google Play Store** on your Android device.
2. Tap on the search bar at the top of the screen and type "**Crop Doctor 2**".
3. The Play Store will display a list of search results related to your query. Look for the specific "**Crop Doctor 2**" application you are referring to.
4. Select the appropriate application from the search results.
5. On the application's page, you should see an "**Install**" button. Tap on it to begin the installation process.
6. Depending on your device's settings, you may be asked to grant permissions or provide additional information during the installation process. Follow the on-screen instructions to proceed.
7. Once the installation is complete, you should see the "**Crop Doctor 2**" application in your app drawer or home screen.



2.2 User Registration

Instructions: To create a user registration process for your mobile application, you can follow these steps:

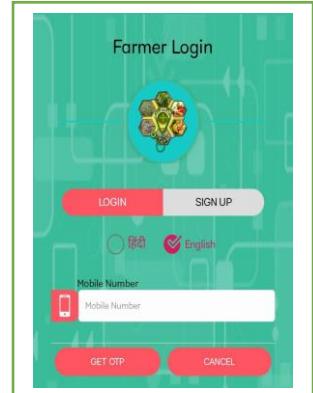
1. Fill all necessary details on **Sign Up** form.
2. Typically, this includes fields like name, mobile no, gender, address.
3. On the **Sign Up** page, you should see an "**SIGN UP**" button. Tap on it to Complete the registration process.
4. Once the registration process is complete, you will navigate to "**Login Page**"



2.3 User Login

Instructions: For user login process, you can follow these steps:

1. Enter your registration mobile no.
2. Generate and Send OTP:
 - a. Collect the user's mobile number during the registration Process.
 - b. Generate a random OTP code on the server-side.
 - c. Send the OTP code to the user's mobile number via SMS.
3. Validate OTP:
 - a. Compare the user's entered OTP with the generated OTP on the Server-side.
 - b. Verify that the OTP is valid and matches the user's input.
 - c. If the OTP is valid, mark the verification as successful.
4. Resend OTP (optional):
 - a. Provide an option for users to request a new OTP if needed.
 - b. Generate a new OTP and send it to the user's mobile number.



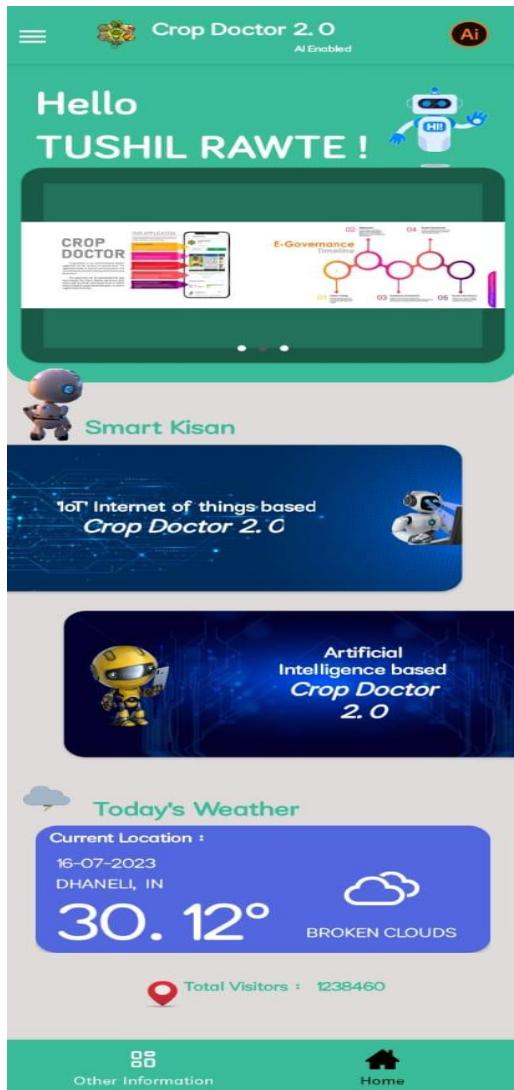
2.4 System Organization & Navigation

Instructions: Describe in general terms the organization of the application (e.g., the application menu or home page) and the navigation paths to the main functions/features. Each system function/feature should be described under a separate sub-section header, as appropriate.

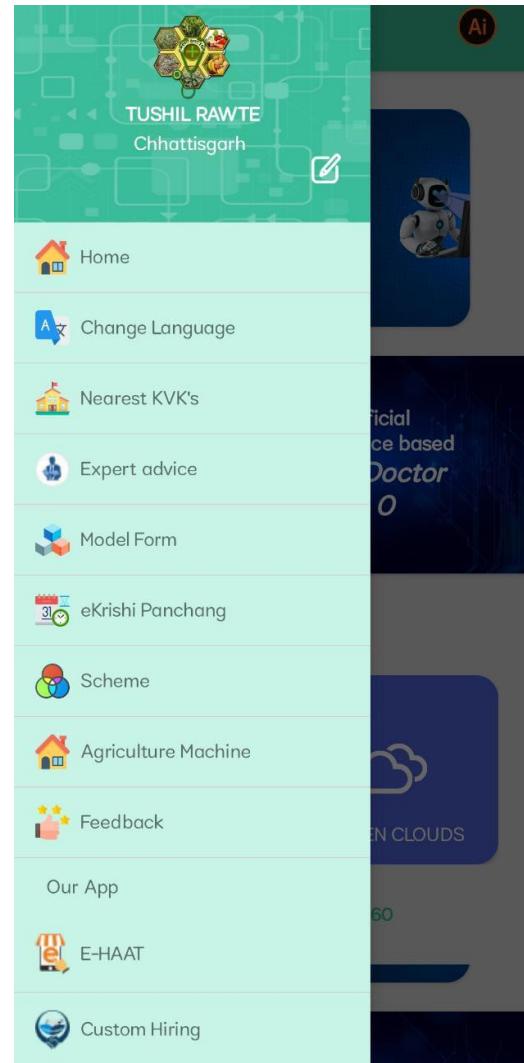
1. **Home Screen:** The home screen is the main screen users see upon launching the application. It displays a welcome message “Hello Deepak!” Which allows users to begin their experience with the app. On the top left corner, there is a “menu” icon that users can tap to access the application's menu and navigate to different option.

Menu Navigation: The application utilizes a side navigation menu accessed by tapping the hamburger icon in the top left corner. The menu provides easy access to different sections, including "Profile", "Home", "Change Language", "Nearest

KVK's", "Expert Advices ", "Model Form", "eKrishi Panchang", "Scheme", "Agriculture Machine", "Agriculture Machine", "Feedback", "E-HAAT" and "Custom Hiring", Users can swipe left or right on the screen to reveal the menu or simply tap the hamburger icon to expand or collapse it.



User Dashboard



Navigation and Menu bar

2.5 Functionality

Instructions: Crop doctor 2.0 provide various functionality for user, following list are given below

- AI Enabled Problem Identification.
- Problem Identification.
- Advisory News.
- Weather News.
- e-Haat
- Custom Hiring.
- e-Krishi Panchang.
- Expert Advice.
- Model Farming.
- Send Query.
- Videos.
- News.

2.5.1 AI Enabled Problem Identification

Instructions: "Identify Insects and Diseases" feature utilizes **Artificial Intelligence** algorithms to assist users in identifying and diagnosing insects and diseases affecting plants. Here's an explanation of how the feature works:

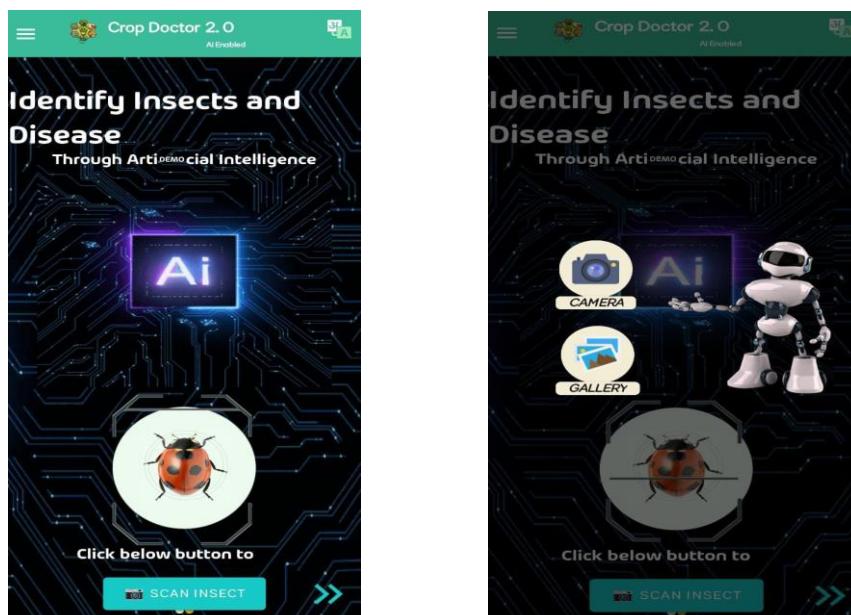
1. **Image Recognition:** The app allows users to capture or upload images of insects. The AI algorithms analyse the images using computer vision and pattern recognition techniques.
2. **Data Analysis:** The captured images are processed by the AI algorithms, which compare them to a vast database of known insects and diseases. The algorithms extract relevant features and patterns from the images to identify potential matches.
3. **Matching and Diagnosis:** Based on the analysed data and patterns, the AI algorithms compare the input images against the database to identify potential matches for insects or diseases. The algorithms generate a list of possible matches or provide a ranked (class) diagnosis based on the likelihood of each identified issue.

4. **Result Presentation:** The app presents the identified insects or diseases to the user along with relevant information, such as common symptoms, recommended treatments, and preventive measures. Users can access detailed descriptions, images, or links to external resources for further reference.
5. **Continuous Learning:** The AI algorithms can be designed to continuously learn and improve over time. User feedback and additional data can be collected to enhance the accuracy and effectiveness of the identification and diagnosis process.
6. **User Interaction:** The app may offer interactive features to allow users to provide feedback on the accuracy of the identification results. Users can also ask questions, seek additional guidance, or share their experiences with other users or experts through integrated communication channels.
7. **Integration with Other Features:** The "Identify Insects and Diseases" feature can be integrated with other functionalities of the app, such as pest management tips, treatment recommendations, or the ability to create and track personalized plant health profiles.

By leveraging AI algorithms, the "**Identify Insects and Diseases**" feature in your app offers users a convenient and efficient way to diagnose and manage plant-related issues. It helps users make informed decisions about treatment options, implement appropriate measures, and ultimately improve plant health and crop yields.

For using this functionality this steps are follow:-

1. **Scan Insects:** - Scan an insects from your device you can just click a photo or upload from gallery.



2. Upload Images: - Upload your selected or scanned images. After uploading images you get results. If data is not found then a message shown “**data not found**”. If data is found then you get a desired solution.



3. Get Solution: - when you tap on “**Get Solution**”. Here you can see the insect’s name, accuracy and the crops which they effect. After selecting your you get problem description like symptoms, Management and others

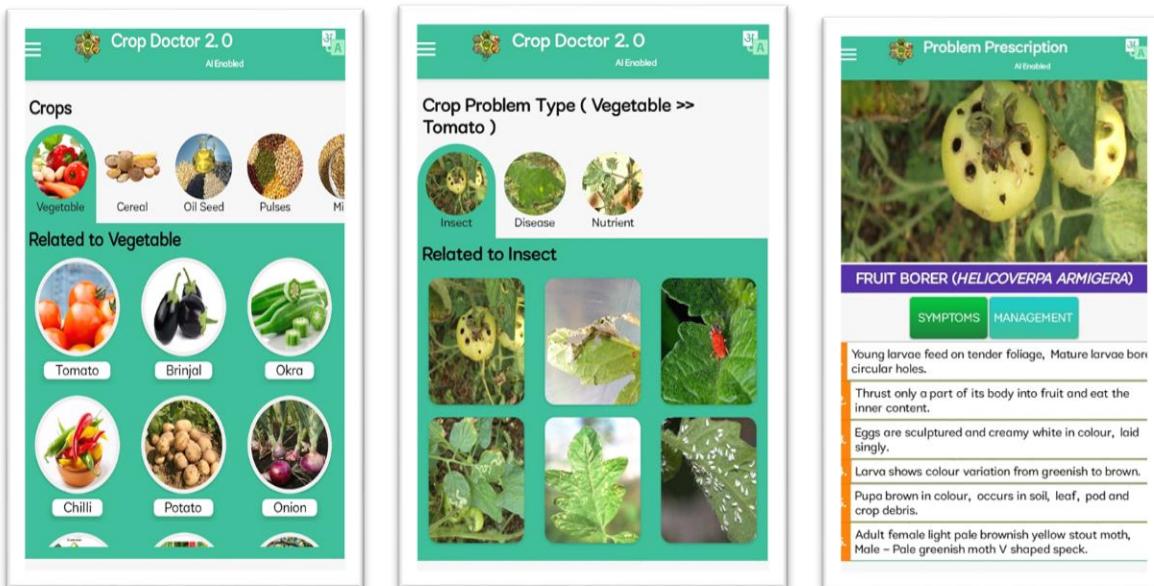
The left screenshot shows the "Crop Doctor 2.0" interface with the identified insect as "Green Leafhopper (\leftrightarrowNephrotettix virescens</math>)" and a matched accuracy of 77%. It lists "Paddy" and "Potato" as common host crops. The right screenshot shows the "Problem Prescription" screen with the same information, including a detailed description of the insect's life cycle, damage symptoms, management practices (like avoiding excess fertilizer), and favorable conditions for its spread. Both screens include a "Source Name:- IGKV" footer.

2.5.2 Problem Identification

Instructions: It work same like above through **Manual Selection**.

For using this functionality this steps are follow:-

- Select Crops Category:** - Select a crops categories, regarding categories you get related subcategories.
- Select Crops Subcategory:** - on selecting your subcategories you get related insects images which can affect your selected crops.
- Confirmation:** - Confirm your selection. After selection you will get Symptoms and Management.

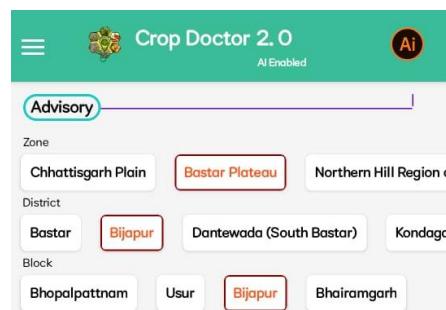


2.5.3 Advisory News

Instructions: It provide advice, guidance, or recommendation regarding your selected Zone, District and Block.

For using this functionality this steps are follow:-

- Select Zone:** - Select your preferred Zone.
- Select District:** - on selecting zone you will get District, select it.
- Select Block:** - select your block.

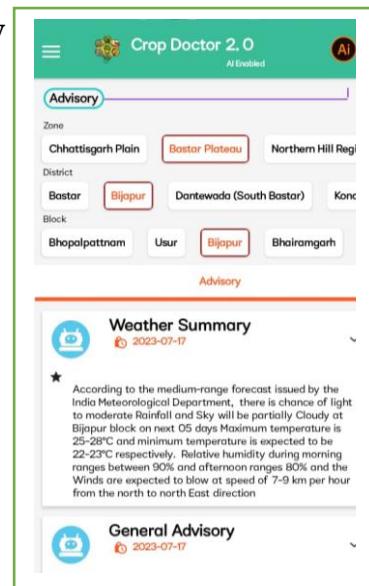


4. Result: - On behalf of your selection you get **Advisory**

Which include.

- Weather Summary
- General Advisory
- Rice
- Goat
- Chicken
- Chilli
- Others and etc.

Each Advisory show detail according to **current date**

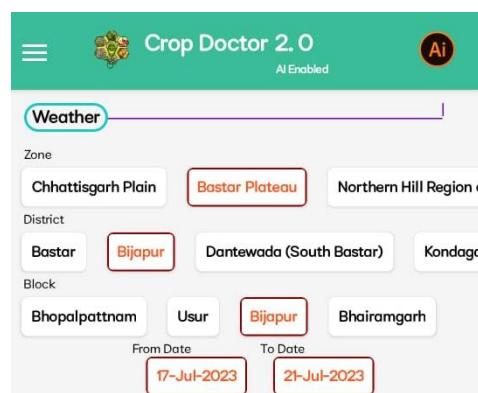


2.5.4 Weather News

Instructions: It provide Weather news regarding your selected Zone, District and Block. It includes current and forecasted atmospheric conditions, including temperature, precipitation, wind speed and direction, humidity, and other relevant factors. It provides information about weather patterns, changes, and potential impacts on daily life, Weather news describes, outdoor activities, and safety precautions.

For using this functionality this steps are follow:-

1. **Select Zone:** - Select your preferred Zone.
2. **Select District:** - on selecting zone you will get District, select it.
3. **Select Block:** - select your block.



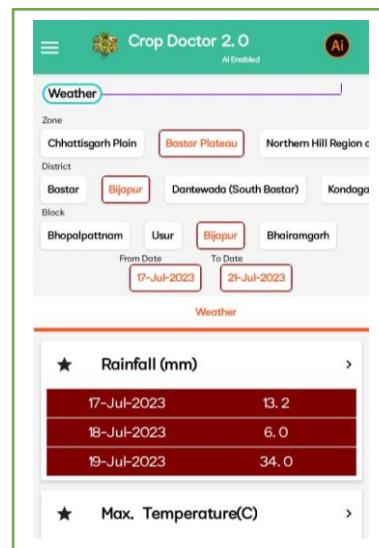
5. Result: - On behalf of your selection you get Weather News

Which include.

- Rainfall (mm)
- Max. Temperature(C)
- Min. Temperature(C)
- Cloud Amount (%)
- Others and etc.

Each detail shown according to **interval** of dates

Here the value shown in terms of standard unit.

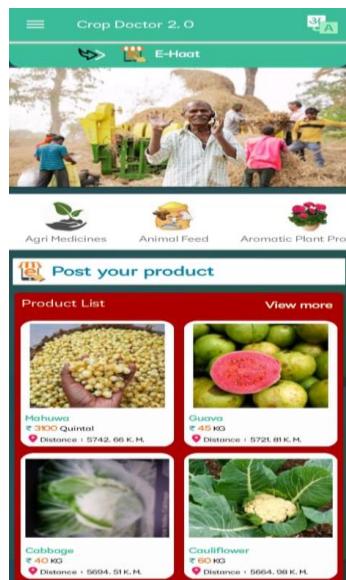


2.5.5 e-HAAT

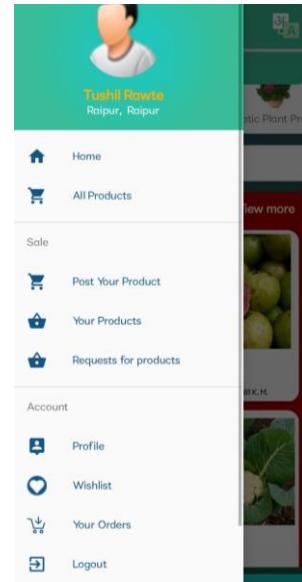
Instructions: A buy/sell platform with information about commodity, prices, produce information and a map based view of available farm products has the ability of connecting to a required farmer via web and mobile application. It aims to solve the problems of marketing and help the farmers to sell their products in a timely manner. When they register with the site, it captures all of their produce and location details and updates its database. This process eliminates the role of middle men and increase in the income of the farmer.

When you open it, you will see

1. **Home Screen:** The home screen is the main screen users see upon launching the application. It displays product list including with discount and without discount. On the top left corner, there is a "menu" icon that users can tap to access the application's menu and navigate to different option.
2. **Menu Navigation:** The application utilizes a side navigation menu accessed by tapping the hamburger icon in the top left corner. The menu provides easy access to different sections, including "Profile", "Account", "Sales" and etc.



User Dashboard



Navigation and Menu bar

For Posting Products this steps are follow:-

- 1. Select Category:** - Select a product category like Agriculture Medicines, Animal Feed, Dairy, Farming Accessories and etc.
- 2. Select Sub Category:** - On Behalf of Main Category, you get Sub Category. Suppose you have selected Farming Accessories then you get Axe, Hal and Hasiya.
- 3. Product Description:** - You can write description about your product.
- 4. Sale Type:** - Select type of sale which specify category or method used to sell products or services.

- **Retail Sale:** The sale of goods or services directly to the end consumer at a physical or online store. Retail sales typically involve individual customers purchasing products for personal use.
- **Wholesale Sale:** The sale of goods in large quantities to retailers, businesses, or other intermediaries, rather than individual consumers. Wholesale sales usually involve bulk purchases at lower prices.

You can choose price is negotiable or not

- 5. Product Photo:** - Here you have to upload product images, you can choose from gallery or camera.

You can add some complementary with your product

6. Product Location: - choose your location from you want to sell .

At last tap on “Save Product”

Your product is listed for Sell.

Post your product

Category
Farming Accessories

Sub Category
Select Sub Category

Product Description
Product Description

Sale Type
 Retail Sale Whole Sale

Price Negotiable
 Yes No

Product Photo
Upload at least two photos of product

Complementary
Any complementary with this product?
 Yes No

Product Location
Select Location
CHANGE LOCATION

SAVE PRODUCT

Post your product

Category
Poultry

Sub Category
Chicken

Product Description
good quality, fresh

Sale Type
 Retail Sale Whole Sale

Whole Sale Price Details
Unit: KG
Rate: 150
Discount (%): 10

Retail Price Details
Unit: KG
Rate: 150
Discount (%): 0

Price Negotiable
 Yes No

Product Photo
Upload at least two photos of product

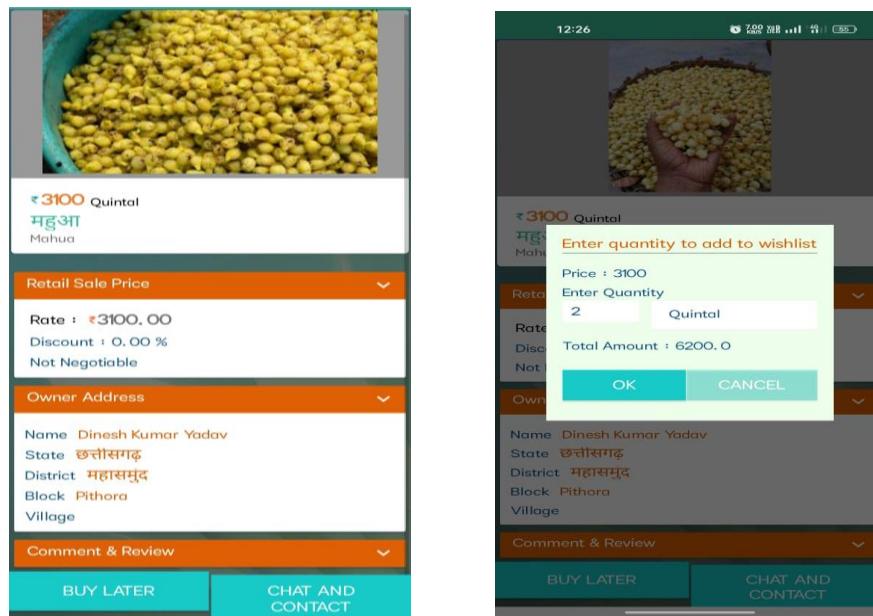
Complementary
Any complementary with this product?
 Yes No

Product Location
Select Location
CHANGE LOCATION

SAVE PRODUCT

For purchasing products this steps are follow:-

- 1. Select product:** - Select a product which display in your dashboard or you can filter it from top categories and also from price list.
- 2. Product details:** - on selecting your product. You see all related details regarding your chosen products like Price, Owner address, Review and others.
- 3. Buy:** - Confirm your selection. Select the Quantity and unit, Tap “OK”.
“Congratulations” You have successfully purchased the product.

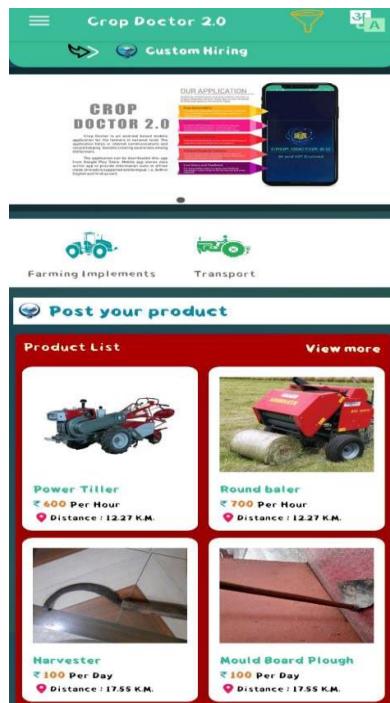


2.5.6 Custom Hiring

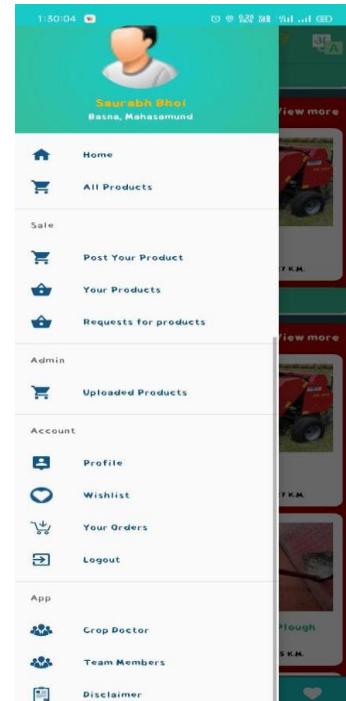
Instructions: A mobile app based aggregator platform which facilitates hiring of tractors and modern farm machinery for farmers in Chhattisgarh. App is free and connects Custom Hiring Centres (CHC) operated by tractors and equipment owners directly to farmers who need farm mechanization services and solutions, thereby facilitating a fair and transparent rental process while focusing on quality, dependability and timely delivery.

When you open it, you will see

3. **Home Screen:** The home screen is the main screen users see upon launching the application. It displays product list. On the top left corner, there is a "menu" icon that users can tap to access the application's menu and navigate to different option.
4. **Menu Navigation:** The application utilizes a side navigation menu accessed by tapping the hamburger icon in the top left corner. The menu provides easy access to different sections, including “Profile”, “Account”, “Sales” and etc.



User Dashboard



Navigation and Menu bar

For Posting Products this steps are follow:-

- 7. Select Category:** - Select a product category like Farming Implements and Transport.
- 8. Select Sub Category:** - On Behalf of Main Category, you get Sub Category. Suppose you have selected Transport then you get chhota Hathi, Pickup, Tractor.
- 9. Product Description:** - You can write description about your product.
- 10. Price Details:** - Select time for which specify option or method used to sell products or services.
 - Per Day
 - Per Hour
 - Per Kilometre

You can choose price is negotiable or not

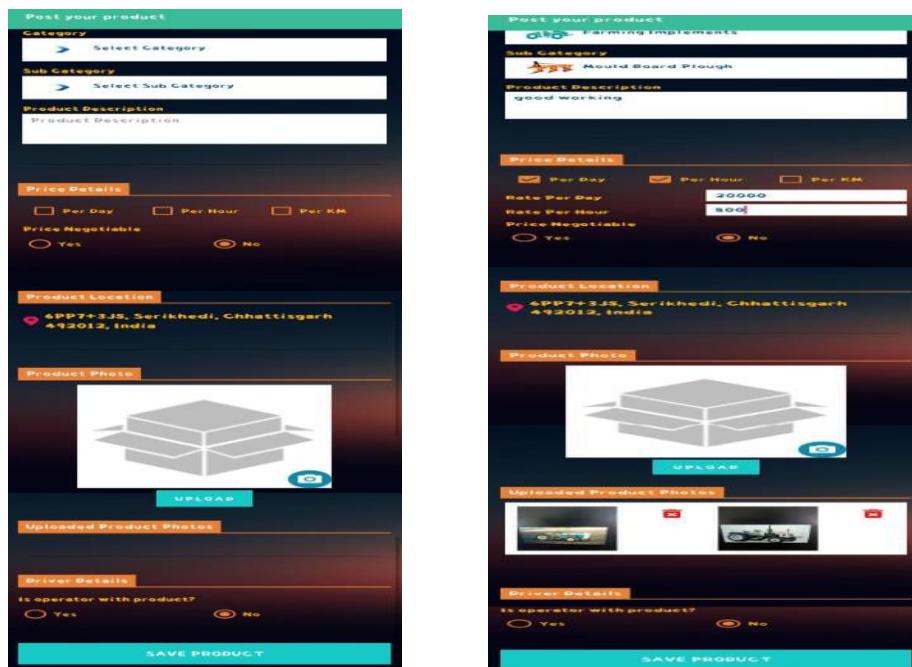
- 11. Product Photo:** - Here you have to upload product images, you can choose from gallery or camera.

You can add some complementary with your product

- 12. Product Location:** - choose your location from you want to sell .

At last tap on “Save Product”

Your product is listed for Sell.



For purchasing products this steps are follow:-

4. **Select product:** - Select a product which display in your dashboard or you can filter it from top categories and also from price list.
5. **Product details:** - on selecting your product. You see all related details regarding your chosen products like Price, Owner address, Review and others.
6. **Product for Rent:** - Confirm your selection. Select the time slot, Tap “Confirm Booking”. “Congratulations” You have successfully Booked Product.

The image consists of three vertically stacked screenshots from a mobile application interface:

- Screenshot 1 (Left): Product Listing**
Shows a red and grey Power Tiller. Text: "₹ 600 Per Hour", "BOOK THIS", "Power Tiller", "अच्छी स्थिति में उपलब्ध है।", "Distance: 12.27 KM.", "Rent Price", "Rate Per Hour ₹ 600", "Not Negotiable", "Owner Address", "Comment & Review", "0 Likes".
- Screenshot 2 (Middle): Product Details**
Shows "Product Details" for "Power Tiller". Text: "पावर टिलर", "अच्छी स्थिति में उपलब्ध है।", "Quantity 1", "Per Hour ₹ 600.00", "Destination Details" (Your Name: Saurabh Bhoi, State: Chhattisgarh, District: Mahasamund, Block: Basna, Village: Basna), "Mobile Number: 8889303085", "CONFIRM DEAL".
- Screenshot 3 (Right): Order Confirmation**
Shows "Order Details" for "Power Tiller". Text: "Power Tiller", "अच्छी स्थिति में उपलब्ध है। ₹ 600.00", "Order Mon, 17 Jul 2023", "Order placed Mon, 17 Jul 2023, 1:28PM", "Delivery Person Details" (NA, NA, NA), "ASSIGN / CHANGE DELIVERY PERSON", "Order Details" (Order Date: 17 Jul 2023, Booking Date: 20 Jul 2023, Time Slot: 6:00 AM-10:00 AM), "Seller Details" (Saurabh Bhoi, 8889303085, Basna, Mahasamund), "CHAT".

7. **Order Summary:** - After order confirmed you can see Order Summary Like seller details, delivery person details and order details.

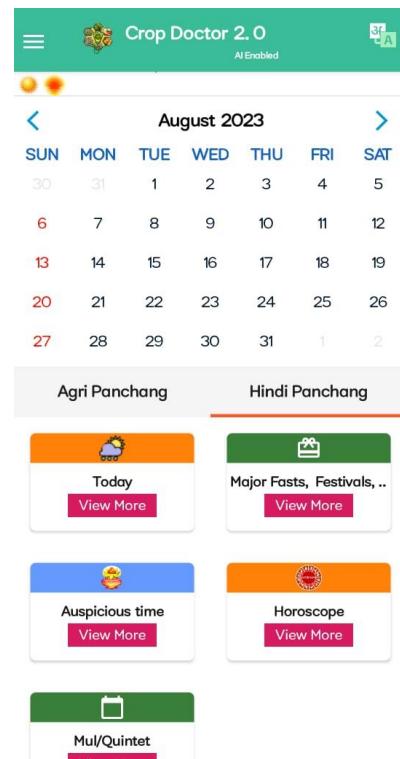
2.5.7 e-Krishi Panchang

Instructions: e-Krishi Panchang or Agro-climate almanac is a basic astronomical-agricultural web and mobile based calendar released annually, giving information on various aspects of agriculture and allied activities, basically suggesting region-wise, season-wise and crop-wise crop strategy truly based on meteorological predictions, giving auspicious time for undertaking/ avoiding various farm related operations, along with a list of performing religious rituals, festival, fasts and some non-astrological guidance, primarily useful for the farming communities and persons having interest in agricultural development. This e-Krishi Panchang, being meant for meeting agricultural purposes. Majority of its contents related to agricultural information. This e-calendar is available in the android mobiles distributed to farmers, students and others stakeholder related to agrarian community under the SKY yojana by CG state government

1. **Agriculture Panchang:** - Here you get whether info and Major task of month.
2. **Hindi Panchang:** - Here you current date details and Major Fast, Festival and Holidays, Auspicious time, Horoscope, Mul/Quintet.



[Agriculture Panchang](#)



[Hindi Panchang](#)

2.5.8 Expert Advice

Instructions: Ask Expert is a unified mobile application bringing all services under one umbrella. Ask Expert web is only one stop destination for all crop care. IGKV being Chhattisgarh's only agriculture university offers farmers and stakeholders to access of wide range of agriculture based services. The main feature are Book online Appointment with Scientist/ Specialist with ease, Find Scientist/Specialist across University by experience & availability and KVK by location.

For purchasing products this steps are follow:-

- Select your query:** - Select any query from multiple query which is shown through dropdown, regarding your problem.
- Select District:** - select your district from which you can get nearest expert.
- Expert List:** - After selecting all details you get a list of expert profile.

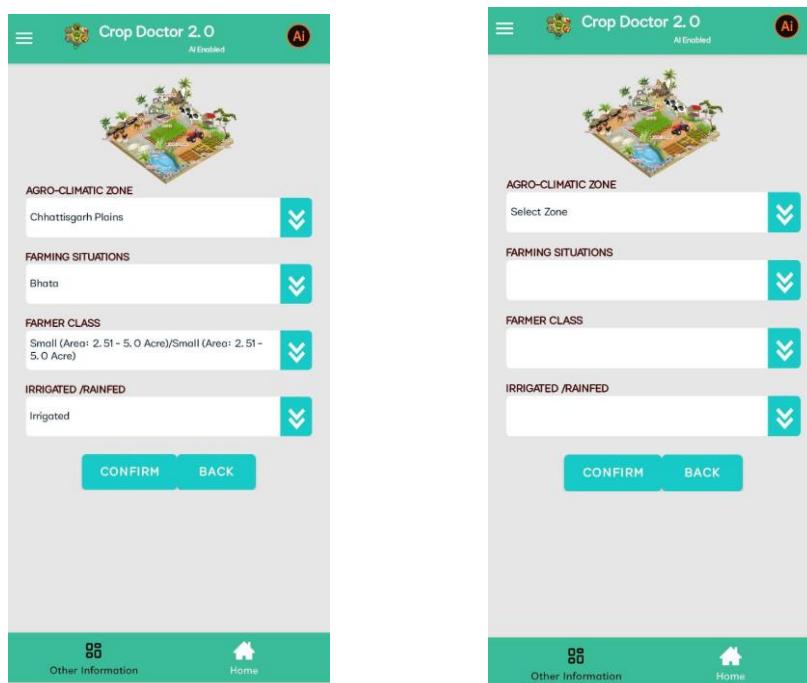
Expert Profile (Left Screenshot)	Expert Profile (Right Screenshot)
Dr. Nikhalesh Kumar Choube Professor / प्रोफेसर Agronomy / शस्य विज्ञान 40 Years/ वर्ष Department of Agronomy, 9977147301 Raipur / रायपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़	Dr. Devendra Kumar Dewangan SMS / विशेषज्ञ कल्पना विभाग Agronomy / शस्य विज्ञान 20 Years/ वर्ष KVK, Jashpur, 9630086434 Jashpur / जशपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़
Dr. GAYA PRASAD AYAM Asstt Professor / सहायक प्राफेसर Soil Science and Agricultural Chemistry / मृदा विज्ञान 16 Years/ वर्ष Department of Soil Science and Agricultural Chemistry, 940635672 Raipur / रायपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़	Dr. Chandra Mani Dev Asstt Professor / सहायक प्राफेसर Agronomy / शस्य विज्ञान 20 Years/ वर्ष College of Agriculture & Res. Str., Jashpur, 942559280 Jashpur / जशपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़
Dr. Sanjay Kumar Patil/ डॉ. संजय कुमार.. Professor / प्रोफेसर Soil Science and Agricultural Chemistry / मृदा विज्ञान 37 Years/ वर्ष Department of Soil Science and Agricultural Chemistry, 9424283860 Raipur / रायपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़	Dr. Laxmi Singh Asstt Professor / सहायक प्राफेसर Agronomy / शस्य विज्ञान 0 Years/ वर्ष College of Agriculture & Res. Str., Jashpur, 0691848096 Jashpur / जशपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़
Dr. RAVI SHREY Asstt Professor / सहायक प्राफेसर Agricultural Economics / कौशिक अर्थशास्त्र 5 Years/ वर्ष Department of Agricultural Economics, 8253077734 Raipur / रायपुर Hindi/ हिन्दी, English/ अंग्रेजी, Chhattisgarh/ छत्तीसगढ़	

2.5.9 Model Farming

Instructions: This unique feature of “**CROP DOCTOR 2.0**” is to provide online advice for establishment of high income generation agriculture farm based on location, farming situation and availability of resources like irrigation, soil type etc. While registration, Farmer provide the information about the field condition, soil type, land type and other details and based on the details “**CROP DOCTOR 2.0**” provide the suitable model for his farm, which can increase the income of the farmer. A message containing all advice sent to his mobile.

For purchasing products this steps are follow:-

- 1. Select Agro-Climatic Zone:** - Select any your zone like Chhattisgarh Plains, Baster Plateau.
- 2. Select Farming Situation:** - select your farming situation like what type of soil you used for farming.
- 3. Choose Farmer Class:** - select your farming area in Acre.
- 4. Irrigation Type :-** Choose medium of irrigation you used means irrigated and Rain Fed



5. Results: - you get results regarding your selection and also you can get results in mobile through sms.

The screenshot shows the 'MODEL FARMS ELEMENT' app interface. At the top, there is a green header bar with the title 'MODEL FARMS ELEMENT', a small logo, and an 'AI Enabled' button. Below the header is a 3D perspective view of a farm with various agricultural components like fields, a pond, and animals. Underneath this is a vertical list of 18 items, each with a number and a description in English and Hindi. At the bottom of the list is a teal-colored button labeled 'GET IN SMS'.

1.	pulses/दालों
2.	Biogas/बायोगैस
3.	farm pond /तालाब
4.	vermiculture/कृमि
5.	Cow/गाय - (2 Nos.)
6.	vegetables/सब्जियां
7.	fisheries /मछली पालन
8.	Goat/बकरा - (10 Nos.)
9.	ducks/बतख - (20 Nos.)
10.	Nadep pit /नाडेप गड्ढे
11.	nursery raising /नर्सरी
12.	drip irrigation /टपकन सिंचाई
13.	lac/sericulture/लाख / रेशम उद्योग
14.	Poultry birds /पोल्ट्री पक्षी - (20 Nos.)
15.	stylo grass on bunds /स्टोइल घास मेढ़ों पर
16.	Land levelling/bunding/भूमि समतल करना / बांधना
17.	fruit trees/ Multi-Purpose Trees (MPTs) on bunds /फल के पेड़ / बहुउद्देशीय पेड़ (MPTs)
18.	vetiver grass strip across the slope and/or on bund/ ढलान पर / या मेढ़ों पर घास घास पट्टी

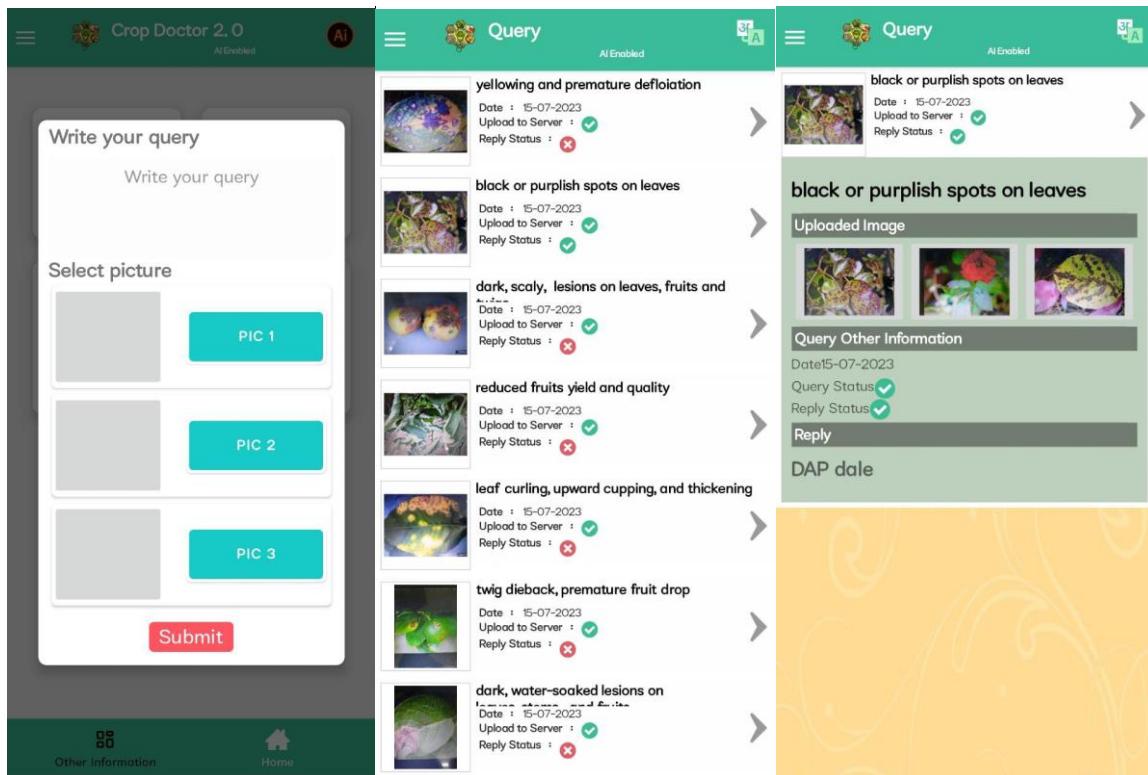
GET IN SMS

2.5.10 Send Query

Instructions: Here you can ask any question through uploading images. Also you can see your send query, and also you get replied.

For using it this steps are follow:-

4. **Ask question:** - Ask any question and upload images regarding your question.
5. **Sent Query:** - Here you get list of sent query.
6. **Replied:** - Here you get replied solution for your query.



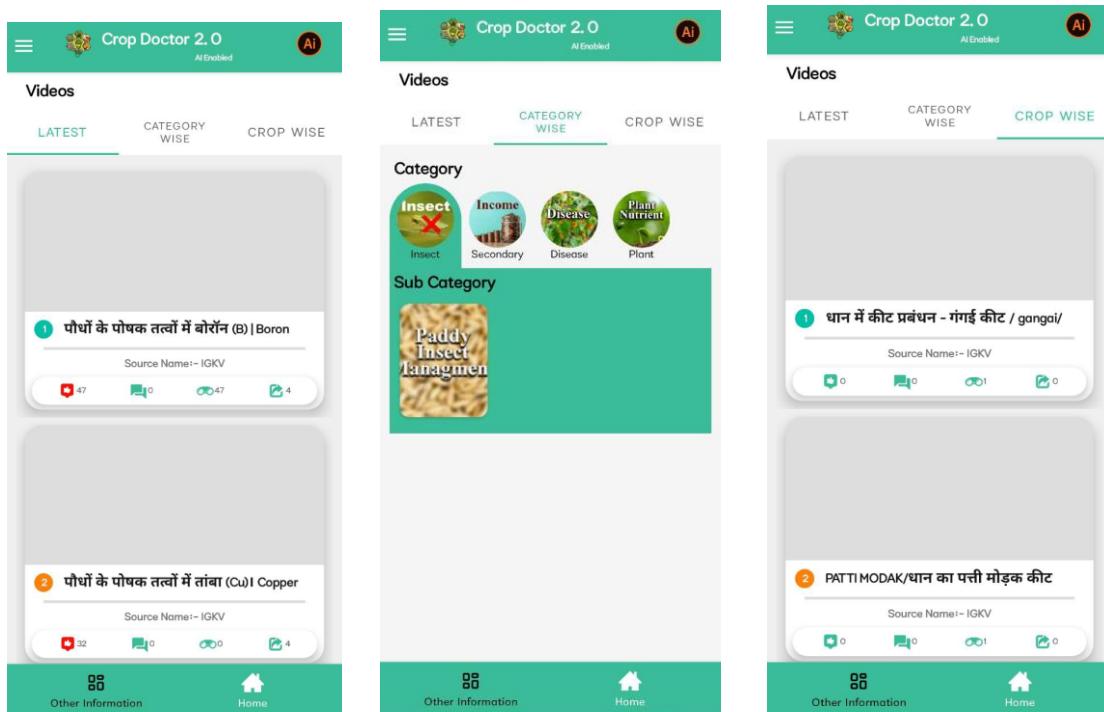
2.5.11 Expert Advice Videos

Instructions: It provide you expert advice through video.

For using this functionality this steps are follow:-

- Category Wise Video:** - Select a crops categories, regarding categories you get related subcategories.
- Subcategory Wise Video:** - on selecting your subcategories you get related video of experts.

Here you can also see Latest videos and Crop wise.



2.5.12 Agriculture News

Instructions: It provide Agriculture news.

