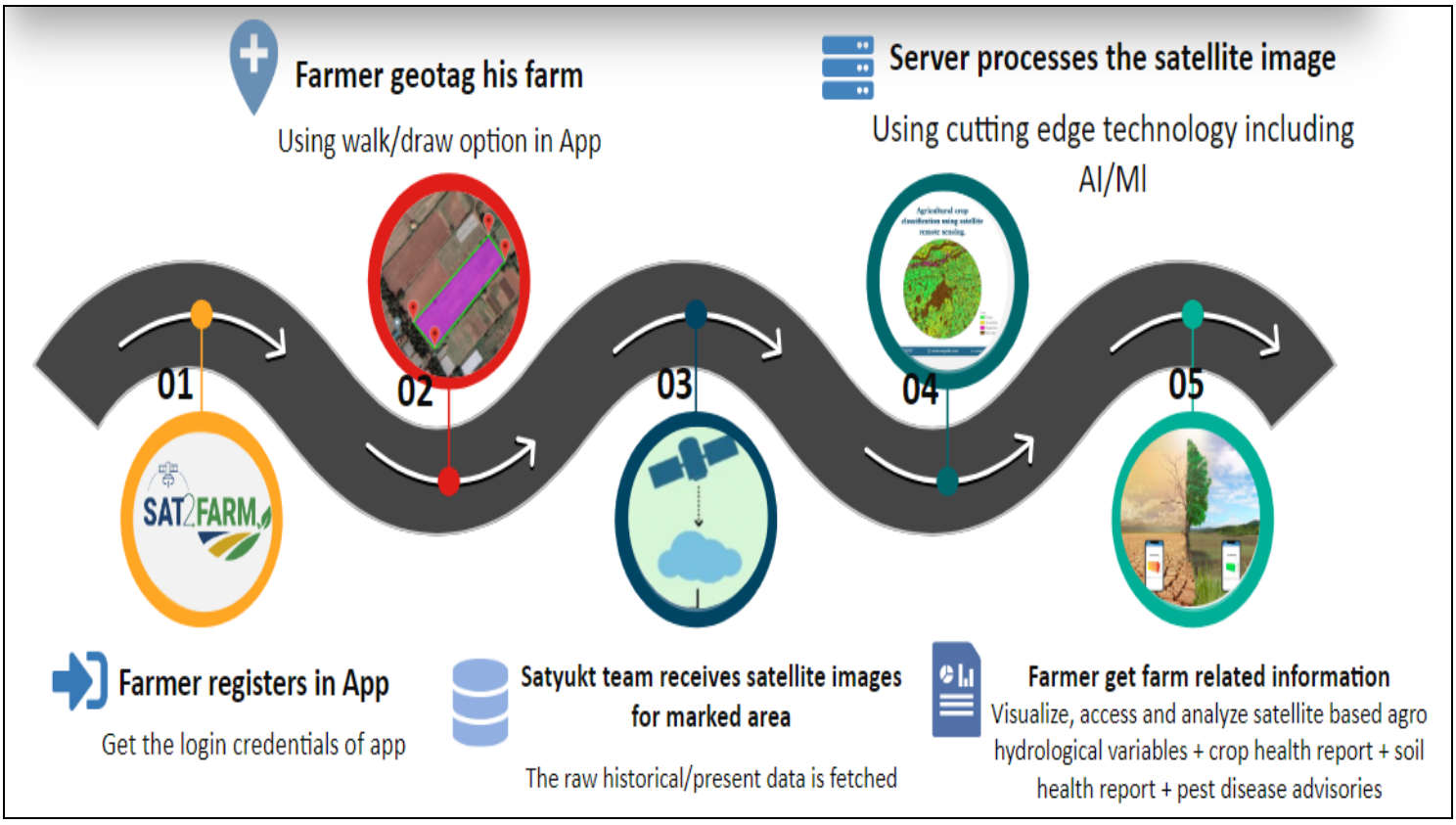
Satyukt Analytics

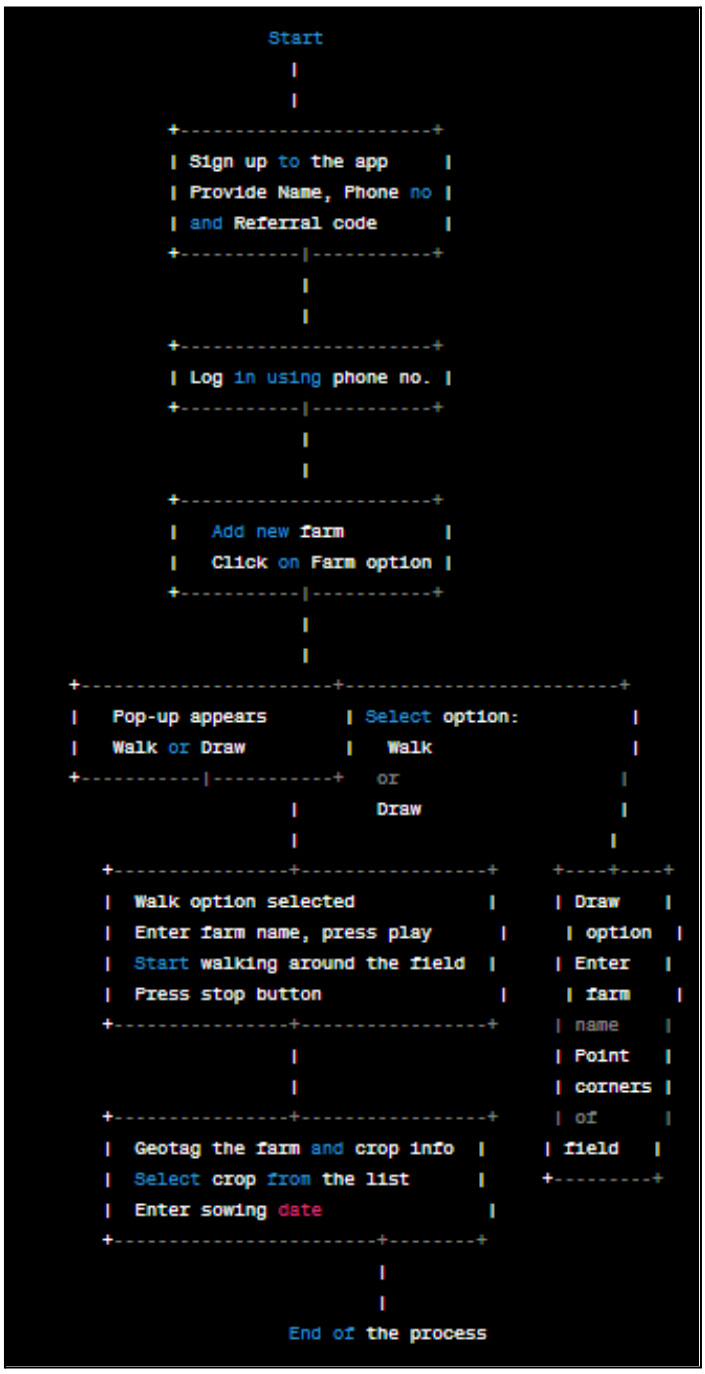
Sat2Farm: Increasing farm income by using satellite remote sensing

Satyukt has developed a mobile app, sat2farm which allows farmers to just walk around their farm - geotag it and start getting the regular information specific to their farm.

Sat2Farm mobile: To easily access and visualize the satellite data over any farm on the globe, Satyukt Analytics has developed a mobile application named Sat2farm. The data availability at all times for each of the farmers at their fingertips certainly strengthens the decision making process and ultimately optimizes the resource utilization as a whole.

How Sat2Farm App works:





1. Geotagging: Land area mapping and measurement:

1. Sign up to the application by providing the name, phone number and referral code.

2. Please use the phone number provided as the username to login and use the services

3. To geo-tag a farm, Click on the farm option under the Add new section

4. On the Crop calendar-up having two options click on a. Walk or b. Draw option

5. In the walk option, enter the farm name, press on the play button and start walking around the field and get to the same place from where you started. Then press the stop button.

6. In the draw option, enter the farm name and point the corners of the field.

7. The farm will be geotagged and a Crop calendar appears. Then select the crop sown or to be grown from the list provided and also enter the sowing date.

Understanding of the colour coding pattern:

The different shades of red, blue, and green are used to represent varying levels of deficiency, excess, and sufficiency, respectively. Here is a general guideline for what the shades might represent in each case:

Deficiency:

Lighter shades of red are often used to indicate a mild deficiency, where the variable or parameter being measured is below the normal range, but not severely so.

Darker shades of red may be used to indicate a more severe deficiency, where the variable or parameter is significantly below the normal range.

Excess:

Lighter shades of blue may be used to indicate a mild excess, where the variable or parameter being measured is above the normal range, but not significantly so.

Darker shades of blue are often used to indicate a more severe excess, where the variable or parameter is significantly above the normal range and may pose health risks.

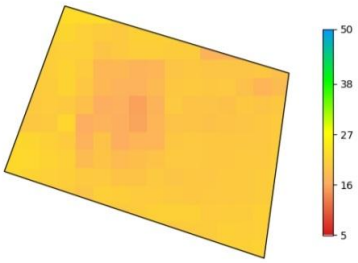
Sufficiency:

Lighter shades of green may be used to indicate a state of sufficiency, where the variable or parameter being measured is within the normal or desirable range.

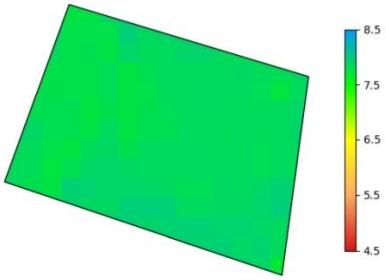
Darker shades of green may be used to indicate a state of optimal health, where the variable or parameter is at the upper end of the normal or desirable range, but not excessive.

It's important to note that the specific shades used to represent deficiency, excess, and sufficiency may vary depending on the context and application. Different color coding systems may use different shades, so it's important to consult the key or legend provided to properly interpret the meaning of each color.

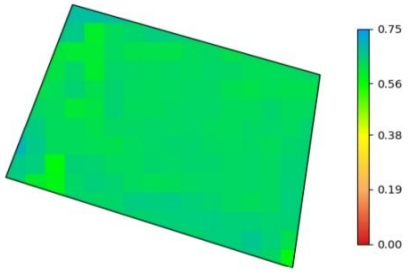
2. Soil test reports



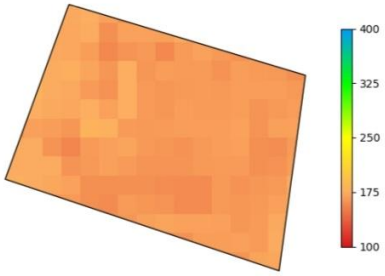
Nitrogen



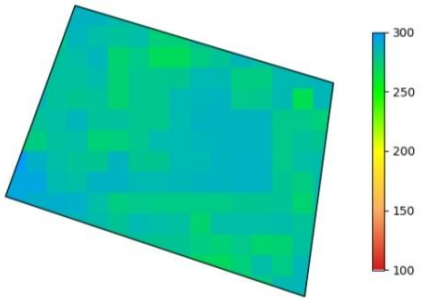
Potassium



Phosphorus



Soil Organic Carbon

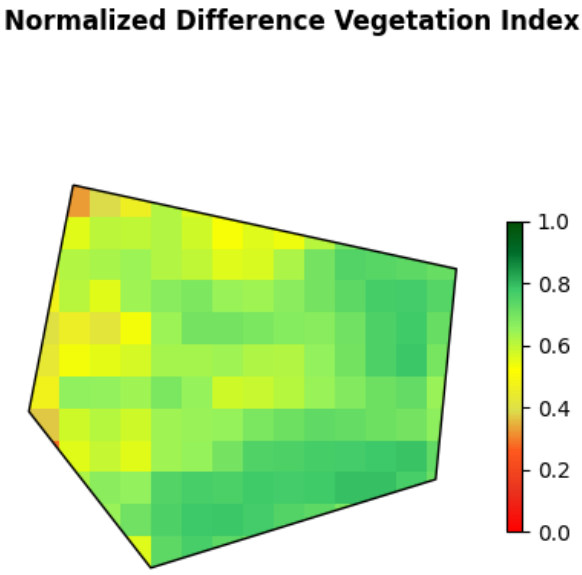


pH

Soil test reports:

Satellite-based soil testing is a technique for accurately assessing nutrient levels in soil. Using satellite images, we determine the nutrient content of land without the need for extensive field testing. Nitrogen, phosphorus, potassium, soil organic carbon, and pH are some of the key parameters that can be measured through satellite-based soil testing. By accurately assessing nutrient levels, farmers can optimize their use of fertilizers and other soil amendments to achieve maximum crop yields while minimizing environmental impact. Satellite-based soil testing can help reduce the cost and labor associated with traditional soil testing methods. It is also a non-destructive and non-invasive technique that does not require physical sampling of soil. The use of satellite-based soil testing can help monitor changes in soil fertility over time, enabling farmers to adjust their practices accordingly. Overall, satellite-based soil testing has the potential to revolutionize the way farmers assess and manage soil fertility, leading to more efficient and sustainable agriculture practices.

2. Crop health monitoring: The Normalized Difference Vegetation Index (NDVI) is a commonly used index to measure the amount and health of vegetation in an area. The NDVI values where higher values indicate healthier and more abundant vegetation.

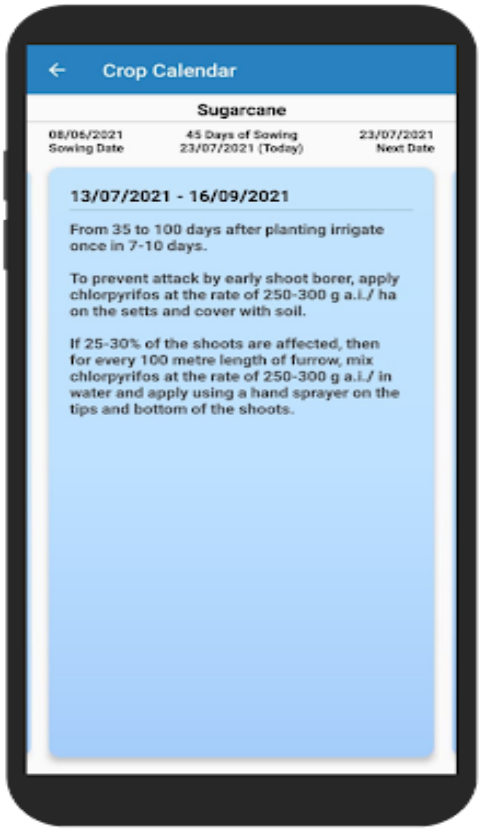


To color code the NDVI index, we use a scale of shades of red and green, with red representing poor growth and green representing good growth. A color gradient is created where the NDVI values from -1 to 0 are assigned shades of red, representing poor growth or areas with little to no vegetation. The NDVI values from 0 to +1 are assigned shades of green, representing good growth or areas with healthy and abundant vegetation.

The specific shades of red and green used can vary depending on the context and application, but generally, darker shades of red can indicate very poor growth, while lighter shades of red can indicate moderate poor growth. Similarly, darker shades of green can indicate very good growth, while lighter shades of green can indicate moderate good growth.

This color coding scheme can be useful for visualizing the health and abundance of vegetation in an area. It also helps to identify areas that may need additional attention or management to improve vegetation growth and health.

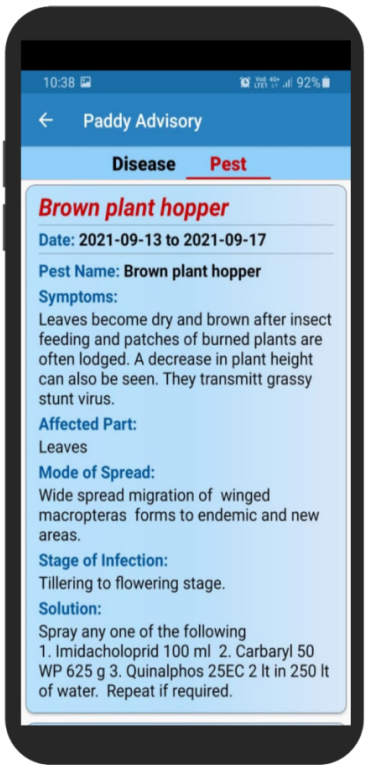
3. Scientific crop calendar: It provides farmers with comprehensive information on the best practices for cultivating different crops. The feature includes detailed guidelines on crop selection, seed variety, soil preparation, irrigation, pest management, and harvesting.



With the Crop calendar, farmers can easily access reliable and up-to-date information on the most effective techniques for maximizing crop yields and ensuring high-quality produce. The feature covers a wide range of crops, including cereals, vegetables, fruits, and cash crops, and provides specific recommendations tailored to the local climate, soil conditions, and other factors that may affect crop growth.

The Crop calendar feature is user-friendly and easy to navigate, allowing farmers to quickly find the information they need. The guidelines are presented in a clear and concise format, with detailed illustrations and step-by-step instructions. Farmers can also customize the recommendations based on their specific needs and preferences, making it a highly adaptable and personalized resource.

4. Forewarning of pest/disease: is a powerful tool for helping farmers identify and mitigate the risks of pests and diseases affecting their crops. Using real-time data and predictive analytics, the feature provides farmers with early warnings of potential pest and disease outbreaks in their area. With Pest and Disease Forewarning, farmers can stay ahead of the curve by monitoring local weather conditions, crop growth patterns, and other factors that may impact pest and disease

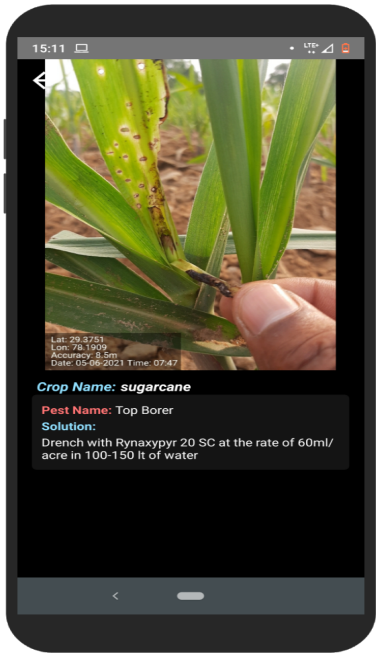


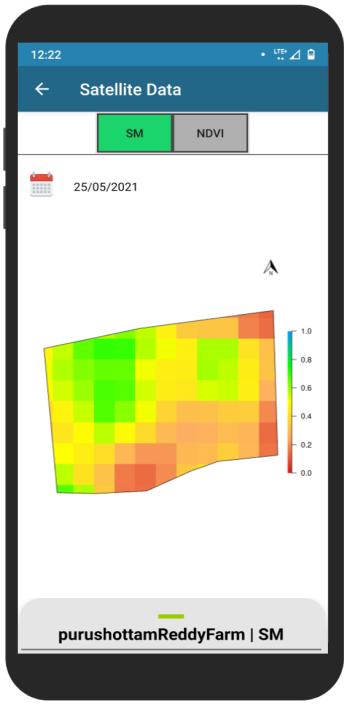
populations. The feature uses advanced algorithms and machine learning models to analyze this data and generate accurate forecasts of pest and disease activity, allowing farmers to take proactive measures to protect their crops.

The feature provides detailed information on the specific pests and diseases affecting different crops, along with recommended treatments and preventive measures. Farmers can access this information in real-time through the app, allowing them to respond quickly and effectively to any potential threats to their crops.

The Pest and Disease Forewarning feature is designed to be user-friendly and accessible, even for farmers with limited technical expertise. It provides clear and actionable insights, presented in a visually appealing and easy-to-understand format.

5. Identification of pests and disease infestation: Through the camera feature available in the application, the farmers are provided timely advice. Helps the farmers in rightly identifying the type of infestation or infection and get data on the right pest and disease control mechanisms to be used to avoid considerable loss in yield and quality of the produce.

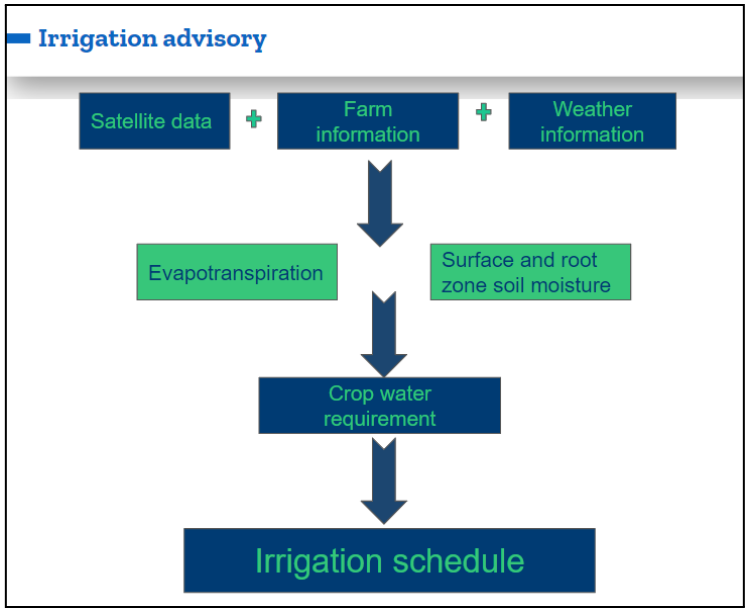




6. Satellite based soil moisture estimation: Helps the farmers in locating the potential surface water available for the crop uptake in their entire field and in deciding the type of crop that can be grown in the soil. It also helps the farmers in deciding the right irrigation water management strategies and the right system of irrigation to be used considering the available water content over a period of time.

To color code the SM index, we use a scale of shades of red and green, with red representing poor SM and green representing good SM. A color gradient is created where the SM values from 0 to 0.4 are assigned shades of red, representing poor moisture or areas with little to no moisture. The SM values from 0.4 to +1 are assigned shades of green, representing good moisture or areas with healthy and abundant moisture.

7. Optimal irrigation requirement estimation: Determine whether a particular soil is moisture deficient or not and helps in planning the irrigation needs for obtaining satisfactory yields. The irrigation advisory provided will not only help the farmers in planning their irrigation needs but will also benefit the farmers by ensuring minimum wastage of water resources ensuring more yield per drop of irrigation water.



7. Weather Forecast: The feature provides up-to-date information on local weather conditions, including temperature, precipitation, wind speed, and humidity, along with extended forecasts for the coming days and weeks. With Weather Forecast, farmers can make informed decisions about when to plant, irrigate, fertilize, and harvest their crops, based on the latest weather data. The feature also provides alerts and notifications for severe weather events, such as storms, droughts, and heatwaves, allowing farmers to take necessary precautions and minimize risks to their crops. The feature is designed to be user-friendly and accessible, even for farmers with limited technical expertise. It provides clear and actionable insights, presented in a visually appealing and easy-to-understand format. Farmers can access the weather information through the app, enabling them to plan and adjust their farming operations from anywhere and at any time.

For more information or details,

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