Question 1:

Is this free or paid ?

● Paid, The LSWI and NDVI are Complementary services, we are charging only for rest of the features

Question 2: (connected with first Question 1)

What are the charges ? 750 INR per acre per season, whereas one season is less than or equto 6 months.

Question 3:

How are we measuring soil moisture ?

Soil moisture is measured at surface level (typically around a few cm/inches) using satellite data from microwave wavelength. Active radar is SAR /

Root zone soil moisture (Not part of sat2farm, but can be done upon requirement for which will be charged separately)

GLBES

QIf the soil has a layer of leaf or anything else, can we still get soil moisture

 Soil moisture/ soil roughness/ vegetation- incidence angle

 For thin layer over the soil it will not get impacted, and we can get soil moisture

Question 4:

How accurate is soil moisture data ?

Soil moisture is tested in several parts of India, Australia, New Zealand, France and England. It has about 80 % accuracy. We have published international research articles on the same topic.

(Reference to Dr Sat Kumar Google scholar profile:

 https://scholar.google.com/citations?user=L7RClLcAAAAJ&hl=en&oi=ao)

Question 5:

What is the source of weather data ?

The weather data is provided by a third party. (Visual crossing–Please do not disclose in any document)   more than 80% for next 3 days

Question 6:

What is the accuracy of weather data ?

Weather data is provided by a third party, it is accurate about 80% and more and it is about 80% accurate for at least for the next 3 days. It is a bit difficult to predict rainfall in the monsoon season in India as clouds can move quickly.

Question 7:

Is it possible to do soil health analysis using satellites ?

Yes, we have developed an algorithm using satellite data with the help of past soil testing. We provide the following information:

● N

● P

● K

● Soil organic carbon

● pH value

We have filed the patent for the same.

Question 8:

Have we tested soil health analysis ? How accurate is this ?

Yes, we have used our model in different regions all over India . Accuracy is about 85-90%

Kindly note that accuracy may vary depending upon various factors e.g. farming practices, climatic conditions, etc.

Question 9:

How is the validation of soil health data performed?

We have collected about 20,000 samples across India and validated satellite results by using this data. We used 60% for validating..40% for training the model

Question 10:

Can a person not having farming experience do farming by following our advisories ?

Yes, a person not having experience can also get hands-on experience if they follow the guidelines provided in the app.

 We provide a Crop Calender which gives step wise advice from field preparation, sowing to harvest. We also provide Fertilizer application, Pest and disease Forecast, irrigation scheduling.

Question 11:

Can you suggest which crop to grow, based on the crops in the district?

Currently we are not providing this information. With our technology it's doable but we avoid considering the market risks and unexpected natural environmental conditions (Production risk), The results may vary despite our suggestions. So, we do not prefer to suggest.

Question 12:

Soil moisture detection and NPK feature measured for terrace garden using satellite. Generally it is not feasible. We require an area of at least 30 m x 30 m (about quarter of an acre for NDVI, 60 m *60 m for SM). The crop health and soil moisture can be provided if it matches the size requirement, but not soil health.

Question 13:

In how much time can we get the image advisory?

Within maximum one working day. Usually it takes 3-4 working hours for us to process and provide the image based diagnosis.

Question 14

Is there any Iphone version of our app?

Yes.

Question 15

For what all crops (few/all) we are providing pest and other advisories (all app features)?

We currently provide advisories for more than 100 crops in India and have also extended our services to other countries. If a specific crop advisory is required, our team will prioritize it, though the time frame may vary depending on the crop type.

Question 16

What is the minimum area our app can measure?

Quarter of an acre is the minimum requirement to provide satellite data based information. Other information can be at any size. The satellite data is at 10 m spatial resolution. As a rule of thumb the field of size 30 m x 30 m (about quarter of an acre) is good to have.

Question 17

Are we providing Organic Advisory for Pest and Disease Attack

When uploading an image, clients can specify in the comment section if they prefer an **organic solution** by including a remark such as "Organic." Our team will provide pest and disease management recommendations based on organic methods if this preference is indicated.

Question 18

Is the services available for Coffee and Tea crops (as many were from Coorg)

Most of the services are available for Coffee and Tea. Only satellite data based services are not available if the crop is grown under shadow and the canopy is not visible from top.

Question 19 .

Can they market/Advertise their agriculture products through our app

In Sat2Farm, we do not promote any agricultural input company's products. However, we can offer an API for integration into their app.

Question 20

Can they contact or call us for any enquiry

Yes, they can Call us. Language specific contact details are already mentioned in the Sat2Farm.

Question 21

Do we get calls from your technical team (Agri experts)?

We may contact users for some clarification. For example if a user uploads an image for pest/disease advisory the backend team may contact them if the uploaded image is not clear or more information needed.

Question 22

Through NDVI Data can we know the pest and disease attack ?

NDVI indicates crop health by measuring leaf greenness, which reflects the presence of chlorophyll pigment. For pest and disease monitoring, we offer features like P&D forewarning and image-based advisory.

While NDVI itself doesn't directly detect pests or diseases, it plays a crucial role in indicating the effects of such attacks. A decline in NDVI values can signal early stress in crops, prompting closer investigation for pests or diseases. Once a pest or disease has been identified, NDVI can help monitor its spread over time by comparing NDVI values from different dates. NDVI can also help in treating effectiveness as after applying pest or disease control measures (organic or chemical), NDVI can be used to assess whether vegetation health is improving or not.

Question 23:

What are the factors which affect soil moisture accuracy ?

The soil moisture accuracy depends on the soil type, type of vegetation and type of irrigation.

Q What are the factors which affect irrigation advisory accuracy ?

The irrigation advisory depends on Crop type, crop stage, crop coefficient, Potential ET

Amount of irrigation- in mm

frequency

Question 24:

What are the factors which affect weather forecast accuracy ?

The accuracy varies based on the number of ground based weather stations available. The region with dense networks may have better accuracy than the one with less networks.

Question 25:

Are you able to provide data for thick plantations like Banana, Mango, Coconut?

The information such as weather forecasts, crop health, pest/disease advisory are available. The accuracy of soil health analysis, soil moisture will be relatively low in plantation crops.

Question 26:

Can farmers get the idea of what are the crops being grown and how much in nearby areas so that they can get the idea of a market? Which crop is present in abundance in the market so that they can plan accordingly which crop they need to sow ? Market prediction Analysis

Currently we are not providing this information. With our technology it's doable but we avoid considering the market risks and unexpected natural environmental conditions, The results

may vary despite our suggestions. So, we do not prefer to suggest.

Question
   Can we provide the services in IFS (Integrated farming System)

Question 27:

How often does the soil moisture get updated on the app ?

Once in 12 days.

Question 28:

What happens when there is cloud cover ? Do you still provide advice for soil moisture and NDVI ?

Soil moisture is derived from microwave data, which is unaffected by cloud cover and is available every 12 days. In contrast, NDVI is obtained from optical data, which is not accessible during cloud cover.

Question 29:

Technology behind irrigation scheduling

We provide irrigation scheduling based on following methods:

(i) Satellite SM based method: We compute the irrigation requirements by using the satellite soil moisture data and compare with maximum allowable deficit which depends upon the crop type and stage.

(ii) ET based method: We use weather forecast data to compute the PET and depending upon the crop and stage, compute the irrigation water requirements.

We use mainly ET based as SM satellite pass in once in 12 days

Question 30:

Feedback from farmers on crop profiles including cotton, soybean, maize, sugarcane and chana

Farmers are happy with the calendar as we got the feedback from chickpea from Adilabad, Sugarcane from Uttar Pradesh

Question 31:

Is it possible to backfill geo-tagged data already existent in KML format on the app

We provide historical data outside of the app. However, we can supply the 2016 data upon request on a paid basis.

Question 32:

What are crops available in the sat2farm app?

We currently provide advisories for more than 100 crops in India and have also extended our services to other countries. If a specific crop advisory is required, our team will prioritize it, though the time frame may vary depending on the crop type.

Question 32:

Can we provide the data for land Undulation and terrain if there is any on the farm ?

Using free and open source data we will be able to provide this information at 30 m spatial resolution DEM-Digital Elevation Model

Question 33:

What is the criteria to say, how much canopy is maximum for the estimation of Soil moisture Data ?

The rule of thumb is that if the crop is shorter than 5 feet, we will be able to provide soil moisture, above that the uncertainty in soil moisture is high.

How much water we have based on kgm per msquare.

Question 34:

How will they, rather from where should they have access to the Application and web portal once they are ready/asking for it to be used on a trial basis ?

Mobile application is available from play store, the web application we can provide trial if required. Anyone can schedule a demo through Calendly on our website. From the link https://satyukt.com/index.html one can schedule an appointment.

Question 35:

What are the accuracy levels of weather data, NDVI, SM and Soil nutrient analysis?

- **Soil moisture** is tested in several parts of India, Australia, New Zealand, France and England. It has about 80 % accuracy. We have published international research articles on the same topic.

(Reference to Dr Sat Kumar Google scholar profile:

 https://scholar.google.com/citations?user=L7RClLcAAAAJ&hl=en&oi=ao)

- **Weather data** is provided by a third party, it is accurate about 90% and more and it is about 98% accurate for at least for the next 3 days. It is a bit difficult to predict rainfall in the monsoon season in India as clouds can move quickly.

- **Soil nutrient analysis**: Accuracy is about 85-90%. Kindly note that accuracy may vary depending upon various factors e.g. farming practices, climatic conditions, etc.

- **NDVI: measurements may be good, bad, or better**

Question 36:

How will NDVI help crops like vegetables when the NDVI data is updated after every 5 days ? (Asked by FPOs)

Although vegetable crops have shorter life cycles and faster growth rates, the 5-day interval still offers actionable insights into overall crop health, especially when combined with other data sources like weather forecasts, soil moisture, or irrigation for real-time monitoring.

NDVI functionality which enables you to know the health viability of your crops on the farm. This functionality is highly useful to you because it will help you take corrective measures early enough to forestall negative eventualities such as stunted growth and poor yield arising from unhealthy crops on the farm.

Question 37:

Is it possible to update the satellite base app in the application ?

We are using Google's basemap, whenever they update it will get updated . We use this only for location purpose

Question 38:

Hectares and hectares of citrus are covered like this with nets as these photos indicate here in SA. How well will the Sat2Farm app provide all the features for these farmers using nets to cover their citrus crop mainly for protecting against hailstones etc. Will satellites be able to correctly determine soil health etc?

When citrus crops are grown in a polyhouse, providing satellite data such as soil nutrients, soil moisture, and NDVI is challenging. However, using a light mesh over the crops for protection from animals or hailstorms does not significantly affect satellite data, especially for soil health and other satellite-based features.

Question 44:

Do you have any data on the Carbon emissions of Puddled rice fields versus Drill Down Rice Fields?

We have developed an algorithm to estimate carbon emissions from puddled fields as well as from fields managed with an alternate wetting and drying method.

Question 45:

How do farmers get the Carbon Credit to their Bank accounts?
We specialize in the **estimation of carbon emissions** through our MRV process, which involves monitoring, reporting, and verifying carbon reductions. However, the actual **crediting and transfer of carbon credits to farmers' bank accounts** is typically handled by the organizations or platforms that manage the carbon credit programs.

Farmers usually need to register with such platforms, where, after verification of carbon reductions, the credits are issued and can be monetized. For specific details on how farmers can receive payments, it's best to consult the organization managing the carbon credit scheme.

Question 46:

What is the SOP (Standard Operating Procedure) to register for availing Carbon Credit by Farmers under Carbon Sequestration?
Farmers usually need to register with such platforms, where, after verification of carbon reductions, the credits are issued and can be monetized. For specific details on how farmers can receive payments, it's best to consult the organization managing the carbon credit scheme. Each organization has a specific SOP to register.

47.When does GOI plan to implement it?

The Indian government plans to implement its carbon credit trading program through the Indian Carbon Market (ICM), which is expected to launch soon. Key developments include a draft procedure issued by the Bureau of Energy Efficiency (BEE) in late 2023 for the carbon credit trading mechanism. The Ministry of Environment, Forest and Climate Change will oversee the program by setting annual GHG reduction targets.

48. Are the Coffee planters eligible for Crop Insurance, if they lose crops to such bad Weather conditions
Yes, coffee planters in India are eligible for crop insurance under certain schemes, especially when they face crop losses due to adverse weather conditions. One such scheme is the **Pradhan Mantri Fasal Bima Yojana (PMFBY)**, which covers several crops, including perennial crops like coffee, tea, and rubber, for weather-related losses.

We are closely working B2B (insurance companies) by providing Sat4risk report

49. How can Satyukt Technology help these farmers in distress?
Ans. In Sat2farm we are providing few forecasting and Standard POP.

51. Can I add different gps points to add a bigger farm area?

Indeed, three coordinates are the bare minimum required to geotag a farm; larger farms can add more coordinates.

Once the farm is geotagged, the coordinates cannot be modified in the app for that farm.

52. Is it possible to add a farm without a crop sown in it, if yes what option needs to be selected on sat2farm.

Yes, it is possible to add a farm without a crop sown. Our application includes a "barren land" option for this purpose. However, if this option is selected, certain features such as the crop calendar, pest & disease forewarning, and soil recommendations for specific crops will not be accessible.

53. Can French language integration be done?

The application already supports the French language. However, advisories, including pest & disease forewarning and crop calendar, are currently available for only a few crops in French. Apart from French, other International languages are also available. If required for any International Crops, please consult the concerned Operations team.

54. Can Disease examples have pictures?

Yes, the disease forewarning is provided with accompanying images for better understanding.

55. Can Few services be on a freemium basis? People can try and then buy the services.

No, We are not providing any services on a freemium basis. Although there are some complementary features (such as soil moisture and NDVI) available if the services are unlocked on the app after payment.

57. Can I Download a soil report?

The app provides an option for users to download reports in PDF format.

58. Is the android map more updated? Why can't we see landmark names?

We use **Google Earth maps** in our application, so all map features and updates are directly aligned with those provided by Google Earth. Satyukt can not modify any of the basemap features.

59. Is every farm paid separately?

Each farm requires a separate payment, and the app charges on a per-acre, per-season basis.

60. How can I access older data? Like last year's data, how can I compare crop production volume?
We can supply such old data (a year) upon request, but it won't be directly available through the app. Please be aware that this service will incur additional costs.

61. Can I also get a real time price trend of various crops?
Currently we are not providing this information. With our technology it's doable but we avoid considering the market risks and unexpected natural environmental conditions, The results may vary despite our suggestions. So, we do not prefer to suggest.

62. Can I get data for how much water shall be required per acre for a specific crop for maintaining good moisture.

The app provides irrigation advice based on the specific requirements of the crop and the available moisture content in the farm. This helps users understand the moisture needs for optimal crop growth.

63. How accurate is the data in the report?
   88- 92 %

- **Soil moisture** is tested in several parts of India, Australia, New Zealand, France and England. It has about 80 % accuracy. We have published international research articles on the same topic.

(Reference to Dr Sat Kumar Google scholar profile:

 https://scholar.google.com/citations?user=L7RClLcAAAAJ&hl=en&oi=ao)

- **Weather data** is provided by a third party, it is accurate about 90% and more and it is about 98% accurate for at least for the next 3 days. It is a bit difficult to predict rainfall in the monsoon season in India as clouds can move quickly.

- **Soil nutrient analysis**: Accuracy is about 85-90%. Kindly note that accuracy may vary depending upon various factors e.g. farming practices, climatic conditions, etc.

- **NDVI:**

64 . Soil Health report duration should not be old (Minimum 1 week old is adjustable)

Soil reports are typically generated when the land is barren, as clear skies are essential for accurate results. During the **Kharif season**, frequent rain and cloud cover make it challenging to obtain recent data, so reports are often based on earlier dates. Rest of the year, we can expect the recent data.

65. How to unlock farms from web application

The farmer can make a payment to the client, who can then unlock the services from the portal using their portal credentials.

When the client signs into the portal with their credentials, they can view the farms associated with their account. They can filter farms by name or farm ID and unlock services by clicking on the lock icon for the selected farm.

White labeling Related Questions from Advick

66. Technology used for Android App and Version.

Language: Java,

IDE: Android Studio (versions keep changing)

Target Audience: Android 8 to Android 14

67. Technology used for IOS applications and versions.

Language: Swift (versions keep changing),

IDE: Xcode (versions keep changing).

68. In which technology/framework APIs are created which communicate with mobile.

Framword: Flask API

Language: Python

69. Database used for data management and its details.

MySQL

70. Server/host details (For backend)

AWS

71.Git repository if any

GitLab (Private)

72.Which third party APIs are used for Satellite data

Earth Engine

73. Is there any admin portal to see all data ?

Sat2Farm Webportal (https://sat2farm.com/)

74. Other Sources

Weather: Visual Crossing

Notifications: Firebase

Payment Gateway: Razorpay

75. Please provide the snapshot details of tests conducted and their results, any approvals or authentication from government agencies/research institutions/private bodies to support the accuracy claims.

Patent have been filed

We have submitted our accuracy claims together with our patent application. If necessary, we will request for additional approvals after it has been granted.

76. What may be the possible exceptions which Api may throw back. so that we can handle those exceptions in our interface.

Immediately after adding a farm, "data under process" message is displayed. The complete list of exceptions will be shared after payment.

77. How old satellite image dataset will be used for soil analysis?

Data will be collected for a maximum of six months from the last time the land was barren. If there is cloud cover in the area, it could prolong