TÉCNICO
UNIVERSIDADE
DE LISBOA

CROP *Auditing*

Interview Analysis

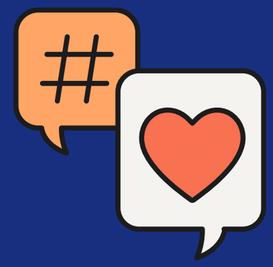
OUR PARTNERS

Besquare

VirtuaCrop

Instituto Superior Técnico

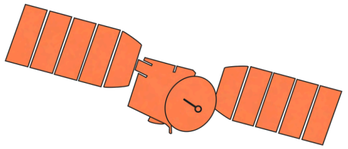
Interview Methodology



Before the Interview

During the Interview

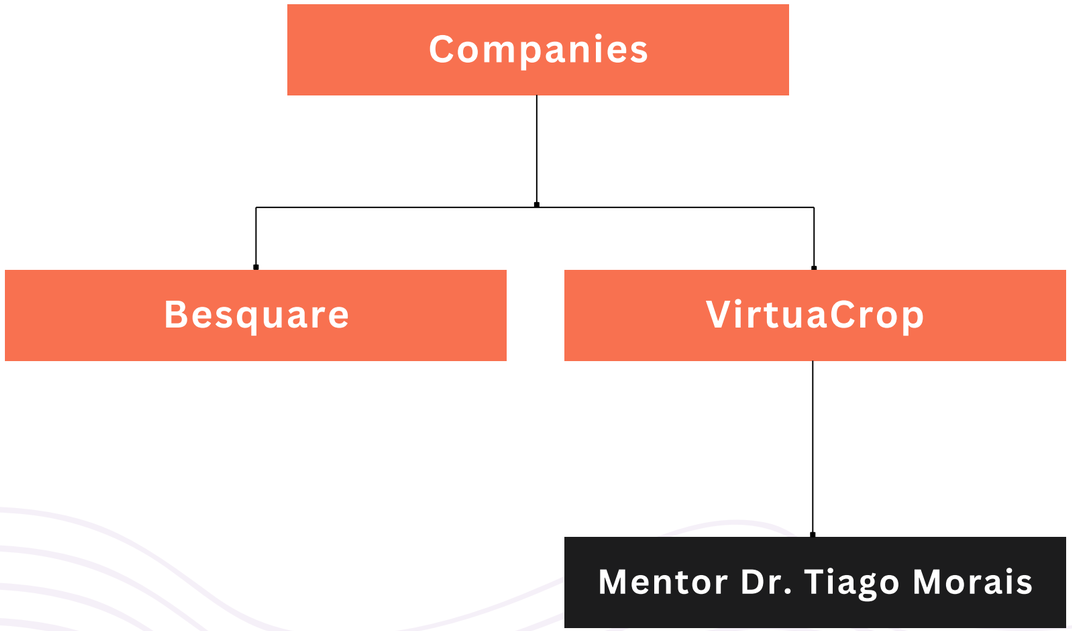
After the Interview



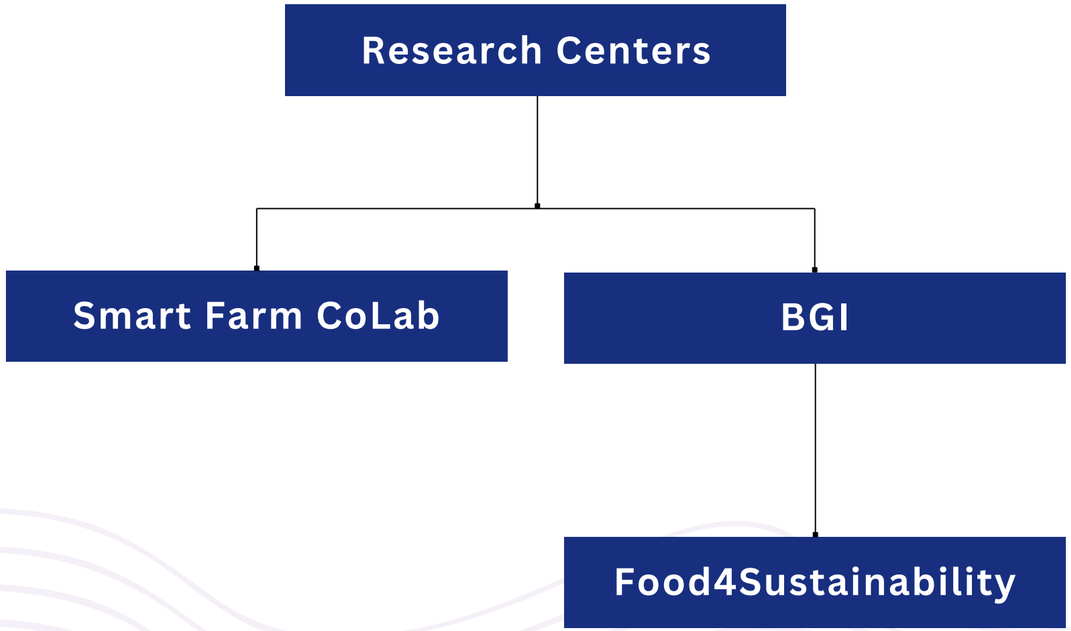
INTERVIEWS ...

Public Entities	Companies	Research Centers	Education
Play the role of regulating the sector, ensuring policies are followed, and guiding national strategies related to sustainability and development. They create the conditions needed for projects to be implemented.	Develop, adopt and operate practical solutions in the market. Turning innovations into real products, investing in technology, ensuring efficiency, and delivering services to customers.	Research Centers advance scientific and tech knowledge. They test concepts, validate methods and explore innovative approaches that can improve or complement the proposed solution.	Trains future professionals and integrates relevant knowledge into academic programs. It prepares students with skills needed by industry and connects theorectical learning with real-world challenges.

INTERVIEWS



INTERVIEWS

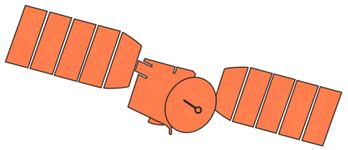

Research Centers
Smart Farm CoLab
BGI
Food4Sustainability

QUESTIONS - PUBLIC ENTITIES

The role of C.M.Sintra in agriculture

- Have you had the opportunity to see what our project is about? If so, how can our solutions be applied to your problems?
- What is the importance and biggest obstacle encountered in identifying exotic species? Which species are we dealing with?
- What would be the preferred approach for this monitoring? Are there any technical requirements that must be met for the effective execution of this task?
- What are the main concerns regarding the conservation status of riverbanks? Landslides, damage from natural causes? What consequences could they bring?
- How is cliff mapping carried out? And how is their protection secured? What are the shortcomings in these processes?
- In monitoring coastal habitats, what are the main objectives with seaweed? Harvesting, habitat maintenance, removal?
- What would be the availability of adopting new monitoring systems (cameras, sensors, etc.) to address these problems? Or is something more practical (drones), or autonomous, satellite-based, needed?

SINTRA



QUESTIONS - PUBLIC ENTITIES

The role of DGDR/IFAP in agriculture

- What are the biggest challenges currently faced in verifying cultivated area and proving crops on large farms?
- How are plantations currently audited, and what limitations do current methods have?
- Does DGADR/IFAP consider it relevant to integrate drones, satellite imagery, or ML as tools to support auditing?
- What would be the main technical or legal requirements for a solution of this type to be accepted as official evidence?
- Are there defined standards for image quality, measurement accuracy, or georeferencing?
- What are the main regulatory barriers to implementing autonomous technologies in agricultural auditing?
- What role could DGADR/IFAP play as a partner or facilitator in the adoption of solutions like this?

DIREÇÃO-GERAL DE AGRICULTURA E DESENVOLVIMENTO RURAL

IFAP Instituto de Financiamento da Agricultura e Pescas

QUESTIONS - COMPANIES

The role of Besquare in agriculture

- What is the company’s vision on the employment of technologies such as: drones, remote senors, machine learning, to monitor and audit agriculture?
- What technological and implementation road blocks can we find in data monitoring solutions in the agricultural sector?
- How do you evaluate the potential market for AI based solutions and analysis by satellite/drone in Brazil for the next three to five years?

besquare.

QUESTIONS - COMPANIES

The role of VirtuaCrop in agriculture

- Could you give a general description of the main technologies that VirtuaCrop develops for precision agriculture?
- How do the AI models you use for agricultural data analysis work?
- How do farmers use your solutions in the decision-making process in the field?
- How do they ensure the accuracy and reliability of the data when farmers take photos or use mobile phones?

VIRTUACROP

QUESTIONS - COMPANIES

The role of food for sustainability in agriculture

- Do the farmers that you work with take in easily to new technologies?
- In your plague detection project “Pomato”, what technologies do you utilize? Drones, satellites?
- Do you consider solutions based on Sentinel-2 to help in transparency and access to sustainable financing or environmental certification?
- In your opinion, will automated auditing tools potentially reduce conflict and/or improve trust between financial institutions and farmers?

QUESTIONS - RESEARC CENTERS

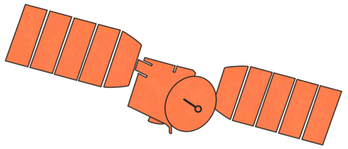
The role of Smart Farm Colab in agriculture

- Overall, how would you assess the potential of drones versus satellite imagery and machine learning to increase the accuracy of agricultural auditing?
- What are the biggest technical challenges that these technologies still face in the field (metadata, coverage, sensors, weather conditions)?
- What type of sensors and cameras, versus satellite imagery, would be recommended for identifying crop type and growth stage with high precision?
- What types of data do you consider useful, beyond area and stage of growth, for conducting proper audits?
- Does Smart Farm CoLab already collaborate on similar projects? What lessons have been learned?
- In your opinion, what is the biggest risk associated with this type of product?
- How do you assess the interest of the Portuguese market in automated agricultural auditing solutions?

SMART FARM
COLAB
LABORATÓRIO COLABORATIVO
PARA A INOVAÇÃO DIGITAL
NA AGRICULTURA

ANALYSIS

After the Interview



INTERVIEW ANALYSIS

SWOT Analysis

S

Strengths

- Wide-area coverage: Satellite imagery alows monitoring of very large plantations
- Scalability: Easily scales to national or international levels
- Lower operational complexity: No need pilots or maintenance logistics as with drones

W

Weaknesses

- Lower spatial resolutions: May limit precision in small plots
- Weather and cloud coverage: Optical satellites are affected by clouds

O

Opportunities

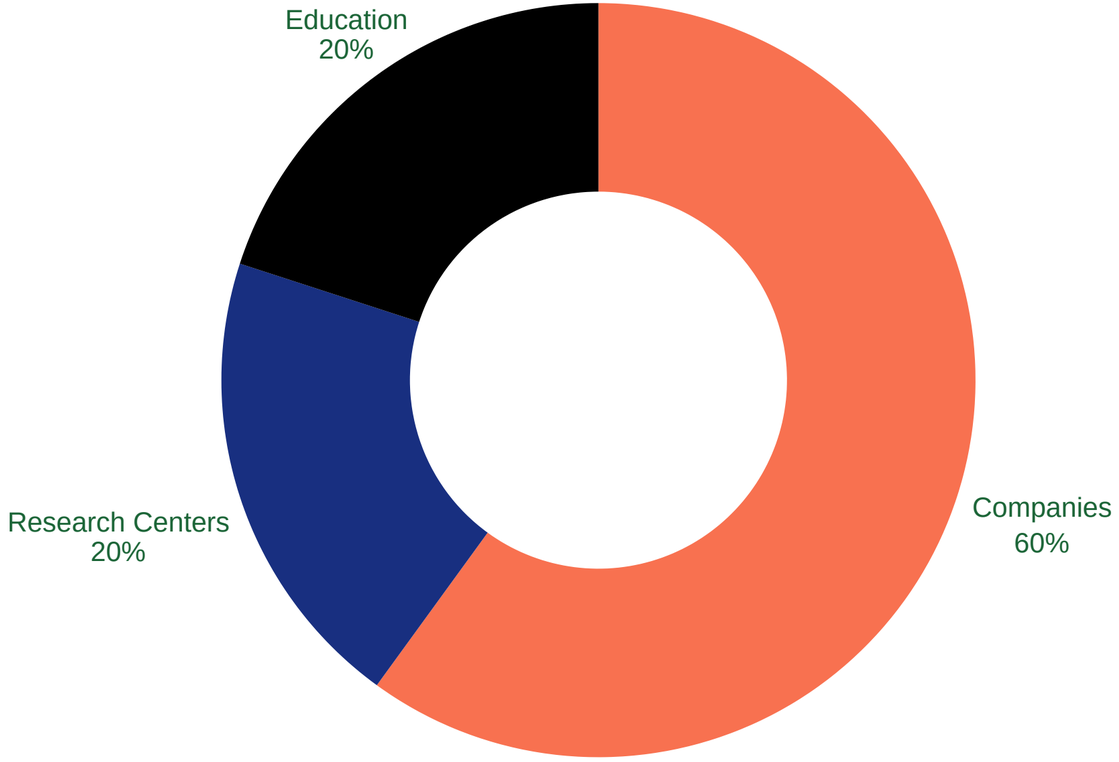
- Market expansion through partnerships: Collaborations with banks, inssures
- Product diversification: can expand beyond auditing into yield forecasting, compliance monitoring, nad insurance claim verification

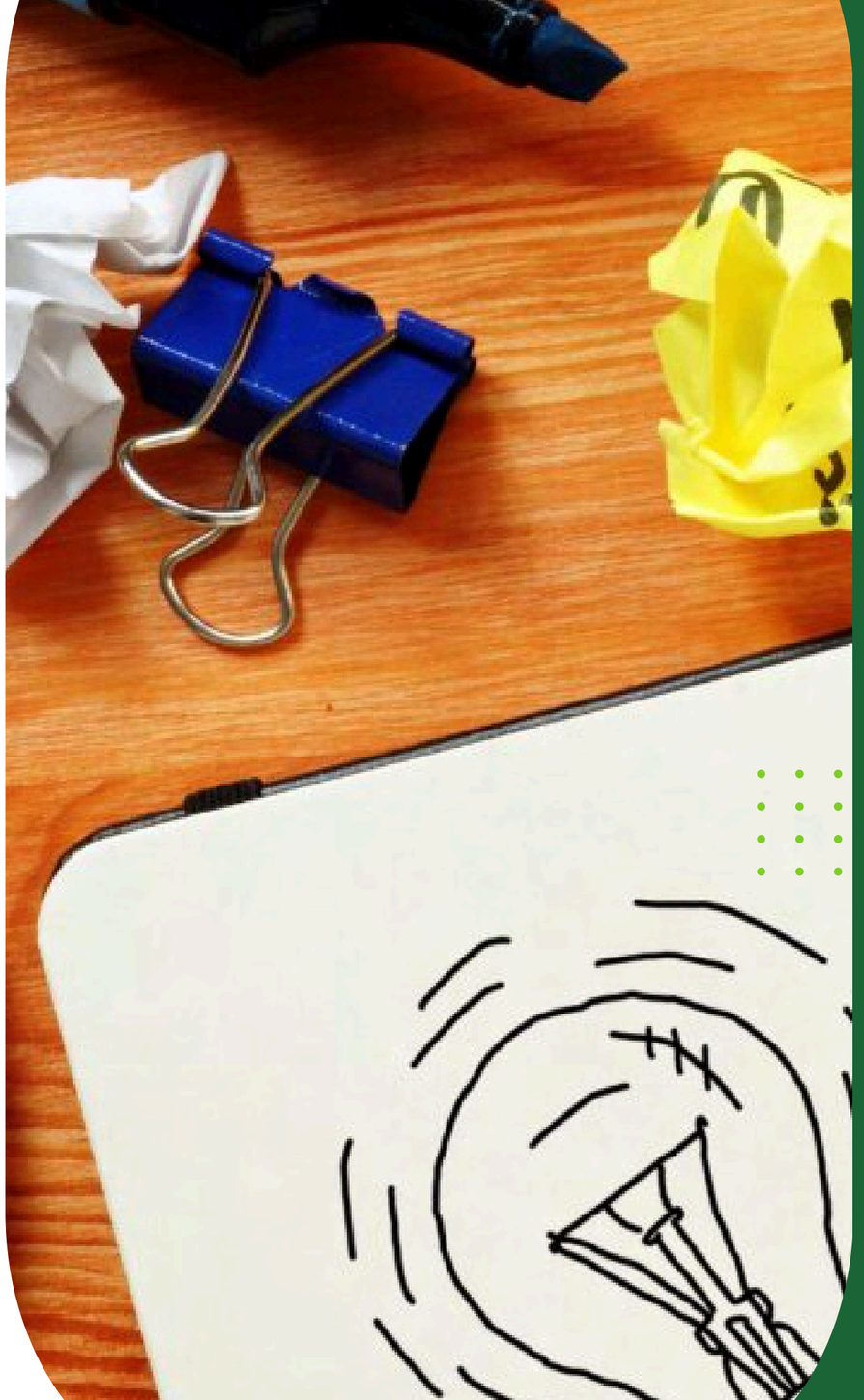
T

Threats

- Price pressure: Availability of free or low-cost satellite data may push customers to expect low pricing
- Established competitors: Large agri-tech firms may dominate contracts with financial institutions

PROFILE OF THE INTERVIEWEES



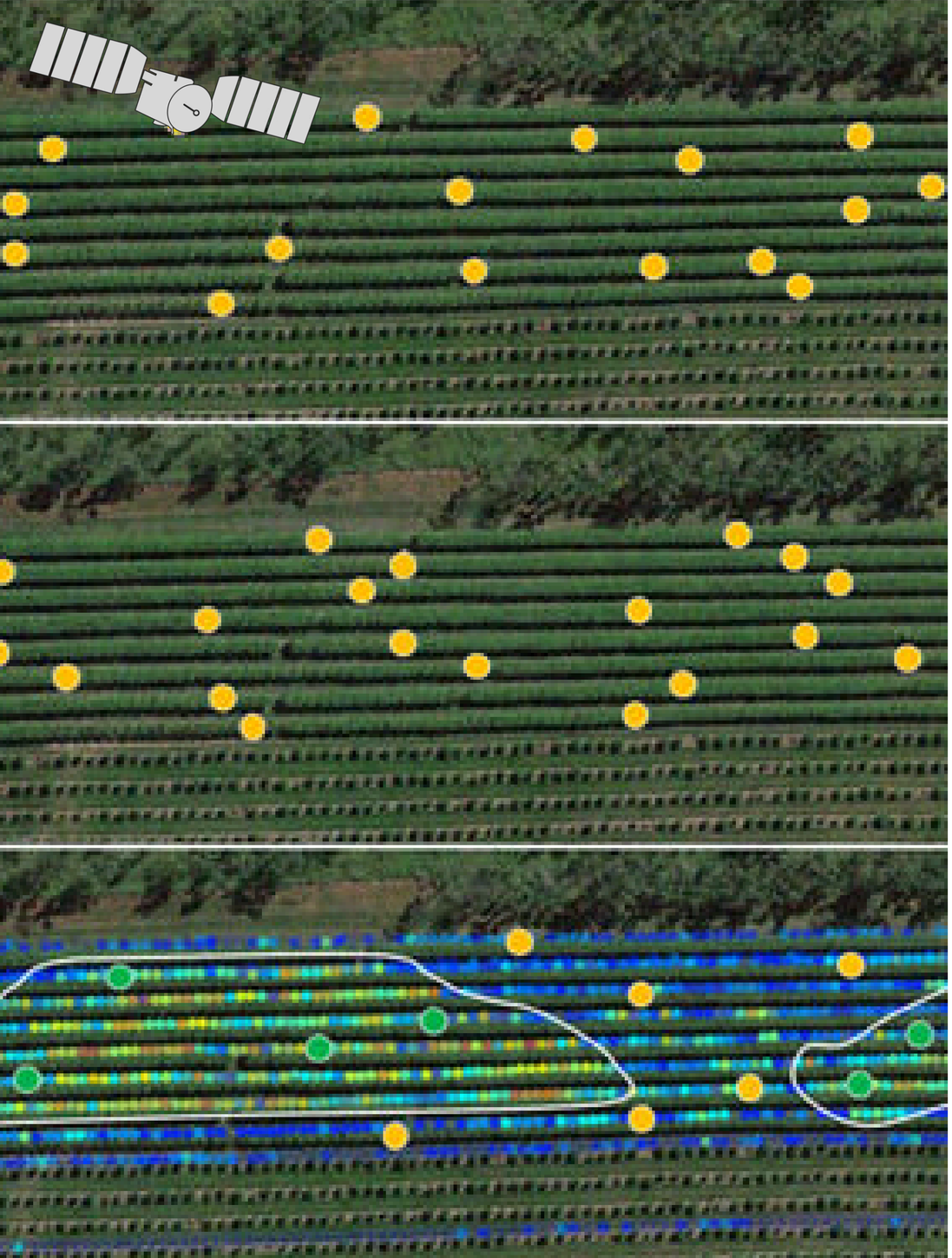


INTERVIEWS ANALYSIS

General Analysis

Although we were not successful in gathering answers from all the entities we would have desired, the key takeaways of the kind companies, instituitions and people behind them who did, proved to be instrumental to turn the sight of our project into another direction.

The largest contribution was the main vessel for gathering data, and how such technologies can be far more efficiently employed and automated than a drone would suggest. Through this, the view for what we wish to develop, an automated app to accurately audit plantations, became not only more feasable, but more user friendly, with less friction for all the parties involved.



INTERVIEWS ANALYSIS

VirtuaCrop

The VirtuaCrop interview turned out very fruitful. Dr. Tiago Morais opened our eyes to using satellite imagery and data, appearing as a more straight forward solution to our problem previously thought to be solved via drone imagery.

The Co-Founder of the company also introduced us the concept of NDVI, which we can get from the satellites he recomended; Sentinel2, Pleiades-Neo.

We also got a nudge in the right direction when it comes to the AI we should use, where we were clued to train a model based on random forests.

INTERVIEWS ANALYSIS

Smart Farm Colab

The interview with the research center shed light on some problems we might face while trying to find a solution to the auditing process, mainly when it comes to how cloudy it can get in certain areas, making it difficult to get the necessary data, in this case the area of the plantation. The Satellite Sentinel1 is a viable alternative, as it uses a radar / microwaves to get information.

We were recomended by the interviewed engineers to use fields of corn as the object of study, as it’s easier to work with, as there is less variation on favorable cultures and there are more distinguishing factors

INTERVIEWS ANALYSIS

Food4sustainability

The interview with Luis Martins, member of the CoLAB, gave us a lot of valuable information about the satellite image resolution that would be enough, for our data collection. We were also tipped in the direction of using leaf density, which reinforces the idea of using NDVI curves as it was planned before.

We discussed how easily clients take in new technologies in the field, and the response as always been positive, and as long as the job gets easier new solutions are always welcome!

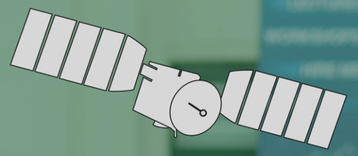
The interviewee spoke about how important disease detection is nowadays for large crops, although we aren't following in that direction with the project, it is always important to keep that in mind.

INTERVIEWS ANALYSIS

Besquare

The first interview we managed to get on a client. With the help of Besquare, connecting us to a potential client, we met Issac, owner of hundreds of acres in Brasil, we got to see how our solution might be able to help from the prespective of a farmer.

We were told most of the verifications made by banks are actually on field inspections, and the lack of man-power makes it difficult. We were, alerted to the threat that frost poses to plantations, and told that some kind of way to predict it aswell as being able to determine the loss of earning based on the affected portion, also an app that alerts the farmers about the plots yet to be planted, the optimal starting day for the plantation and predicted harvest period aswell.



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Thank You!