AgPractices&Domains

bridging the gap, harnessing precision tools for integrated pest and disease management options in rice-based cropping systems


H: 5 M
V: 2 M/S
D: 15 M
H

Outline of Presentation

1. Why the app?
2. Intended users
3. Tech stack
4. App components: UI components
5. Database design

Why a web app?

AgPractices&Domains

is cloud-based

- combining survey and data modelling tools for rice cropping systems monitoring and evaluation
- web portal of data sharing and access, and data product delivery
- act as a one stop shop for researchers in the evaluation of the impacts of practices, changes in managing risks

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is scalable

- scalable approach for integration of agricultural data into modelling
- support valuation of the impacts of practices, changes in managing risks
- allows defining domains for high priority risks that require close monitoring

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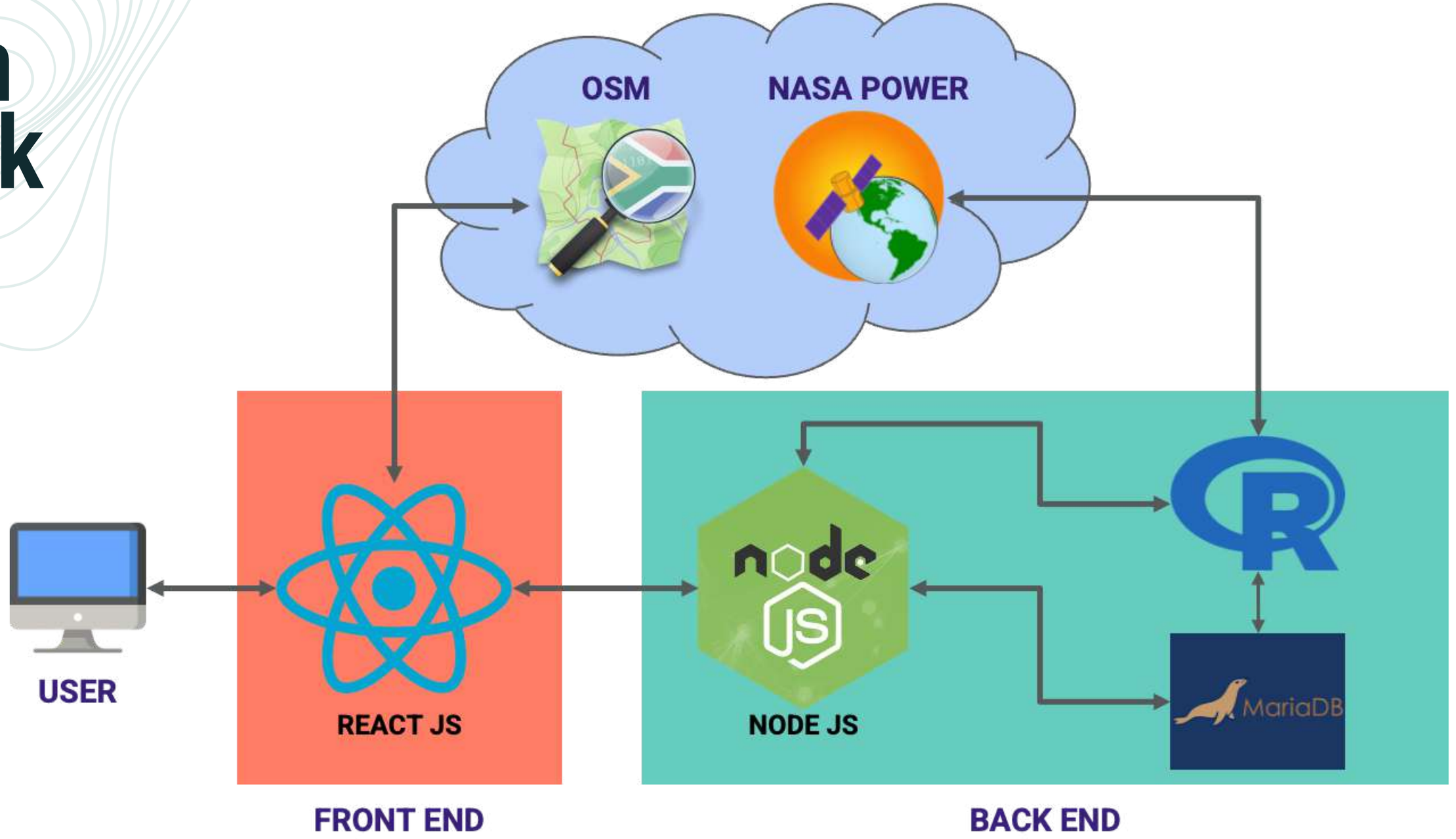
is collaborative

- enable digital documentation of data collection, harmonization of data labelling and analysis.
- accelerate information dissemination in the region that supports R&D for rice crop farmers' adaptation to climate variability, and promotion of integrated pest and disease management.

Intended Users

- Researchers
- Farmers
- Simulated data contributors

Tech Stack


OSM
NASA POWER
USER
REACT JS
NODE JS
MariaDB
FRONT END
BACK END

COMPONENTS FRONT END

1.1 MAIN MAP UI

Generates optimum sowing dates for displayed locations, compares actual yield data with simulated data, views simulated data details per location once generated

1.2 DATA CONTRIBUTOR UI

Adds/edits/deletes simulated data. Needs login and authorization from site admin on certain actions such as deletion of uploaded data.

1.3 SITE ADMIN UI

Authorizes and provides access to potential data contributors

COMPONENTS
BACK END

2.1 API COMPONENT

Links the different UI components with its functionality and to the database and the R scripts that provide information.

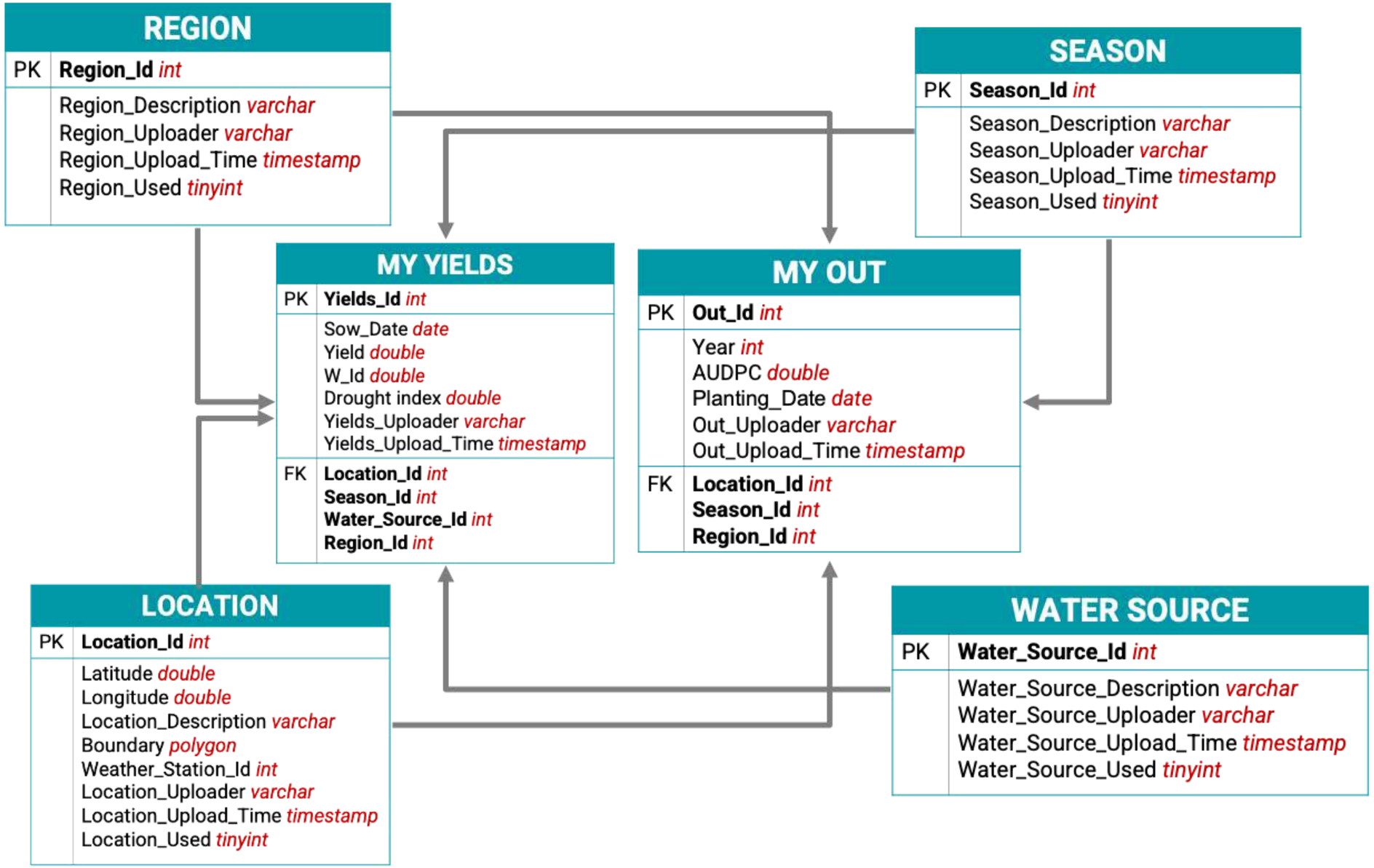
2.2 R SCRIPTS

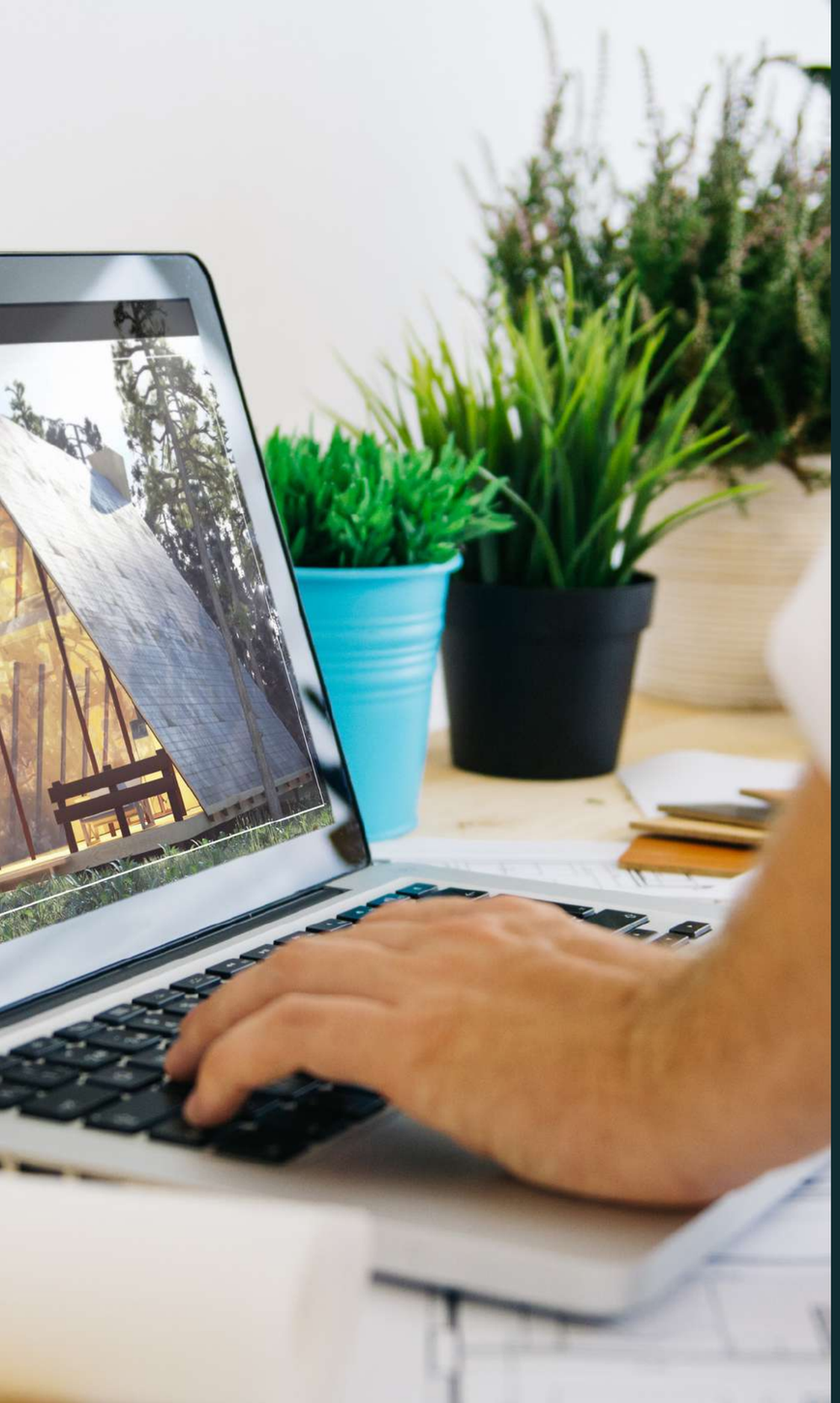
Provide the functionalities specific to data modeling and projection (provided by Ando and her team) such as communicating with NASA Climate API, Disease severity

2.3 DATABASE

Stores the information used in the application, such as yield data and disease index data.

Database Design





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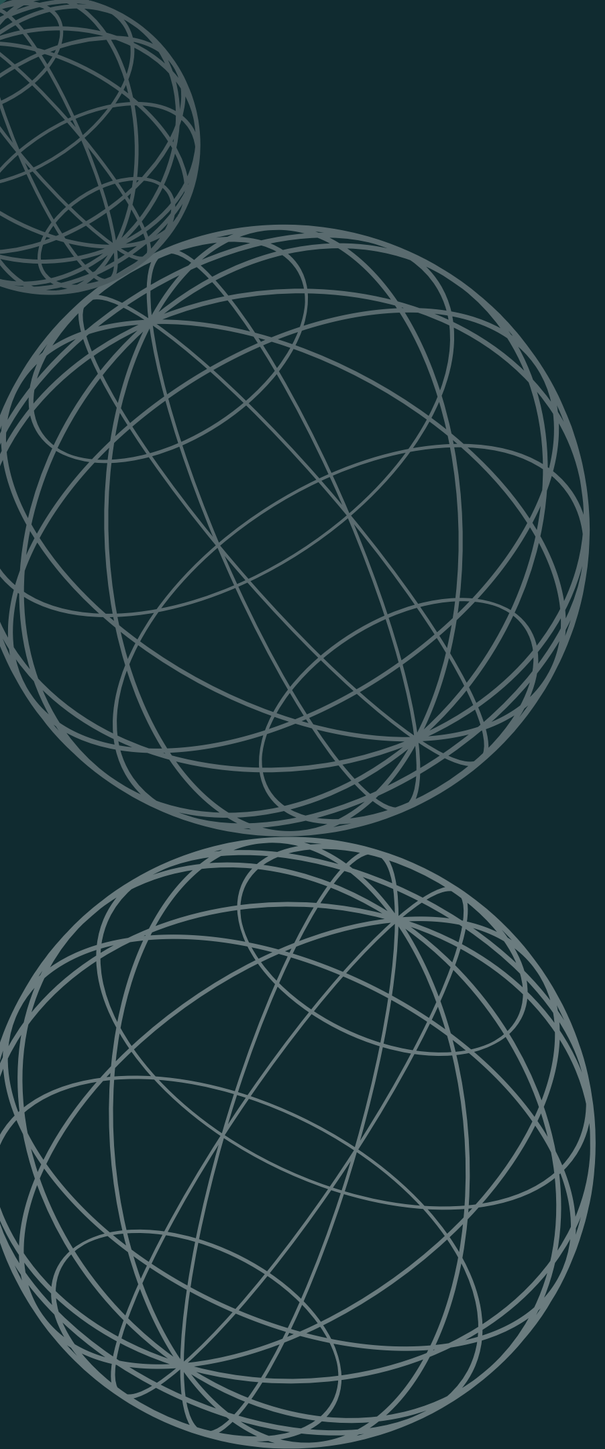
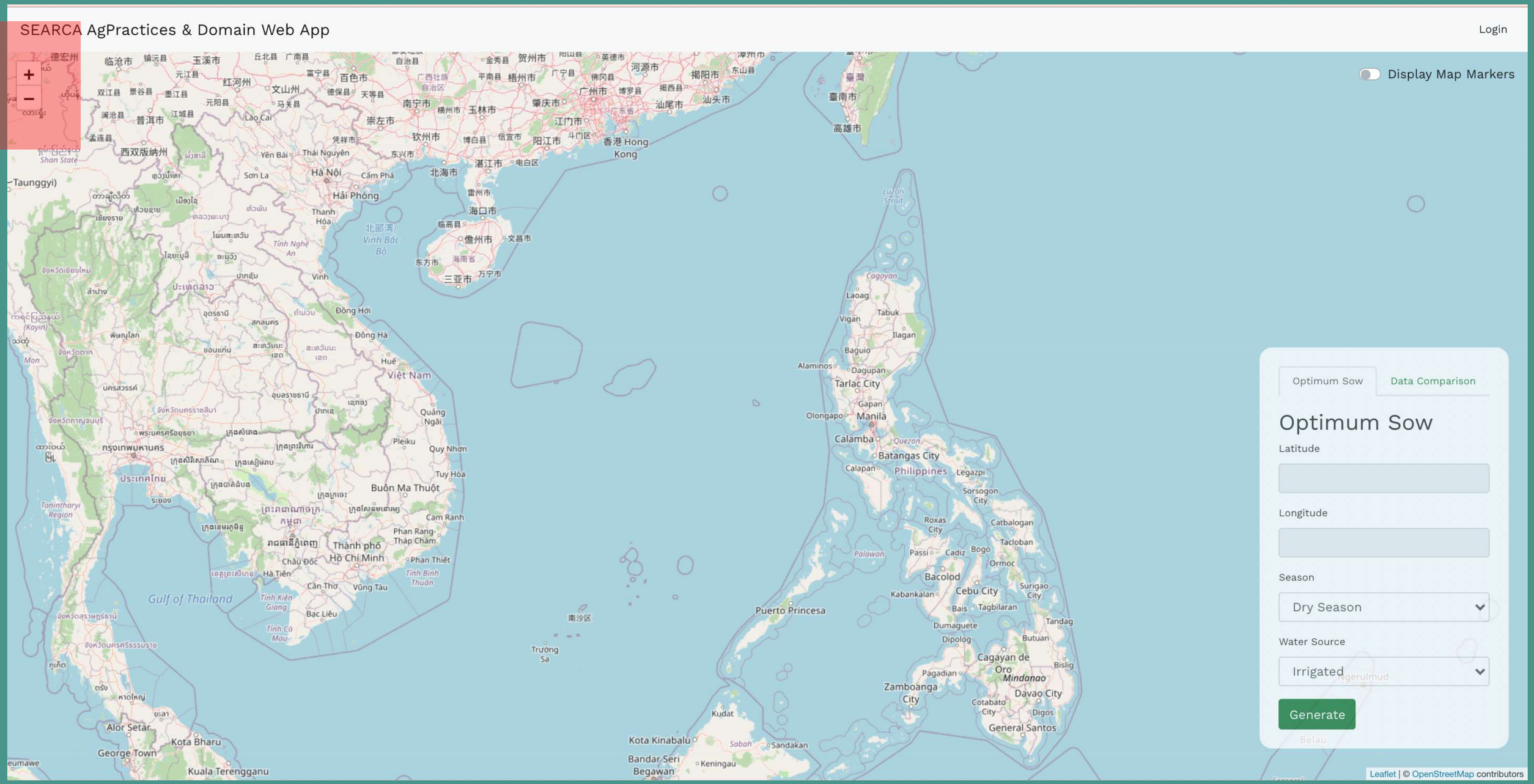
IN ACTION



Optimum Sowing Info

View location data available on the map


SEARCA AgPractices & Domain Web App
Login
Display Map Markers
Optimum Sow
Data Comparison
Optimum Sow
Latitude
Longitude
Season
Dry Season
Water Source
Irrigated
Generate
Leaflet | © OpenStreetMap contributors

SEARCA AgPractices & Domain Web App

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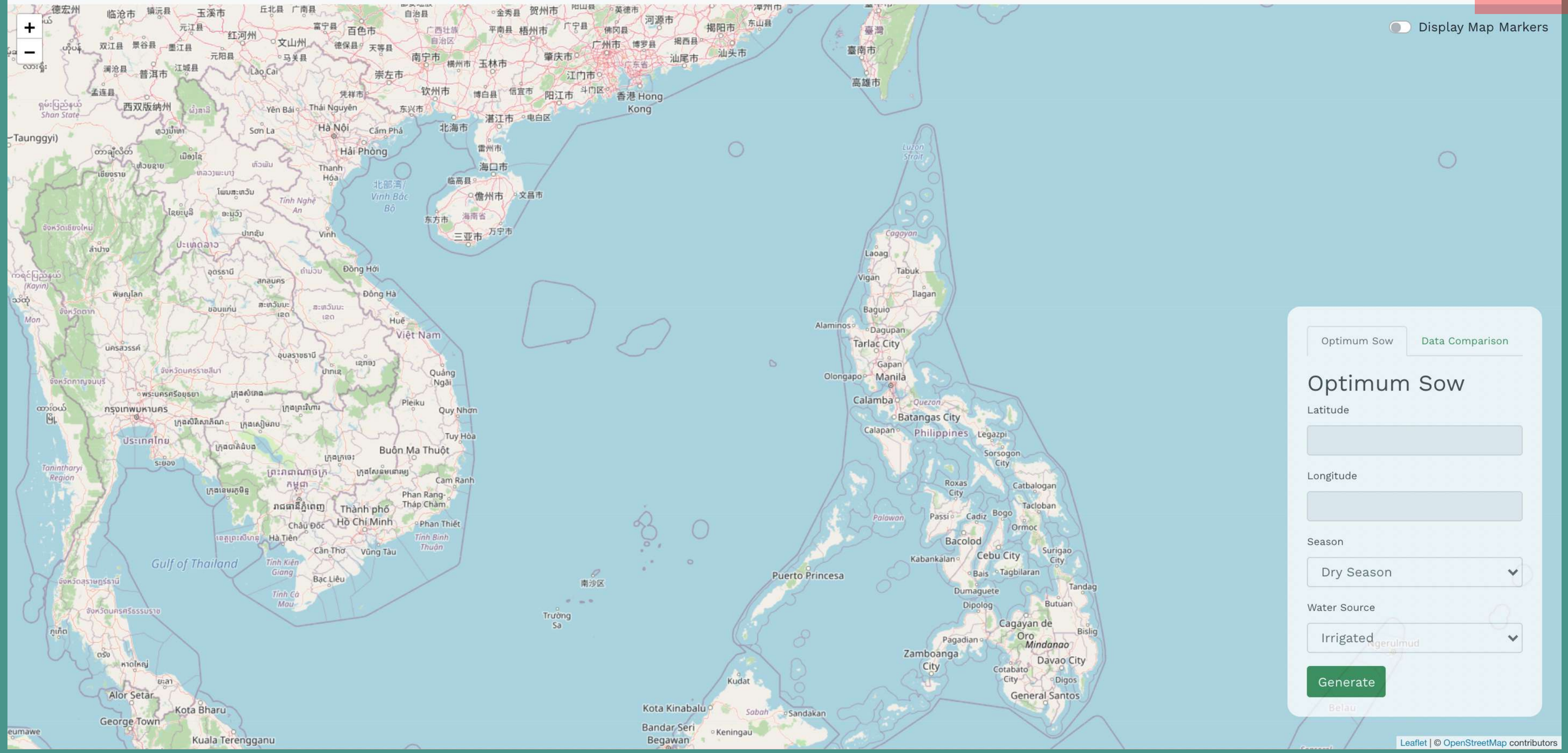

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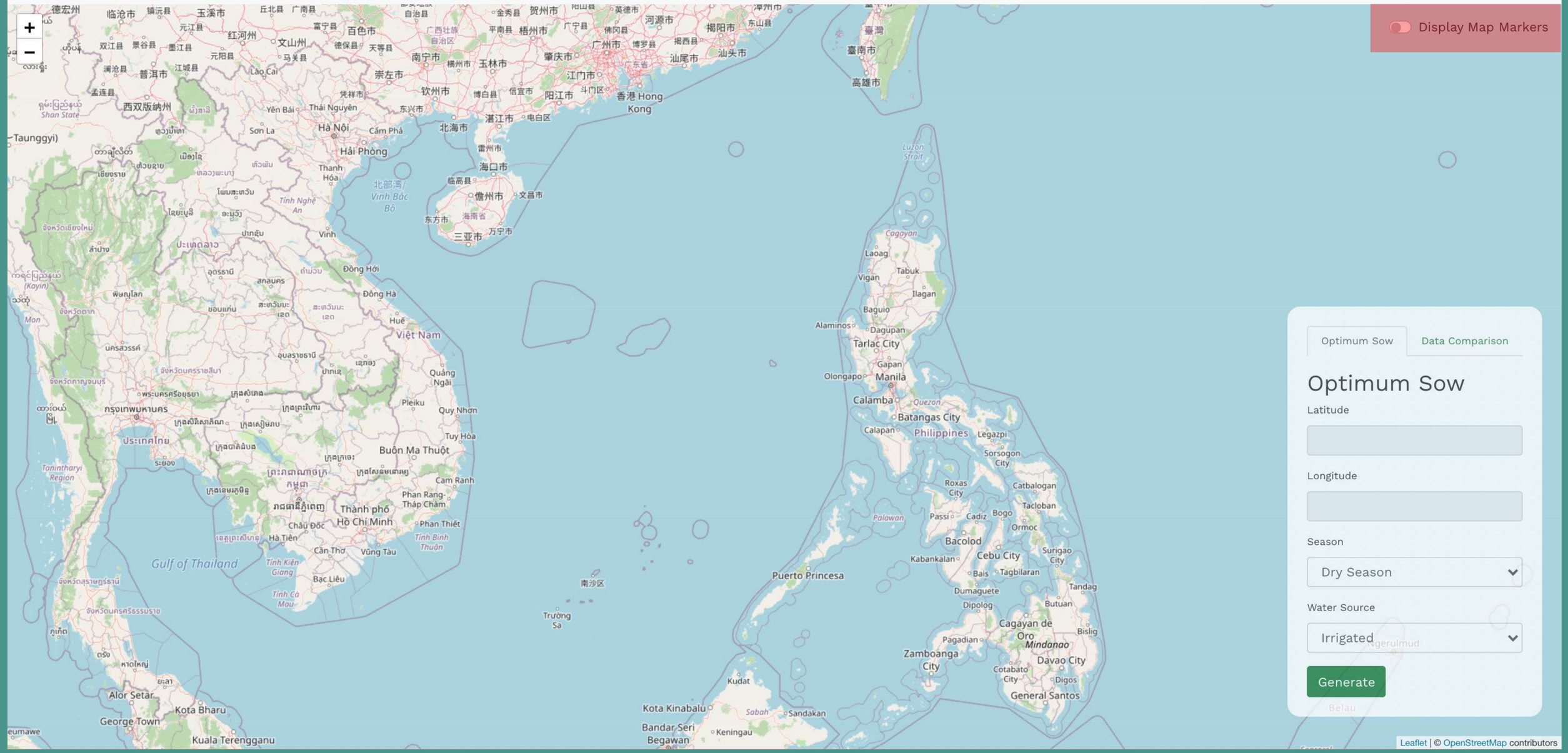
Login



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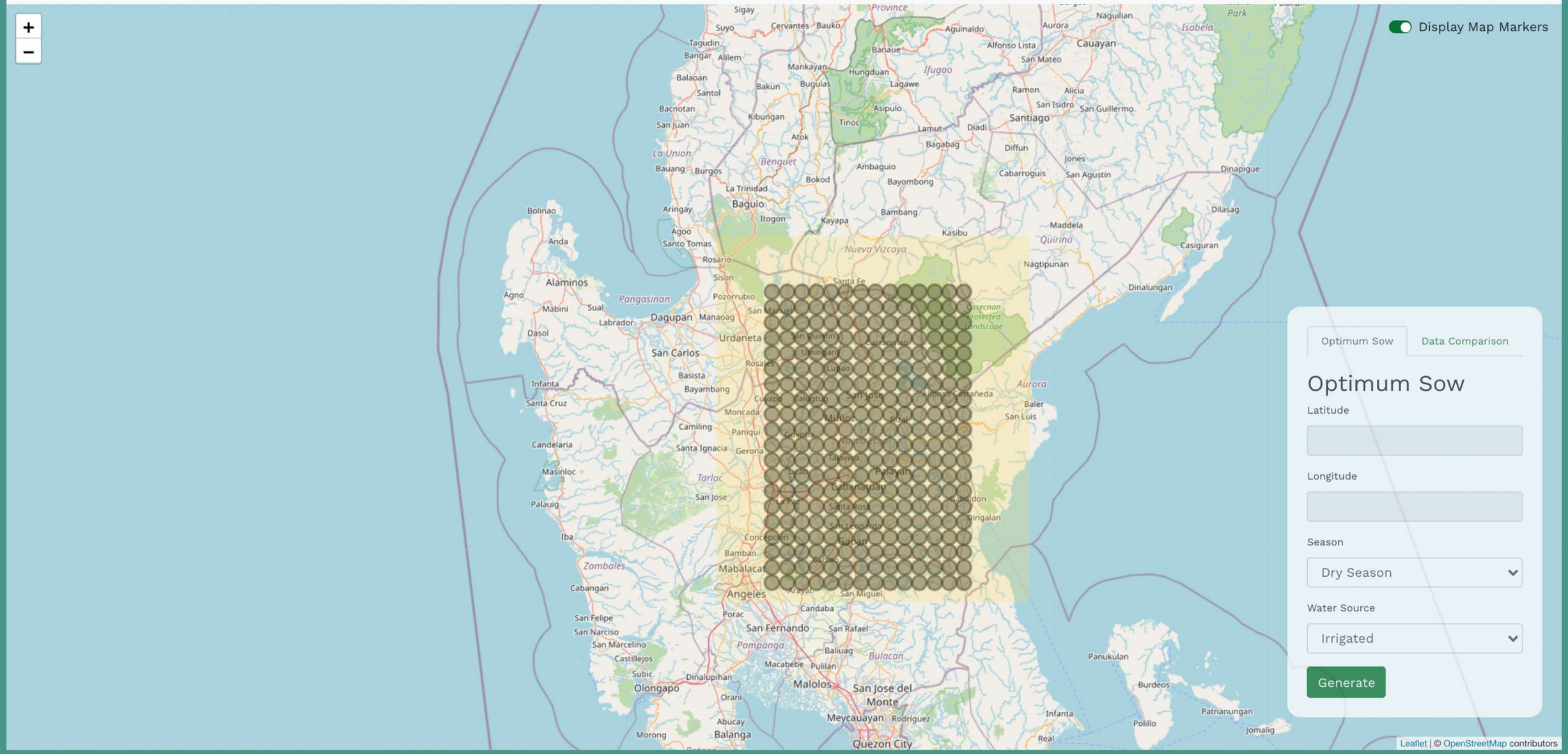

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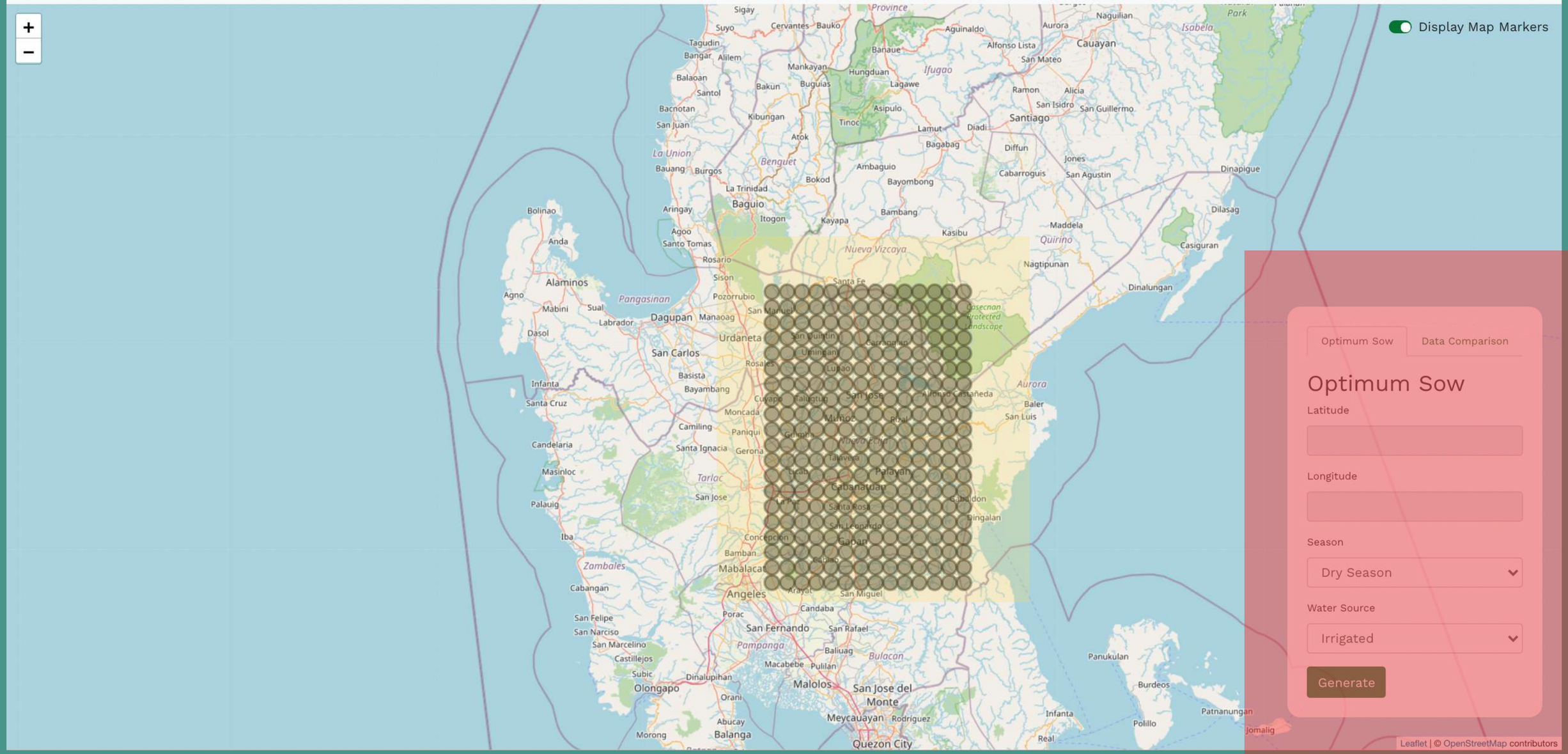
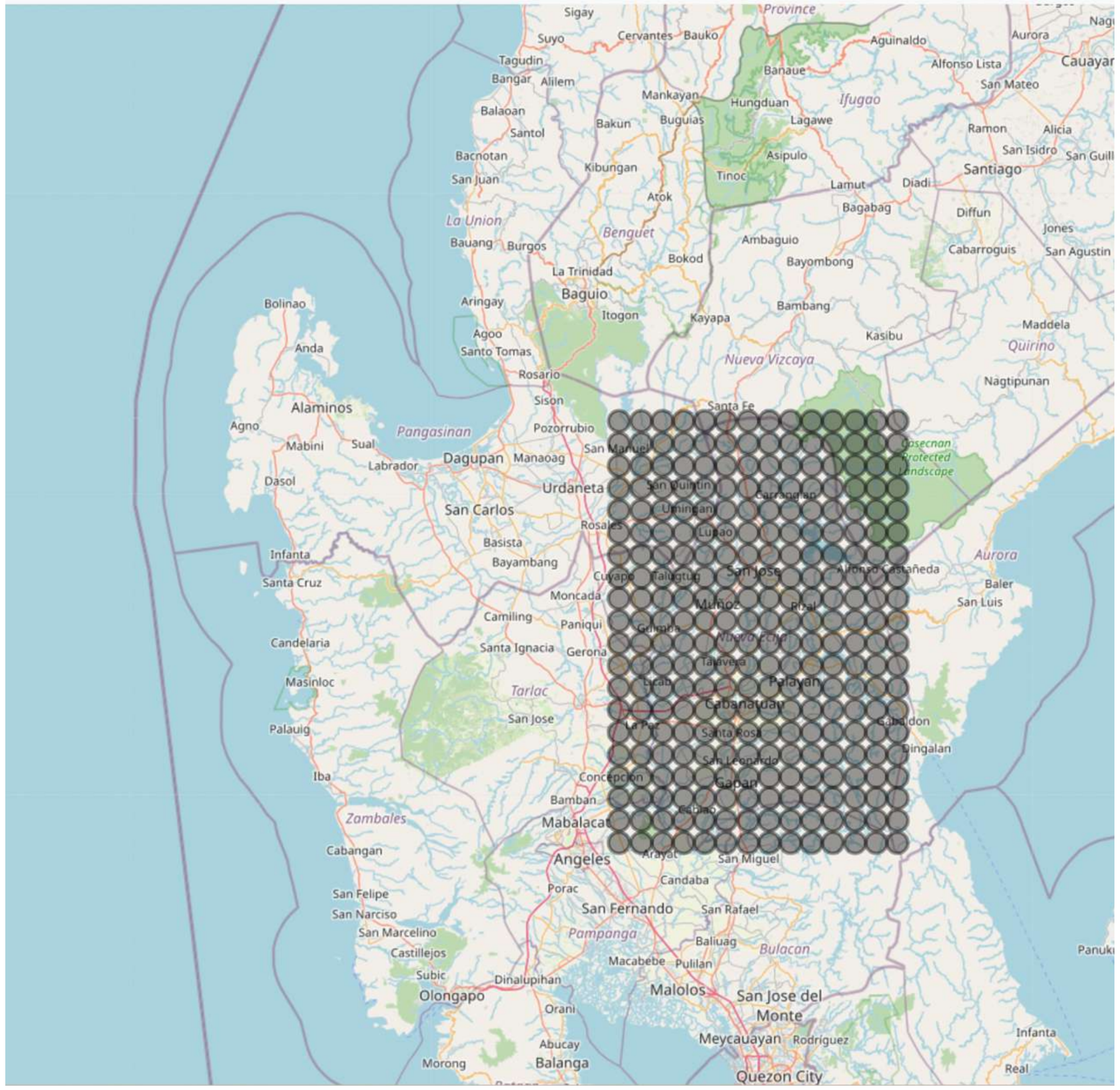




Optimum Sow | Data Comparison

Optimum Sow

Latitude

Longitude

Season

Dry Season

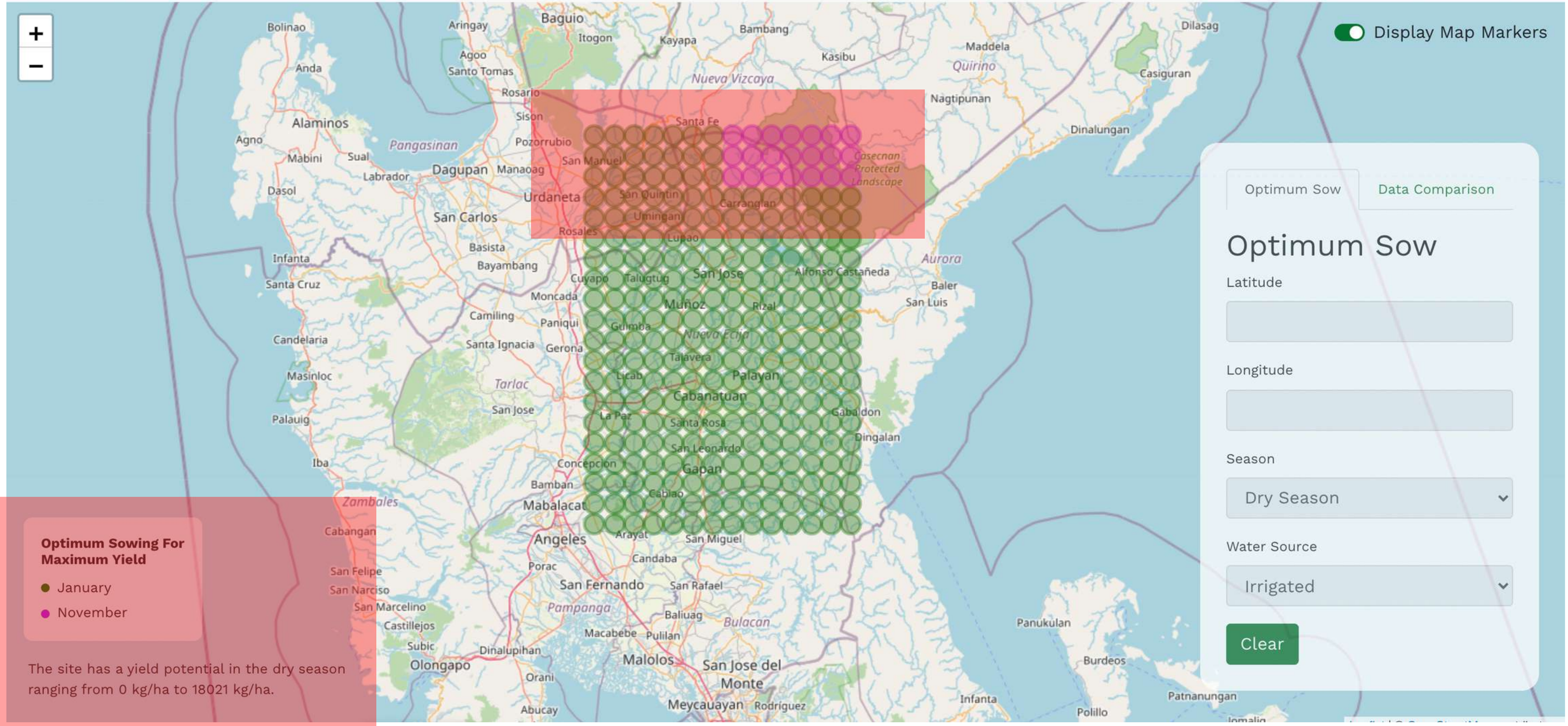
Water Source

Irrigated

Generate

SEARCA AgPractices & Domain Web App

Login



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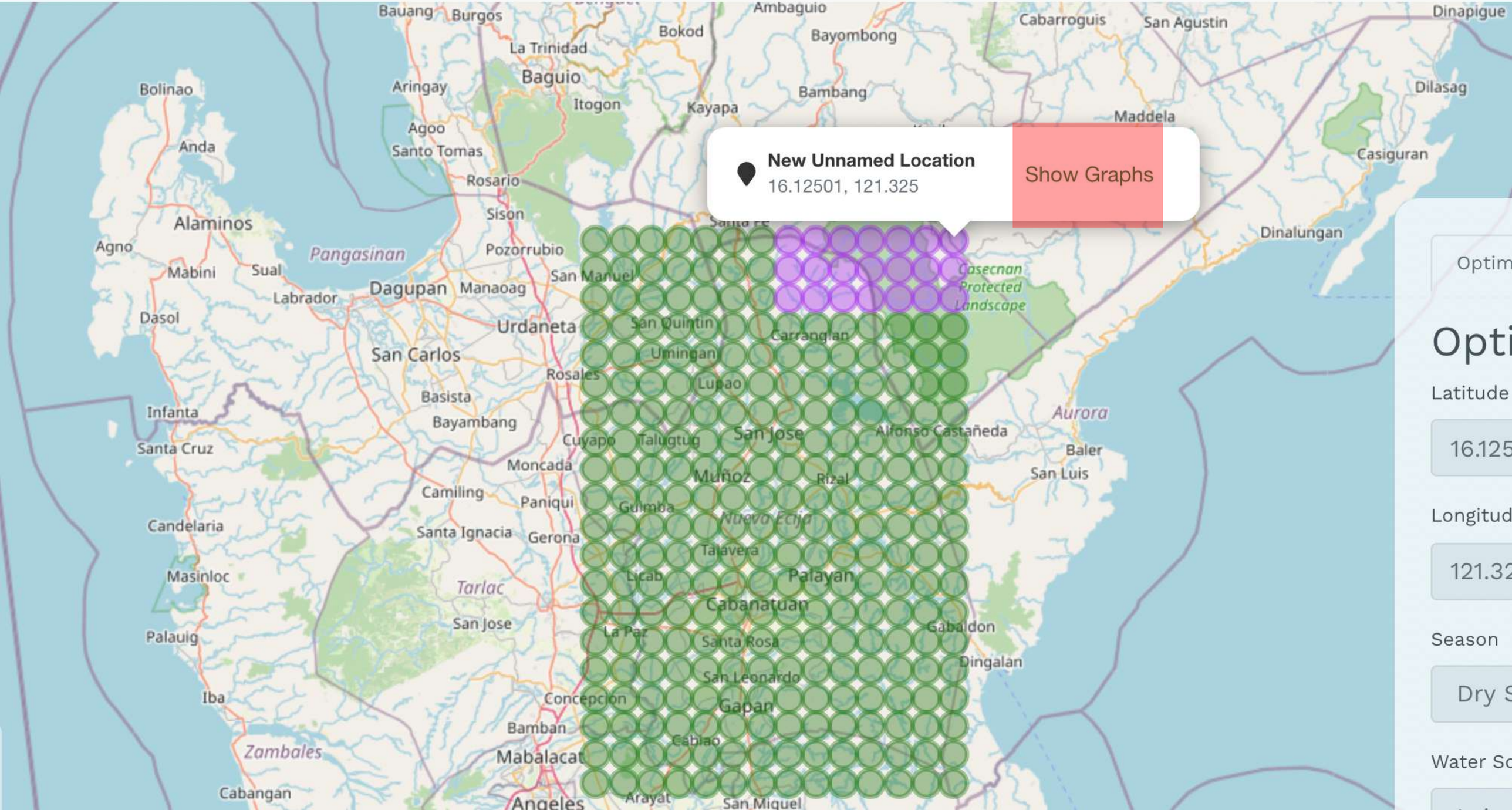
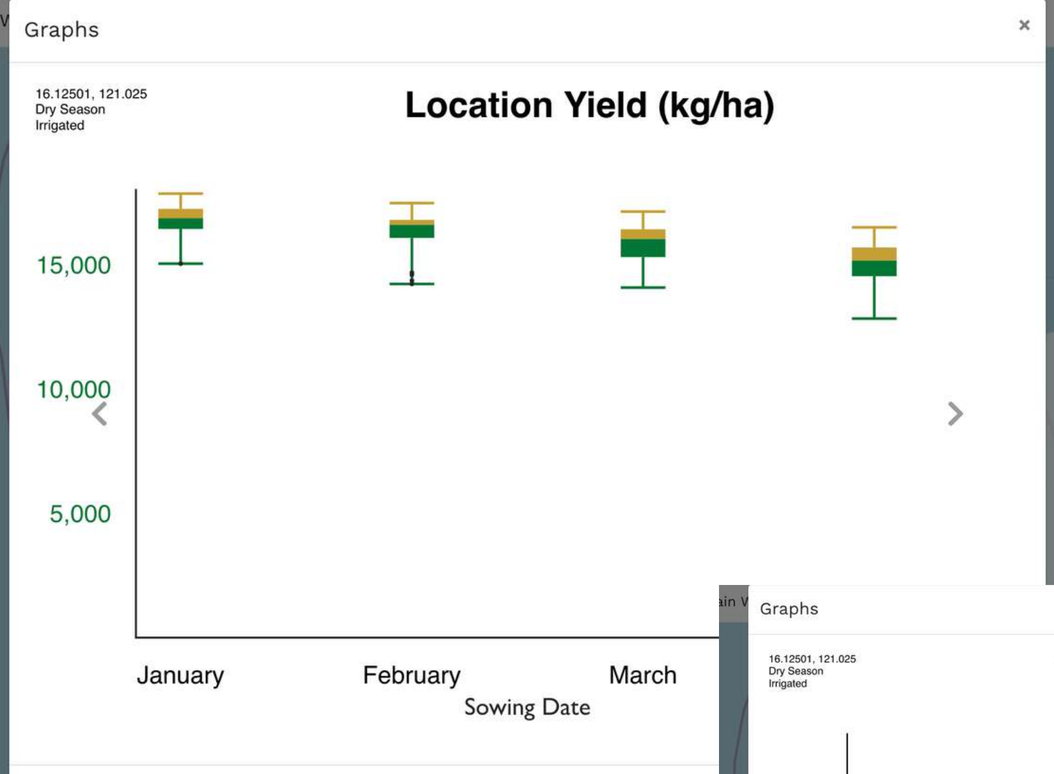
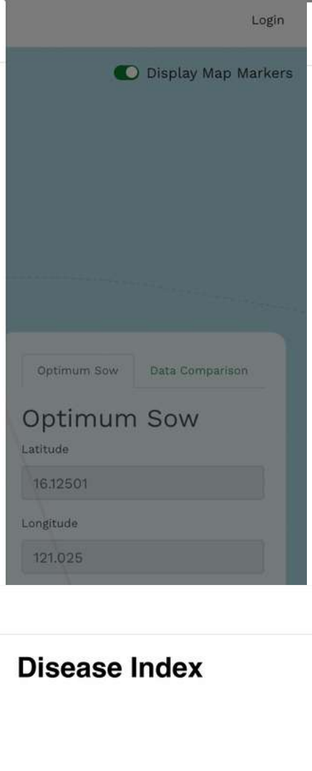
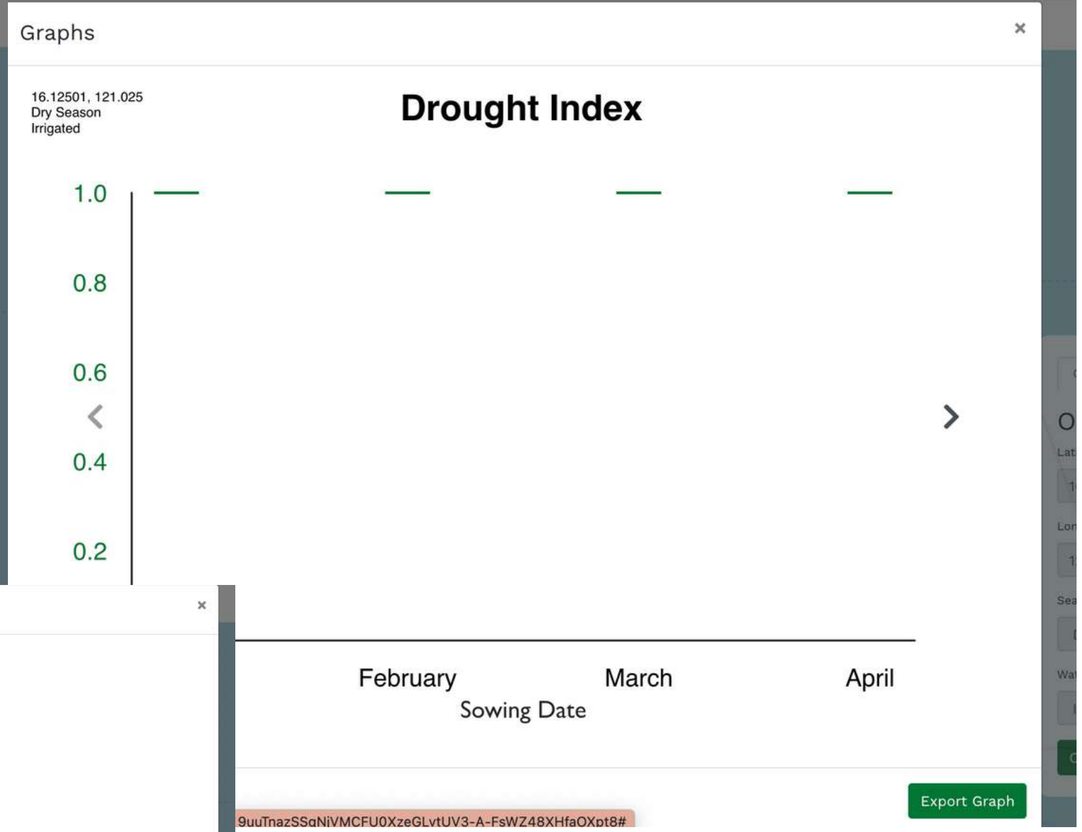
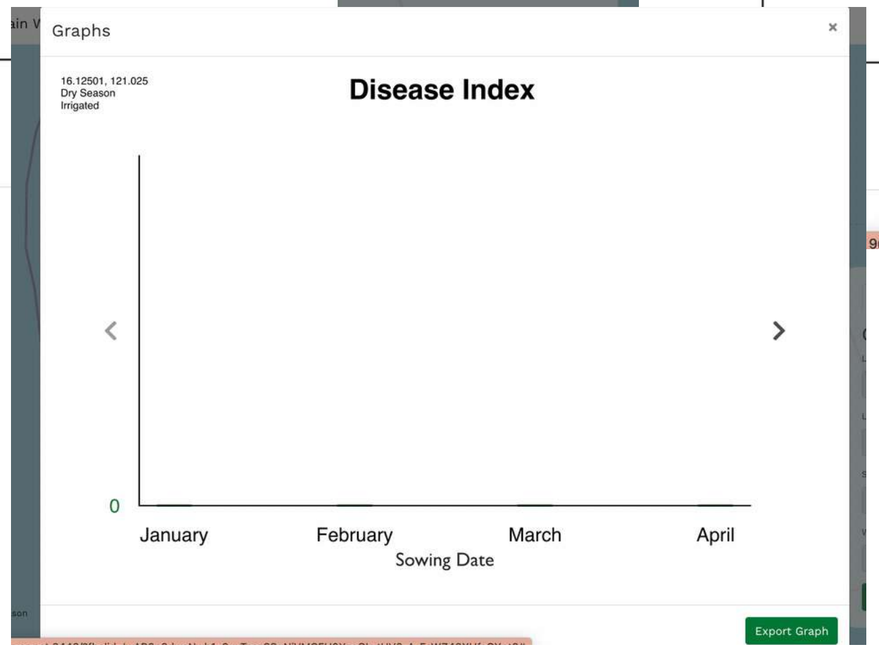


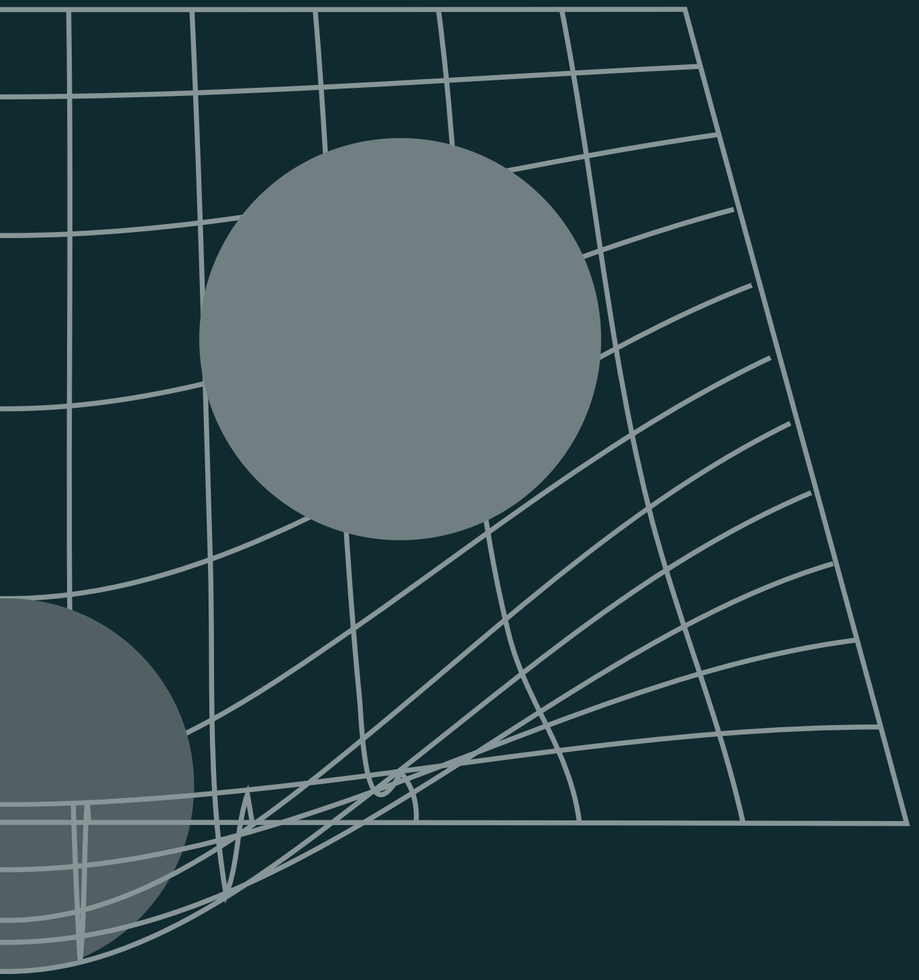








Examples of Graphs



Data Comparison

Matching your actual yield vs simulated

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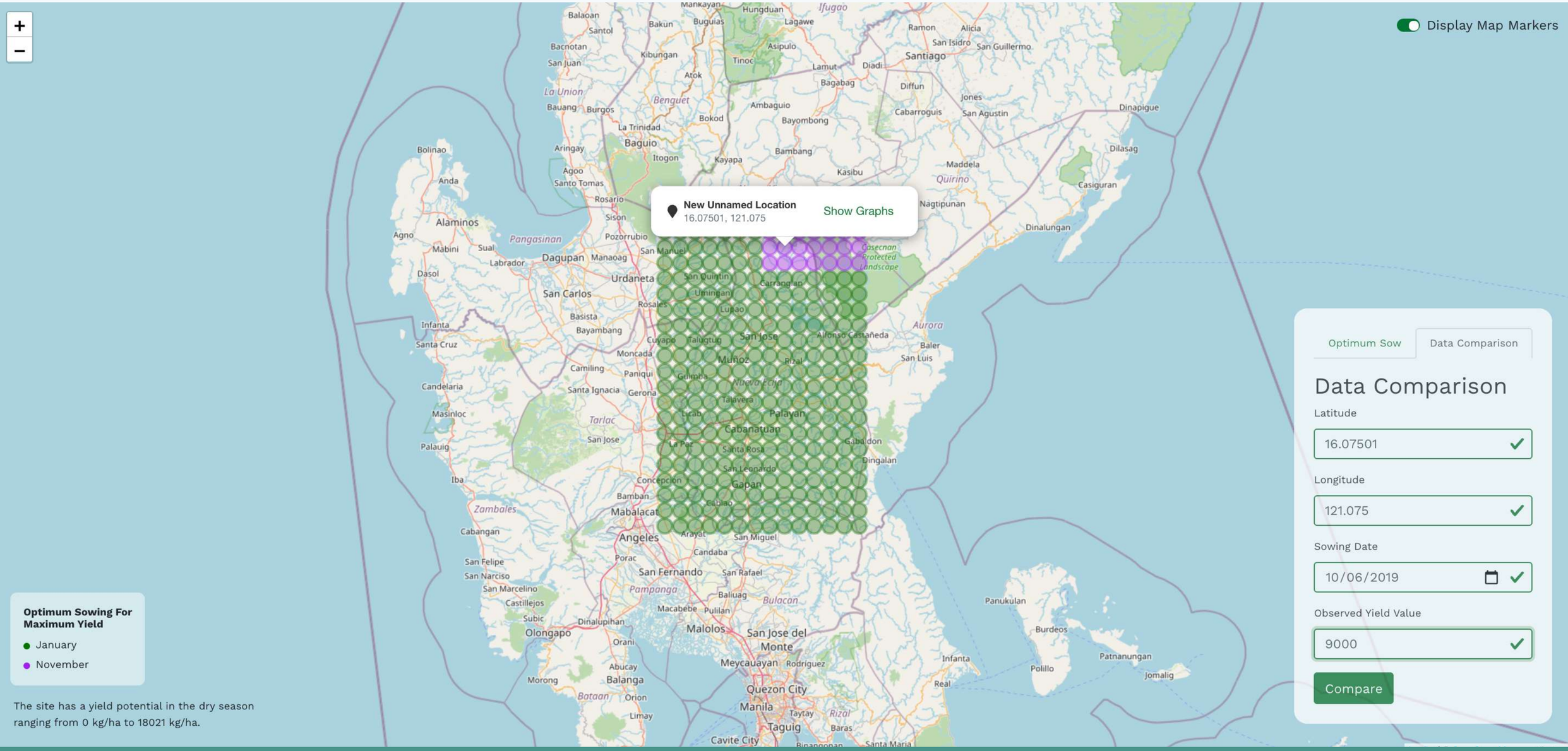
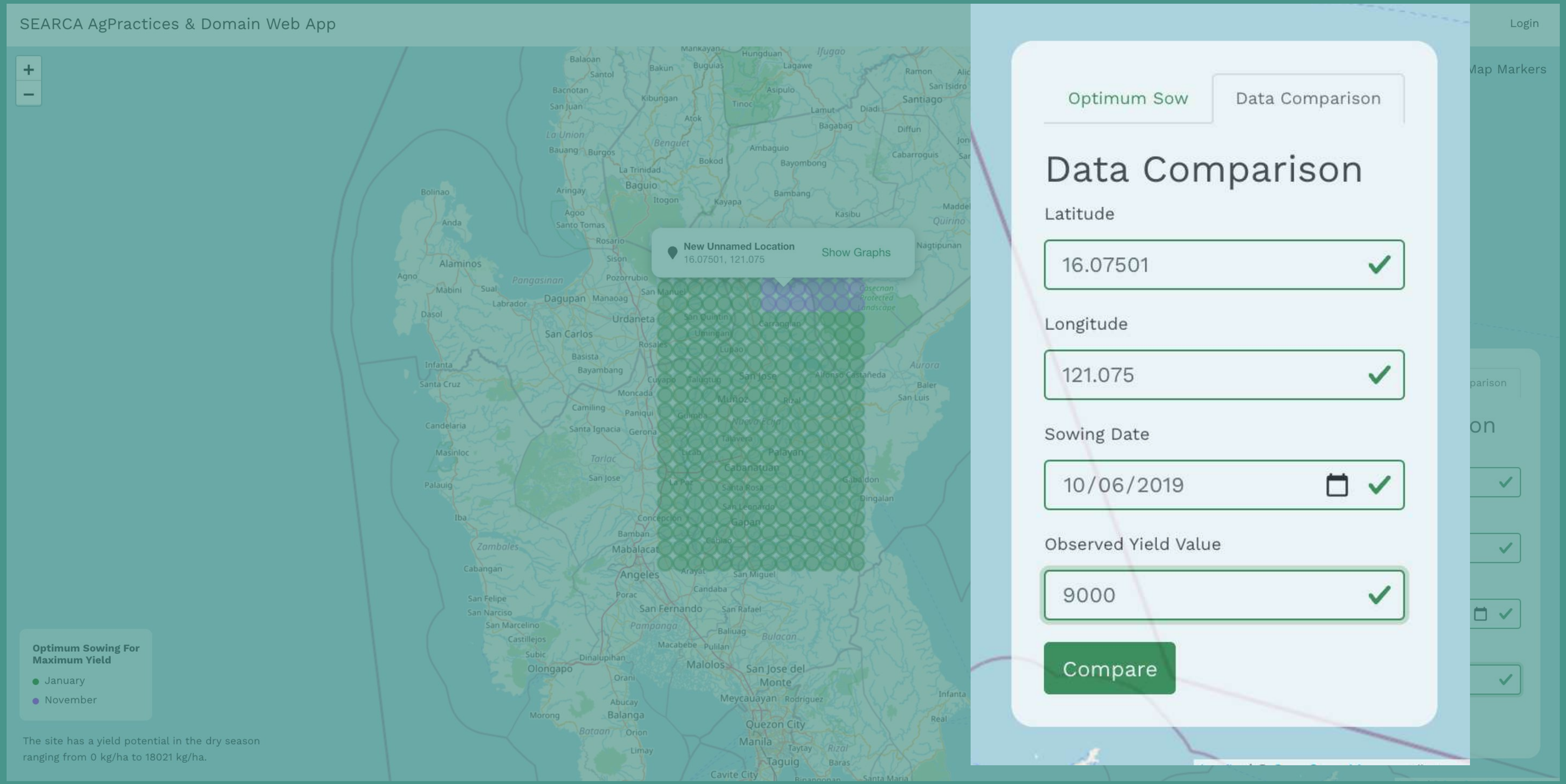
Login




SEARCA AgPractices & Domain Web App
Login
Map Markers
New Unnamed Location
16.07501, 121.075
Show Graphs
Optimum Sow
Data Comparison
Data Comparison
Latitude
16.07501
Longitude
121.075
Sowing Date
10/06/2019
Observed Yield Value
9000
Compare
Optimum Sowing For Maximum Yield
January
November
The site has a yield potential in the dry season ranging from 0 kg/ha to 18021 kg/ha.

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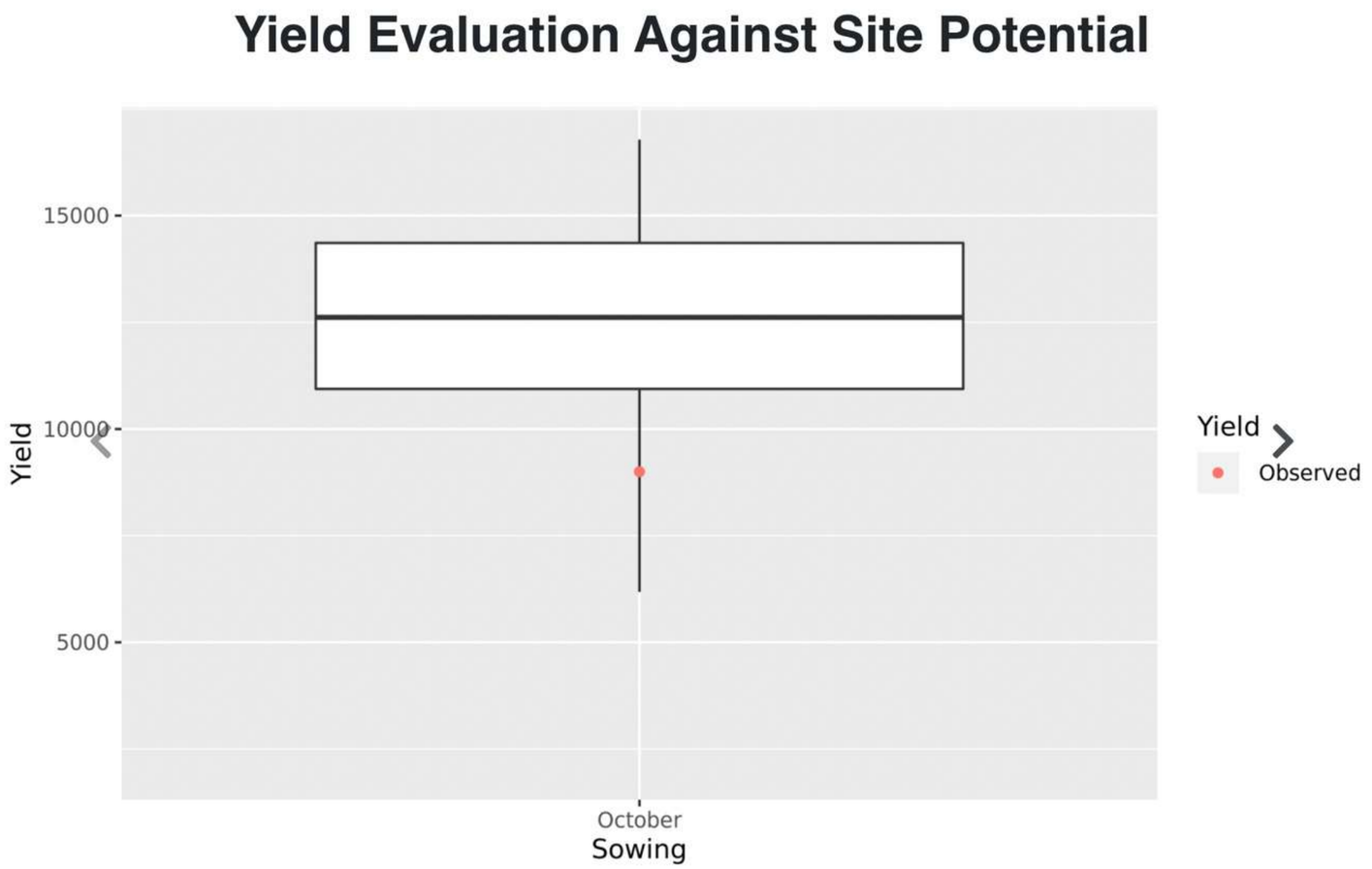
Graphs



Export Graph

Display Map Markers

Optimum Sow | Data Comparison

Data Comparison

Latitude

16.07501

Longitude

121.075

Sowing Date

10/06/2019

Observed Yield Value

9000

Compare

Optimum Sowing For Maximum Yield

- January
- November

The site has a yield potential in the dry season ranging from 0 kg/ha to 18021 kg/ha.

Leaflet | © OpenStreetMap contributors

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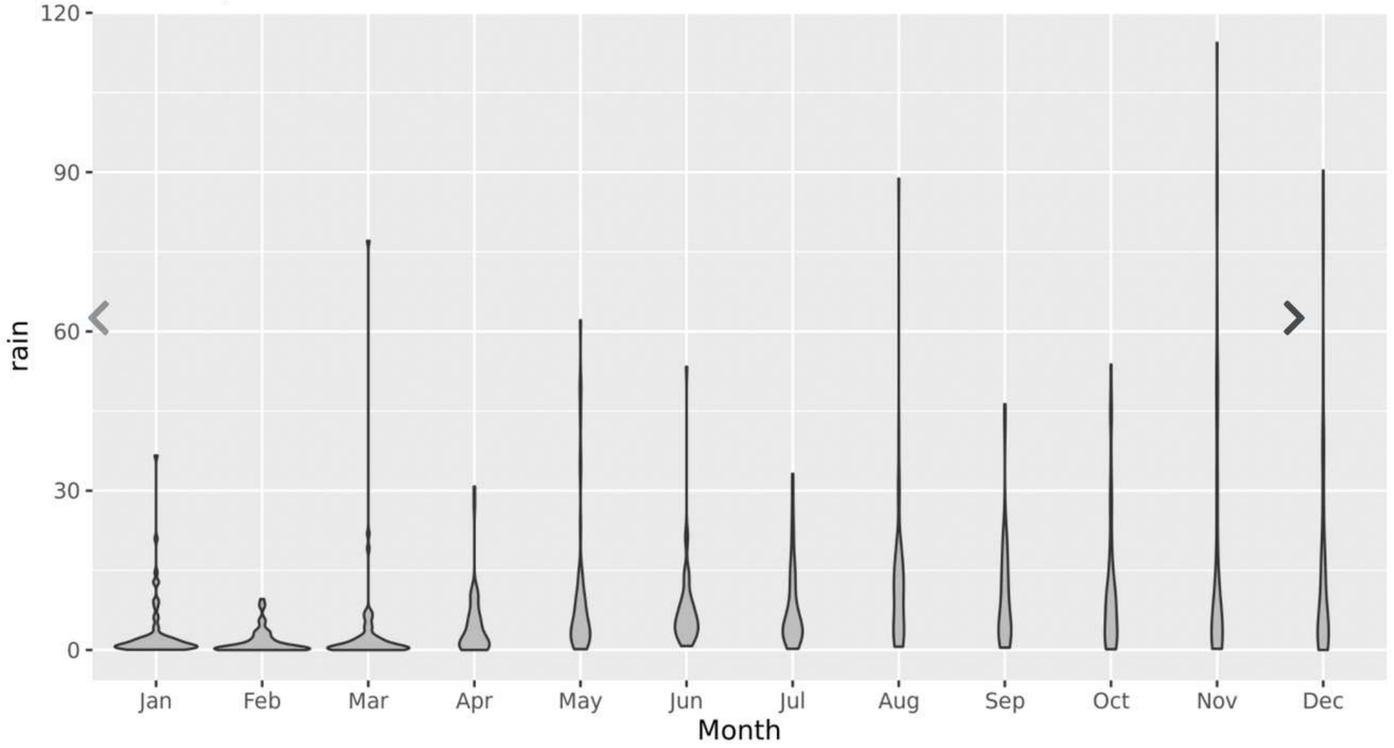
Login

Graphs

Annual Climatic Condition of the Site of Study

Distribution by month of rain



Export Graph

Display Map Markers

Optimum Sow | Data Comparison

Data Comparison

Latitude: 16.07501

Longitude: 121.075

Sowing Date: 10/06/2019

Observed Yield Value: 9000

Compare

Optimum Sowing For Maximum Yield

- January
- November

The site has a yield potential in the dry season ranging from 0 kg/ha to 18021 kg/ha.

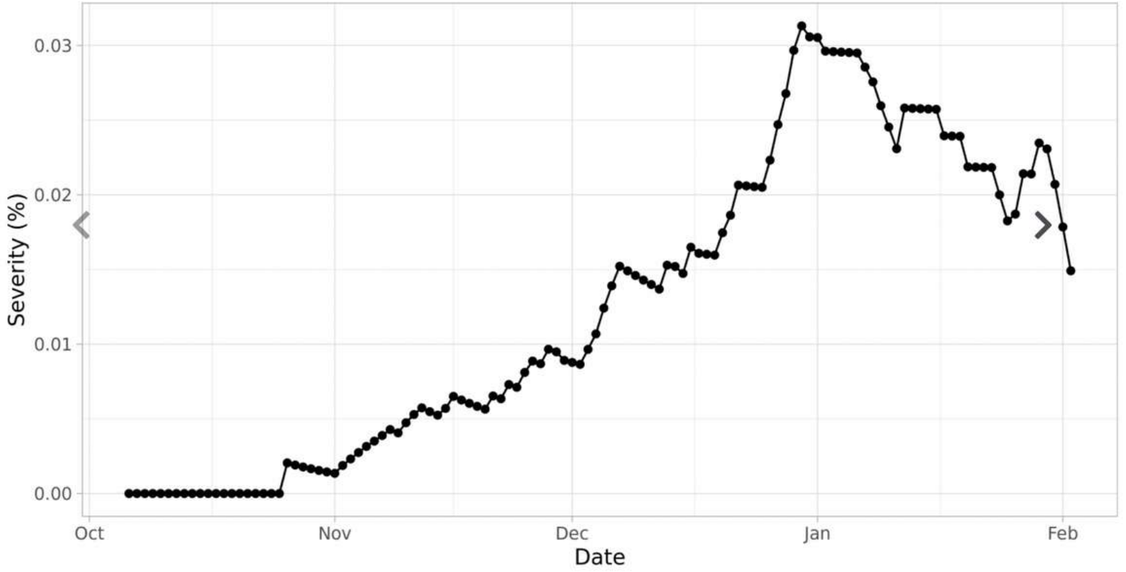
App

Graphs

Disease Severity with Crop Growth

Bacterial blight disease progress over time

Results for crop transplanted by October 06, 2019 at Latitude = 16.07501 and Longitude = 121.075



Export Graph

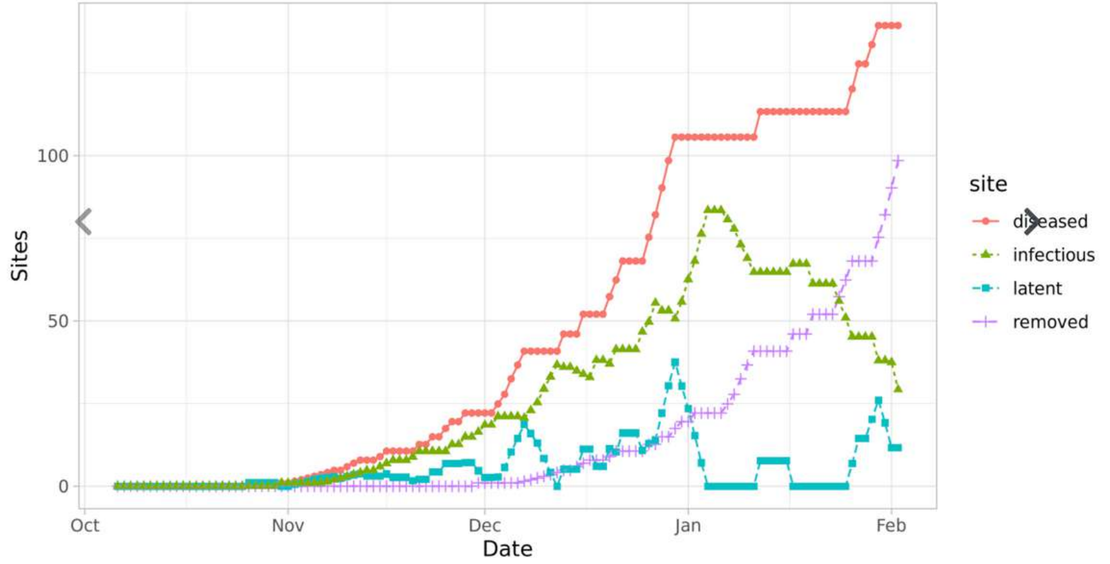
App

Graphs

Disease Progression with Crop Growth

Site states over time for bacterial blight

Results for crop transplanted by October 06, 2019 at Latitude = 16.07501 and Longitude = 121.075



Export Graph

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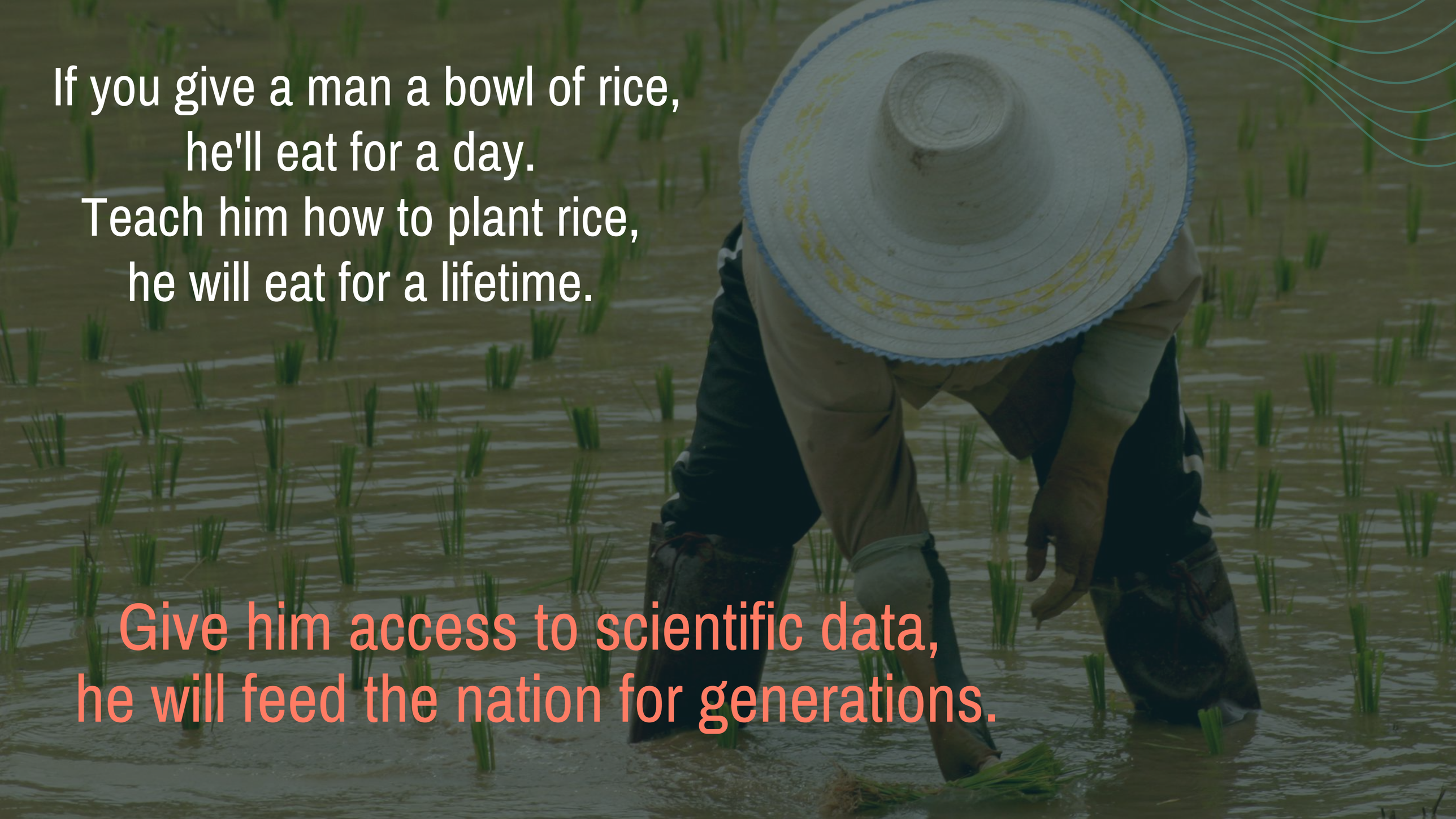

If you give a man a bowl of rice,
he'll eat for a day.
Teach him how to plant rice,
he will eat for a lifetime.

Give him access to scientific data,
he will feed the nation for generations.

Why stop at rice?

Do you have any questions?

Send it to us!

vmmadrid@up.edu.ph