Cassava Data-Driven Agronomy

Putting data at the service of agriculture

Objectives

1. To assess potential for pest and disease early warning system through scenario analysis for crop resilience.
2. Enhance the capacity for cassava crop monitoring and pest surveillance by using crowd sourcing toolkits.
3. Provide farmers with a straightforward and vital decision support tool for pest and disease management in cassava production.

IMPACT

- ✓ Reduced yield gap
- ✓ Enhanced adaptive capacity of farming systems to climate change
- ✓ Increased livelihoods
- ✓ Empowered partners

Components

1 2014-2016 Recall Data

- Crop yield
- GPS location
- Pest & disease
- Farming practices

Data Acquisition

- ✓ Pooling existing data through partnerships
- ✓ Modern data capture and management strategies using a mobile app and online DB

2 Weather Data

3 Soils Data

4 Data Mining Team and Partners at Work

cassavaposter.psd

FARMER SURVEY

300 Farmer Respondents

779 2014-2016 Cropping Events

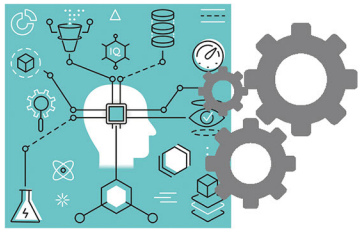
414 Data with GPS locations

OPENSOURCE DATA

ESRI NASA-POWER API

Data Analysis

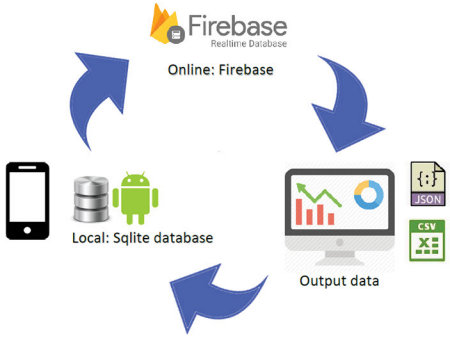
- Review, cleaning and formatting of collected data
- Merging of collected data with weather and soils data
- Machine learning



Methods

Data Collection

- Development of mobile app and data archiving system
- Field surveys on farmers and online data syncing using mobile app.



Results and Products

Data Visualization and Online API

https://appdatacollect-3b7d7.firebaseapp.com/analytics/analytics_demo.html

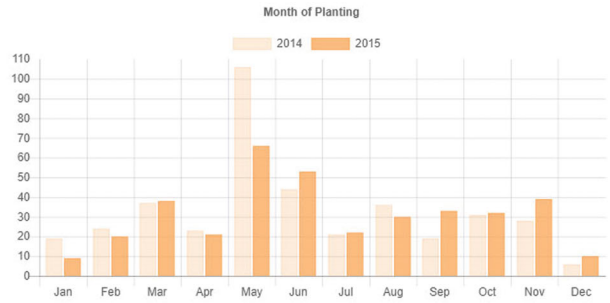
Scientific Research Publication

[title of research publication here]

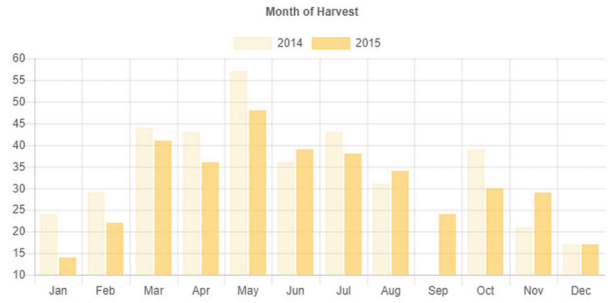
INITIAL Findings

PEAK OF PLANTING
May - June

Month of Planting



Month of Harvest



OPENSOURCE WEATHER DATA
ESRI
NASA-POWER API

HERBICIDE APPLICATION

Key Findings

- Data confirms that hot temperature equates to more pest and damage; this accounts for the detailed assessment of weather features.
- Confirms the importance of soil organic carbon to increase resistance to pest and diseases.
- Identified conditions/characteristics where frequency of pesticide application can increase pest and disease damage.

Recommendations

- integrated nutrient management to improve soil health
- improve climate information system for farmers
- Judicious use of pesticide.