

Satellite Based Crop Mapping, Monitoring & Yield Estimation Project

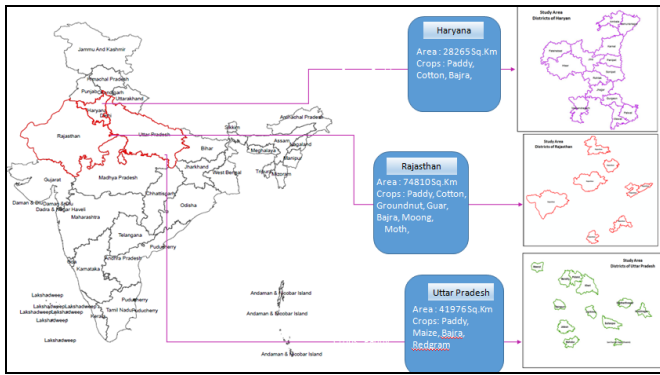


Figure1. Map showing the study area

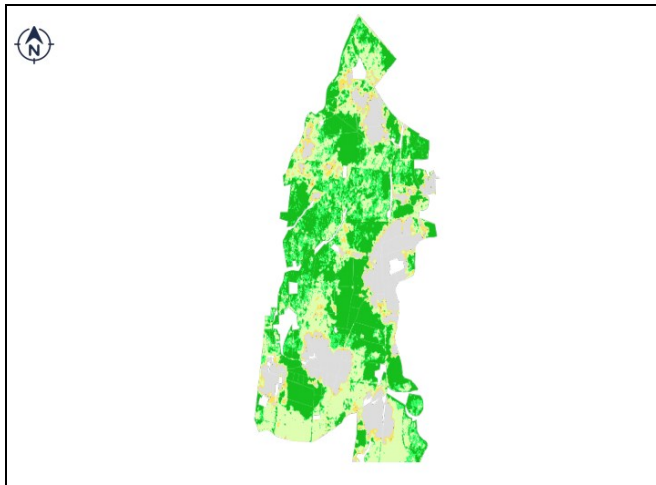


Figure2. Map showing Areas of GPS aided field-survey

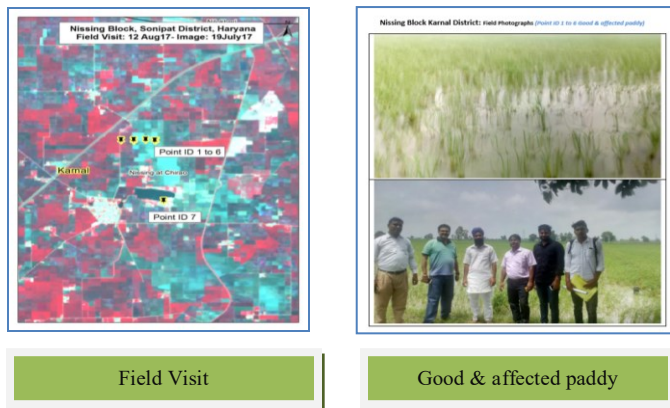


Figure3. Field Investigations and Field Validation

Business Need:

One of the major challenges the agri-insurance industry is dealing with is information asymmetry. For example, farmers indicate false land area of the field to be insured, or some areas of the field that are not currently under cultivation, but are indicated as such. Satellite data allows verifying such information, obtaining more precise data and avoiding fraud from potential clients.

Other major challenge faced by the insurance companies is the wrong reporting by the ground agents, leading to huge financial losses to the company.

Client required "Satellite Data" based technology that allow analyzing mapping and monitoring of current crop conditions, forecasting potential risks and payout compensation accordingly.

Area Covered:

The area under cultivation for this study is spread across 1,45,051 Sq. Km in 3 states of India- Haryana, Rajasthan, Uttar Pradesh.

Inputs Used:

Image type	Sentinel-1 and Sentinel 2B
No. of Images	On 5 Days Interval
No. of Bands	4
Resolution	10 m

Business Solution:

Multi-temporal Satellite Images were procured during the Cropping season. Selection of satellite images was done carefully to coincide with the transplantation/sowing, growth and harvesting of different crops. Further GPS based field survey and analysis of satellite images was done to provide the following information to the client-

- i) Near real time situation of Flood and Drought developing in different districts during different time of the study
- ii) Crop Distribution Map
- iii) Crop Performance Map
- iv) Analysis of Statistical Data on Crop Yield and Its Correlation with Satellite Derived Indices
- v) Field Survey for Data Collection and Validation
- vi) Yield Forecasting
- vii) Production Estimation

Advantages of the Study:

- i) Client was able to get information to validate the field information from their agents
- ii) Correct information about the situation prevailing in the field
- iii) Crop Acreage
- iv) Crop Yield
- v) Crop Loss, if any

Software Used:

- i) Erdas Imagine
- ii) ArcGIS

