



# FARMING OPTIMIZATION

# PROBLEM STATEMENT

- Farmers in our country face a lot of loss due to improper planning of crops. A land loses its fertility in a span of few years if the same crop is grown or only few crops are rotated.
  - Also Farmers face many issues in wastage due to improper crop management and crop choice.
  - Many un-experimented crops may yield a better profit but farmers are unaware of them.
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# SOLUTION

- We plan to develop a machine learning based model to eradicate the problem. We will have the farmer give details of all required information and then the machine chooses the best crop for the farmer to grow.
  - The data is to be prepared from expert analysis of crop data and weather data as well.
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# FLOW OF SOLUTION

- Data Collection
- Machine Learning Model Training
- ML Model Deployment



# DATA COLLECTION

Data will be collected from government based farmer research websites.

<https://ipad.fas.usda.gov/cropexplorer/datasources.aspx>

<https://agricoop.nic.in/en/all-india-crop-situation>

<https://sage.nelson.wisc.edu/data-and-models/datasets/crop-calendar-dataset/>



# ML MODEL TRAINING

- ML model will be trained using SK learn ML libraries and data collected in previous step.
- All data evaluation will be performed and the proper model selection is to be made.
- After testing the data set and model accuracy most suitable model will be deployed.



# MODEL DEPLOYMENT

- ML model will be deployed using an app.
- All interaction will be made farmer friendly. For Example: We can we will add images and MCQ type filling for previous group of crops.





## Points:

Easy interface for farmers using image based and regional language based interaction.



Cotton



wheat

- Soil based crop suggestion and weather based crop management.
- Simple and no login based system to reduce use complicity




# APPLICATION FLOW

## Farmer's Screen:

- Enter Location
- Enter Previous Crop
- Enter Years of land used

## Output:

- A crop suggestion.
  - Timely weather based
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# PROCESS OF RECOMMENDATION

1. Suggestion based on the soil requirements.
  2. Suggestion to manage demand and supply ratio.
  3. Effects of unexpected seasonal changes.
  4. Previous crops and nutrients balance lost due to them.
  5. Experimental suggestions to grow a long term profitable crop.
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