**Introduction**

In agriculture, choosing the right crop to grow is an import decision and it depends on several factors like as the type of soil, weather and other natural conditions In this project, I use machine learning and python to help me with this analize and decision.

Based on that, the goal is to build a model that can suggest the best crop to plat based on sil and climate data.

This study is focused on the agriculture and food domain, one of the options available on the CA guidance for this assignment. The dataset I choose to use is called the Crop Recommendation Dataset, and it was found on Kaggle (<https://www.kaggle.com/datasets/atharvaingle/crop-recommendation-dataset>).

Just to highlight, it includes 2.2200 examples with 7 input features which are: levels of Nitrogen (N), Phosphorus (P) and Potassium (K) in the soil, temperature, humidity, pH and rainfall. The target column is the name of the recommended crop.

**OBJECTIVE:**

This is a classification problem, where I try to predict the crop type through using the features available and previous mentioned in my introduction. To solve this, I will test at least two different models, for example, Random Forest and Support Vector Machine (SVM) and also use cross0validation and hyperparameter tuning to check how well the the models perform and how reliable they are.

Based on that, another objective of this project is to show how machine learning can models can be used to sypport smart farming and better food production. By discussing all results with the help of graphs/charts and accuracy and performance scores (for example: accuracy and F1-score),