Mosaic-Mapping

Optimizing Crop Production through Companion Plantation and Variable Rate Technology

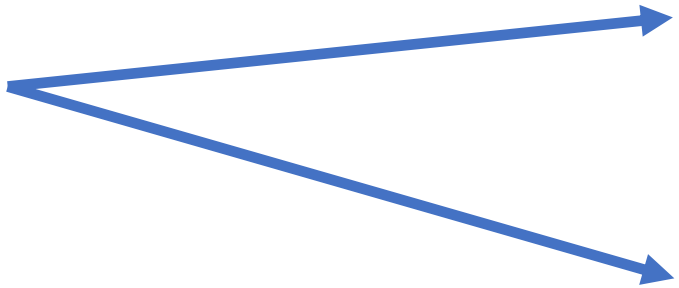
Current Challenges

- Wastage of fertilizers or overuse of fertilizers
- Lack of knowledge of which crops can be grown together based on their nutrition and weather requirement

---

How can we optimize the crop production?

By learning which crops can be grown together



Identifying a geography where weather conditions to thrive for different crops is similar

Identifying similar type of soil profiles required for different crops hence optimizing the fertilizer input

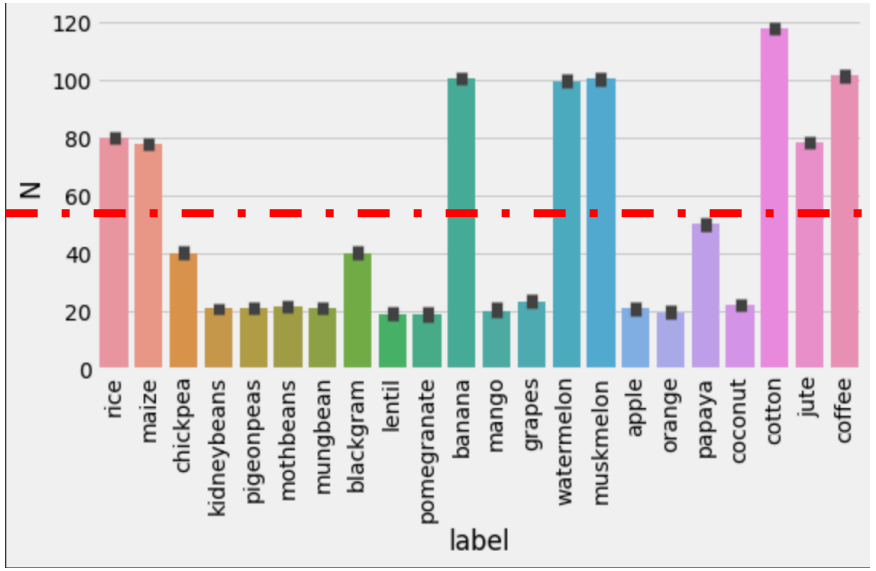
Methodology

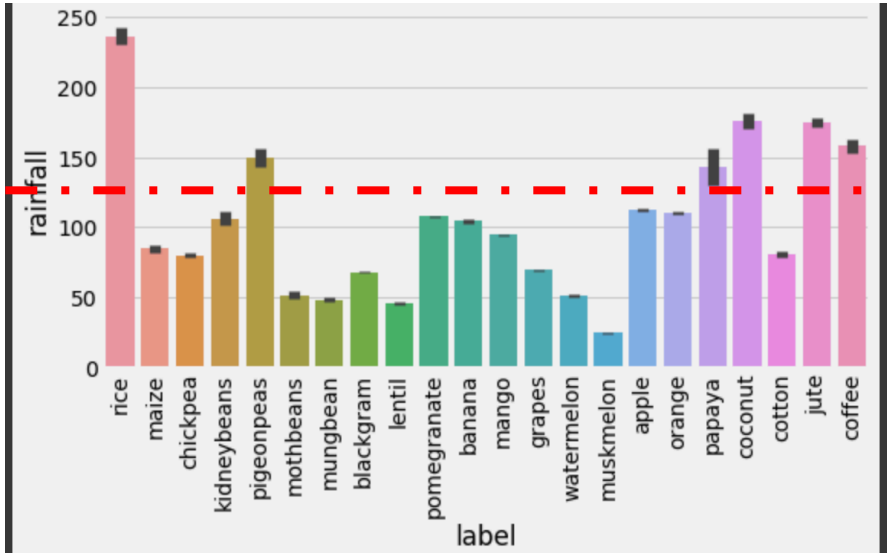
Average of the entire dataset for humidity, rainfall, nitrogen, phosphorus and potassium were calculated. All the crops with values above this average were considered.

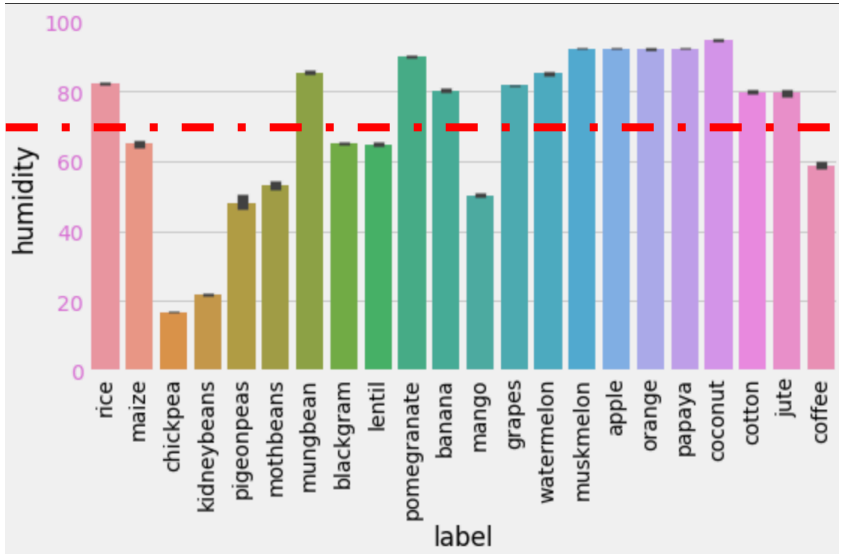
For example – In the following image the average of N content in soil for all crops is approximately 55 units.

So – rice, maize, banana, watermelon, muskmelon, cotton, jute and coffee all require **high Nitrogen** content to thrive as their average is greater than 55.

Similarly, when we observe the variables humidity, rainfall, K and P, we find the crops which require more of these units and less of these units.





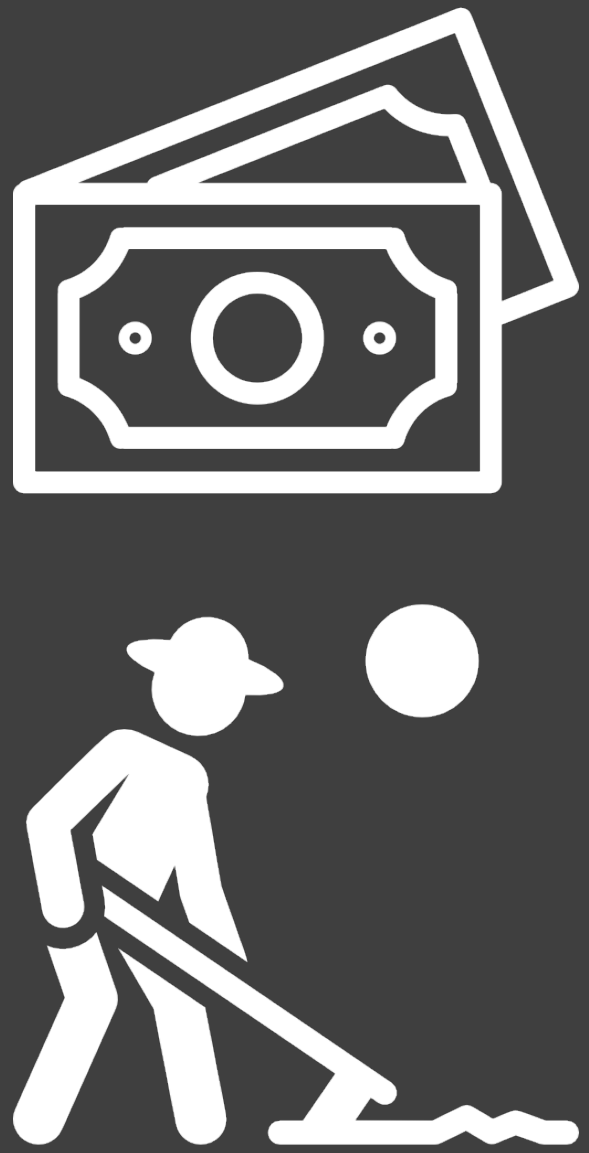


Companion Plantation and VRT

When we carry out further analysis to identify crops which *like* to grow together, we find very interesting results.

The following table represents the plants which can grow together and recommendations on what can be done to optimize the production.

Requirement	Crops	Recommendation
High Rainfall and High Humidity	rice, papaya, coconut, jute	Can be grown near New Orleans where the conditions are satisfied. NPK needs to provided though VRT
Low N High P, K High Humidity	apple, grapes	Fertilizer cost can be saved by growing both these crops close by. Fertilizer can be sprayed uniformly as the requirement is known.
High N Low P,K High Humidity	maize, watermelon, muskmelon, cotton, coffee	Fertilizer cost can be saved by growing both these crops close by. Fertilizer can be sprayed uniformly as the requirement is known.



Save Money and Resources

Adopt Companion Planting and VRT