

ML Random Challenge

Solarillion Foundation

Results Observed

- Missing values were filled using Iterative Imputer
- The data is non linear and fits the best for Gradient Boosting Regressor
- Top 5 Features for Yield / Acre (kilos) *{using SelectKBest}*
 1. Month
 2. Seed Type
 3. Village
 4. Pesticides used (kilos)
 5. Fungicides (kilos)
- Top 5 Features for Yield / Seed (kilos) *{using SelectKBest}*
 1. Month
 2. Pesticides used (kilos)
 3. Fertilizers used (kilos)
 4. Herbicides (kilos)
 5. Acres cultivated

- Top 5 Features for Gross cob quantity (kilos) $\{using\ SelectKBest\}$
 1. Acres cultivated
 2. Seed used (kilos)
 3. Herbicides (kilos)
 4. Fertilizers used (kilos)
 5. Pesticides used (kilos)
- Top 5 Features for all three output variables $\{using\ R^2\ Score\}$
 1. Month
 2. Seed Type
 3. Seed used (kilos)
 4. Herbicides (kilos)
 5. Acres cultivated

- Pearson's Heatmap after normalization

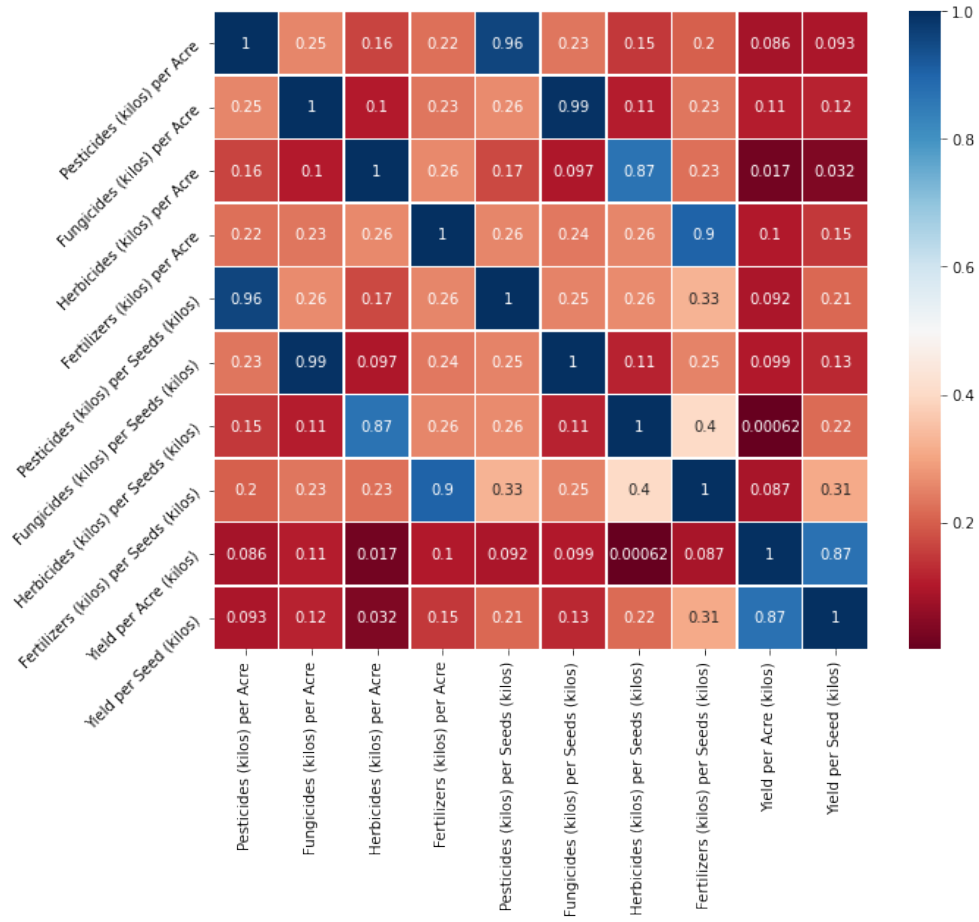
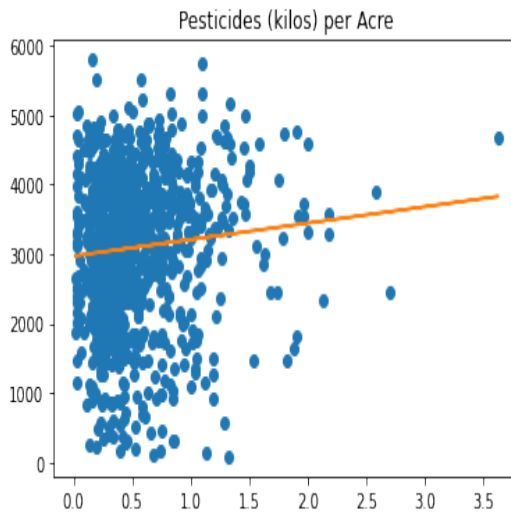


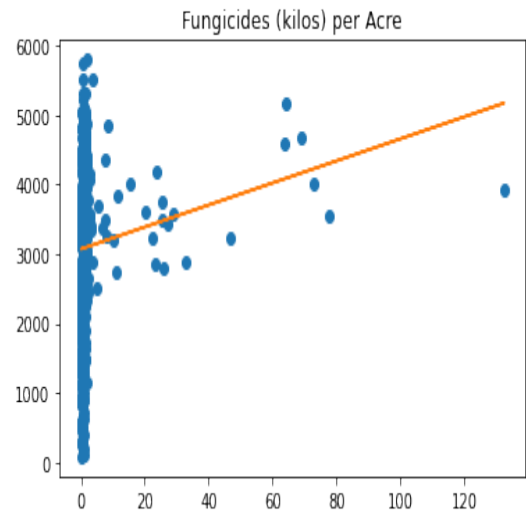
Figure 1: Pearson's Heatmap after normalization

- Order of feature correlation w.r.t Yield per Acre (kilos)
 1. Fungicides (kilos) per Acre
 2. Fertilizers (kilos) per Acre
 3. Fungicides (kilos) per Seeds (kilos)
 4. Pesticides (kilos) per Seeds (kilos)
 5. Fertilizers (kilos) per Seeds (kilos)
 6. Pesticides (kilos) per Acre
 7. Herbicides (kilos) per Acre
 8. Herbicides (kilos) per Seeds (kilos)
- Order of feature correlation w.r.t Yield per Seed (kilos)
 1. Fertilizers (kilos) per Seeds (kilos)
 2. Herbicides (kilos) per Seeds (kilos)
 3. Pesticides (kilos) per Seeds (kilos)
 4. Fertilizers (kilos) per Acre
 5. Fungicides (kilos) per Seeds (kilos)
 6. Fungicides (kilos) per Acre
 7. Pesticides (kilos) per Acre
 8. Herbicides (kilos) per Acre

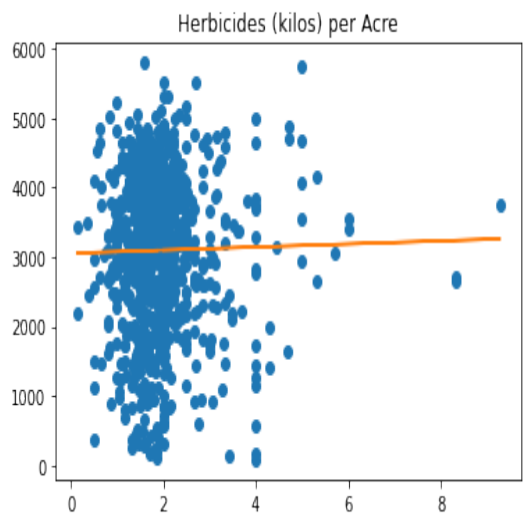
• **Data is not linear as show by the below graphs**



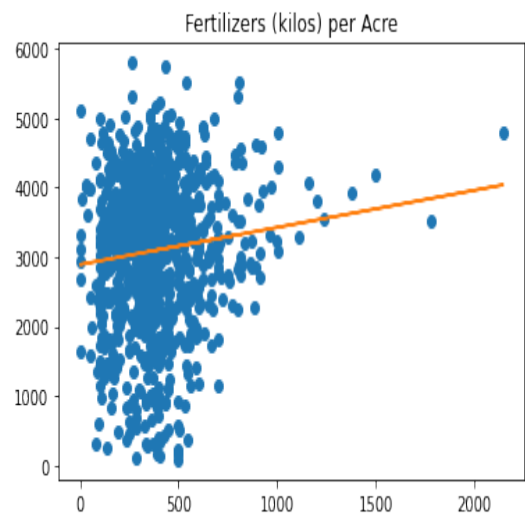
(a)



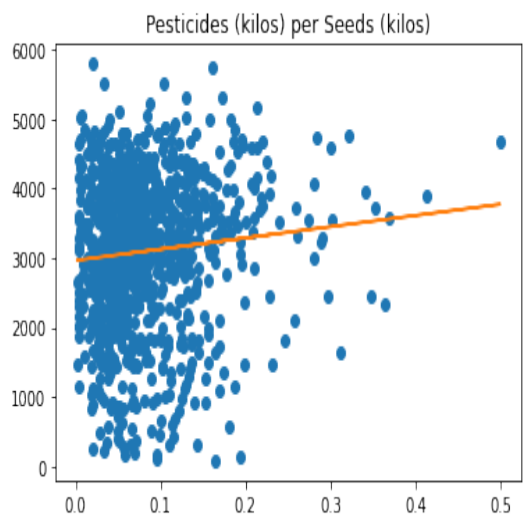
(b)



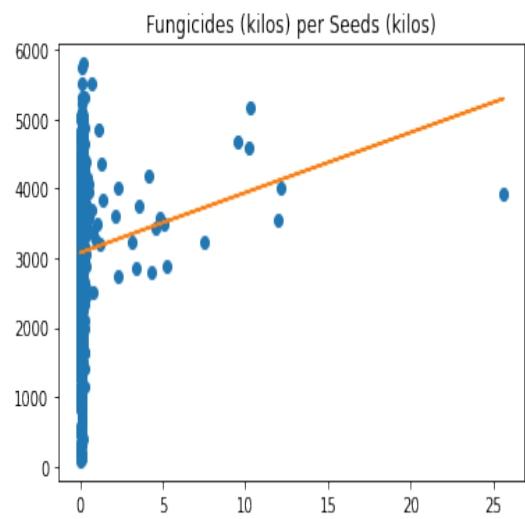
(c)



(d)



(e)



(f)

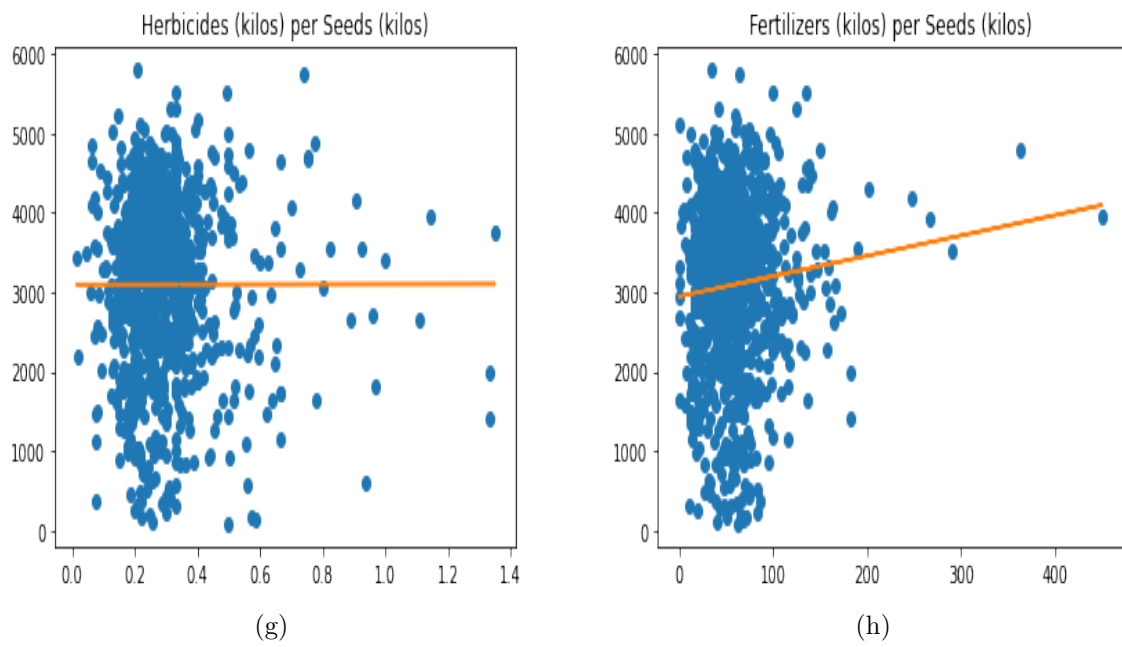
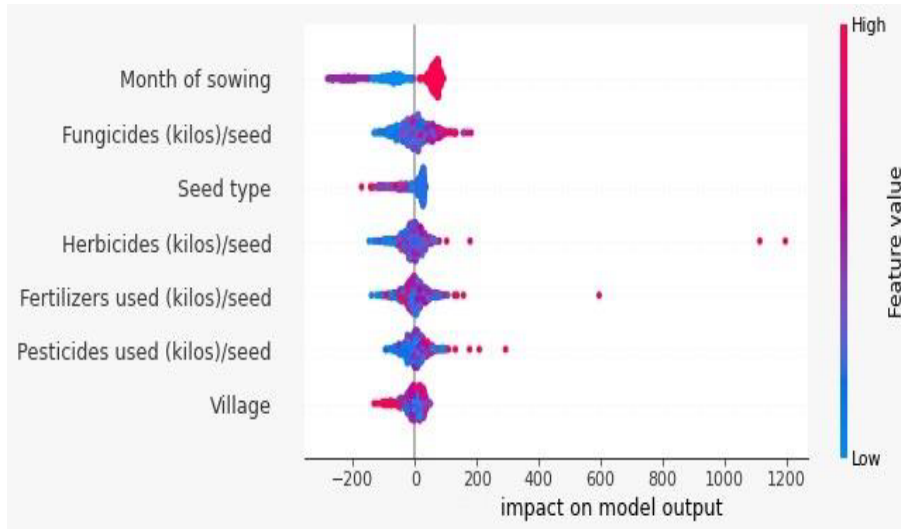
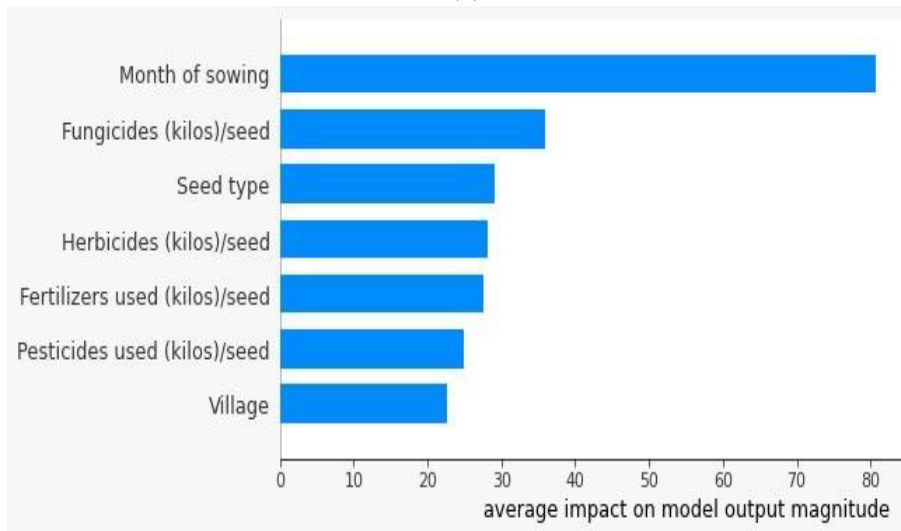


Figure 2: Graphs to prove the data is not linearly distributed

- Yield per seed (kilos) used



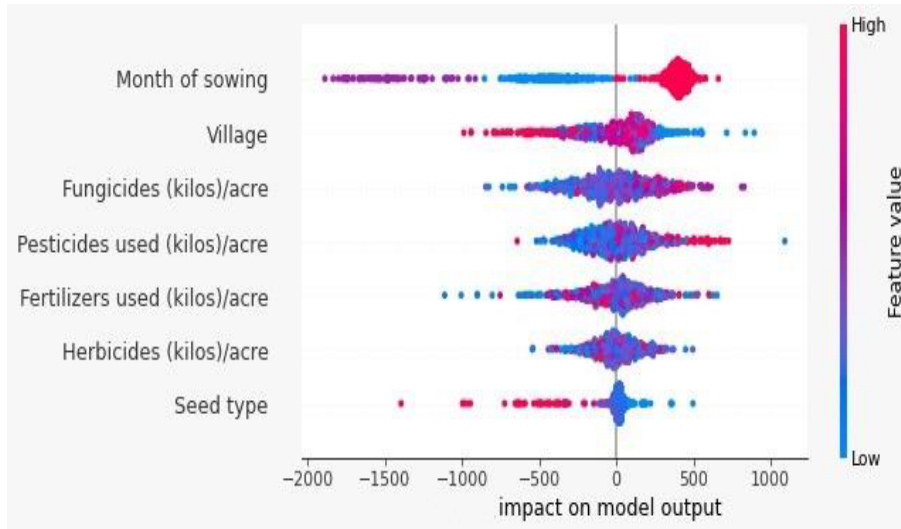
(a)



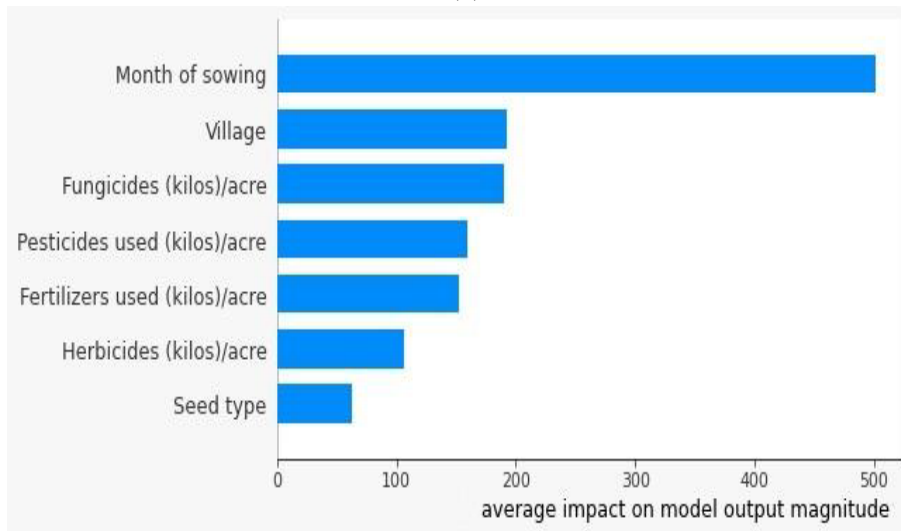
(b)

Figure 3: Yield per seed (kilos) used

- Yield per Acres cultivated



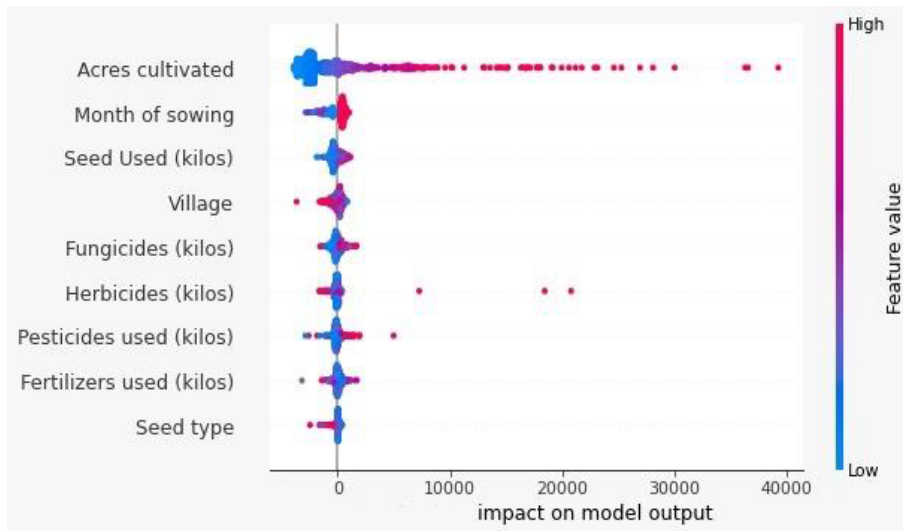
(a)



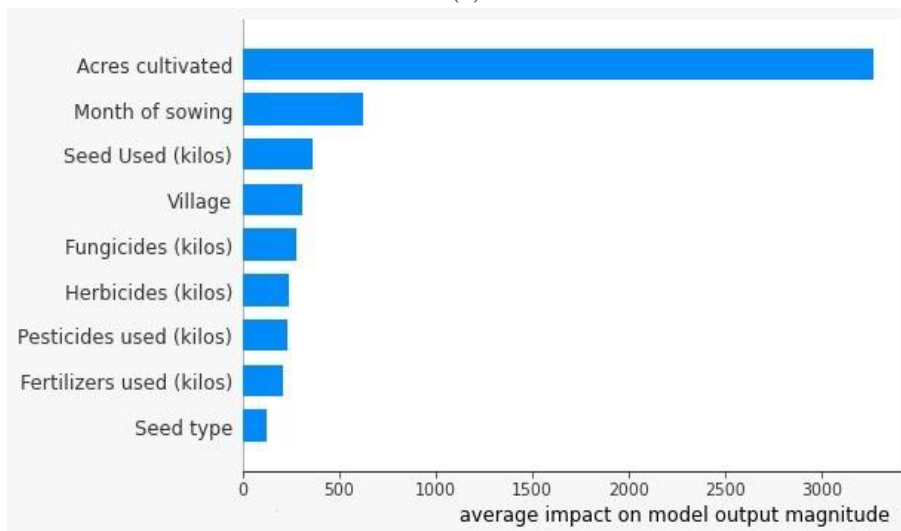
(b)

Figure 4: Yield per acres cultivated

- Gross cob quantity



(a)



(b)

Figure 5: Gross cob quantity