PLANT & REPRODUCTIVE HEALTH INDICATORS

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LAKE FOREST COLLEGE

CHICAGO BOTANIC GARDEN

Question of Interest & Hypothesis

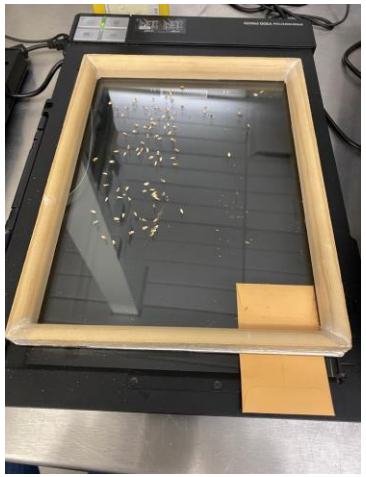
- Are plant health indicators and reproductive health indicators causally linked?
- H1: Longer basal leaves on *Echinacea angustifolia* individuals are associated with higher reproductive fitness
- H2: A higher number of basal leaves on *Echinacea angustifolia* individuals are associated with higher reproductive fitness

Materials & Methods

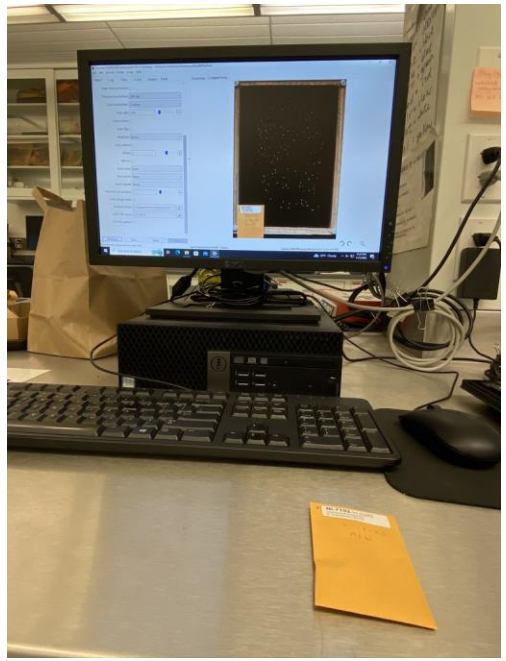
Plant health indicators: po1-nat field data 2021

Reproductive health indicators: collected in the lab from po1-nat 2022 harvest

Cleaning & Rechecking

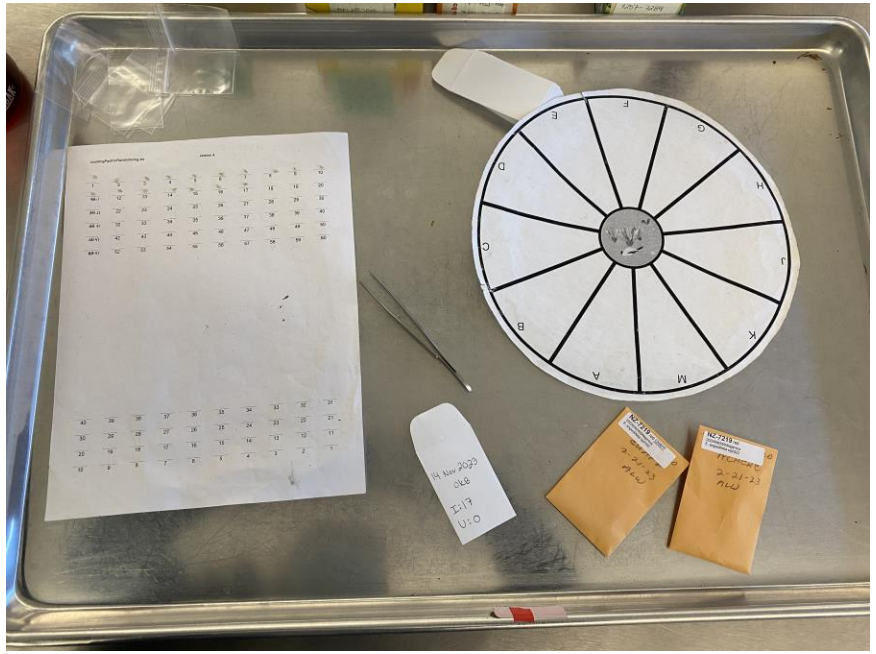


Scanning



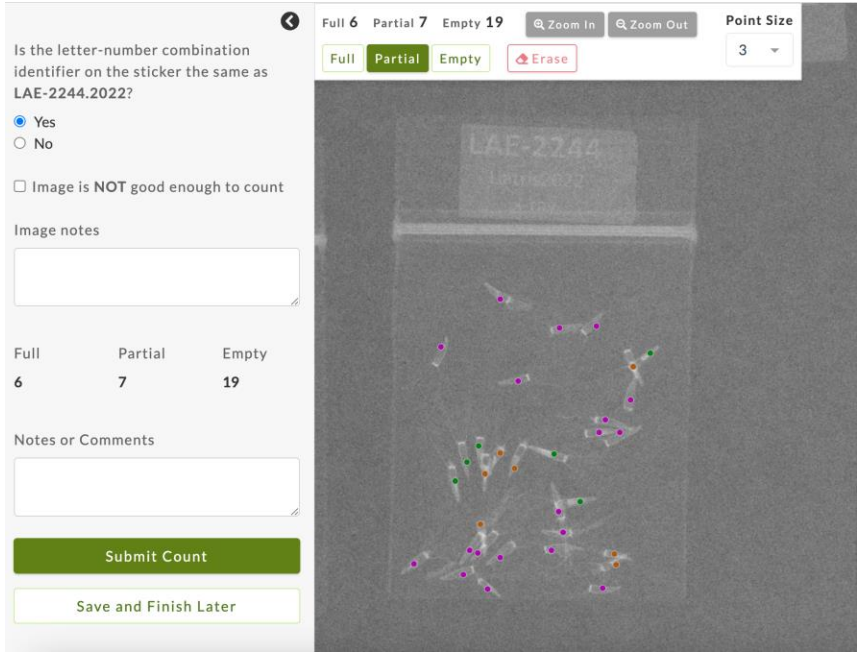
Counting

Materials & Methods



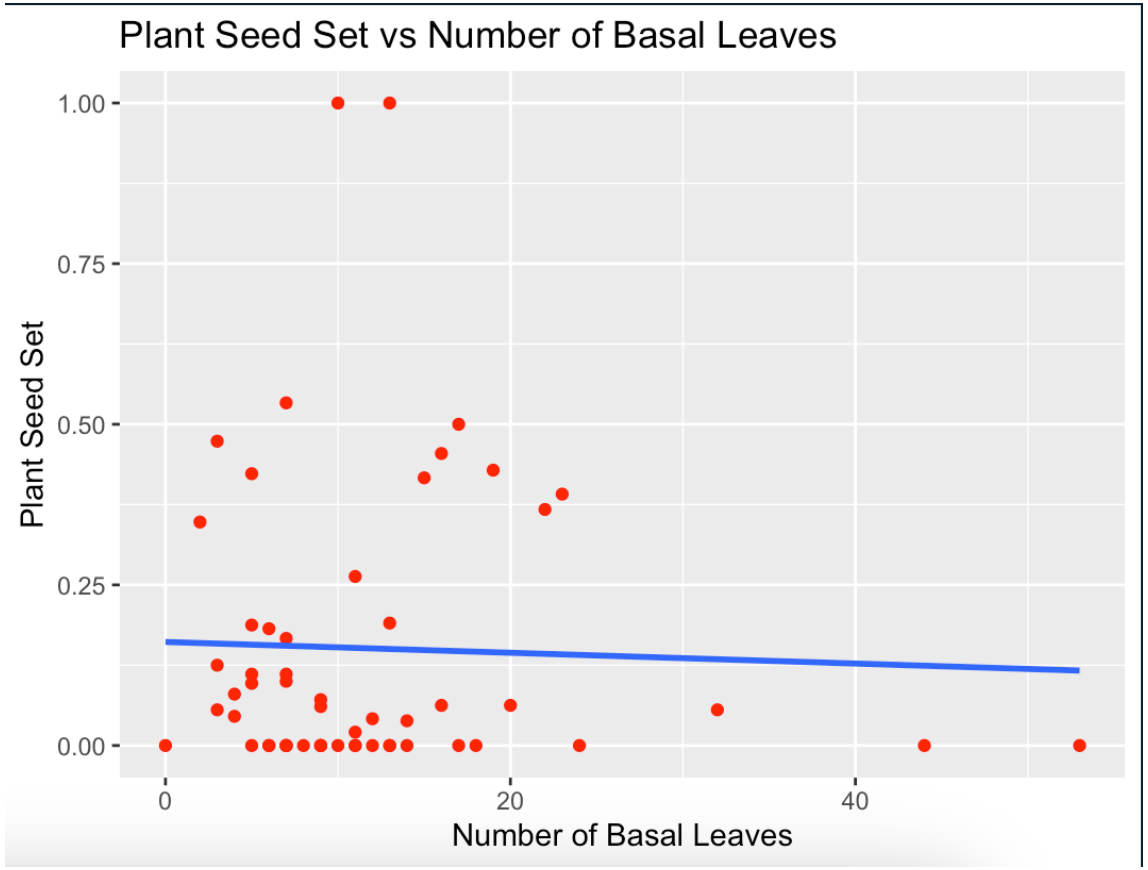
Randomizing

X-raying

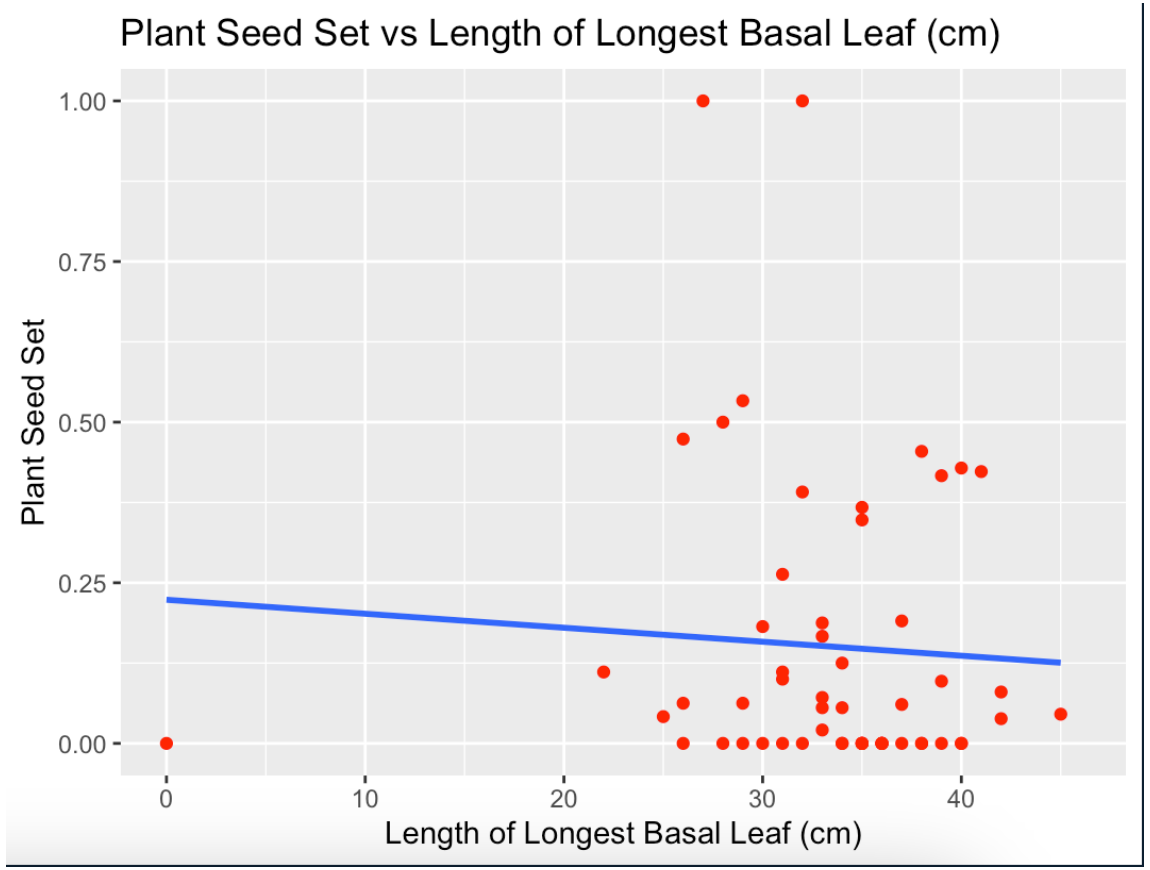


Classifying

Results

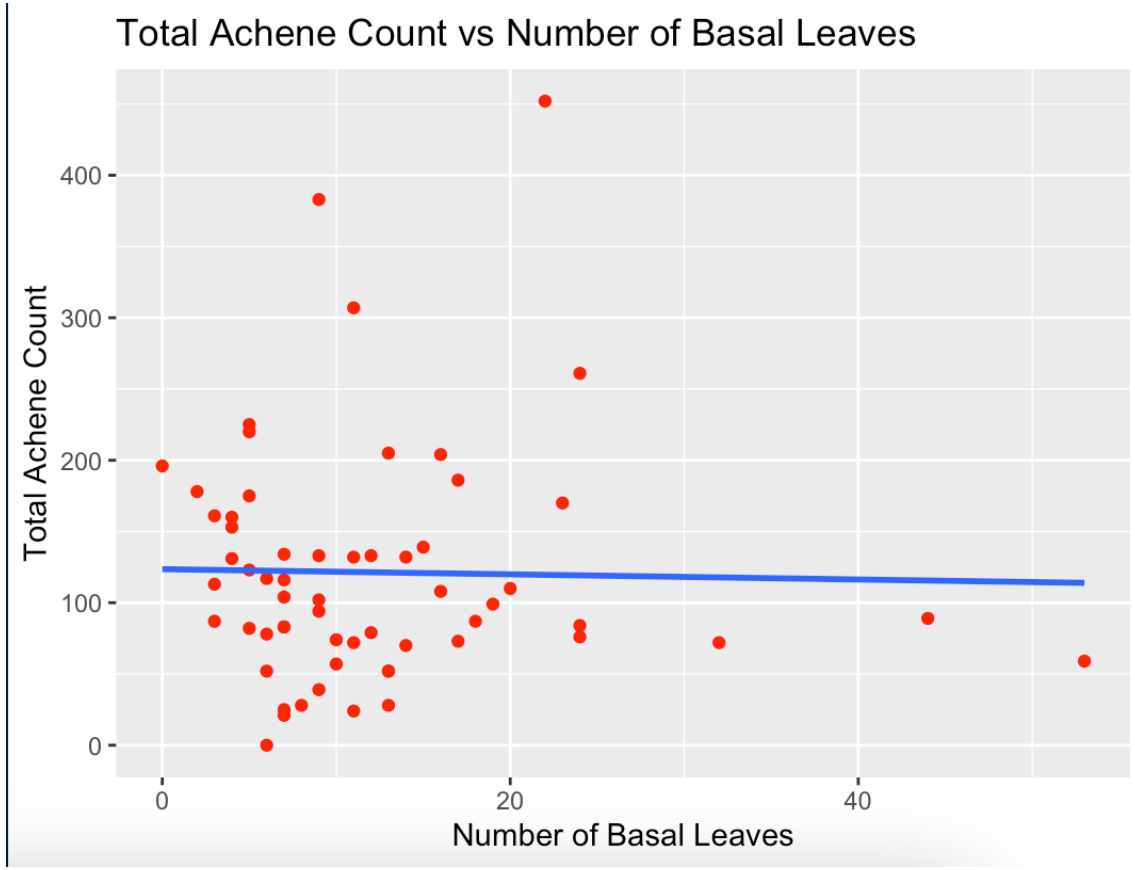


P-value: .800, R2: 0.001189

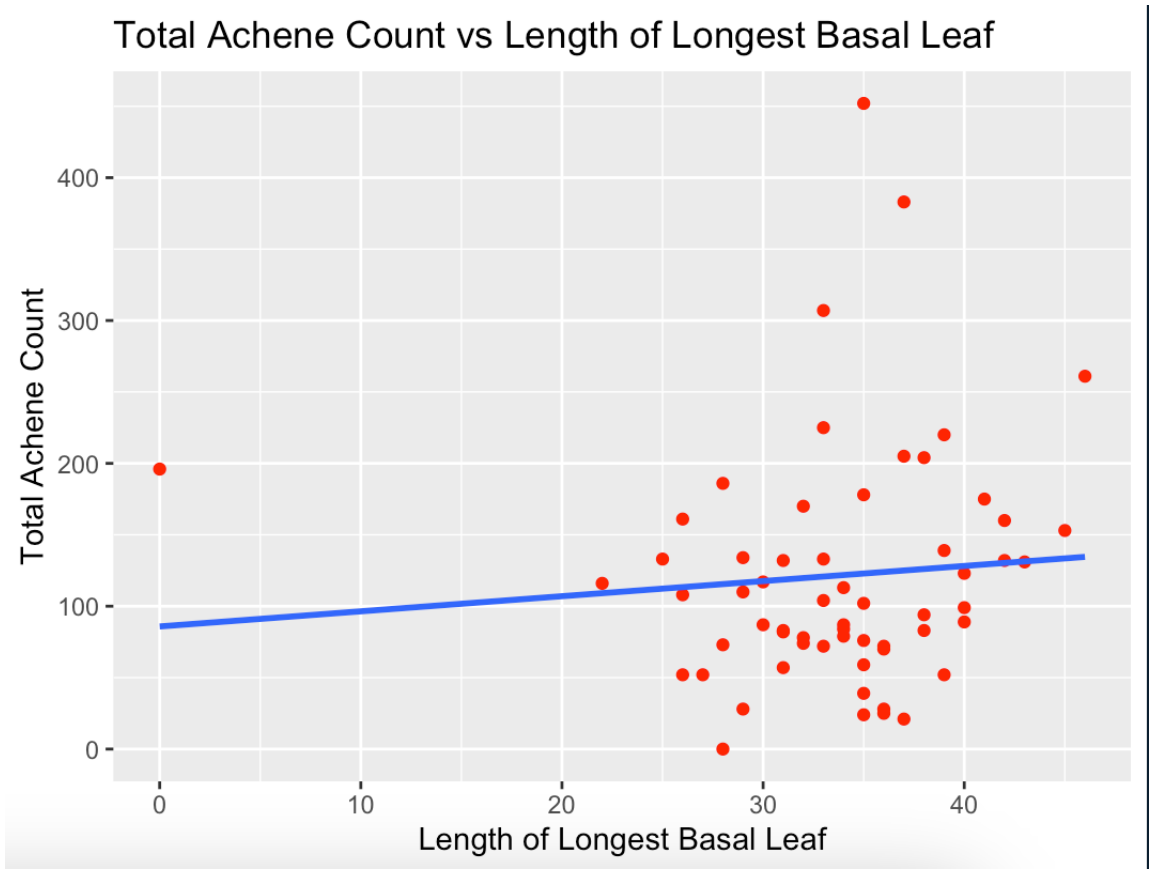


P-value: .648 , R2 : 0.00389

Results

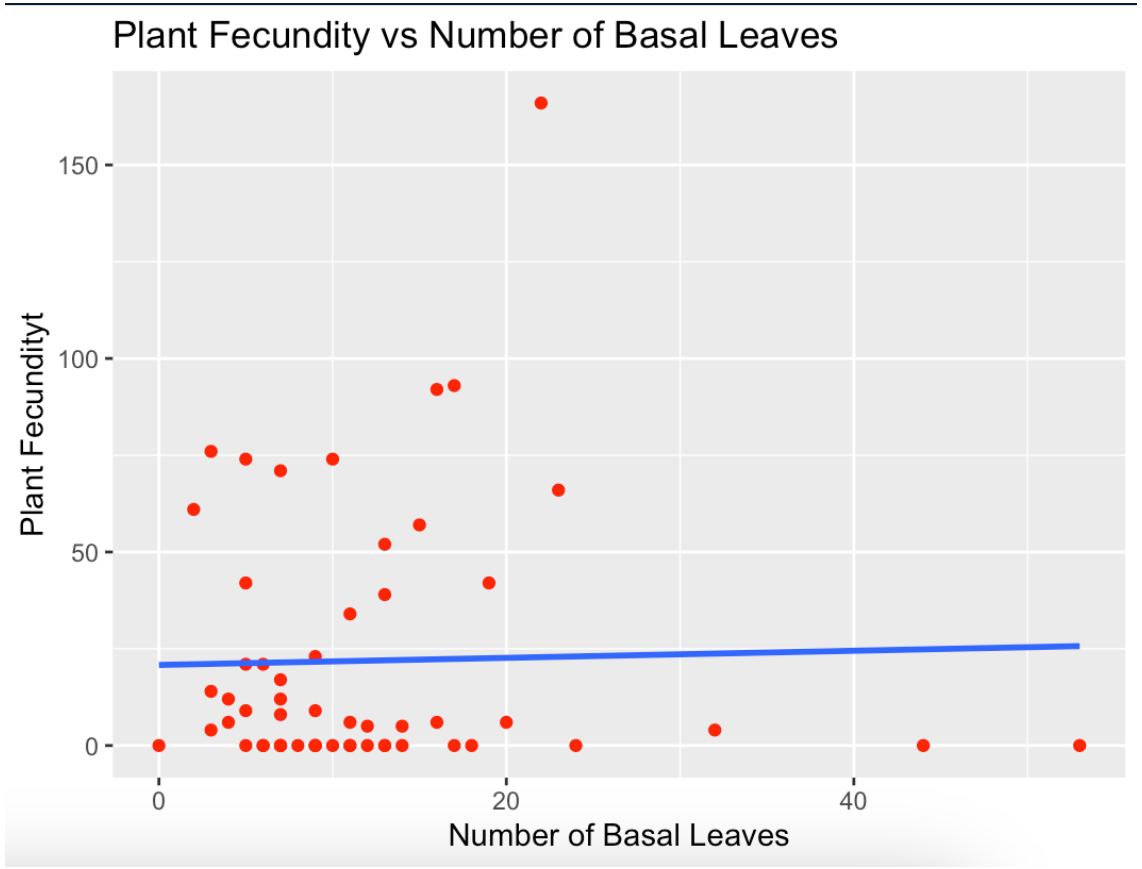


P-value: .875, R2: 0.0004276

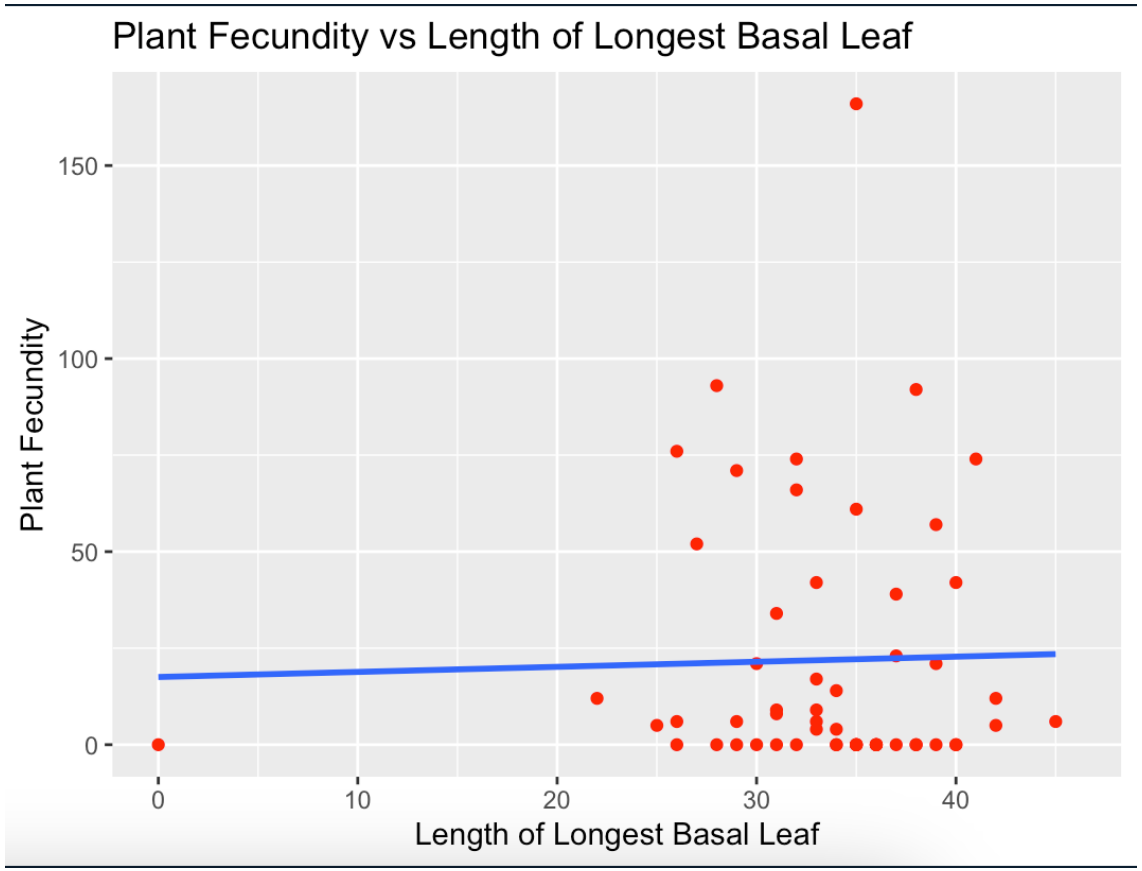


P-value: .515, R2: 0.007352

Results



P-value: .850 R2: 0.0006647



P-value: .850 R2: 0.03607

Conclusions

- H1: Longer basal leaves on *Echinacea angustifolia* individuals are associated with higher reproductive fitness
- H2: A higher number of basal leaves on *Echinacea angustifolia* individuals are associated with higher reproductive fitness
  - Plant health characteristics
    - Number of basal leaves & length of longest basal leaf
  - Reproductive health indicators
    - Reproductive fitness & effort (seed set, fecundity, number of achenes)
- Hypothesis not supported

Limitations & Further Studies

- Time frame
- More *Echinacea angustifolia* individuals

- Plant height and reproductive fitness
- Number of heads per individual and overall reproductive fitness

THANKS FOR LISTENING

Special thanks to Wyatt, Stuart, Sophia, Allen and everyone in the Echinacea Lab for helping me with this project