Predicting Red Clover Persistence Traits

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1. Importance of Red Clover



Cover crop used in regenerative agriculture to **improve soil** health, fertility and structure

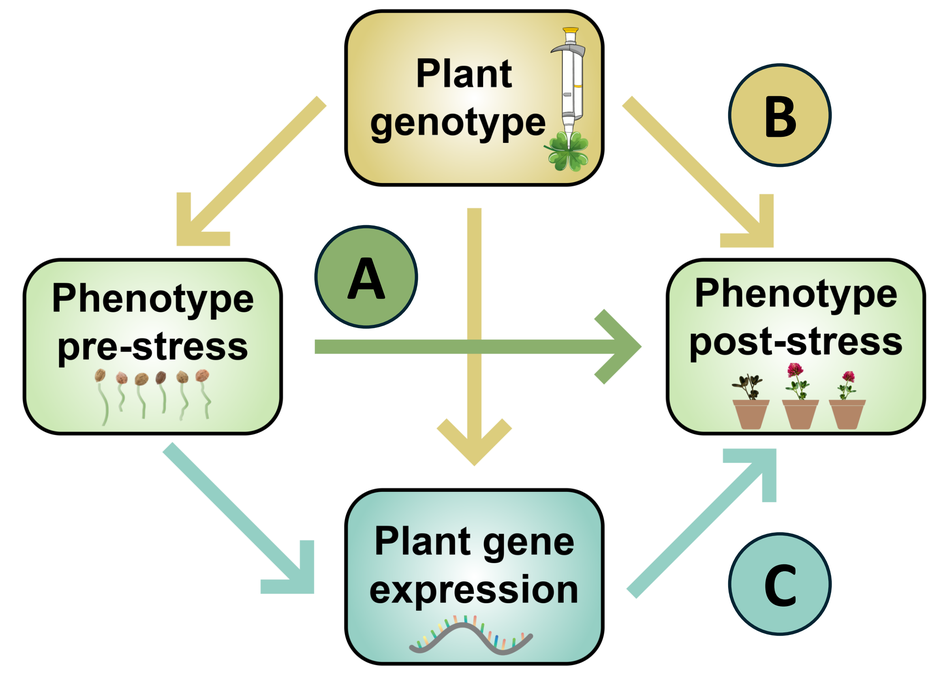


Challenges with persistence: sheep will graze, but ultimately herbicides may be applied

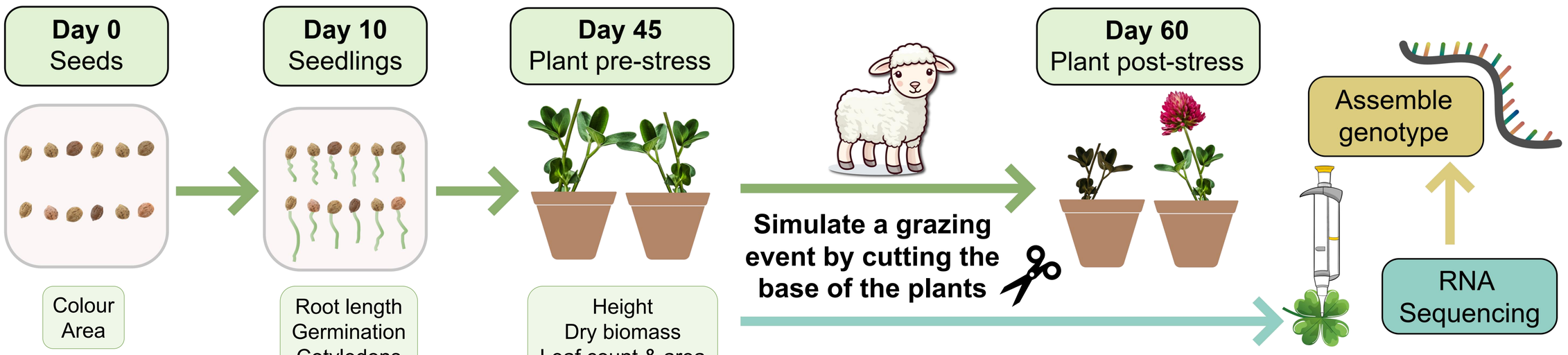


Need to improve **susceptibility of red clover to grazing** to reduce herbicide use

2. Research Aims



3. Plant Growth Methods



4. Preliminary Results

A Correlations between phenotypes pre- and post- grazing stress

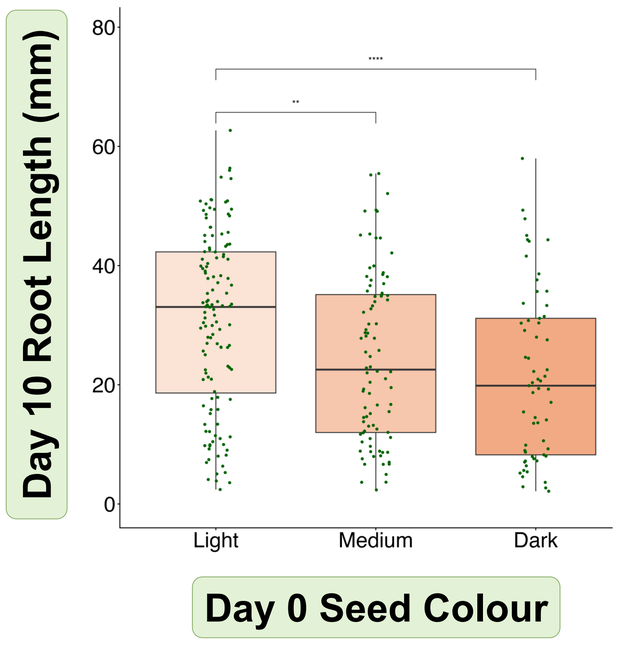


Fig 1: Boxplot showing mean and interquartile ranges (n = 288 seeds) for day 0 seed colour (light, medium, dark) and the corresponding day 10 root length (mm). Kruskal-Wallis, $p < 0.001$.

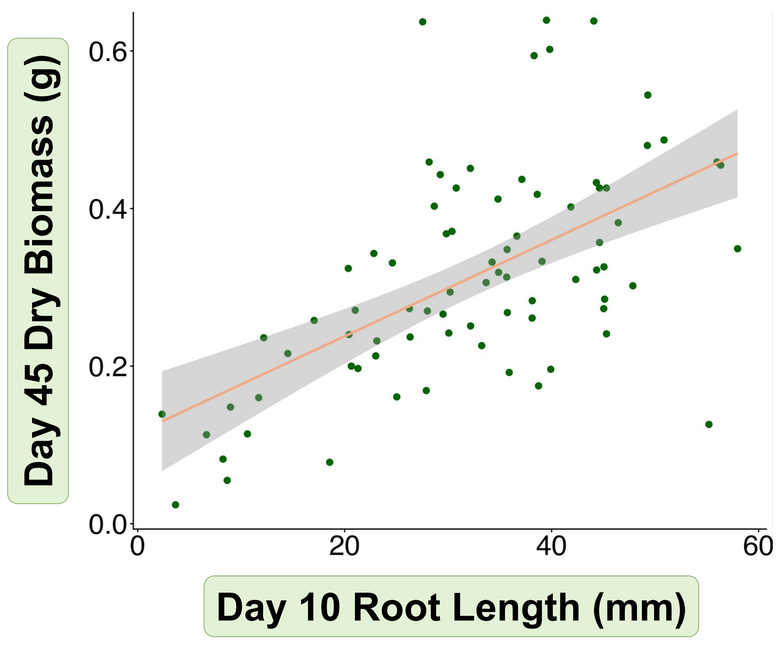


Fig 2: Scatterplot showing the correlation between day 10 root length (mm) and day 45 dry biomass (g) (n = 80 plants). Line shows linear regression of $R^2 = 0.33$, $p < 0.001$.

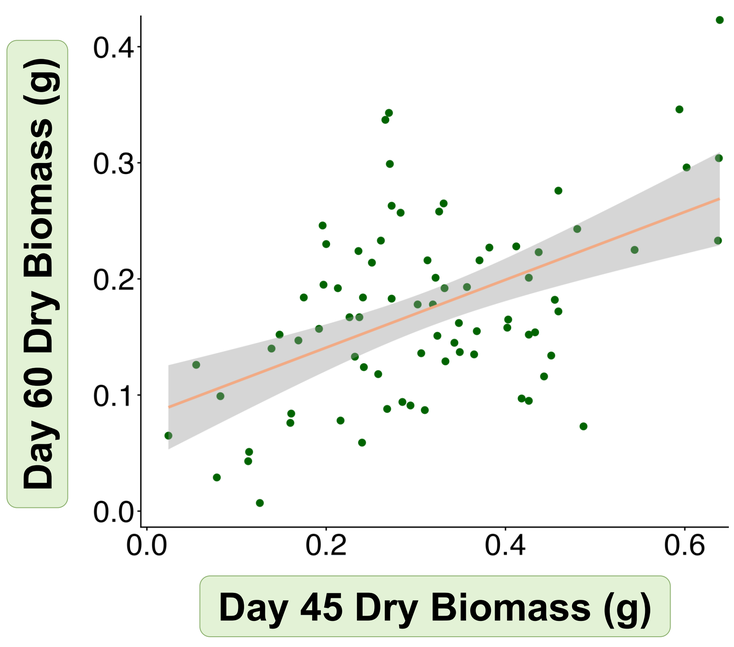


Fig 3: Scatterplot showing the correlation between day 45 dry biomass (g) and day 60 dry biomass (g) (n = 80 plants). Line shows linear regression of $R^2 = 0.25$, $p < 0.001$.

5. Future Work

B Assemble genotype to predict phenotypes and gene expression pre- and post- stress.

C Analyse gene expression (RNA-seq) of individual plants pre-stress for correlations with phenotypes.

6. Acknowledgements

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