



Legume
Generation

6.2.1 Genome wide association study of white clover diversity panel: Phenotypic assessment of white clover diversity panel

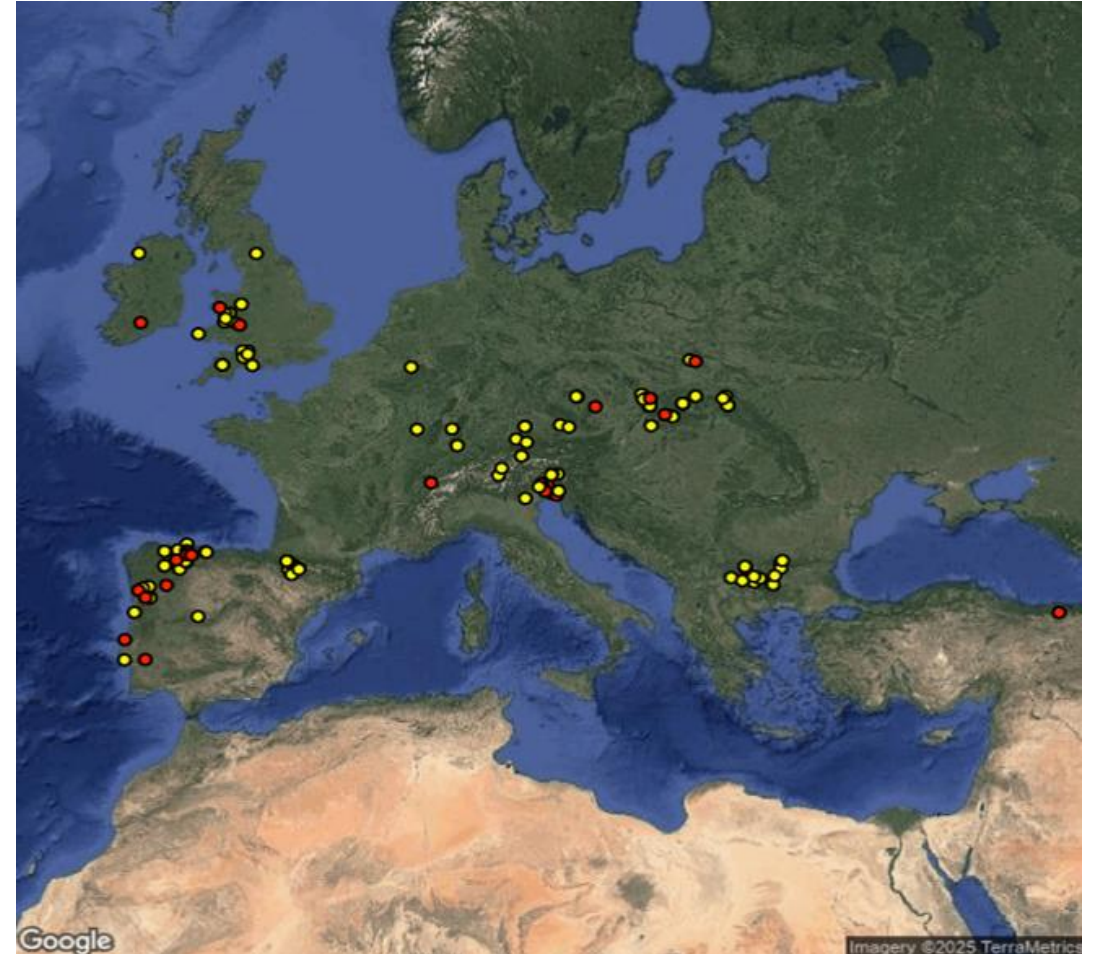
David Lloyd, Christina Holland– GER (UK)



**Funded by
the European Union**

WP6.2.1 Diversity panel

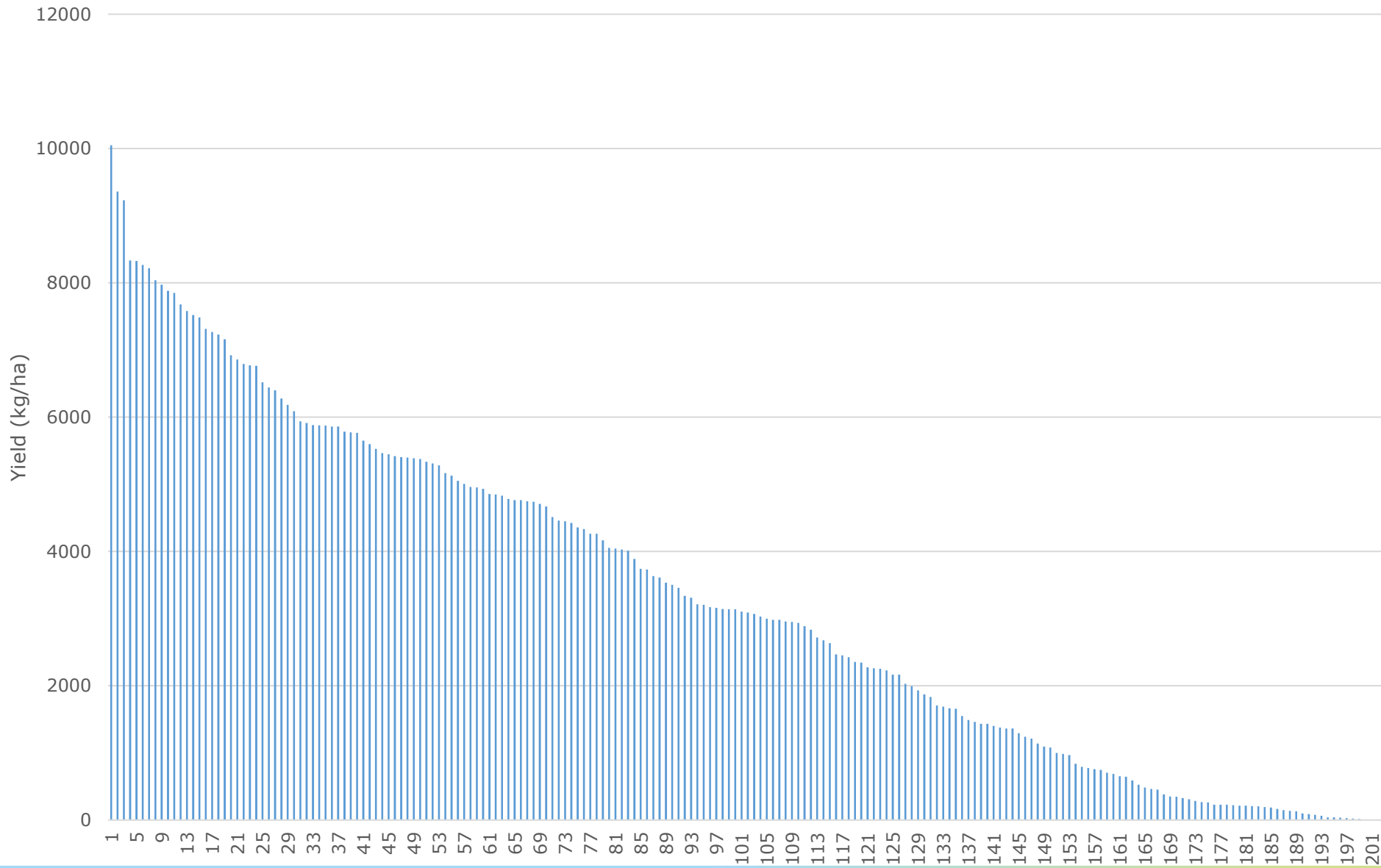
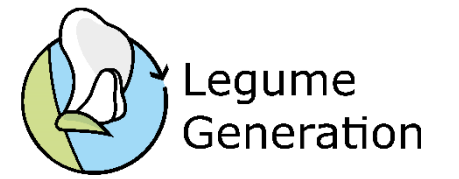
- 204 accessions in trial
 - 51 wild
 - 104 semi-natural
 - 11 breeders lines
 - 38 commercial cultivars
- 172 sequenced for GWAS at EI
 - 37 wild
 - 91 semi natural
 - 11 breeders lines
 - 37 commercial cultivars



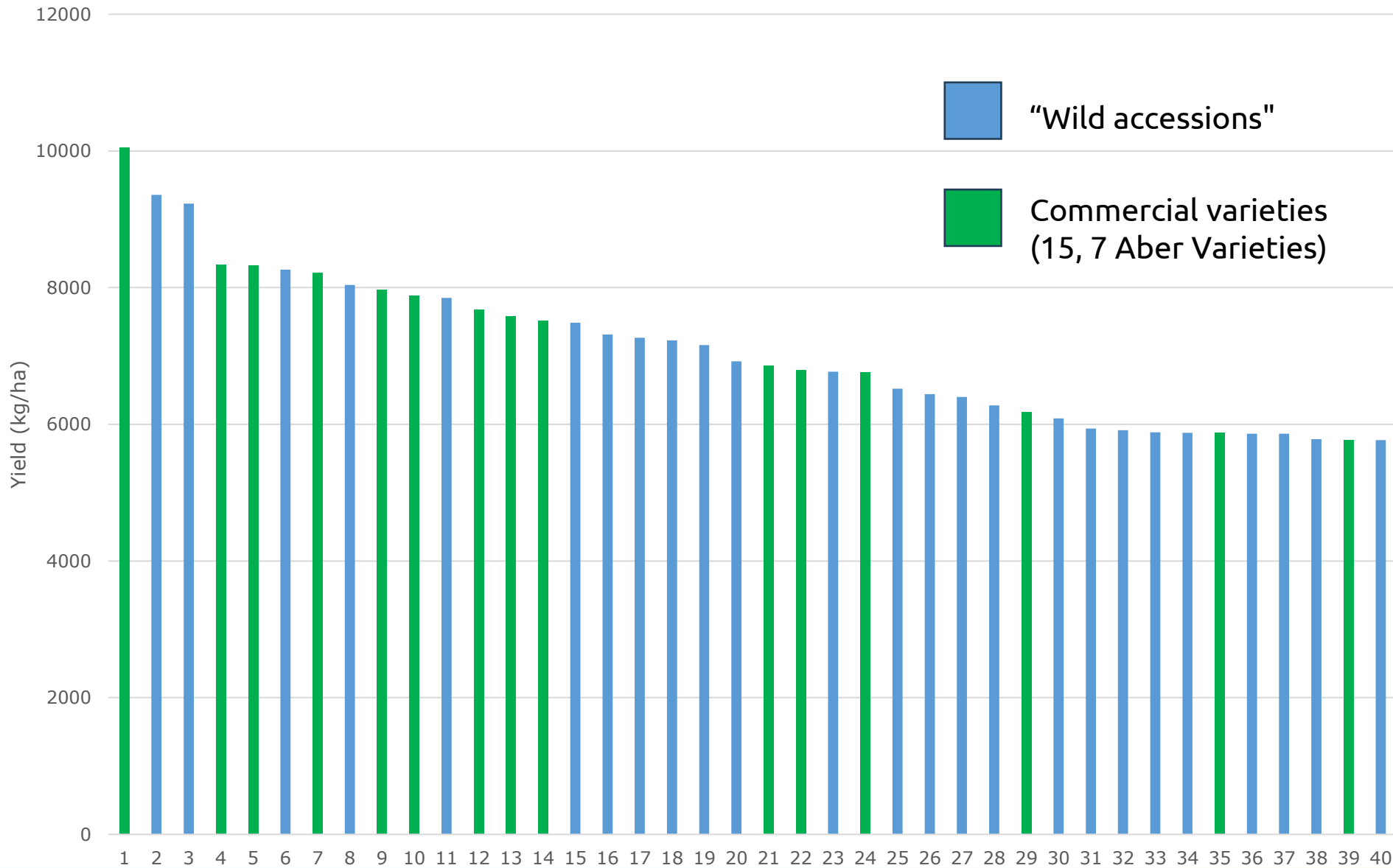
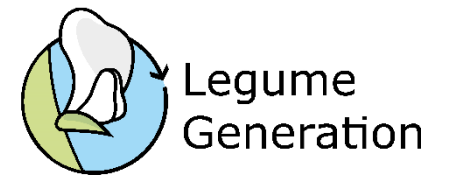
Phenotypic evaluation of diversity panel

- Field trials
 - Total yield on trial plots at 4 sites (Haldrup harvester)
 - Clover content by visual estimation

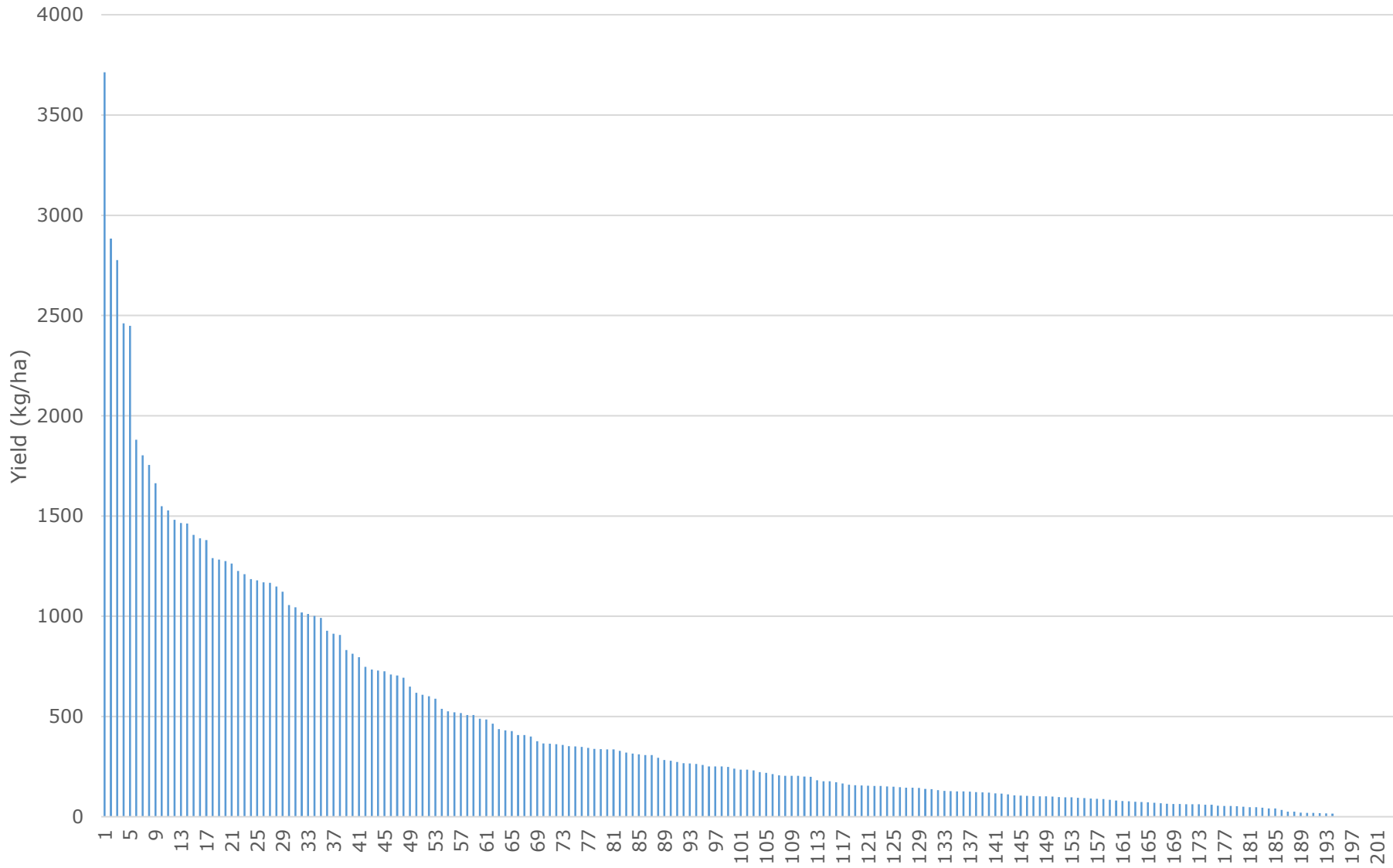
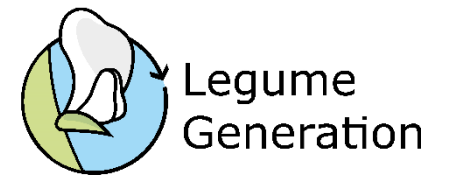
Year One Clover Yields, conventional conditions, Aberystwyth



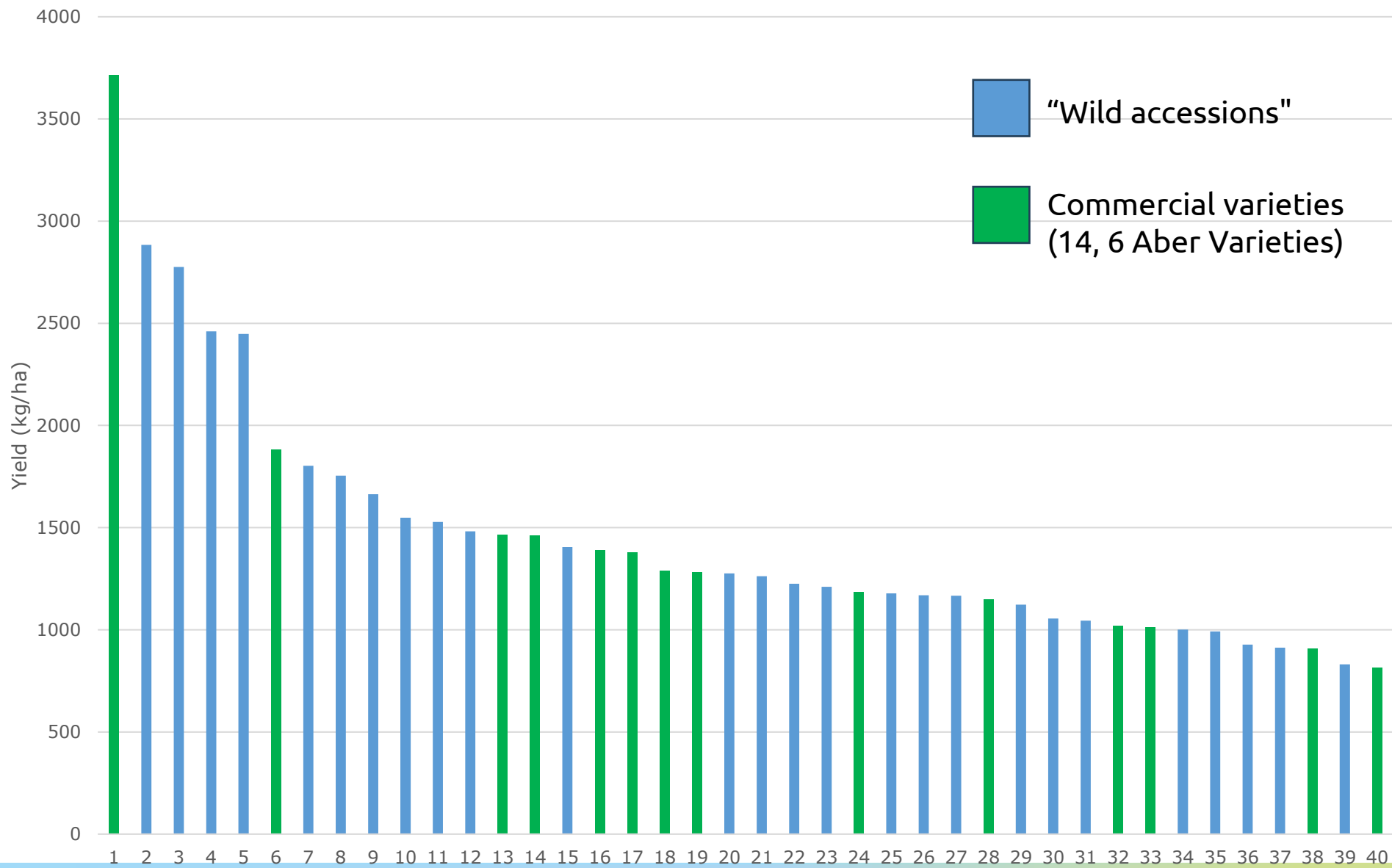
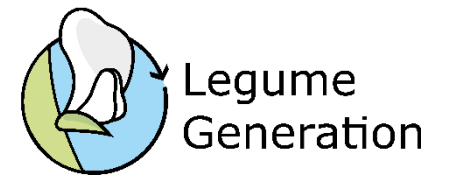
Year One Clover Yields, conventional conditions, Aberystwyth



Year One Clover Yields, low P Aberystwyth



Clover Yields Year One, Low P Aberystwyth



Phenotypic evaluation of diversity panel

- Considerations:
 - A number of accessions have failed to thrive
 - Limited information, questionable whether major markers will be found...
 - Unambitious for GWAS
- Obvious way to maximise value in Legume Generation to do additional measurements on spaced plant trial
 - To be established in Aberystwyth in 2026
 - Measurements to be carried out 2026-27

White clover UPOV characteristics

- Proportion of plants with cyanide glucoside (Lfl)
- To be assessed on potted plants (Spring/Summer 2026)
 - Tendency to form inflorescences before vernalization
 - Intensity of green color
 - Density of foliage
 - Prominence of white leaf marks
- To be assessed on spaced plants (Spring 2027)
 - Time of flowering
 - Natural height
 - Width
 - Growth habit

White clover UPOV characteristics

- To be assessed on spaced plants 2 weeks after flowering (Spring 2027)
 - Stem: internode length of stolon
 - Stem: thickness of stolon
 - Leaf: length of petiole
 - Leaf: thickness of petiole
 - Leaf: length of median leaflet
 - Leaf: width of median leaflet
 - Leaf: size of median leaflet
 - Leaf: ratio of length to width of median leaflet

- To be assessed on spaced plants 1 month after flowering (Summer 2027)
 - Inflorescence: length of peduncle
 - Inflorescence: thickness of peduncle
 - Plant: number of inflorescences
 - Inflorescence: diameter