

# A genomic selection training population for phalaris: genetic composition and seasonal yield



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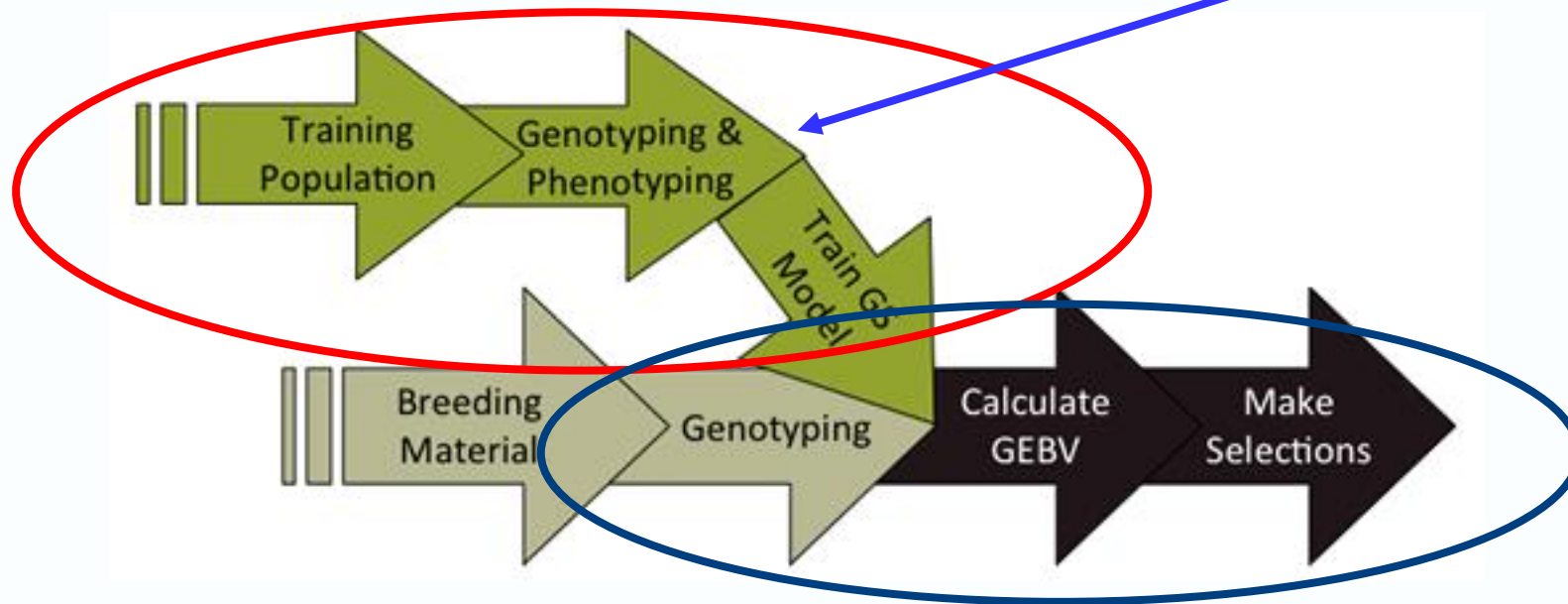
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# Genomic selection

DEVELOPMENT (3-4 years per cycle)



APPLICATION (1 year per cycle)

## PHALARIS TRAITS

- Yield
- Seed retention
- Al tolerance
- Persistence under grazing



Diagram from Heffner et al. (2009) Crop Science 49, 1

# Phalaris training population

## Winter-active cultivar pool

### 290 families

Crosses between and within

- Advanced AT
- Holdfast GT
- Landmaster

plus

- Landmaster x Holdfast-related
- Advanced AT x Holdfast-related

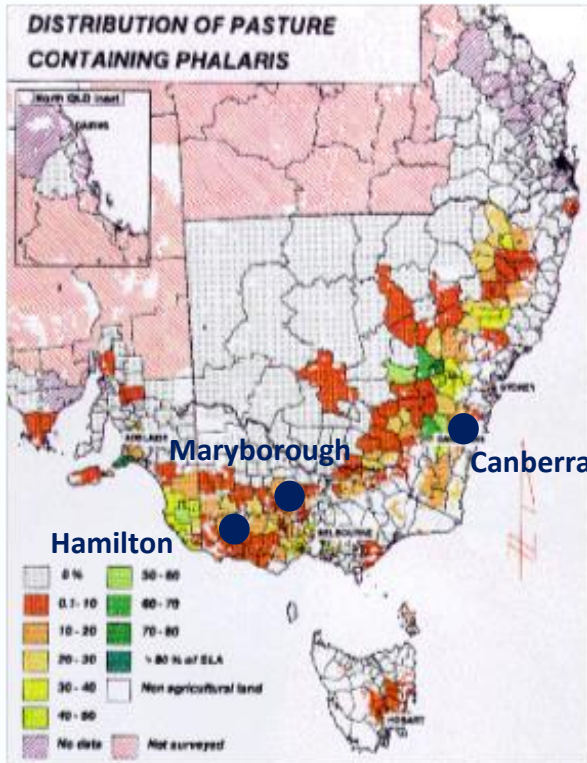
### Genotyping

- 63,000 SNP's across genome

# Seasonal yield evaluated in drill rows

## 3 sites sown 2014

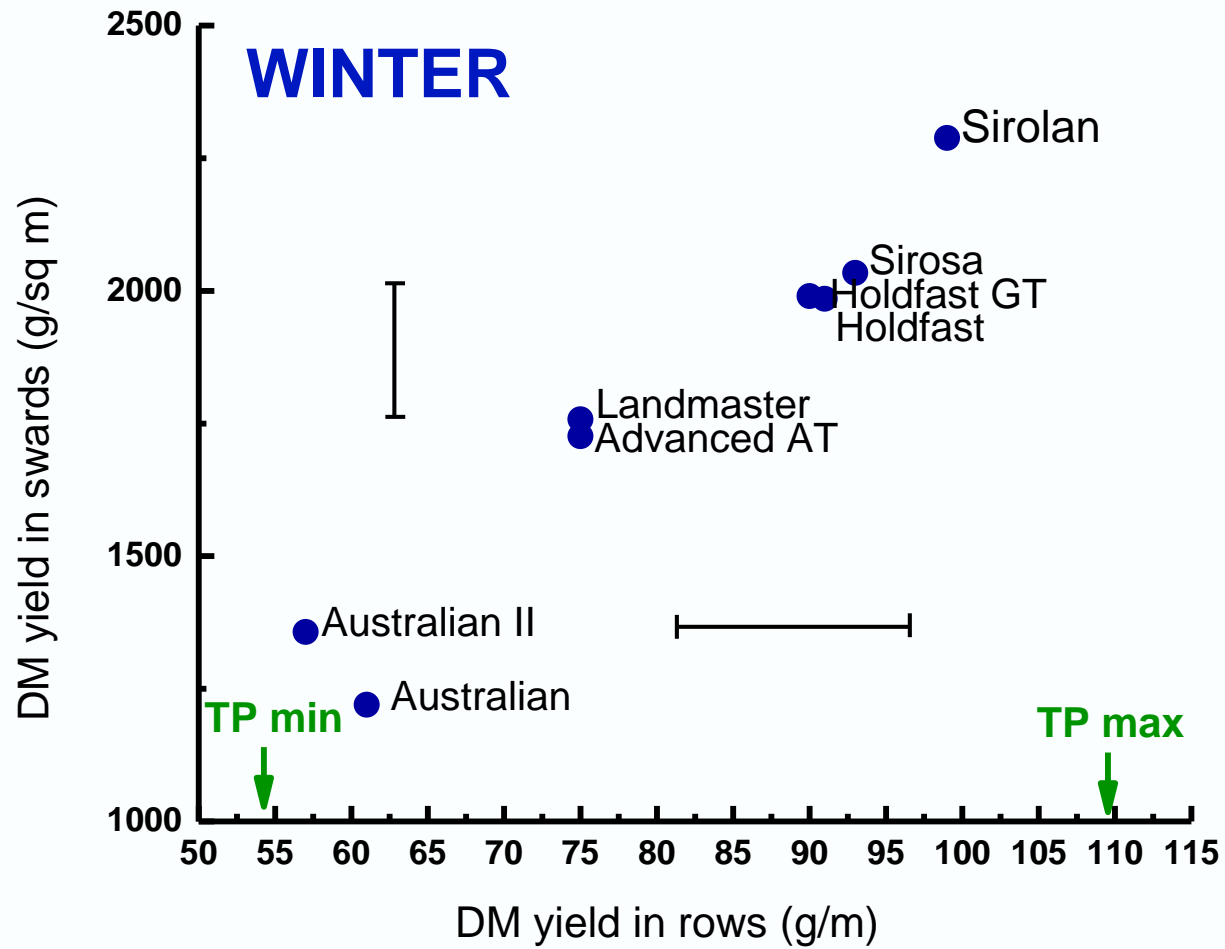
290 families + 15 controls



Correlations rows vs. swards (n=33) at Canberra (calibrated visual estimation)

Observation period	2015	2016
Summer	0.62	0.67
Autumn	0.77	0.80
Winter	0.79	0.82
Spring (main)	0.72	0.69
Late spring	0.78	0.53

# DM yield (2016)



# Concluding remarks

Developing relationships between genotype and phenotype

**Seasonal yield**

**Seed retention**

**AI tolerance**

Persistence under grazing (2018)

Known alkaloids

Methodology for practical application