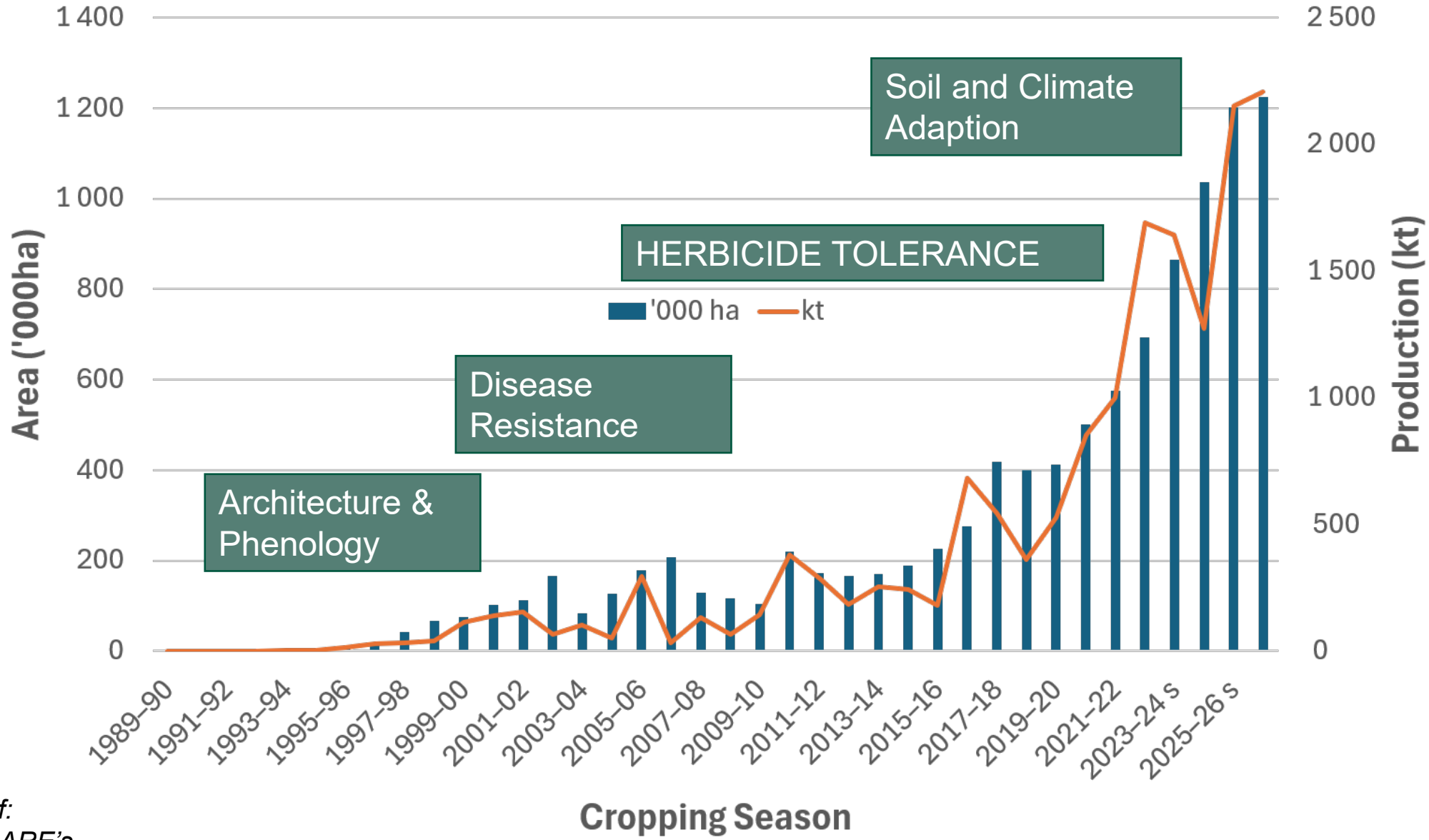
Lentil Varieties



GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

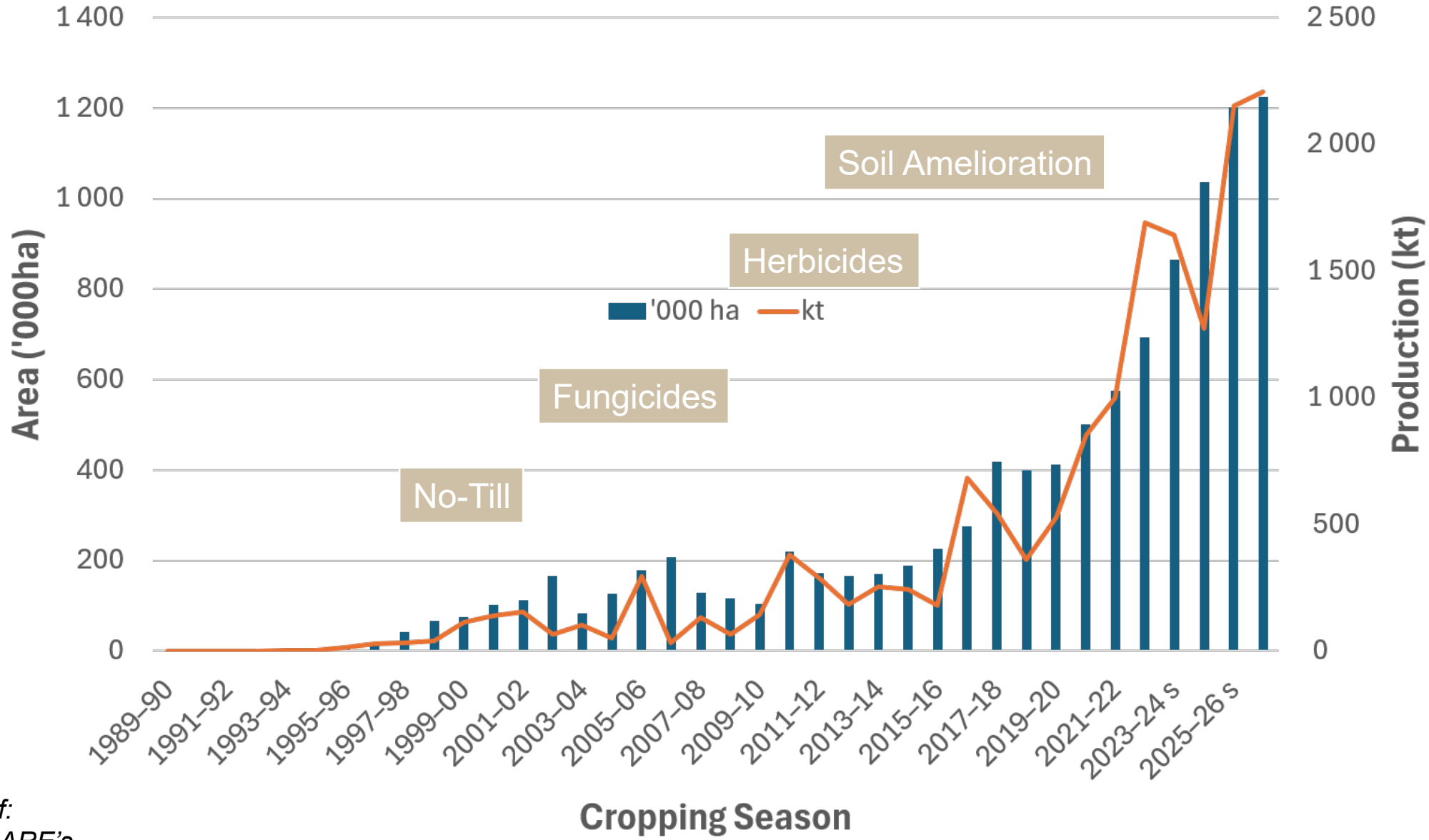
AGRICULTURE VICTORIA

Drivers of change in lentil (Genetic)



Ref: ABARE's

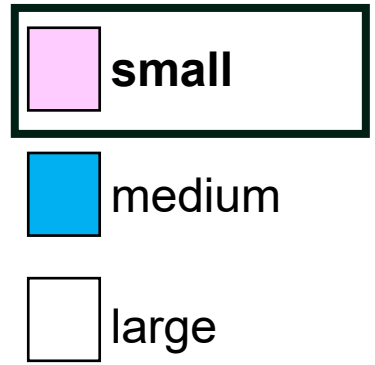
Drivers of change in lentil (Management)



Ref: ABARE's

Market class

Variety	Market	Seed coat	Cotyledon colour	Seed shape	Seed weight[1] (g/100 seeds)
Conventional lentil					
PBA Bolt¿	Medium red split	Grey	Red	Lens	4.4*
PBA Jumbo2¿	Large red split	Grey	Red	Lens	4.9
Imidazolinone-tolerant lentil					
ALB Dane	Large red split	Grey	Red	Lens	4.8*
ALB Terrier¿	Small red premium round	Grey	Red	Round	3.7
GIA Colombo	Large red split	Grey	Red	Lens	5.0*
GIA Leader¿	Medium red split	Grey	Red	Lens	4.7
GIA Lightning¿	Small red premium round	Grey	Red	Round	3.6
GIA Thunder¿	Small red premium round	Grey	Red	Round	3.7
PBA Hallmark XT¿	Medium red split	Grey	Red	Lens	4.1
PBA HighlandXT¿	Small red premium round	Grey	Red	Round	3.8
PBA Hurricane XT¿	Small red premium round	Grey	Red	Round	3.7
PBA Kelpie XT¿	Large red split	Grey	Red	Lens	4.9
Dual herbicide-tolerant lentil					
GIA Metro¿	Large red split	Grey	Red	Lens	4.8
GIA Sire¿	Small red premium round	Grey	Red	Round	3.2



[1] Median seed weight from South Australian NVT trials (2021-2025). *Median only includes trials from two seasons and may be more vulnerable to seasonal variation.

Selecting a variety

Grain yield

What are the key production risks?

- Rainfall (high/low)
- Temperature
- Weeds
- Disease
- Soil constraints (pH, compaction, toxicities)



Architecture and Phenology

Variety	Early vigour	Vegetative frost*	Plant height	Flowering	Maturity	Lodging resistance	Pod drop resistance	Pod shattering resistance	Boron tolerance	Salinity tolerance



GIA Thunder



ALB Dane

- Plant structure/ dynamic differences
- Flowering and Podding differences
- Timing and Duration

Disease resistance





Botrytis Grey Mould





Ascochtya Blight

Sclerotinia









Disease resistance

Variety	*Ascochyta* blight (foliar)	*Botrytis* grey mould (BGM)	*Root lesion nematode (Pratylenchus)*	
			P. neglectus	*P. thornei*
Conventional lentil				
PBA Bolt¿	MRMS	S	MR	MR
PBA Jumbo2	RMR	MR	MR	MRMS
Imidazolinone-tolerant lentil				
ALB Dane	MR	MRMS	MRMS	MRMS
ALB Terrier	MR	MRMS	MRMS	MRMS
GIA Colombo	RMR (P)	MRMS (P)	MR (P)	MRMS (P)
GIA Leader	MR (P)	MRMS	MRMS	MR (P)
GIA Lightning	MRMS (P)	MS	MRMS	MRMS (P)
GIA Thunder	MRMS (P)	MRMS	MRMS	MR (P)
PBA Hallmark XT	MRMS	MRMS	MR	MRMS
PBA HighlandXT	MR	MS	MRMS	MRMS
PBA Hurricane XT	MRMS	MS	MRMS	MRMS
PBA KelpieXT	MRMS	MS	MRMS	MRMS
Dual herbicide-tolerant lentil				
GIA Metro	MR (P)	MRMS	MRMS	MRMS (P)
GIA Sire	MRMS (P)	MS	MRMS	MRMS (P)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, (P) = provisional ratings.

Source: NVT Disease Ratings <https://nvt.grdc.com.au/nvt-disease-ratings?crop=24&state=VIC>

Herbicide tolerance

Inherent Variation (Naturally available)

Natural variation available for many registered products

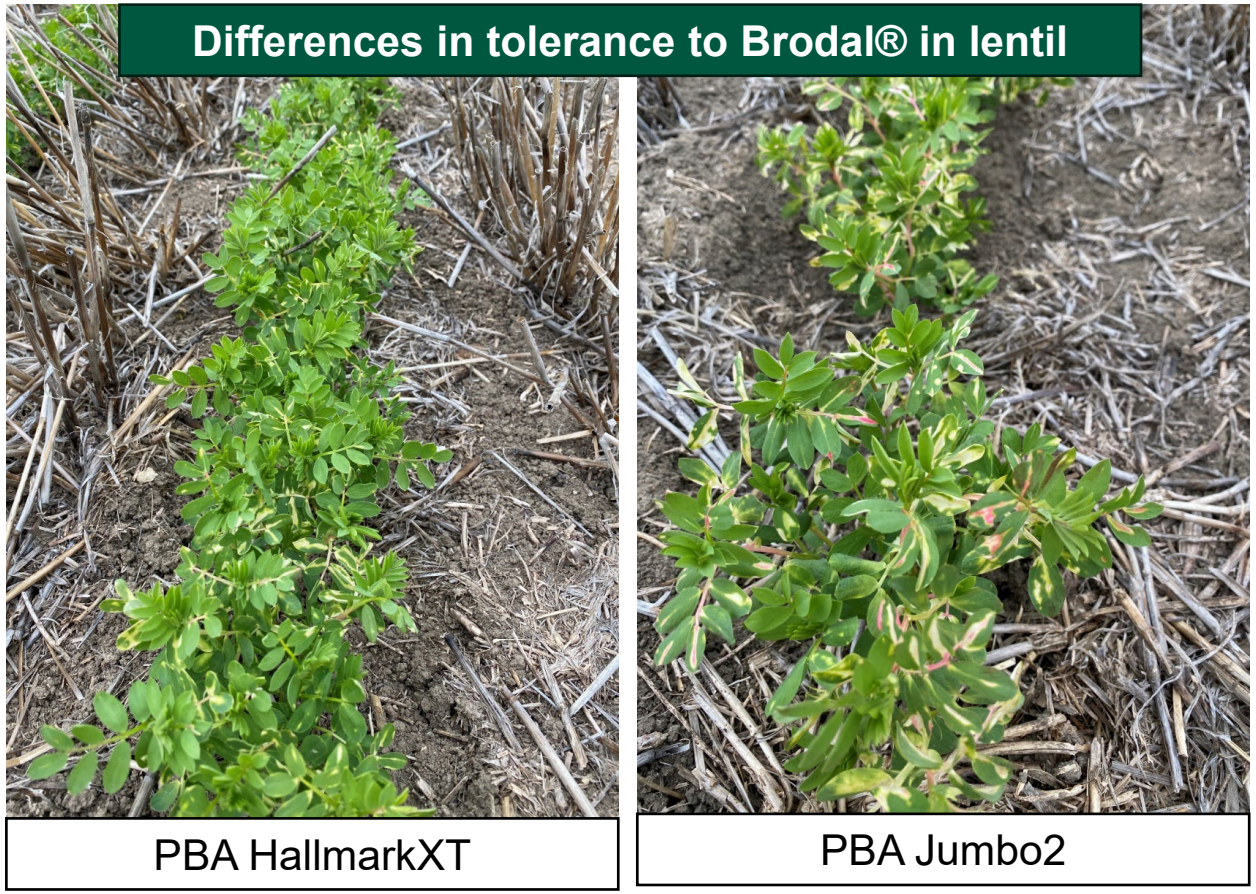
- ✓ Diflufenican (Gp 12)
- ✓ Various Gp 5&6 (metribuzin, simazine)
- ✓ Some Imidazolinones (Gp 2)

Novel variation (mutation)

- ✓ Imidazolinones & sulfonylureas (Gp 2)
- ✓ Metribuzin (Gp 5)
- ✓ Clopyralid (Gp 4)

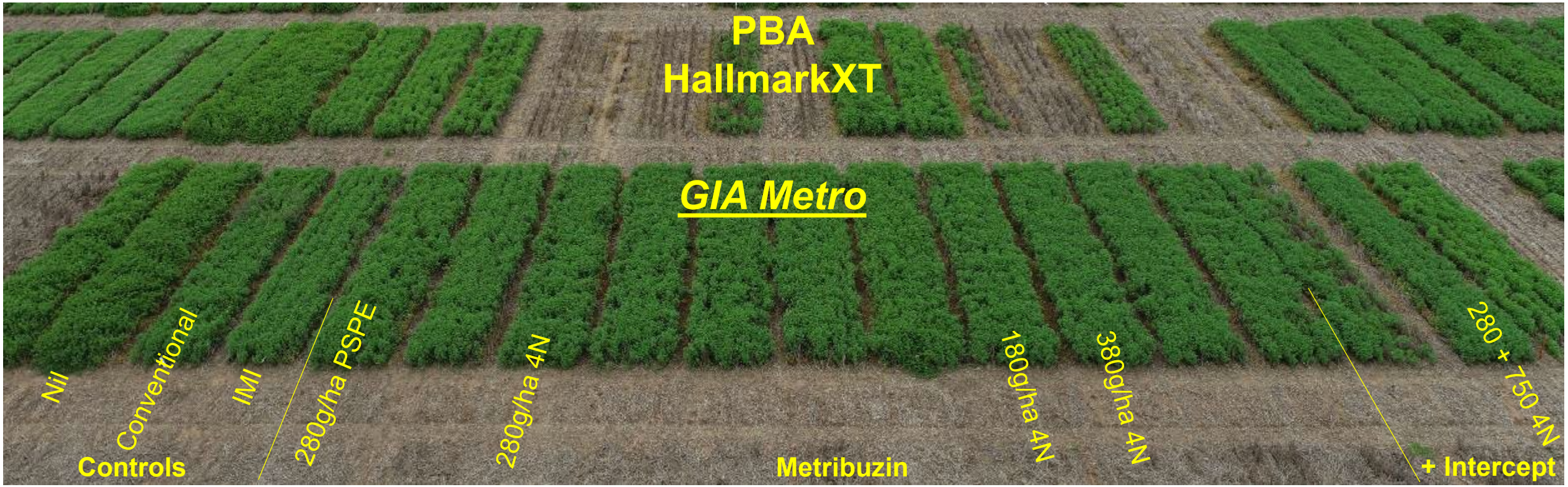
****Focus on the active not the Group****

Differences in tolerance to Brodal® in lentil



PBA HallmarkXT | PBA Jumbo2

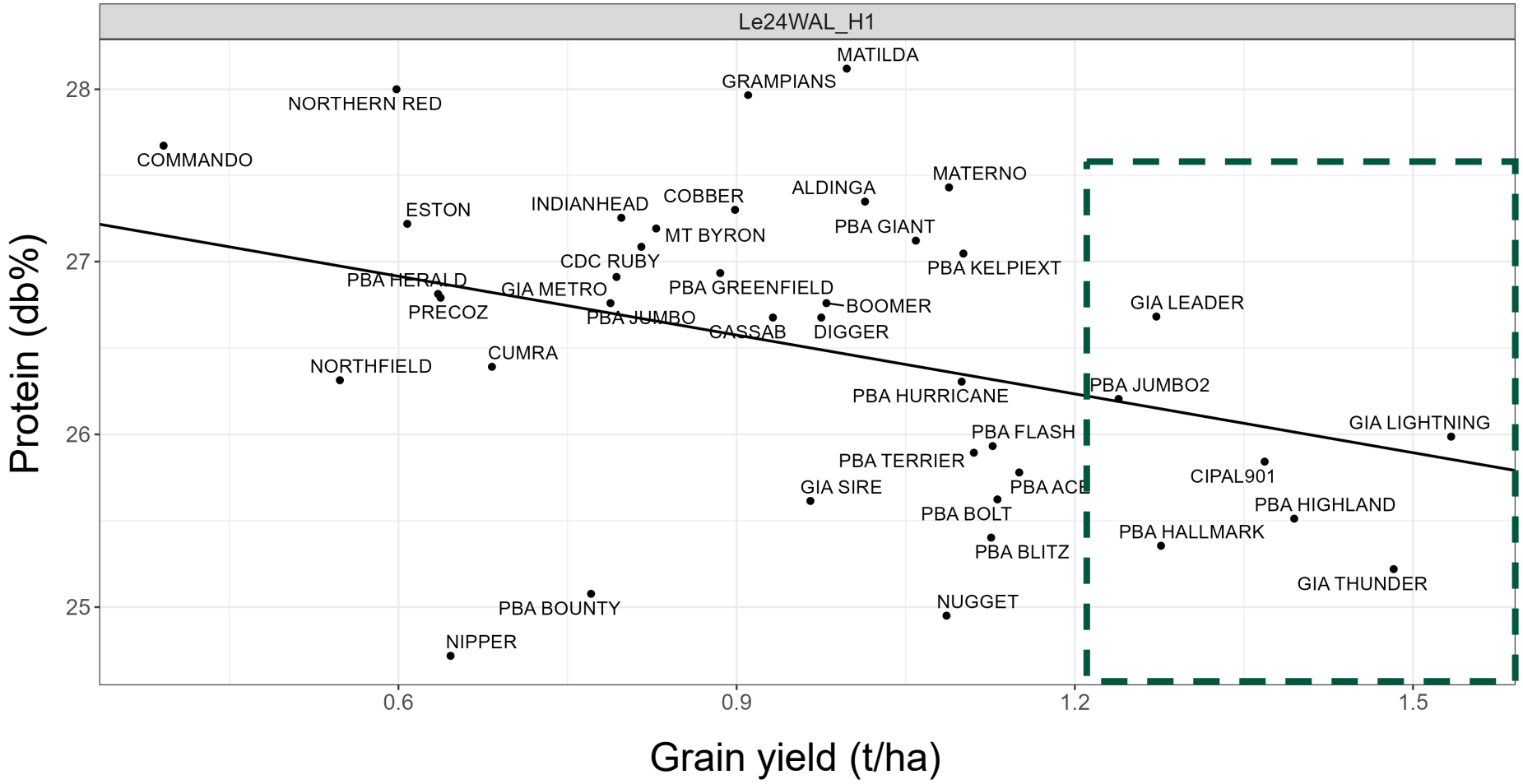
Herbicide tolerance – new weed management options



- Excellent tolerance to metribuzin.
- Same IMI tolerance as other IMI varieties
- 20-30% lower yielding

GRAINS INNOVATION AUSTRALIA

Kojonup, WA (2024)



Rainfall 425 mm, dry start with good in-season rainfall

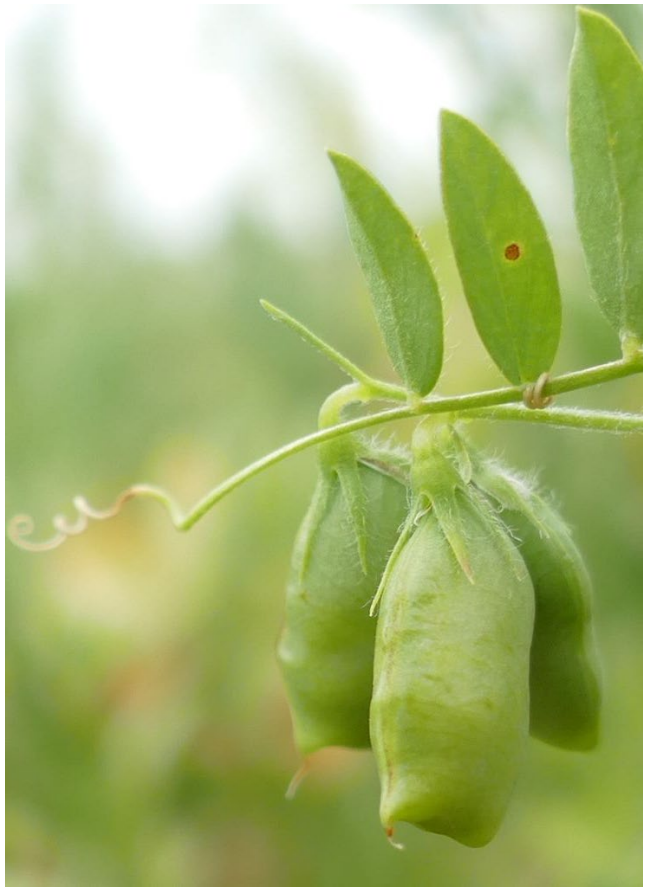
Variety choice – specific to your environment

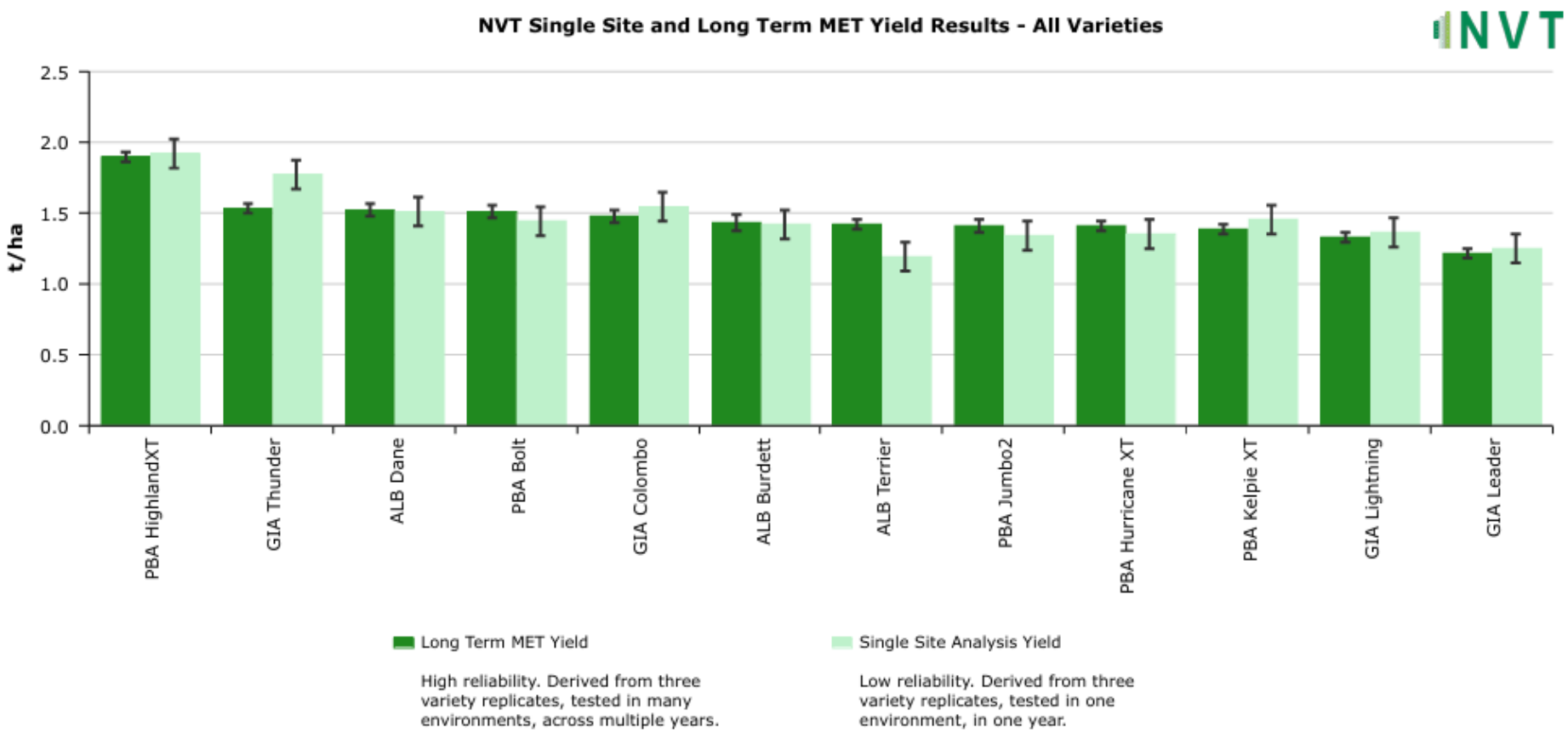
- Long term yield
- Required traits

Dalwallinu - Lentil - Main Season, 2025

Long Term MET Yield and Single Site Analysis

2025 – GSR 272 mm
Soil pH: 6.10
Sowing date: 12 June
Harvest date: 11 Nov





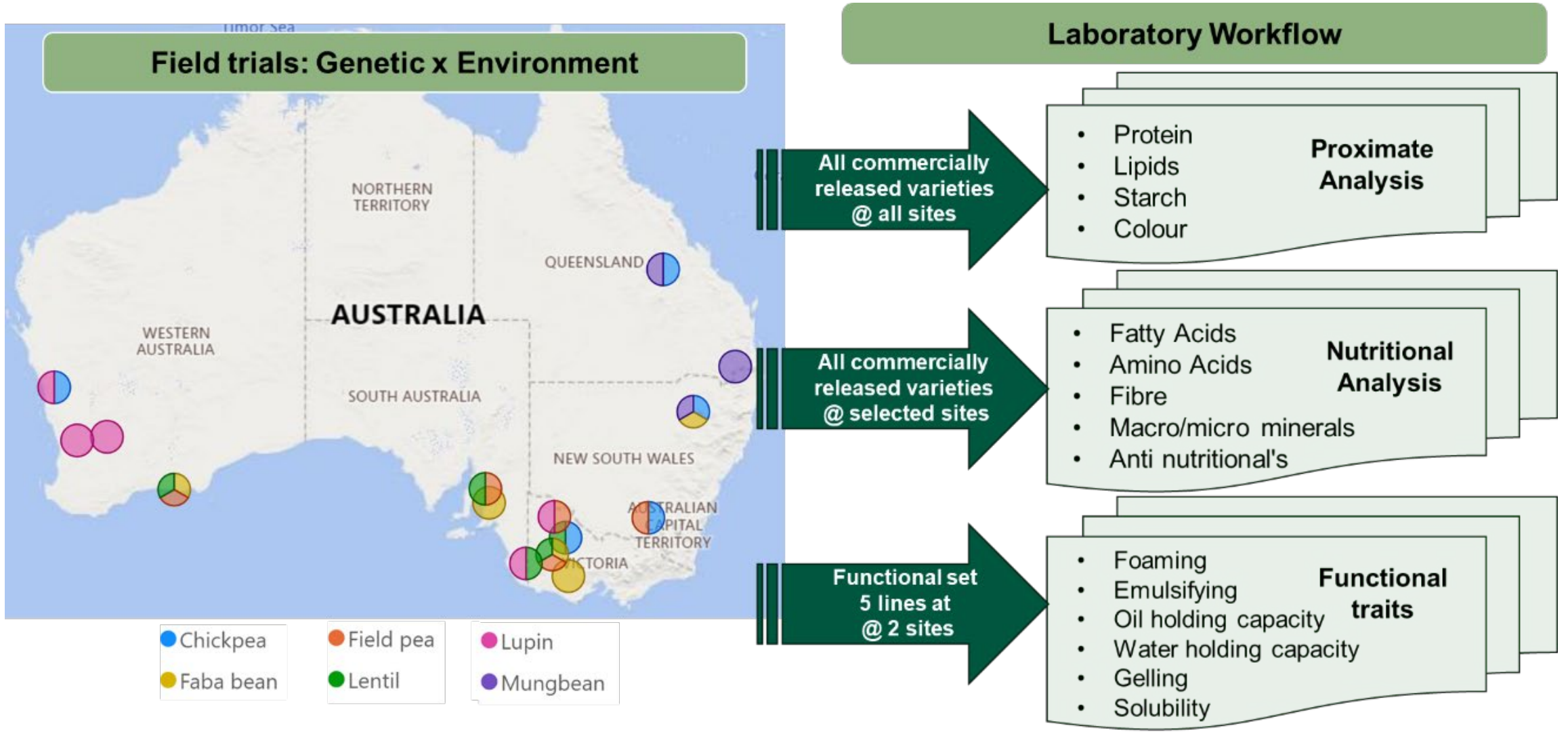
Pre-breeding

- **Adaptation**, e.g. soil acidity and heat tolerance during flowering and podding
- **Developing new domestic and global market opportunities**, e.g. Capitalising on pulse protein
- **Disease & irus**, e.g. genetic resistance for BGM in lentils and chickpea, resistance breeding for viruses
- **Benchmarking**, e.g. National Pulse Agronomy Project, Impact of Sclerotinia white mould on pulse crops in eastern Australia

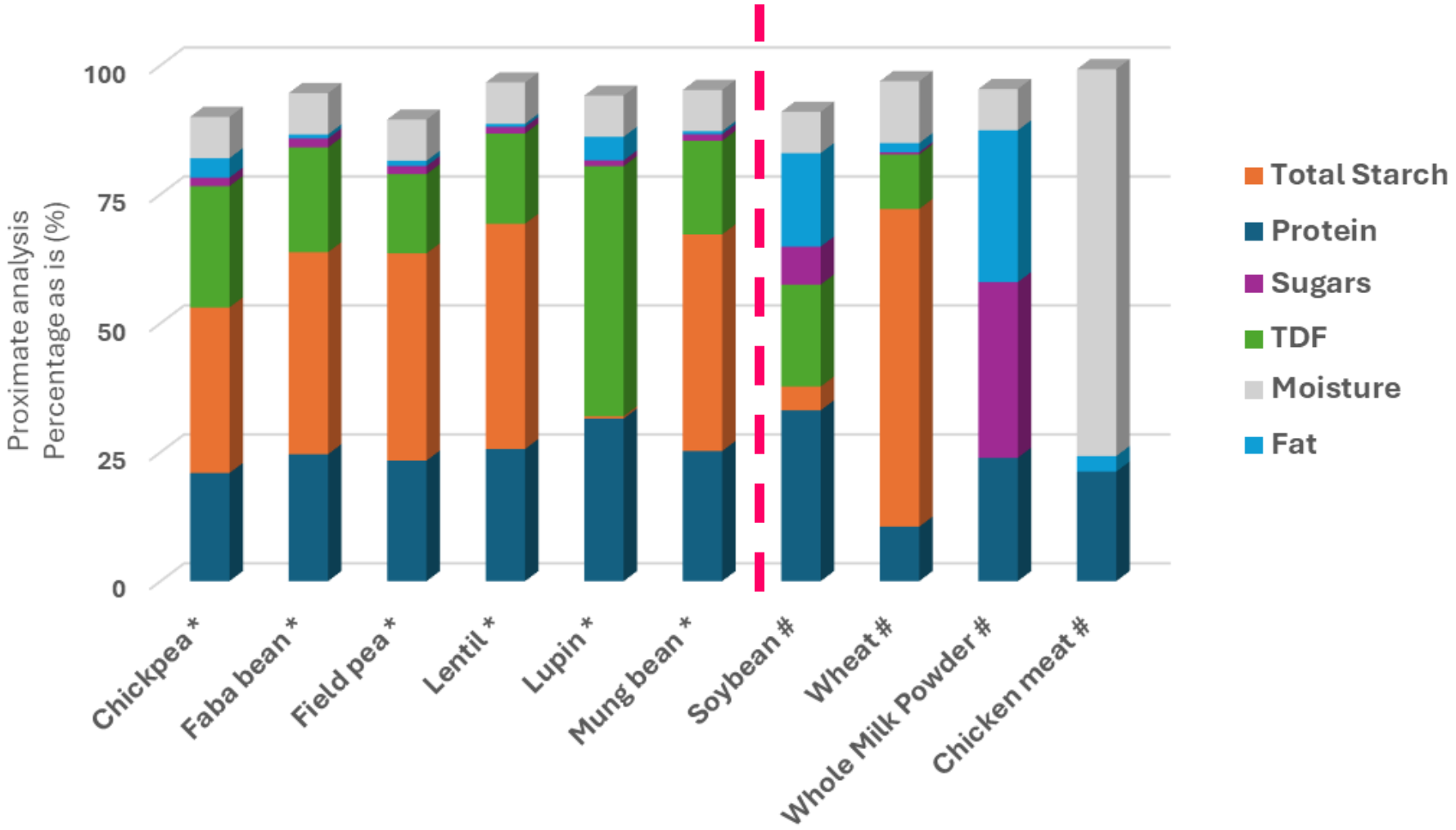





Capitalising on Pulse Protein for new markets



Macronutrient Composition of Australian Varieties

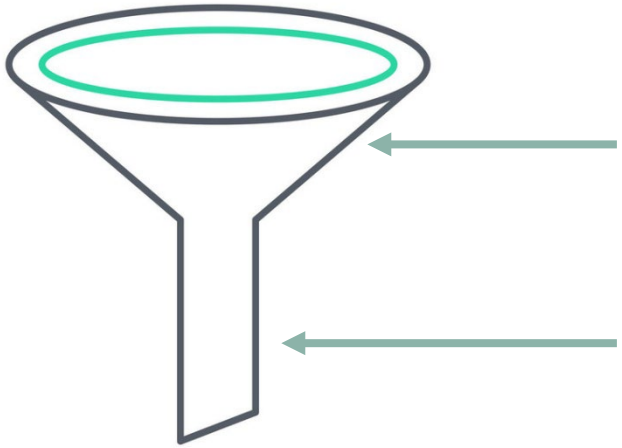


*AVR data from 2024 trials, #Publsihed data



Improving lentils adaption to heat

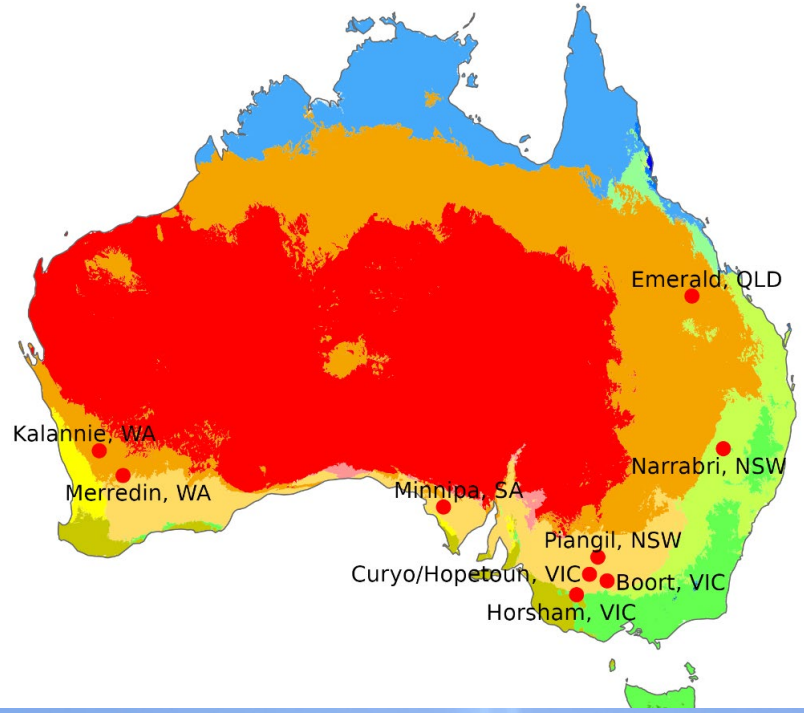
- TOS trials are great to screen a large number of lines, but many factors in addition to heat
- With the heat chambers, we can control temperature and validate the heat tolerance observed in the TOS trials



Heat tolerant genotypes

Tier 1: TOS trials

Tier 2: heat chambers





living farm

Summary

- Select a variety based on what are your key needs (traits).
- Grain yield – key!! How are different varieties performing in your area
- WA – small, early- mid varieties good option
- WA is an expansion region and is supported by RD&E (e.g. agronomy and breeding).
    - This will bring great opportunities. Contribute to shaping this.