

Hart

TRIAL REVIEW

- 2023 -

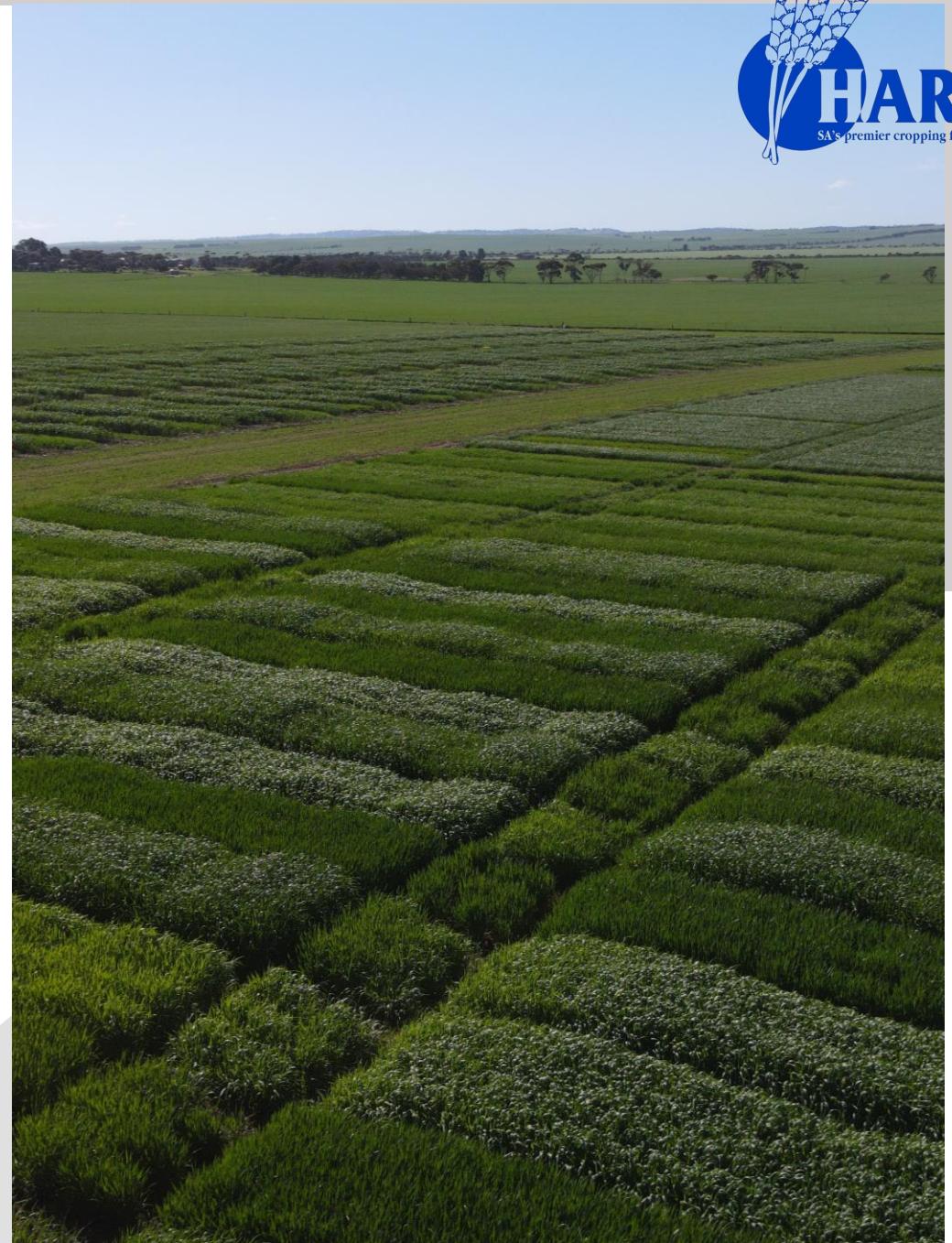


1. EARLY AND DRY SOWING

2. GLUFOSINATE TRIAL RESULTS

3. NITROGEN DECISIONS & N BANKING

4. LENTIL AGRONOMY





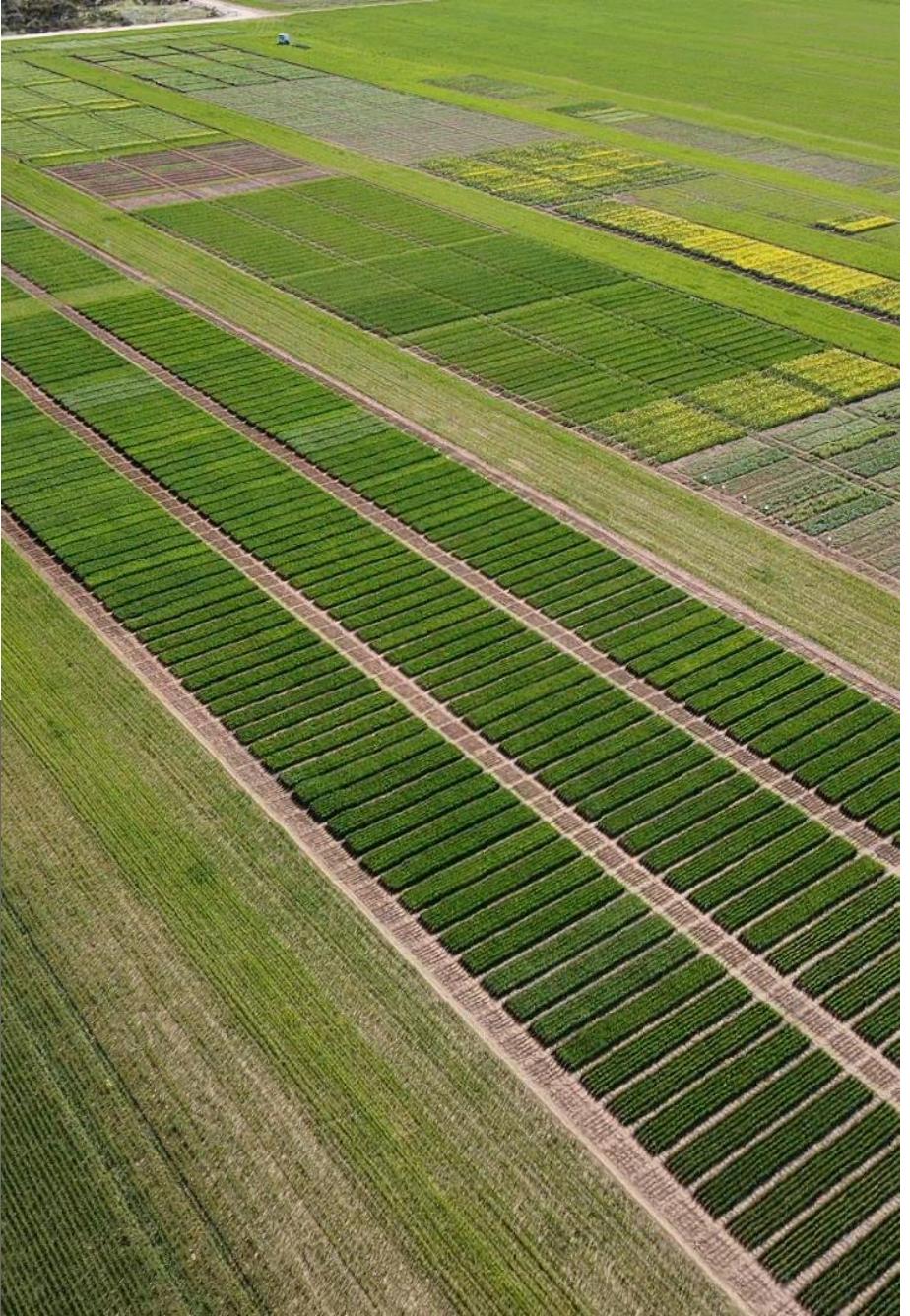
EARLY AND DRY SOWING

- WHEAT & CANOLA -



SA
DROUGHT
HUB





2023 TRIAL DETAILS

- Improve the effectiveness of dry or early sowing
- Time of sowing (TOS), sowing depth and rate on plant establishment and yield
- Three locations
 - **Hart** – wheat, canola, lentils (*calcareous clay-loam*)
 - **Giles Corner** – wheat, canola (*dark grey vertosol*)
 - **Bute** – wheat (*loam to clay-loam*)

Hart

Rockstar wheat

TOS 1: April 27
TOS 2: May 5
TOS 3: June 2

Depth - 10 mm, 40 mm, > 50 mm

Sowing rates - 180, 225, 270 plants/m²

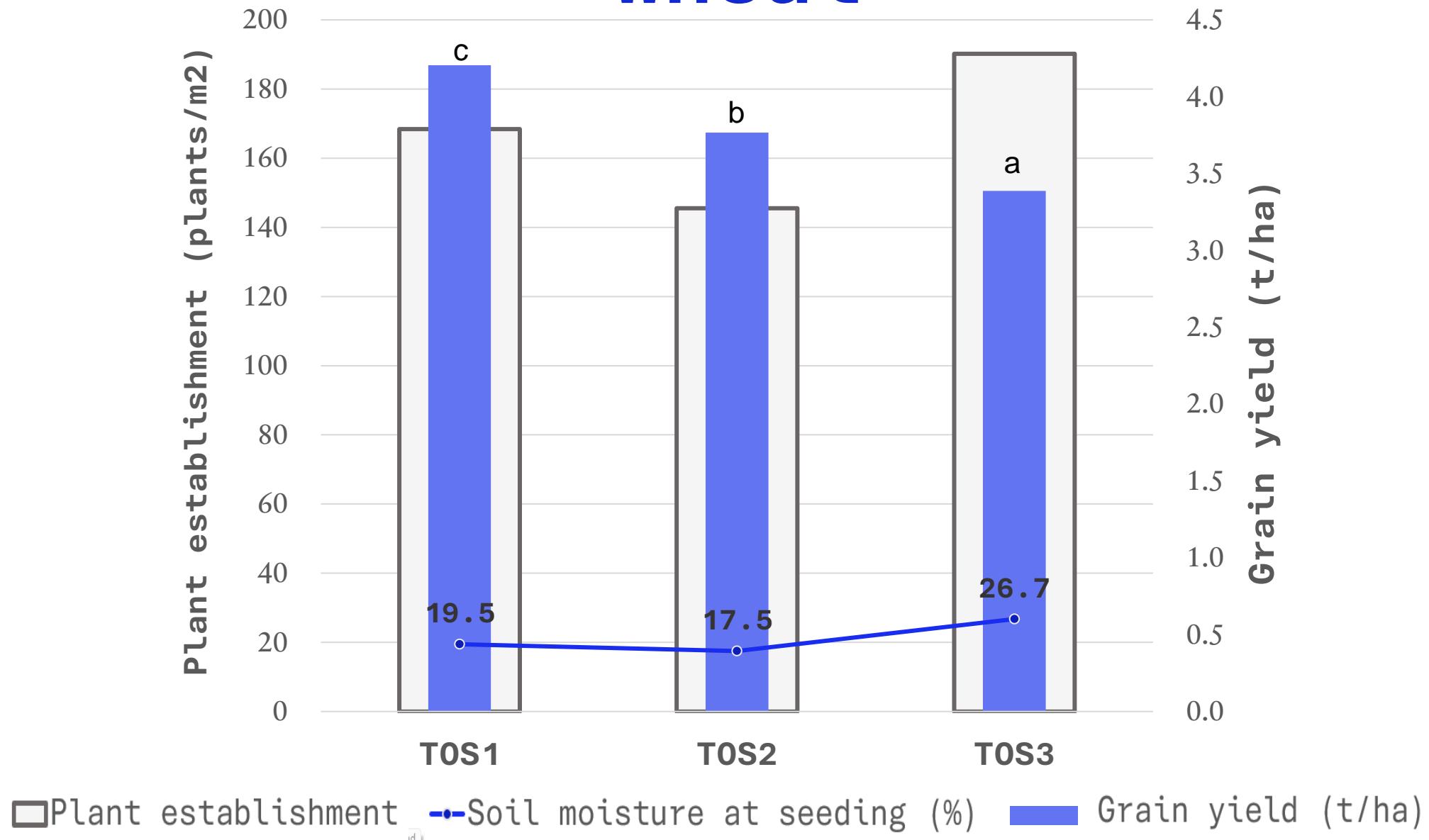
Enforcer CT canola

TOS 1: April 21
TOS 2: May 5
TOS 3: June 2
TOS 4: June 20

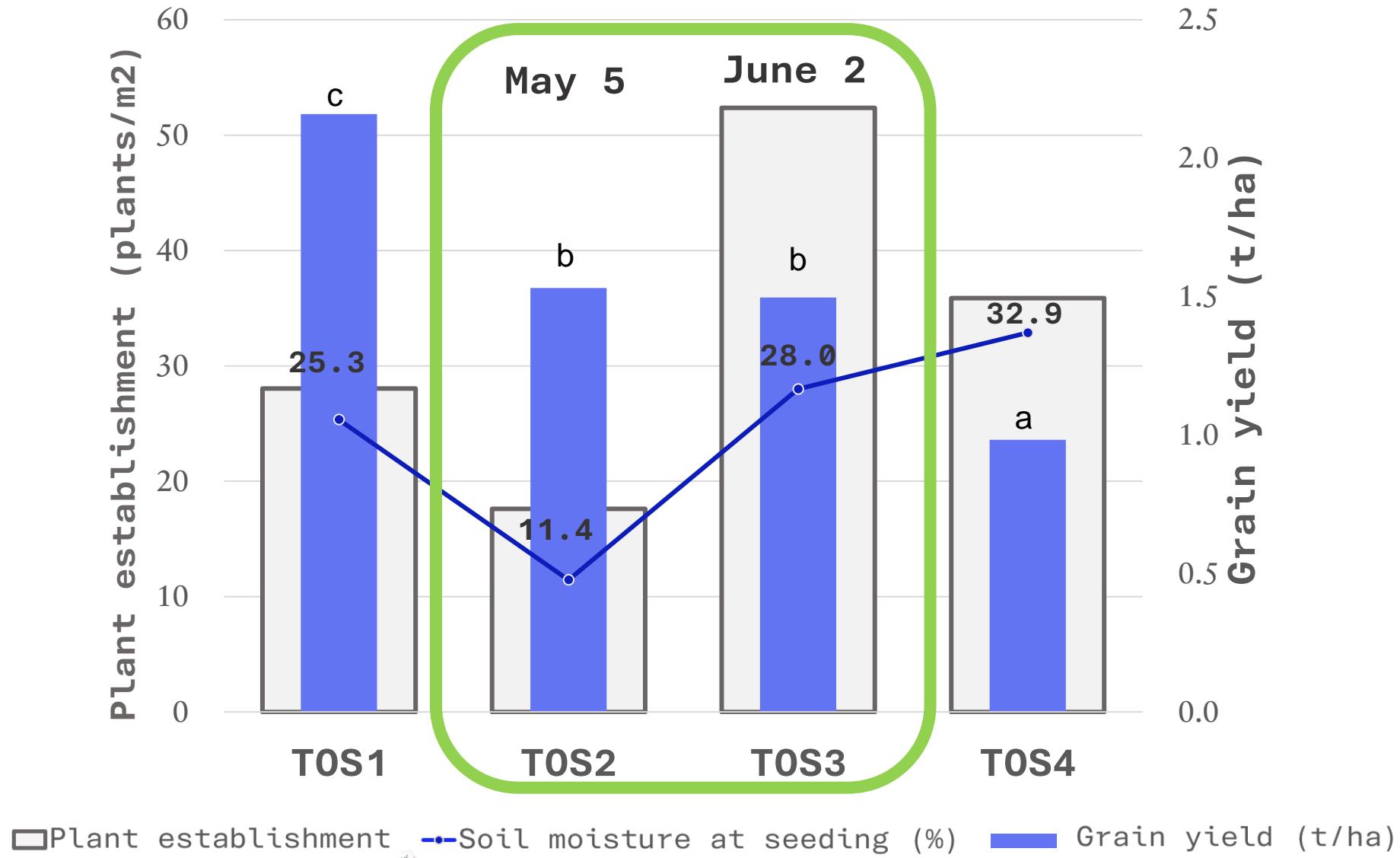
Depth - 10 mm, 20 mm, 30 mm

Sowing rate - 45, 56, 68 plants/m²

Wheat



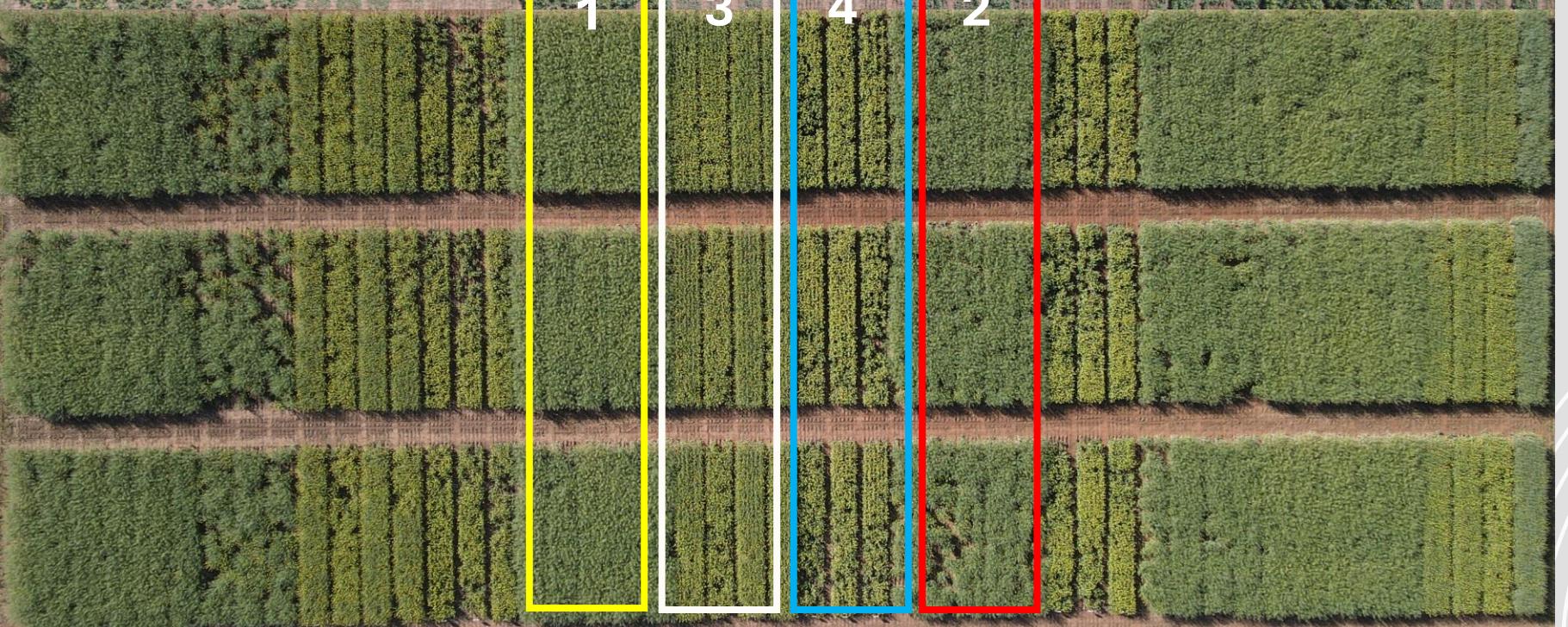
Canola



August 11



September 22



OTHER FINDINGS

Sowing rate

- Increasing sowing rate increased plant establishment for both crops
- No yield response to increasing sowing rate for either crop type

Sowing depth

- Deep sowing reduced plant establishment
- Approx 20% higher establishment from shallow sowing
- Shallow sowing out-yielded standard and deep sown treatments for wheat



FUTURE RESEARCH



- Dry seeding trials will continue across multiple sites in 2024 – targeting an earlier sowing date
- Pot trial at Waite using soil from trial sites
- Using drone and satellite tech to map effects of soil type and topography on emergence and early growth (AirborneLogic)

*** Herbicide & pest considerations with dry/early sowing**

KEY MESSAGES

- Despite lower establishment, early sown crops resulted in higher yields at Hart
- With a dry subsoil there was no benefit from deep sowing of canola or wheat
- Increasing sowing rates did not increase yields of canola and wheat in most cases



FIND OUT MORE...



Harriet's Hart Headlines





GLUFOSINATE TRIAL RESULTS

- ANNUAL RYEGRASS CONTROL -



Coarse nozzle @ 100L/ha water rate
used for all field trials

2023 TRIAL DETAILS

Aims:

- FIELD: Test best-use spray strategies required to optimise ARG control with the use of glufosinate herbicide
- POT: Better understand environmental conditions influencing Glufosinate efficacy for annual ryegrass (ARG) control
- Three locations
 - **Hill River** – Core trial site (16 treatments)
 - **Hart** – ARG growth stage x herbicide
 - **Adelaide** – Pot experiment (temp, humidity)



HILL RIVER TRIAL - GENERAL

- Nil
- Standard liberty + TT (Atrazine post-em)
 - PSPE: Atrazine
 - Early-post: Liberty 2L + Clethodim 330mL + uptake 0.5% + Liase 2%
 - Early-post (14 days later): Liberty 2L + Liase 2%
- Standard Liberty + TruFlex
 - Early-post: Liberty 2L + Roundup PL 1.67L + Liase 2%
 - Early-post (14 days later): Liberty 2L + Liase 2%
- Standard TruFlex
 - Early-post: Roundup PL 1.67L + Clethodim 330mL + uptake 0.5% + Liase 2%
 - Early-post (14 days later): Roundup PL 1.67L + Liase 2%

Site Resistance:
Moderate
resistance to DIM
herbicides
(45% survival)

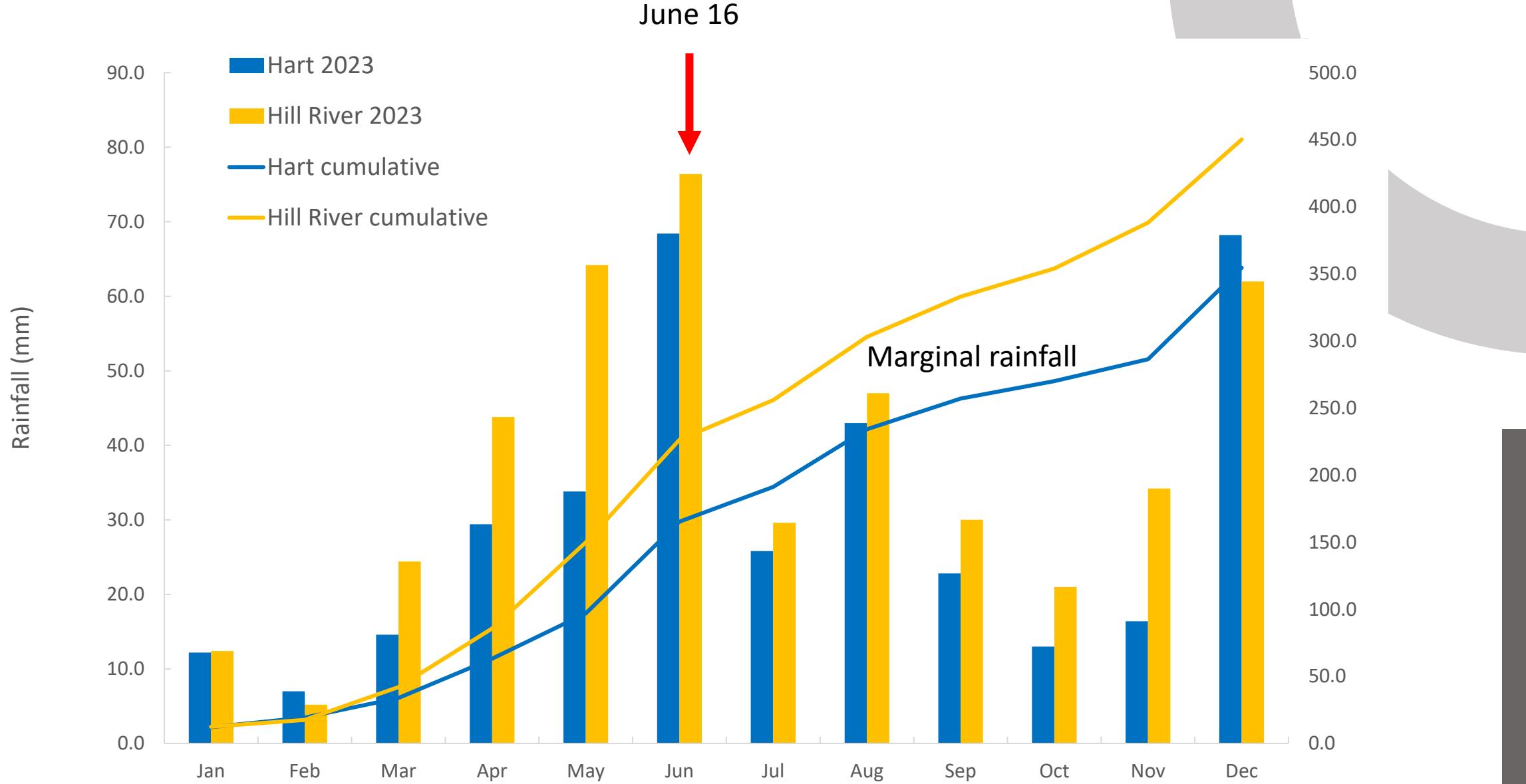
Strong resistance to
IMI herbicides
(60% survival)

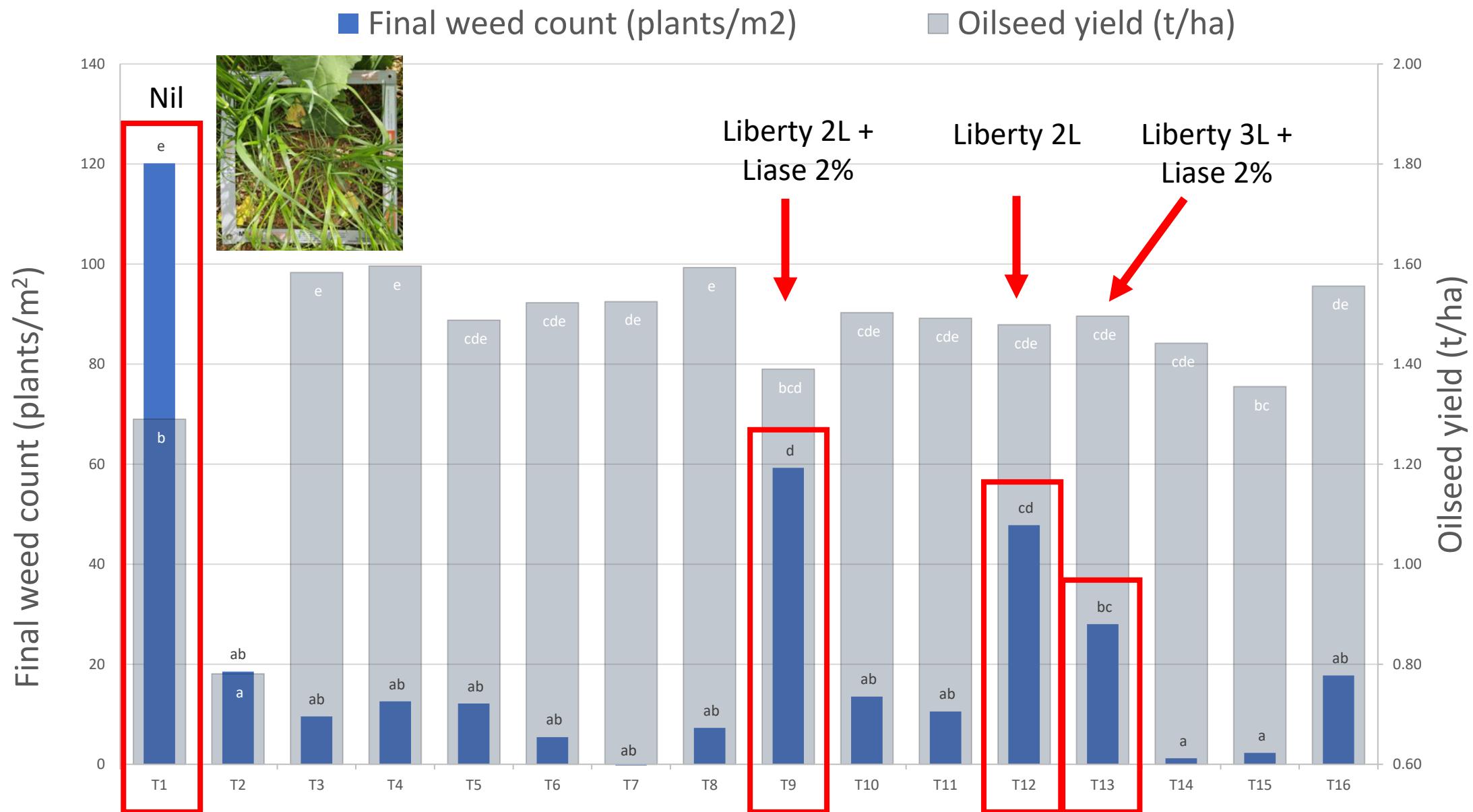
TRIAL COMPARISONS - LIBERTY

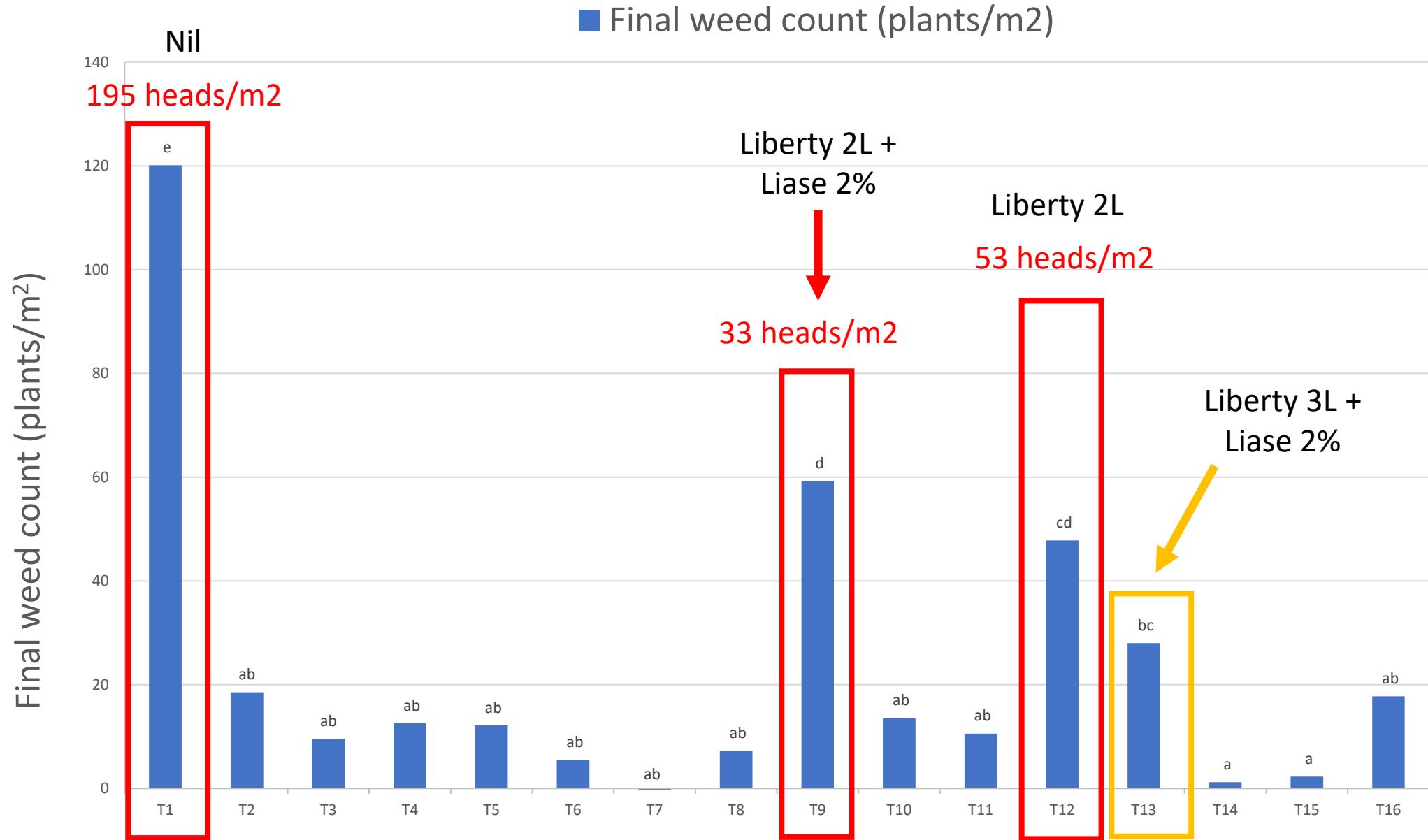
1. Comparison of Liberty at two rates
 - 2 or 3L
2. Liberty herbicide timing
 - 7, 14 or 21 days after initial application
3. 2L Liberty +/- Liase @ 2%
4. Water rate
 - 70 or 100 L/ha
5. Liberty + standard Liase
 - +/- Clethodim or Roundup Ready PL tank mixed at application 1
6. Liberty + glyphosate
 - Two rates of Roundup Ready PL @ 1.15 or 1.67 L/ha
7. Delayed application until 10% flower
8. Follow up spray in cold conditions
 - Morning @ 9 degrees

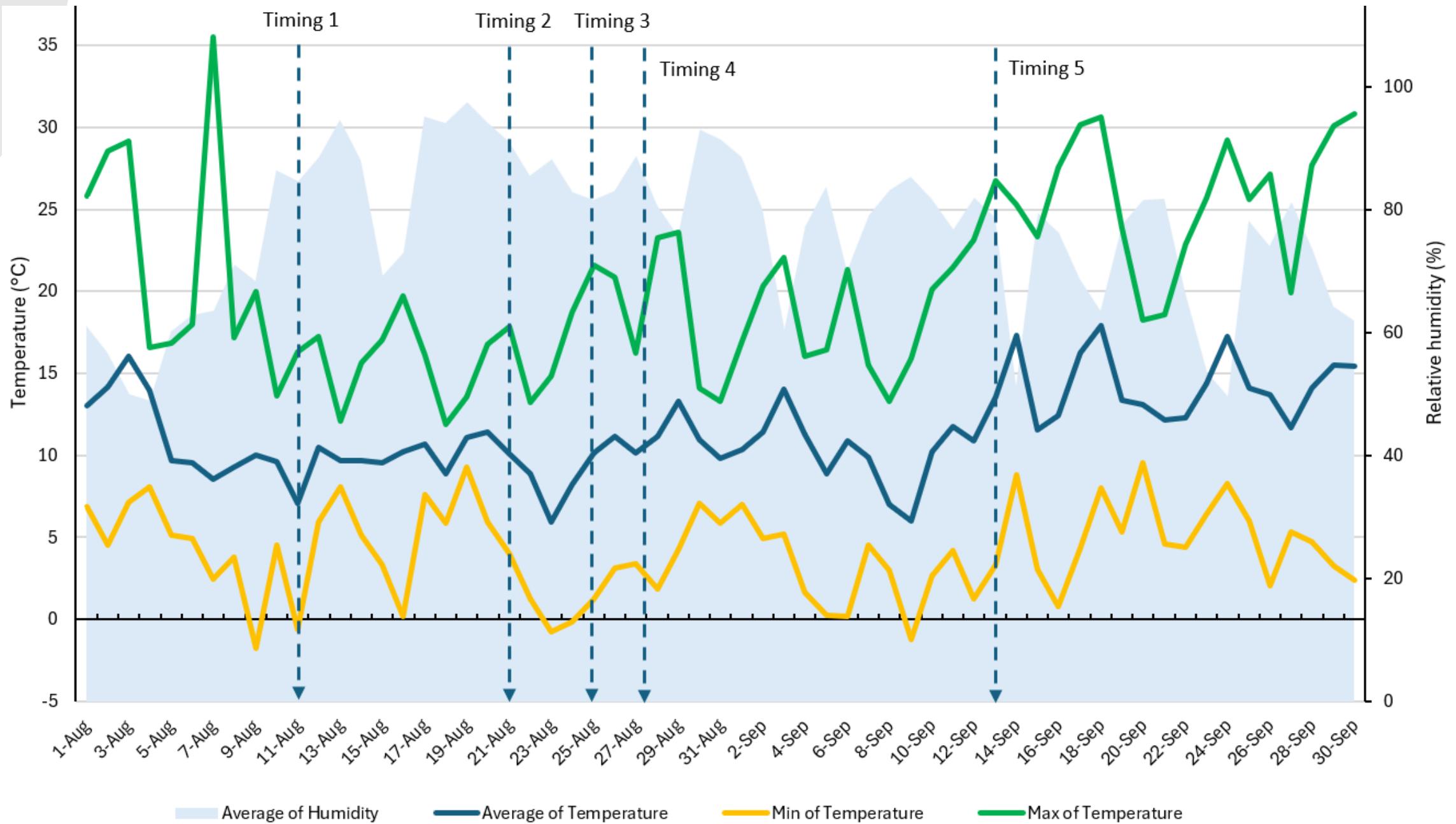


Coarse nozzle @
100L/ha water rate









HART – TREATMENTS

Site Resistance:
Susceptible

#	Timing 1	Timing 2 (10 – 14 days later)	
1	Nil		
2	Liberty + Liase	2 L + 2%	Liberty + Liase 2 L + 2%
3	Liberty + Liase	3 L + 2%	Liberty + Liase 3 L + 2%
4	Liberty + Roundup PL + Liase	2 L + 1.67 L + 2%	Liberty + Liase 2 L + 2%
5	Liberty + clethodim + Uptake + Liase	2 L + 330 mL + 0.5% + 2%	Liberty + Liase 2 L + 2%

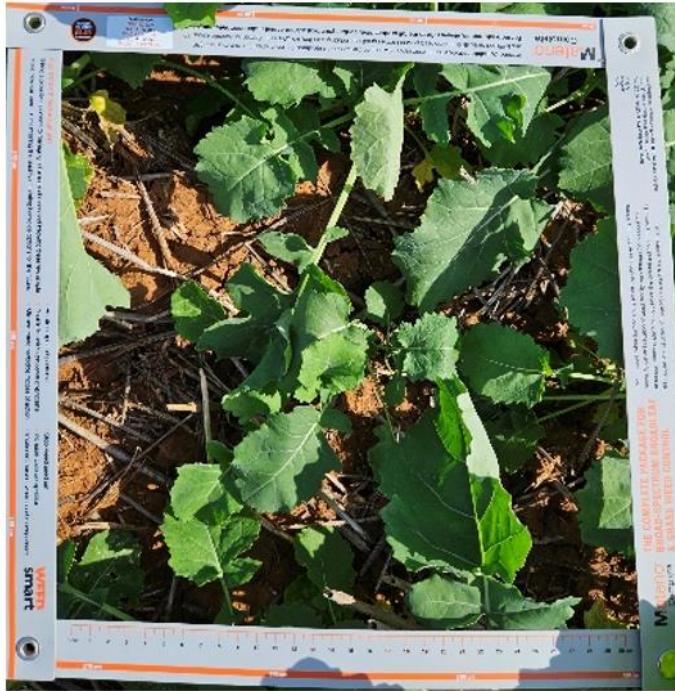
*All treatments applied at ARG growth stage 2-4 leaf, 1-2 tiller or 2-4 tiller

HART – TREATMENTS

#	Timing 1	Timing 2 (10 – 14 days later)	
1	Nil		*240 heads/m ²
2	Liberty + Liase	2 L + 2%	Liberty + Liase 2 L + 2%
3	Liberty + Liase	3 L + 2%	Liberty + Liase 3 L + 2%
4	Liberty + Roundup PL + Liase	2 L + 1.67 L + 2%	Liberty + Liase 2 L + 2%
5	Liberty + clethodim + Uptake + Liase	2 L + 330 mL + 0.5% + 2%	Liberty + Liase 2 L + 2%

*All treatments applied at ARG growth stage 2-4 leaf, 1-2 tiller or 2-4 tiller

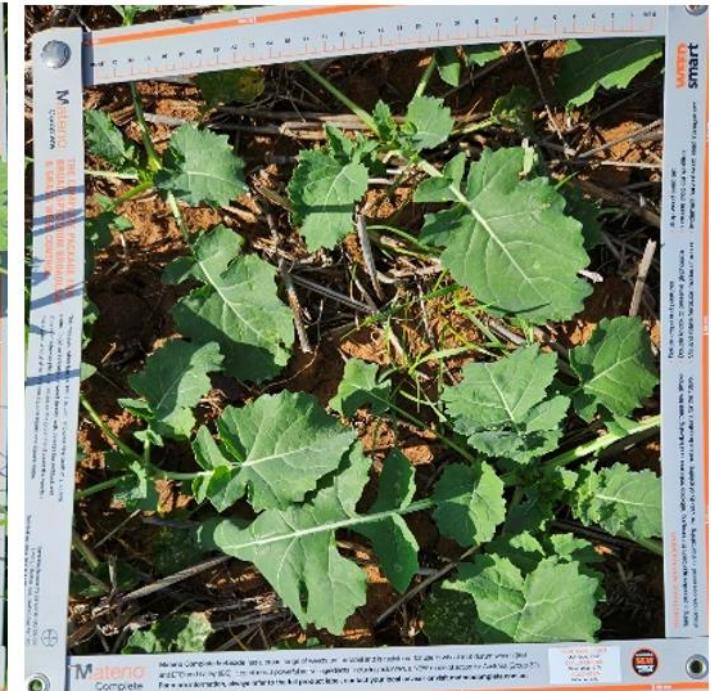
90% weed control



2 L/ha Liberty + 330 mL
clethodim + 2% Liase



Control
219 plants/m²



2 L/ha Liberty + 2% Liase

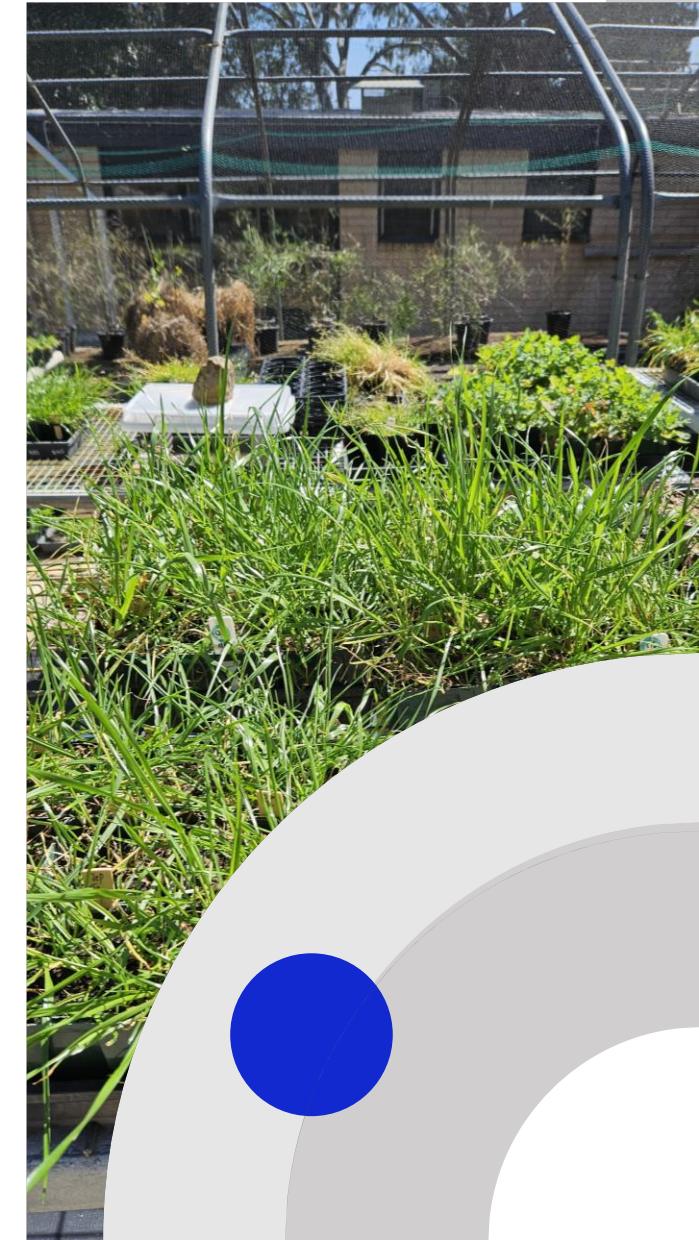
All treatments were followed by 2 L/ha Liberty + 2% Liase 12 days later.

POT EXPERIMENTS

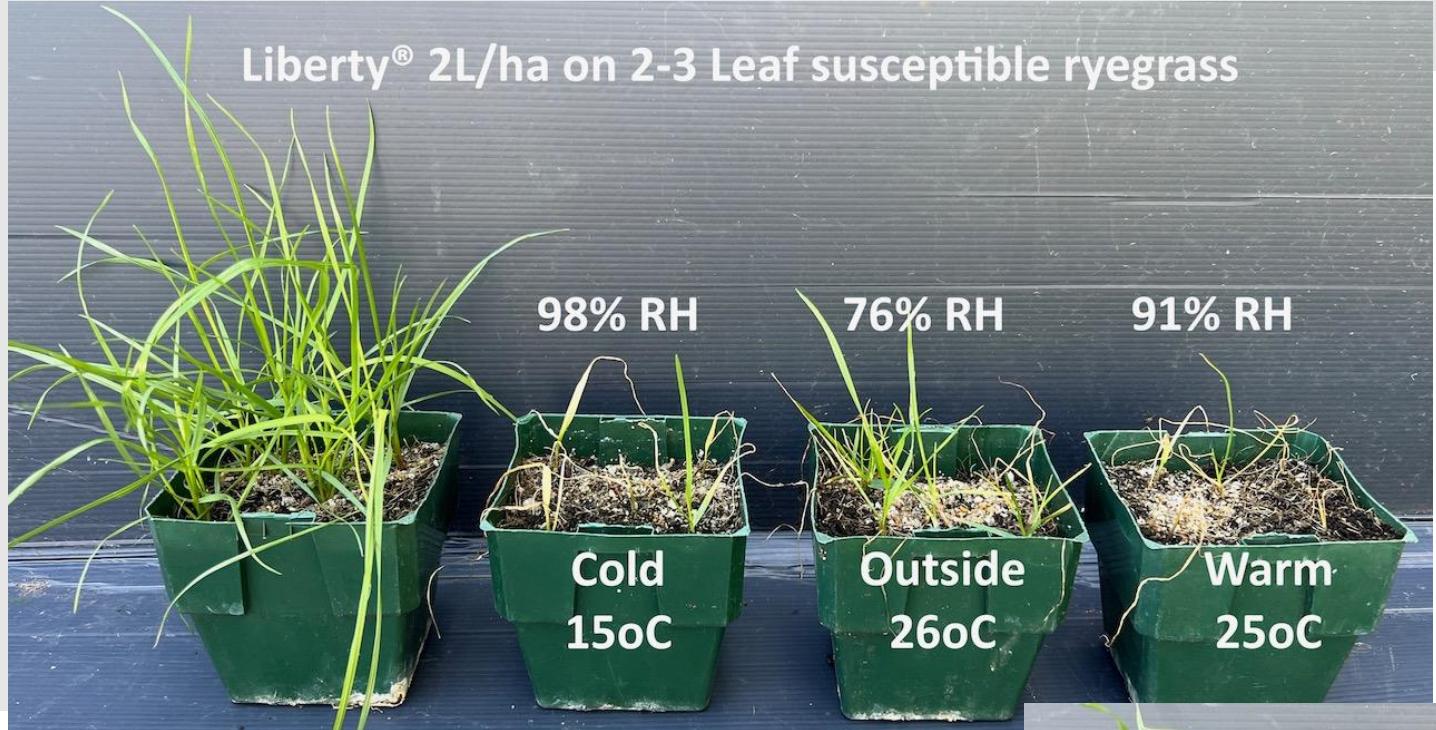
Two trials were conducted:

- 1.** Investigate effect of temperature and humidity at 2 growth stages (2-3 leaf vs. 3-4 tiller) of DIM-resistant ryegrass

- 2.** To investigate Liberty on susceptible, DIM-resistant, DIM + Glyphosate resistant ARG at different temperatures and photoperiod (spray timings) - morning vs. afternoon



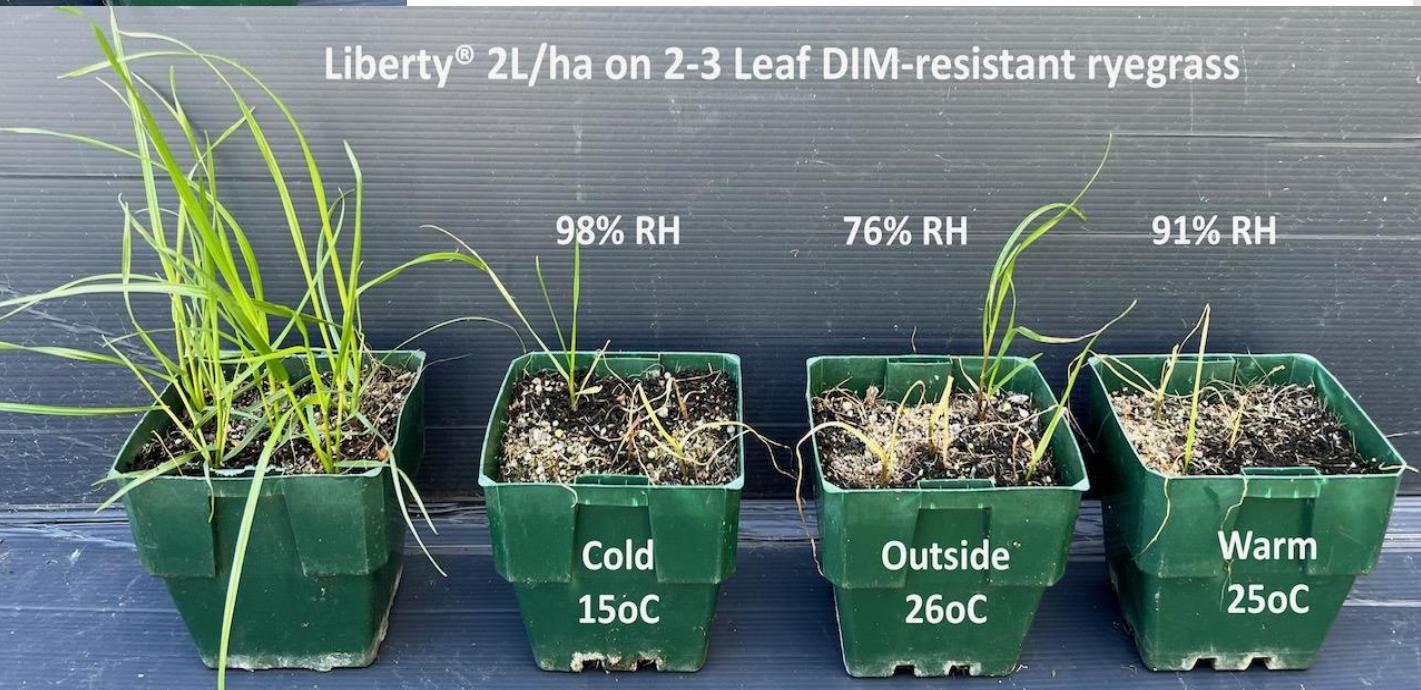
Liberty® 2L/ha on 2-3 Leaf susceptible ryegrass



PLANT SCIENCE
CONSULTING
by Dr. Peter Boutalis

Final report
coming soon!

Liberty® 2L/ha on 2-3 Leaf DIM-resistant ryegrass



KEY MESSAGES

- Liberty tank mixed with clethodim or registered glyphosate options (in early sprays) can control ARG.
- Liberty at 2 L/ha + ammonium sulphate alone at two spray timings is not adequate for controlling ARG.
- In one of two field trials, 3 L/ha reduced weed number, however ARG head suppression was seen at both sites.
- Pot experiments shows improved control in cold conditions (high humidity ~90%) for Liberty herbicide (applied alone).





Rebekah Allen

Research & Extension Manager

0428 782 470

rebekah@hartfieldsite.org.au

Kaidy Morgan

Technical Officer

0409 390 558

kaidy@hartfieldsite.org.au

**THANK
YOU**

www.hartfieldsite.org.au