



THE ADAPTATION OF PROFITABLE PULSES IN THE CENTRAL AND SOUTHERN NSW

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PROFITABLE PULSES

- Project - Two years (2018 and 2019) on four sites
- Crops - Chickpeas and lentils
- Aim - Better understanding of the critical growth periods for both these crops over contrasting environments
- Outcome – Make better cultivar and sowing time recommendations
 - **Identify highest yielding varieties**
 - **and the most appropriate sowing time**

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Riverina sites

	LFS	YAI	WAI
Pre-sowing moisture	High Pre-irrigation	Low	Low
In-crop rainfall	87mm	87mm	152mm
Spring overhead irrigation	24mm	64mm	0
Total	Pre-sowing moisture + 111mm	Pre-sowing moisture + 151mm	Pre-sowing moisture + 152mm

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Chickpea Varieties

Varieties	Maturity	Type
Cica 1521	Early	Desi
PBA Striker	Early	Desi
PBA Slasher	Early	Desi
Neelam	Early	Desi
PBA Boundary	Mid/late	Desi
Genesis 079	Early	Kabuli-small
Genesis 090	Mid/late	Kabuli-small
Kalkee	Late	Kabuli-large

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Sowing dates

Treatment	Target	Date
TOS-1	Mid April	16 April 2018
TOS-2	End April	30 April 2018
TOS-3	Mid May	15 May 2018
TOS-4	End May	30 may 2018

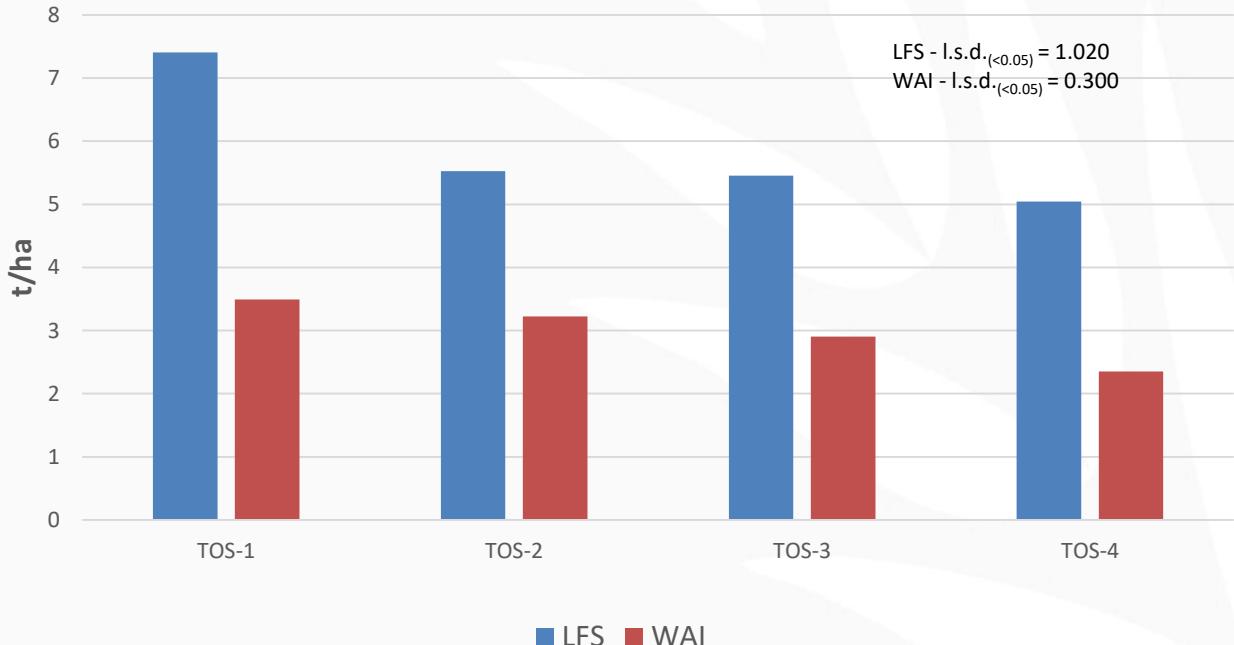




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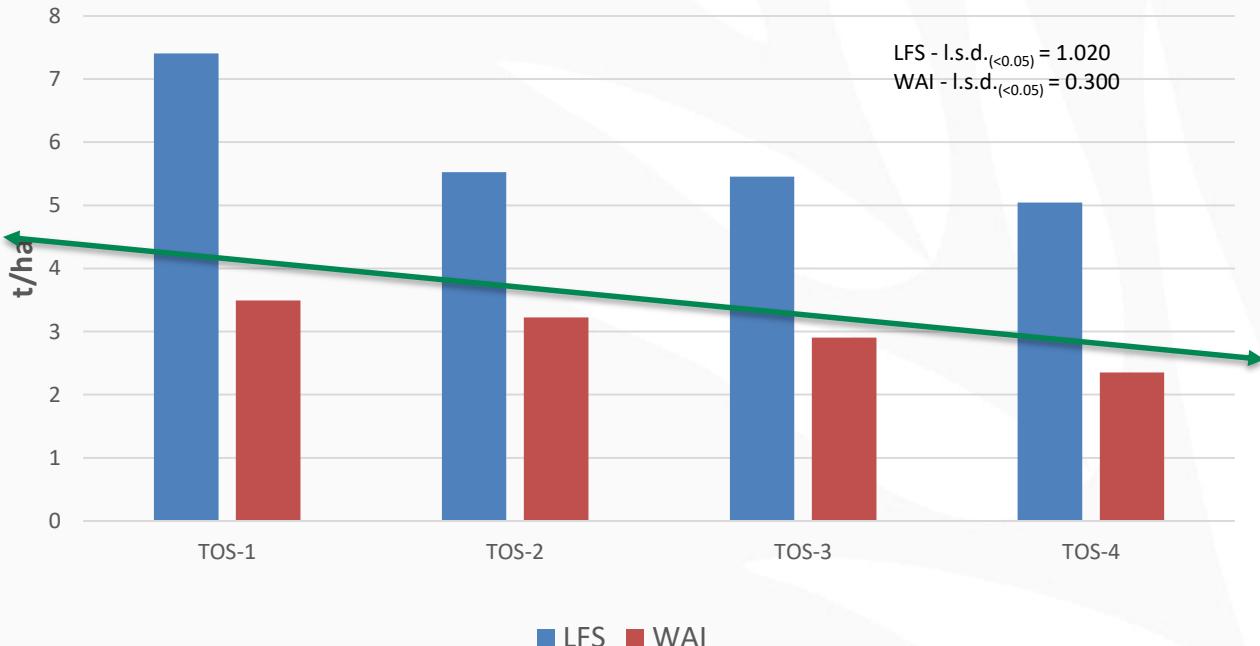
Chickpeas - Total biomass



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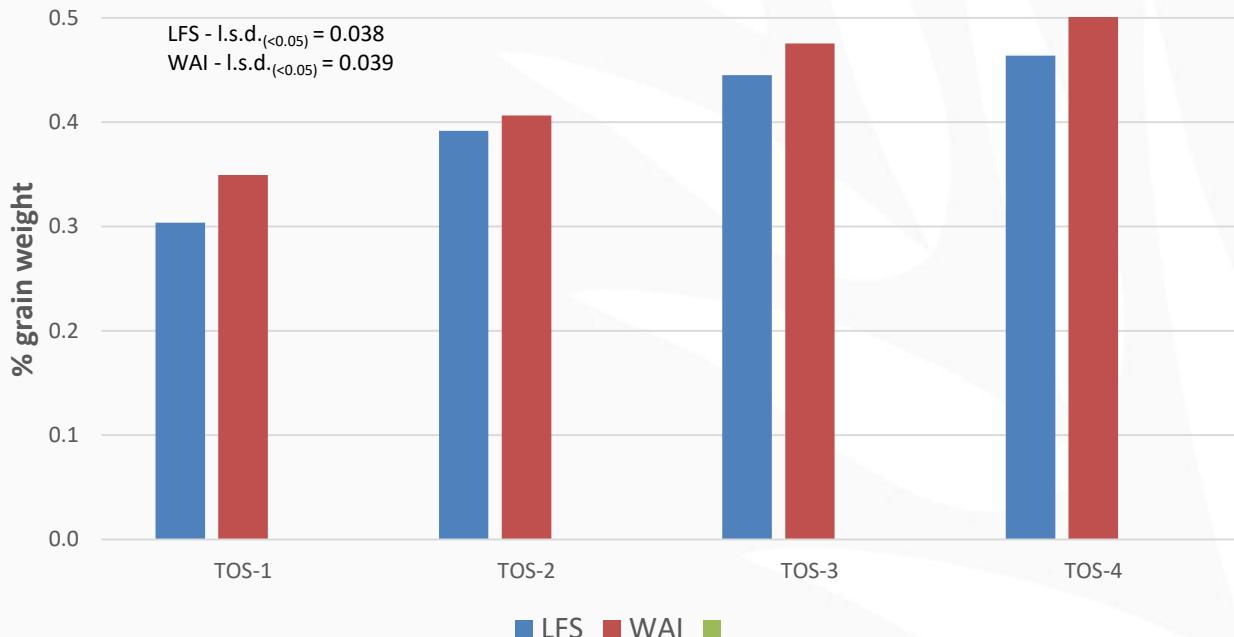
Chickpeas - Total biomass



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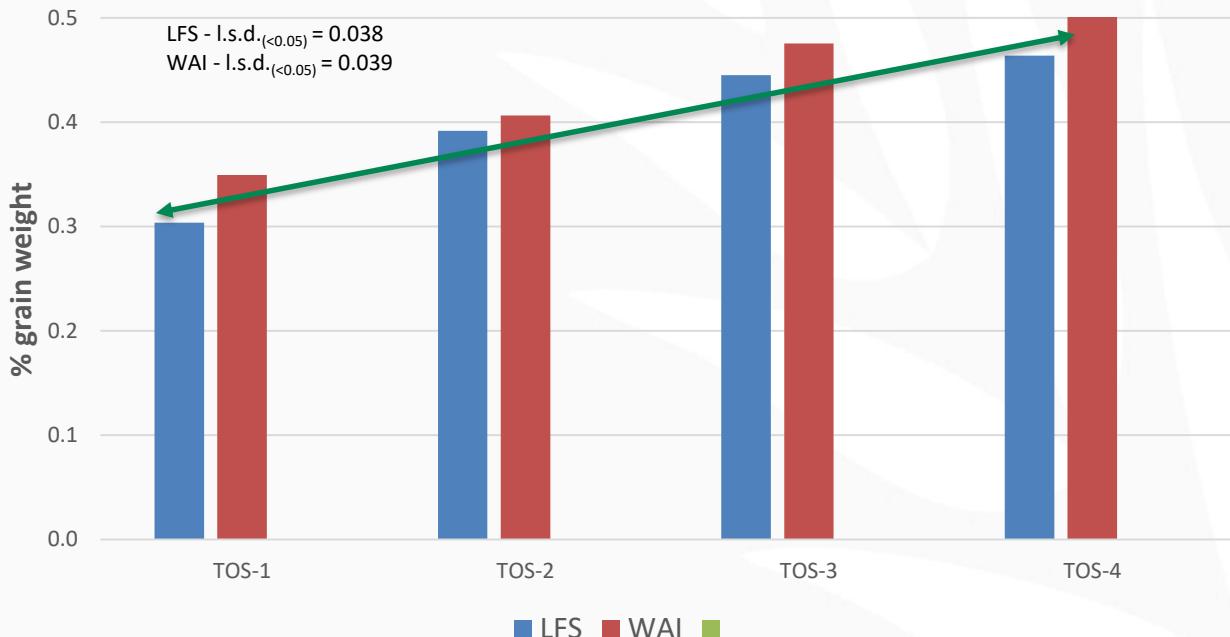
Chickpeas - harvest index



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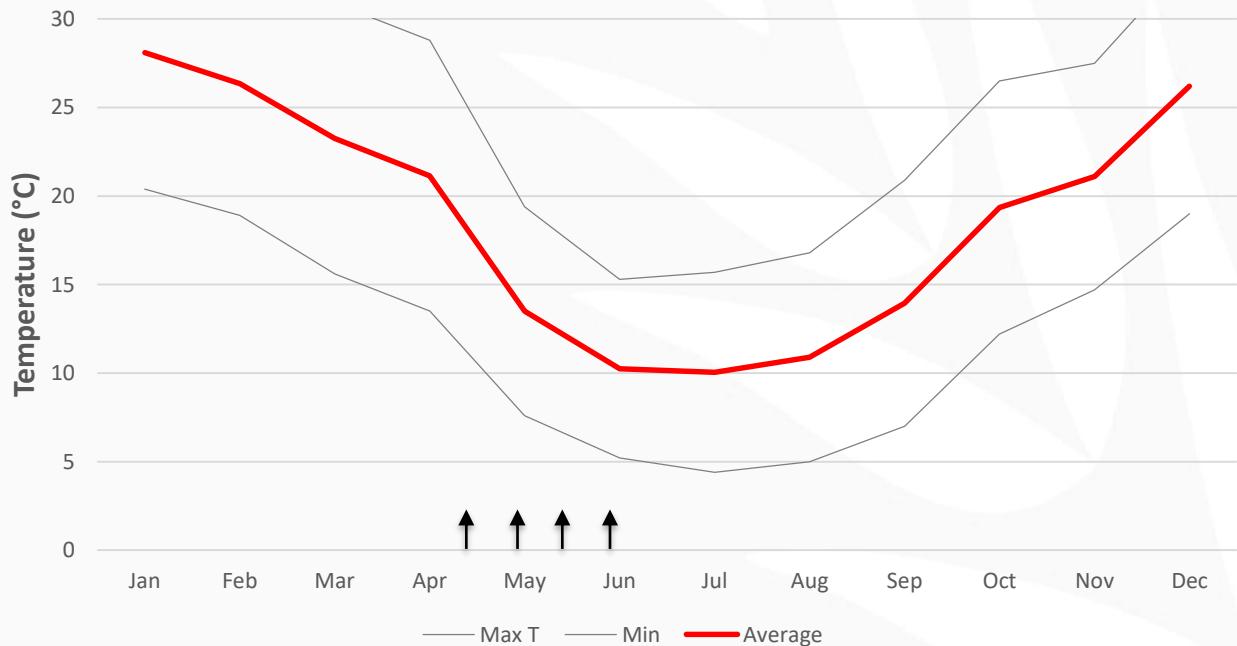
Chickpeas - harvest index



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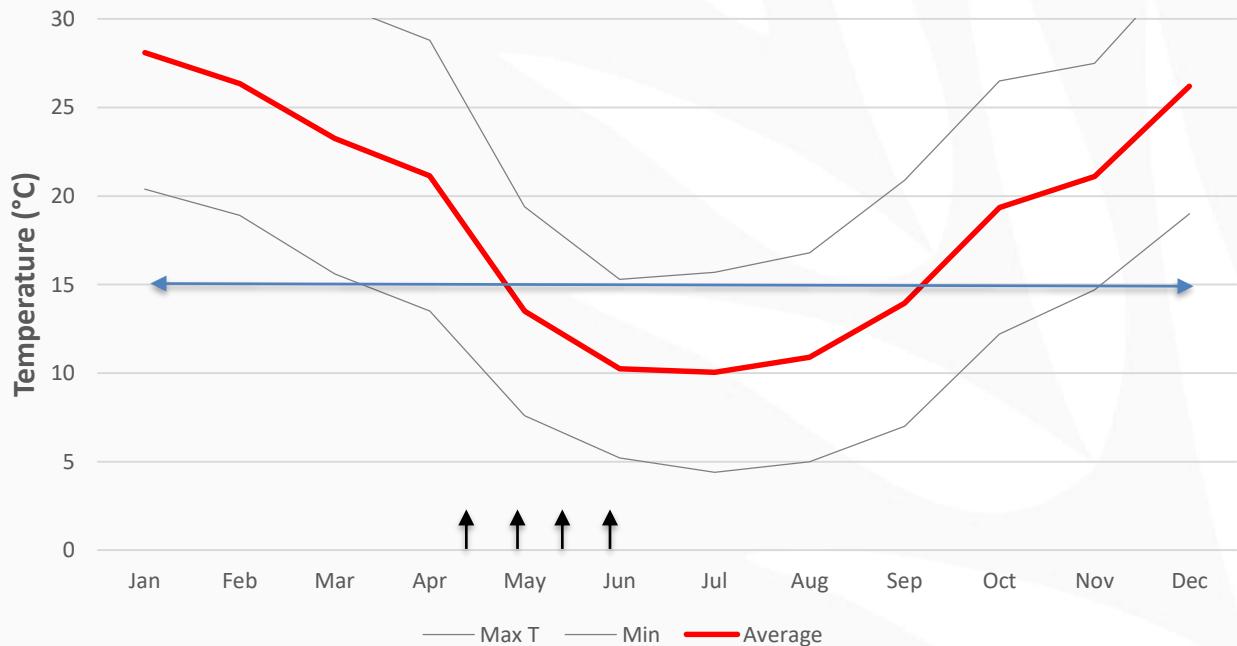
YAI Temperature – 2018



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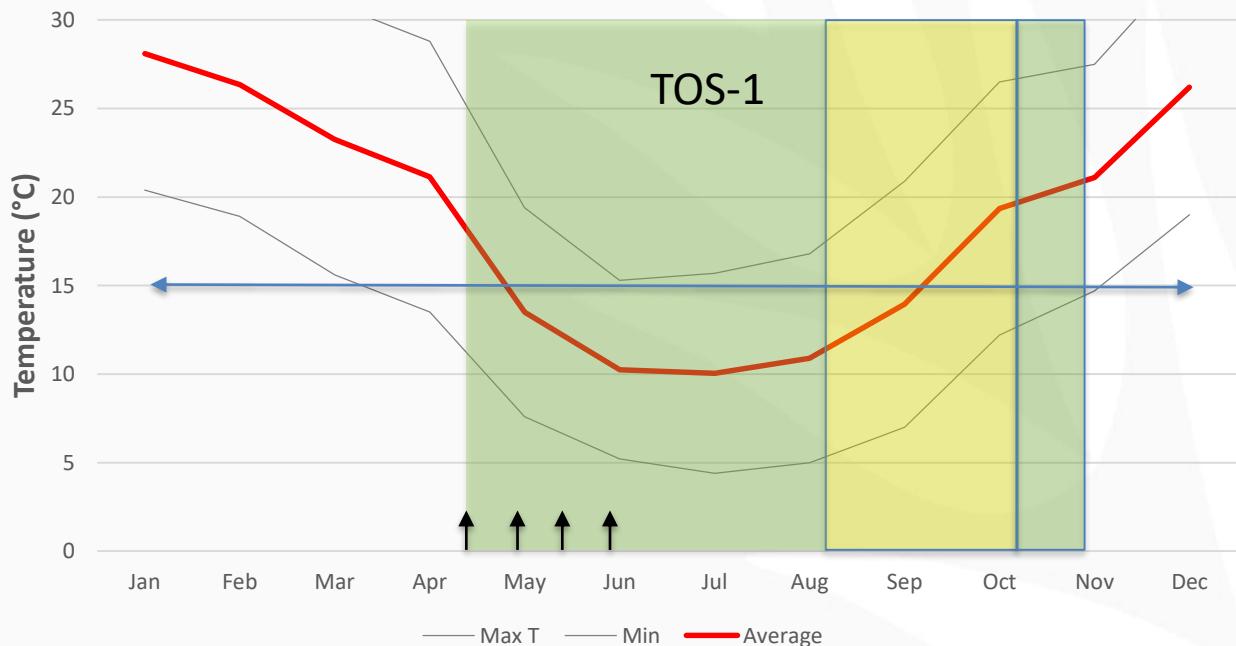
YAI Temperature – 2018



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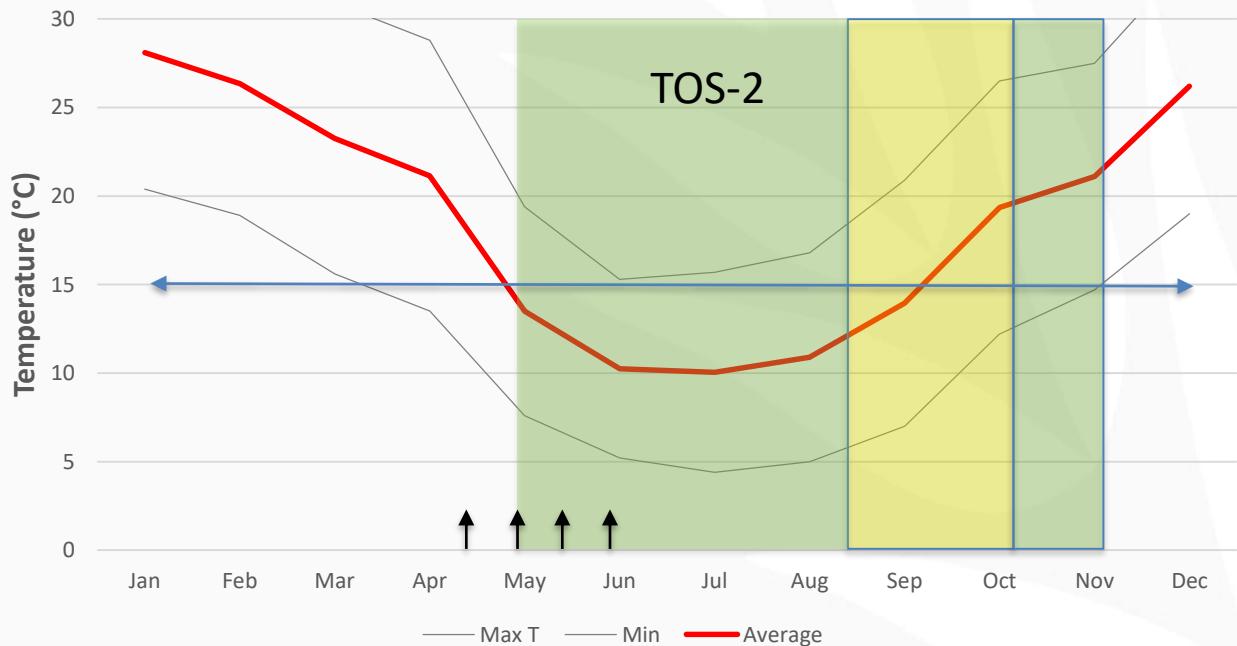
YAI Temperature – 2018



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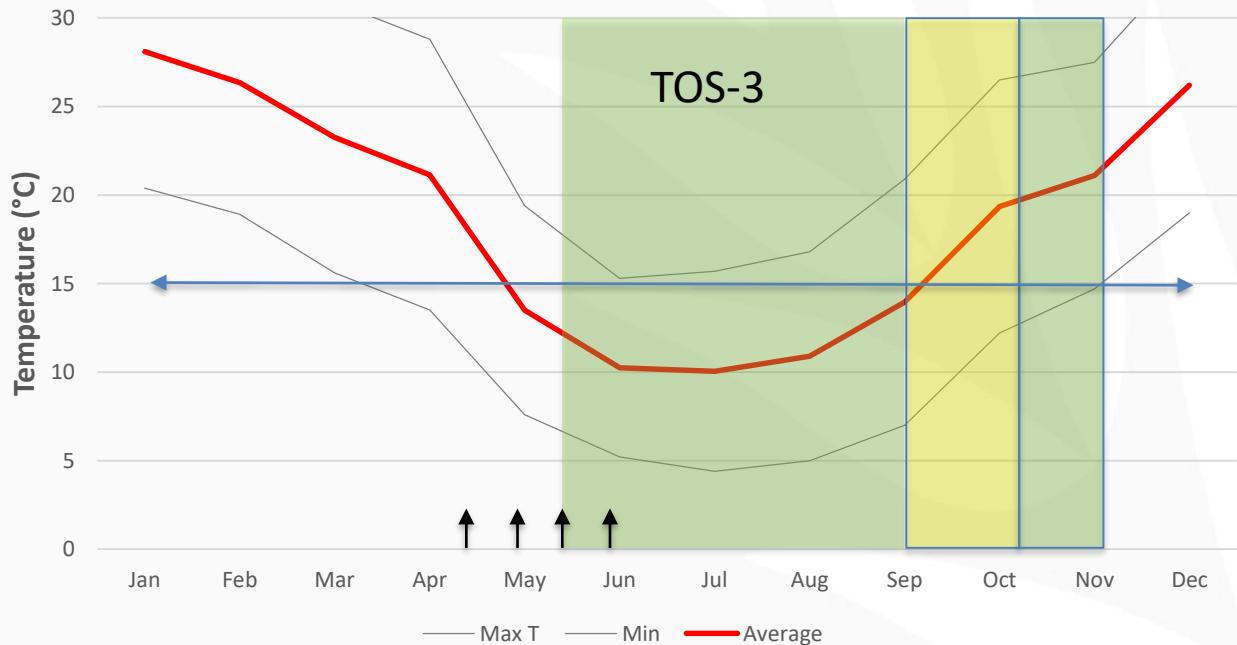
YAI Temperature – 2018



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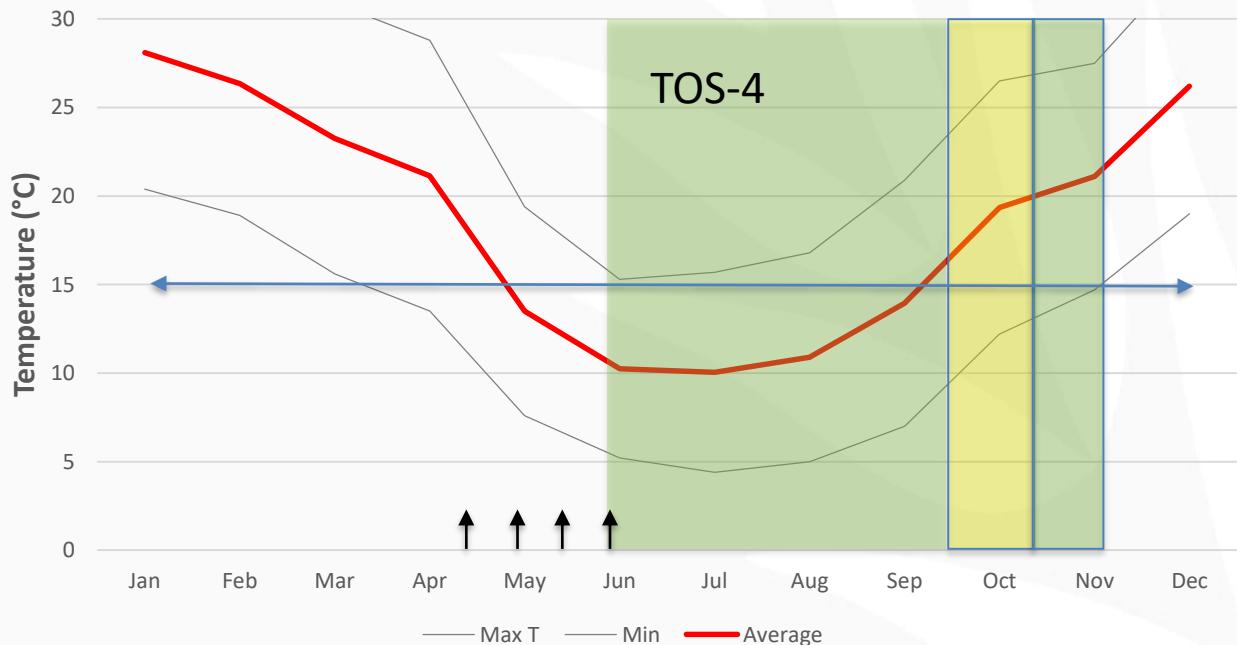
YAI Temperature – 2018



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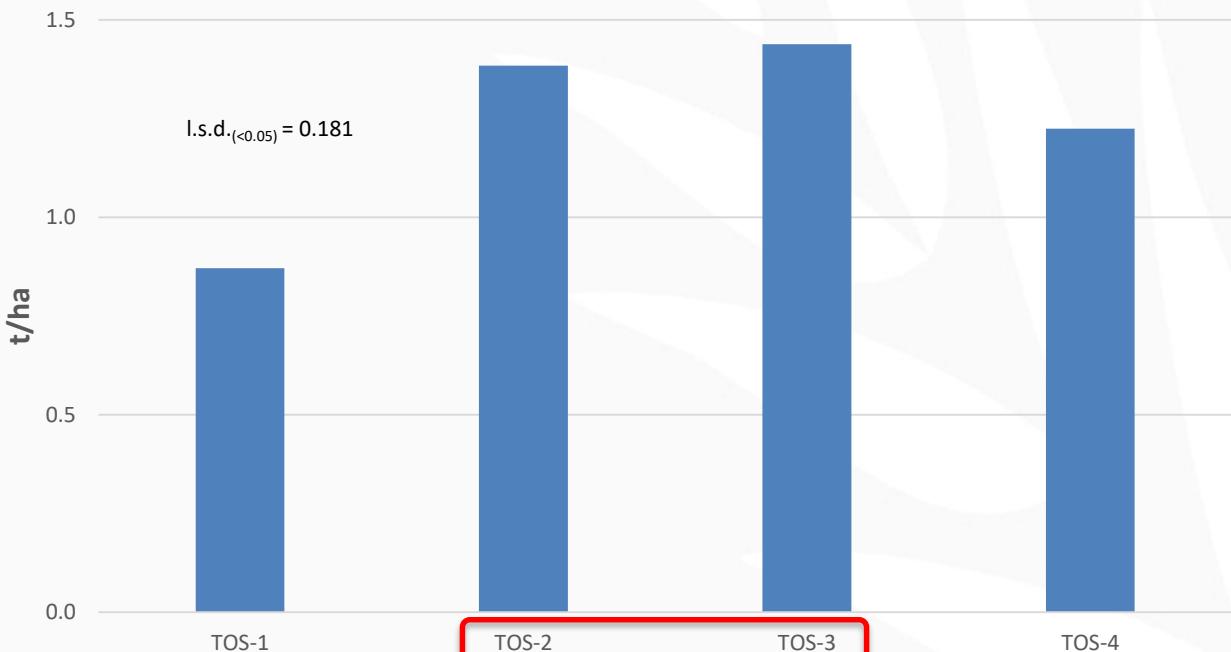
YAI Temperature – 2018



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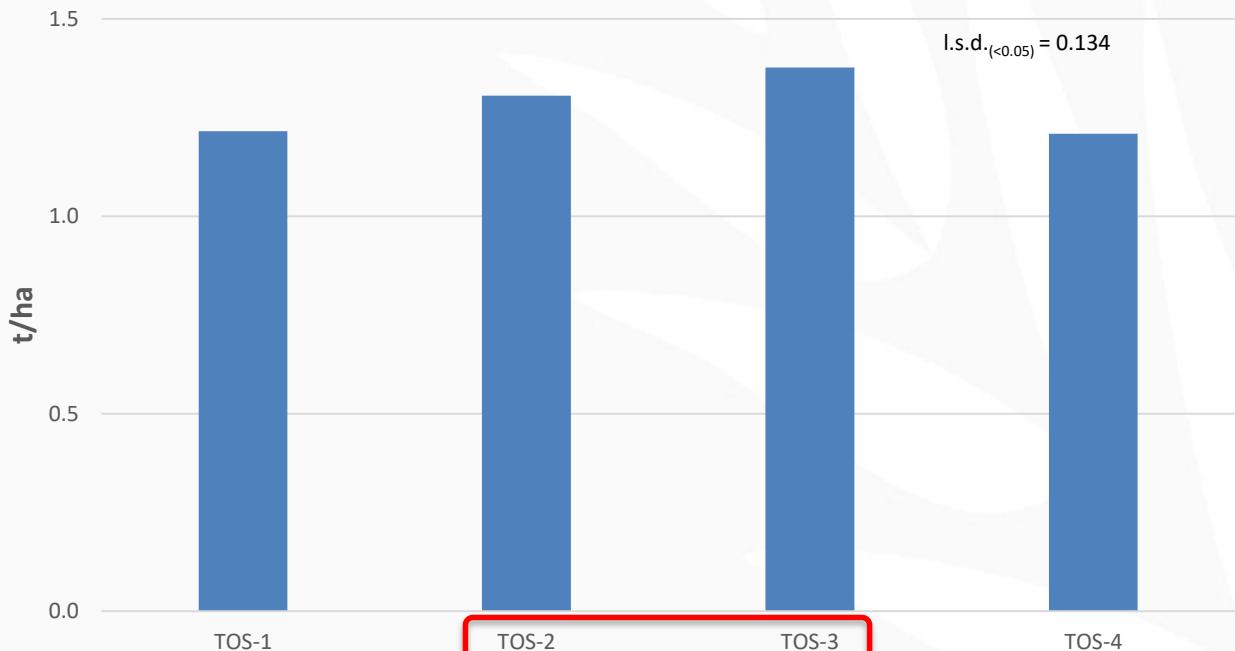
YAI Chickpeas - Grain yield



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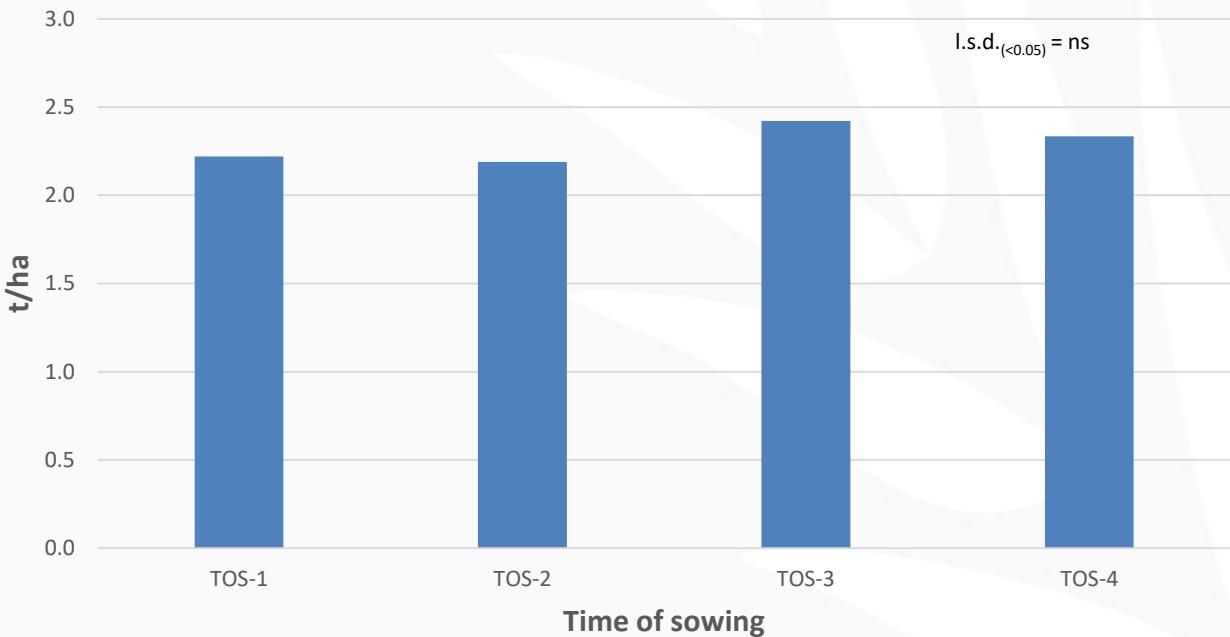
WAI Chickpeas - Grain yield



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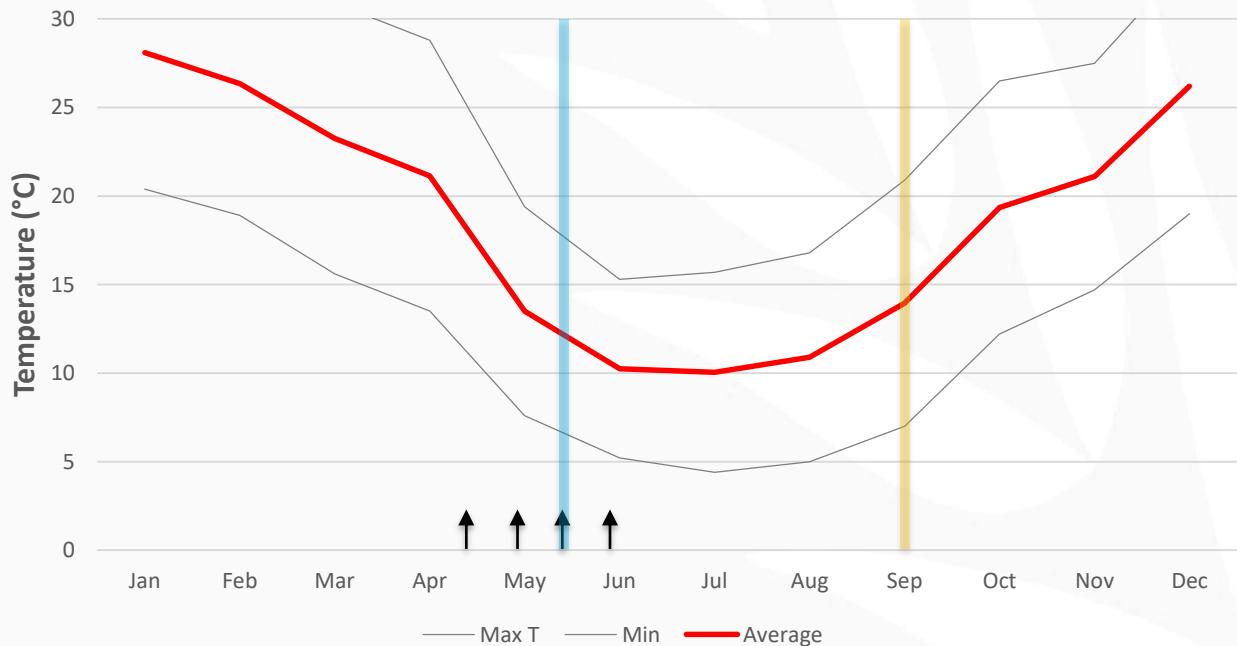
LFS Chickpeas - Grain yield



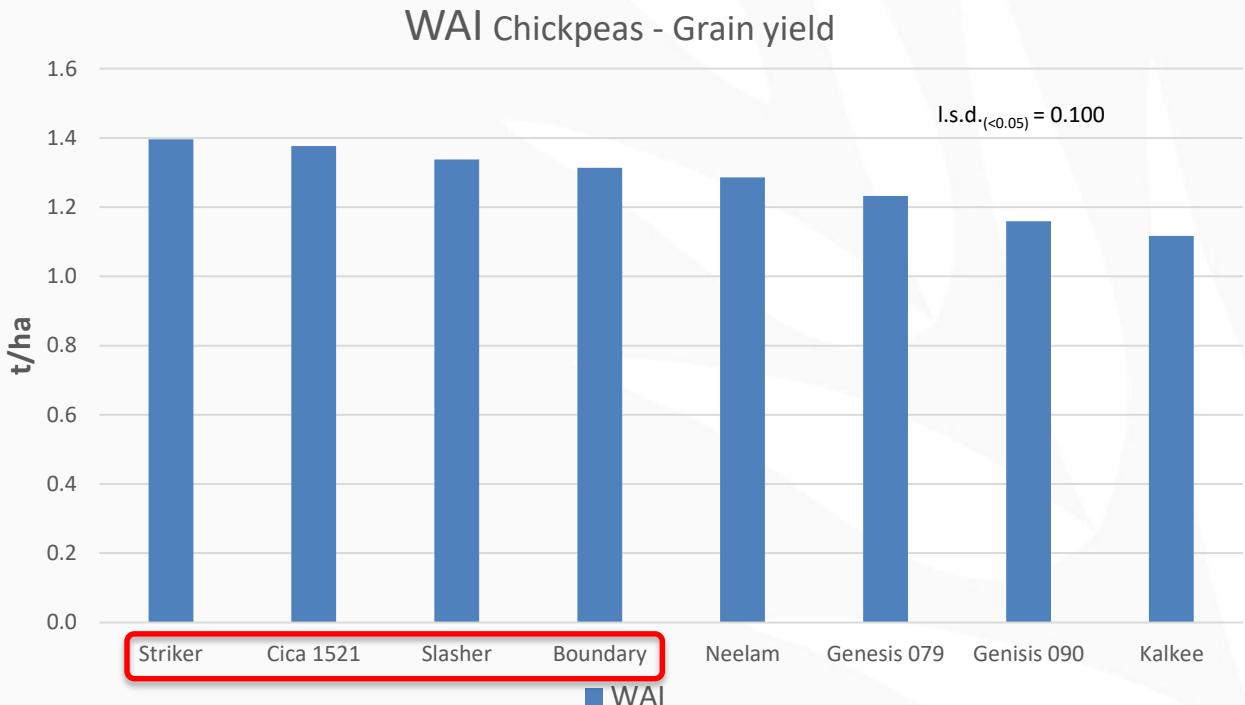
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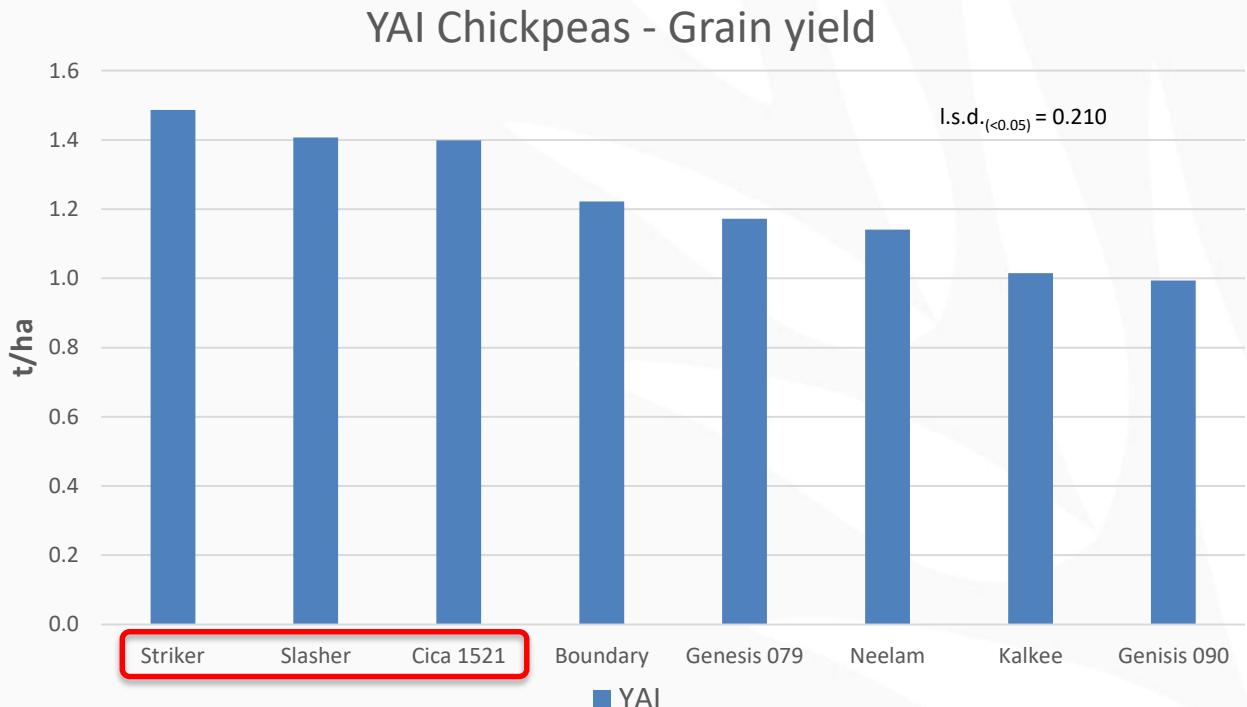
YAI Temperature – 2018



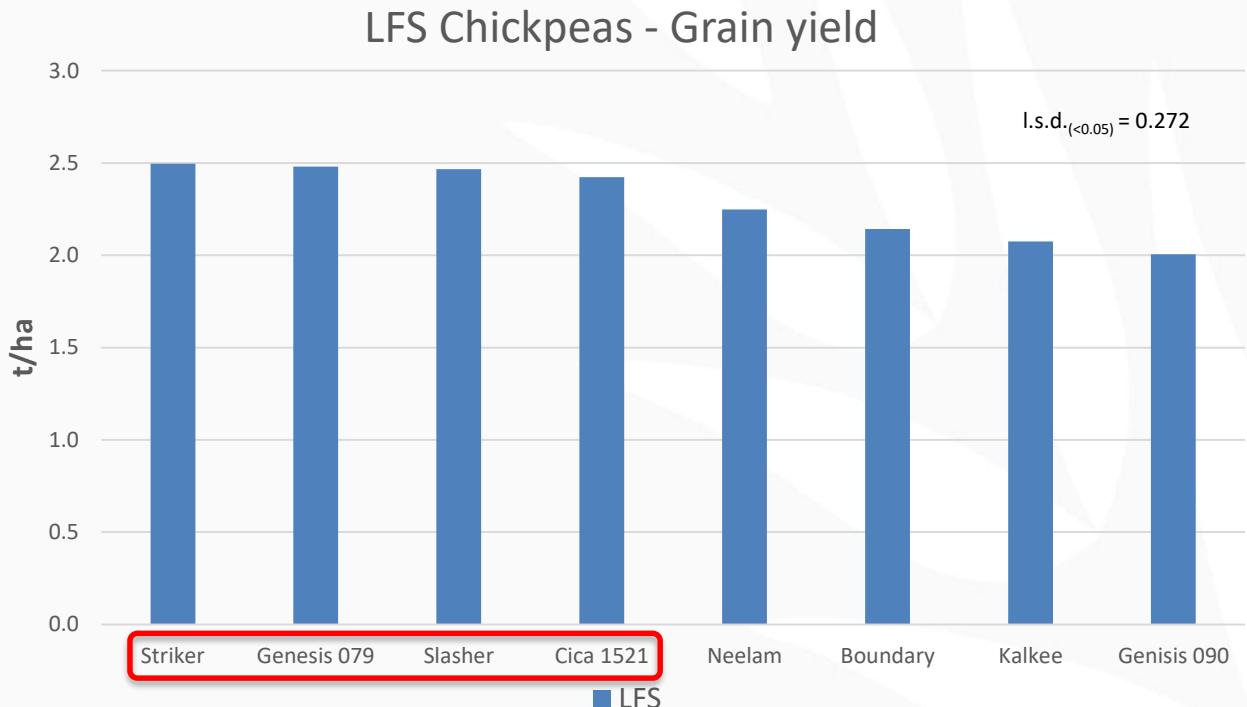
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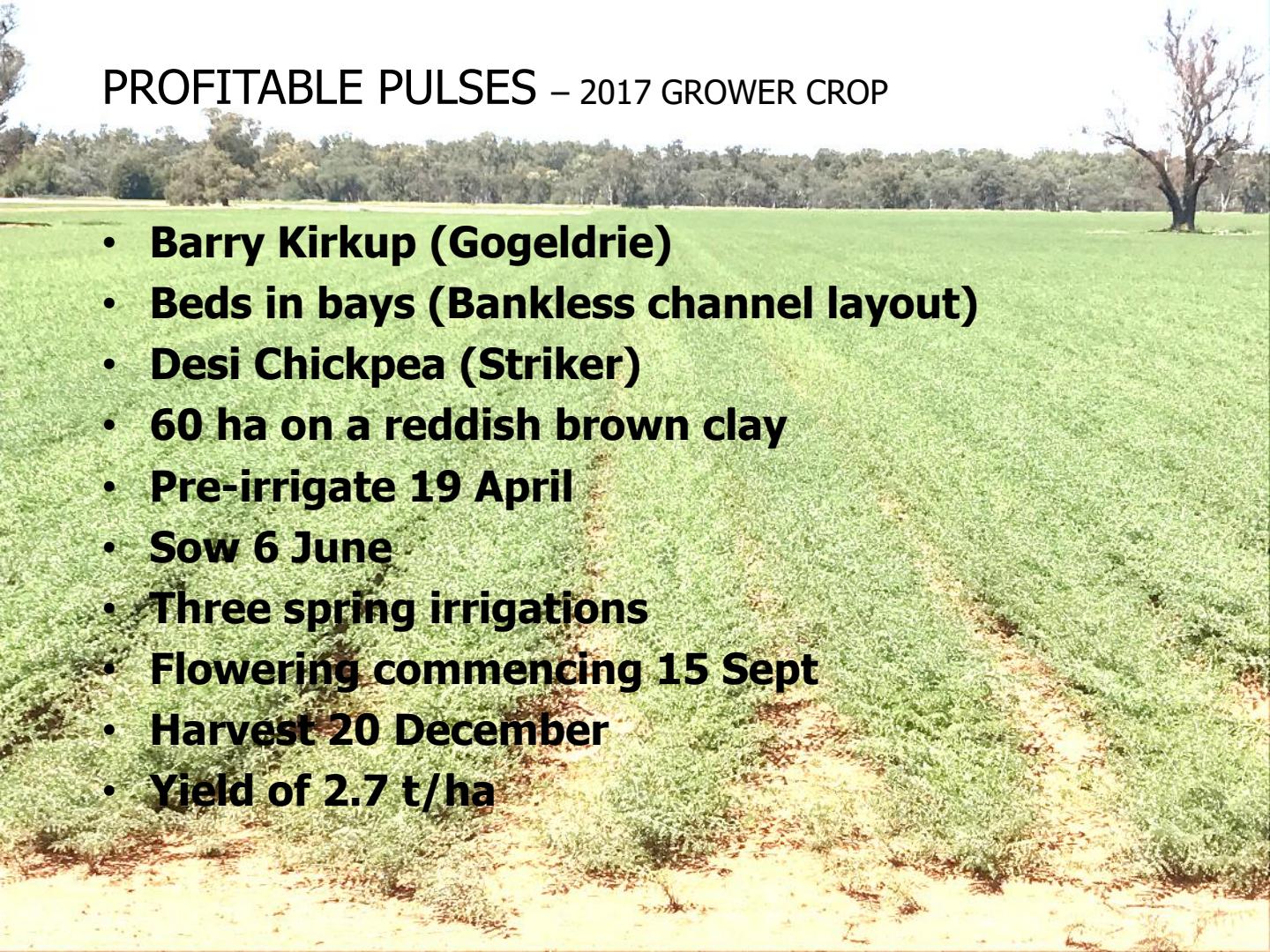
PROFITABLE PULSES



PROFITABLE PULSES – 2017 GROWER CROP



PROFITABLE PULSES – 2017 GROWER CROP

A wide-angle photograph of a green pulse crop field. A dry, brown, V-shaped channel cuts through the center of the field, creating a distinct path. In the background, there is a dense line of trees under a clear sky.

- **Barry Kirkup (Gogeldrie)**
- **Beds in bays (Bankless channel layout)**
- **Desi Chickpea (Striker)**
- **60 ha on a reddish brown clay**
- **Pre-irrigate 19 April**
- **Sow 6 June**
- **Three spring irrigations**
- **Flowering commencing 15 Sept**
- **Harvest 20 December**
- **Yield of 2.7 t/ha**









PROFITABLE PULSES — 2017 GROWER CROP

- Irrigation

– Pre-irrigation	(19 April)	1.0 ML/ha
– 1 st spring irrigation	(23 Aug)	1.0 ML/ha
– 2 nd Spring irrigation	(24 Sept)	0.7 ML/ha
– 3 rd spring irrigation	(26 Oct)	0.7 ML/ha
Total irrigation		3.4 ML/ha
Yield		2.7 t/ha
Irrigation WUE		0.79 t/ML

In crop rainfall (2017)	106 mm
Total volume in rainfall and irrigation	4.5 ML
Total WUE	0.61 t/ML

PROFITABLE PULSES – 2017 GROWER CROP



	2017 Grower crop	2018 LFS trial	2018 WAI trial
Pre-irrigation	1.0 ML/ha	2.2 ML/ha	10 mm
Spring irrigation	2.4 ML/ha	24 mm	0
In-crop rainfall	106 mm	87 mm	152 mm
Total volume	4.46 ML/ha	3.31 ML/ha	1.62 ML/ha
Yield	2.7 t/ha	2.39 t/ha	1.38 t/ha
WUE	0.61 t/ML	0.72 t/ML	0.85 t/ML

PROFITABLE PULSES – 2017 GROWER CROP



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Pre-irrigation	1.0 ML/ha	2.2 ML/ha	10 mm
Spring irrigation	2.4 ML/ha	24 mm	0
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Total volume	4.46 ML/ha	3.31 ML/ha	1.62 ML/ha
Yield	2.7 t/ha	2.39 t/ha	1.38 t/ha
WUE	0.61 t/ML	0.72 t/ML	0.85 t/ML

In Volume LFS had an extra 1.69 ML/ha with a 1.01 t/ha higher yield compared to WAI
A yield increase of 0.60 t/ML

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Lentil Varieties

Varieties	Maturity	Type
PBA Blitz	Early	Medium red
PBA Bolt	Early/Mid	Medium red
Nipper	Mid	Small red
PBA Ace	Mid	Medium red
PBA Hurricane XT	Mid	Small red
PBA Jumbo2	Mid	Large red
CIPAL 1422	Mid/Late	Medium red
PBA Greenfield	Mid/Late	Large green

PROFITABLE PULSES



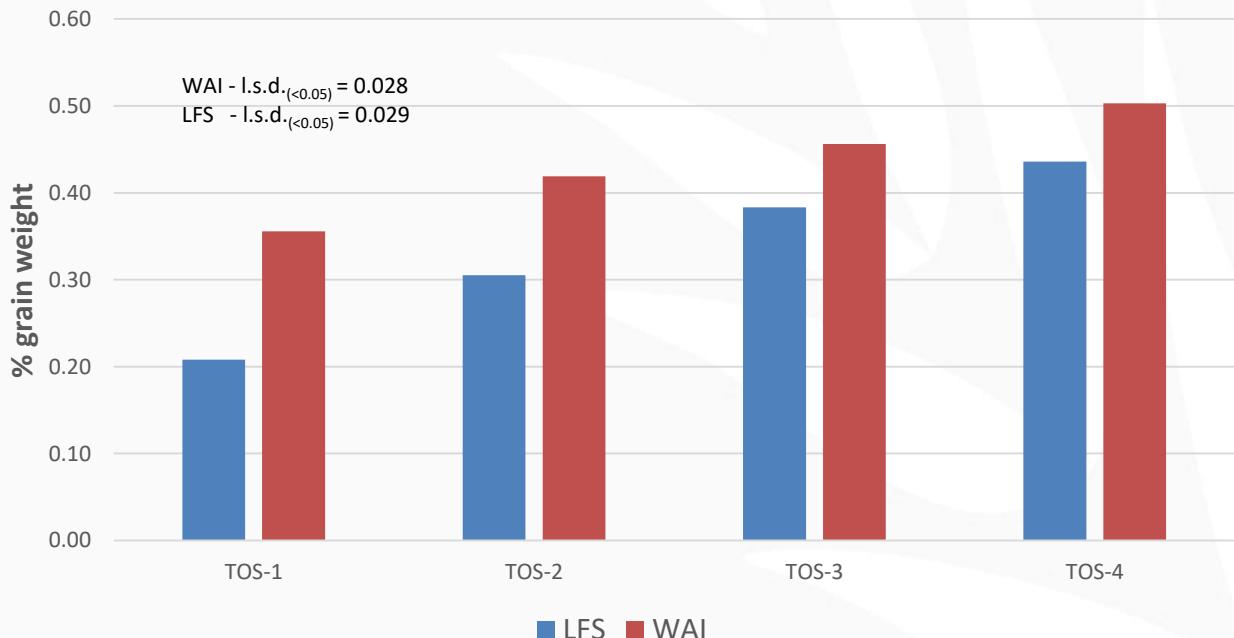
Lentils - Total biomass



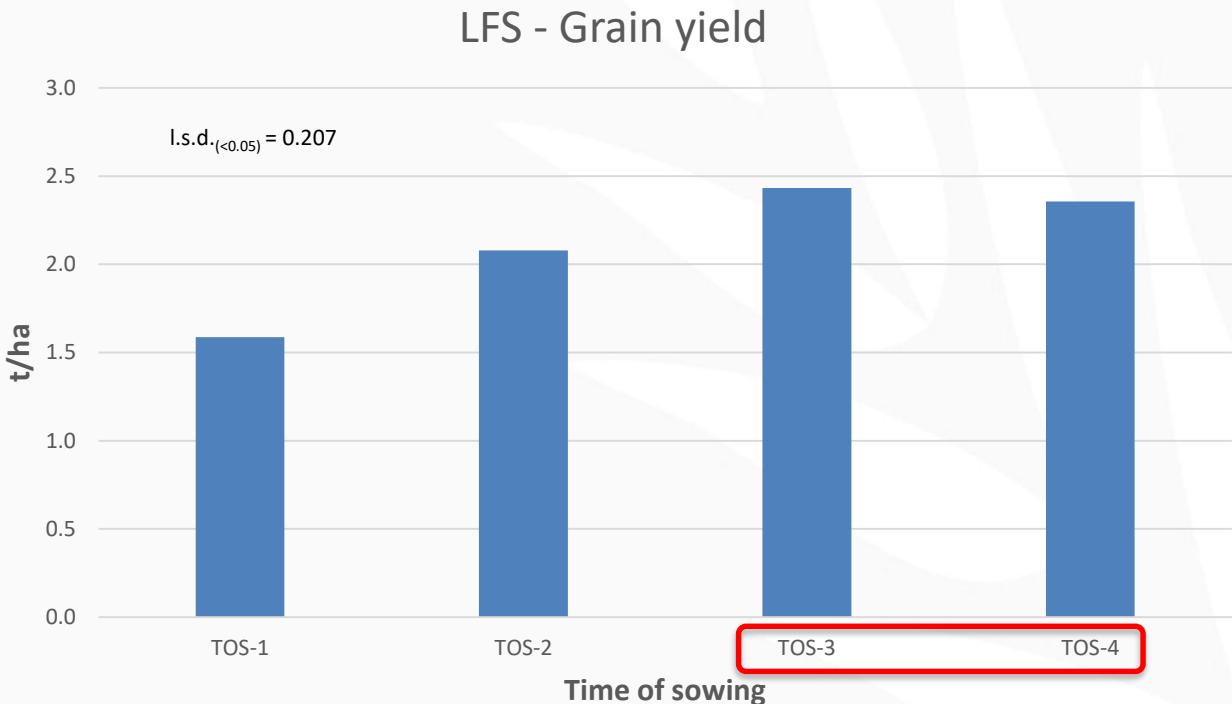
PROFITABLE PULSES



Lentils - Harvest index



PROFITABLE PULSES



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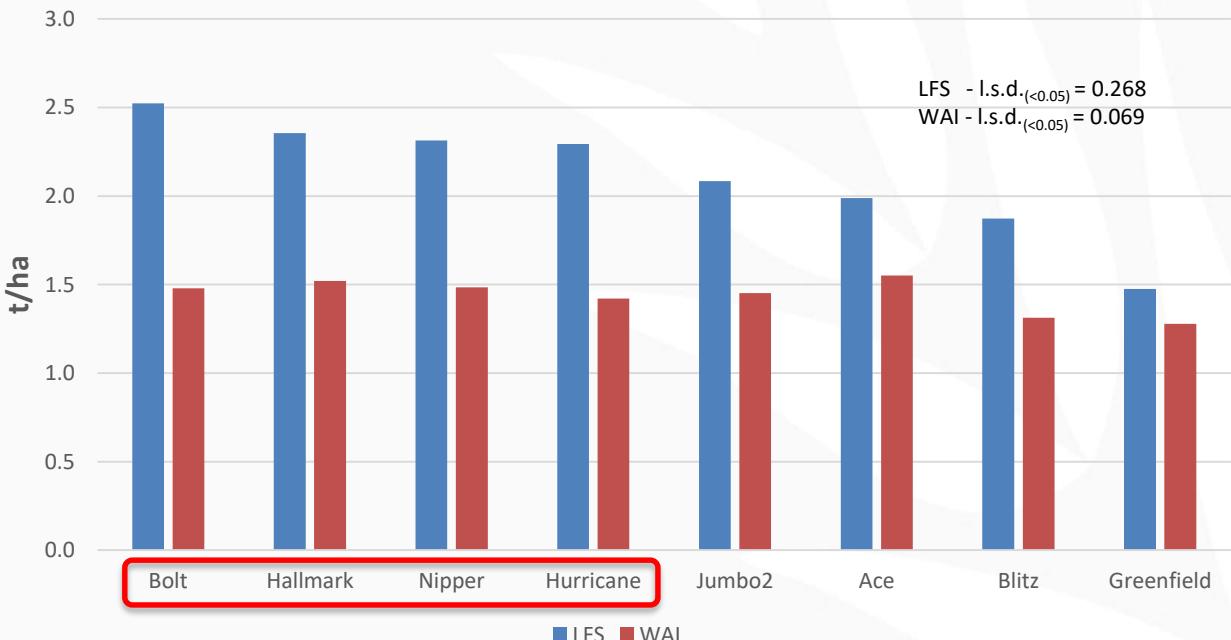
WAI - Grain yield



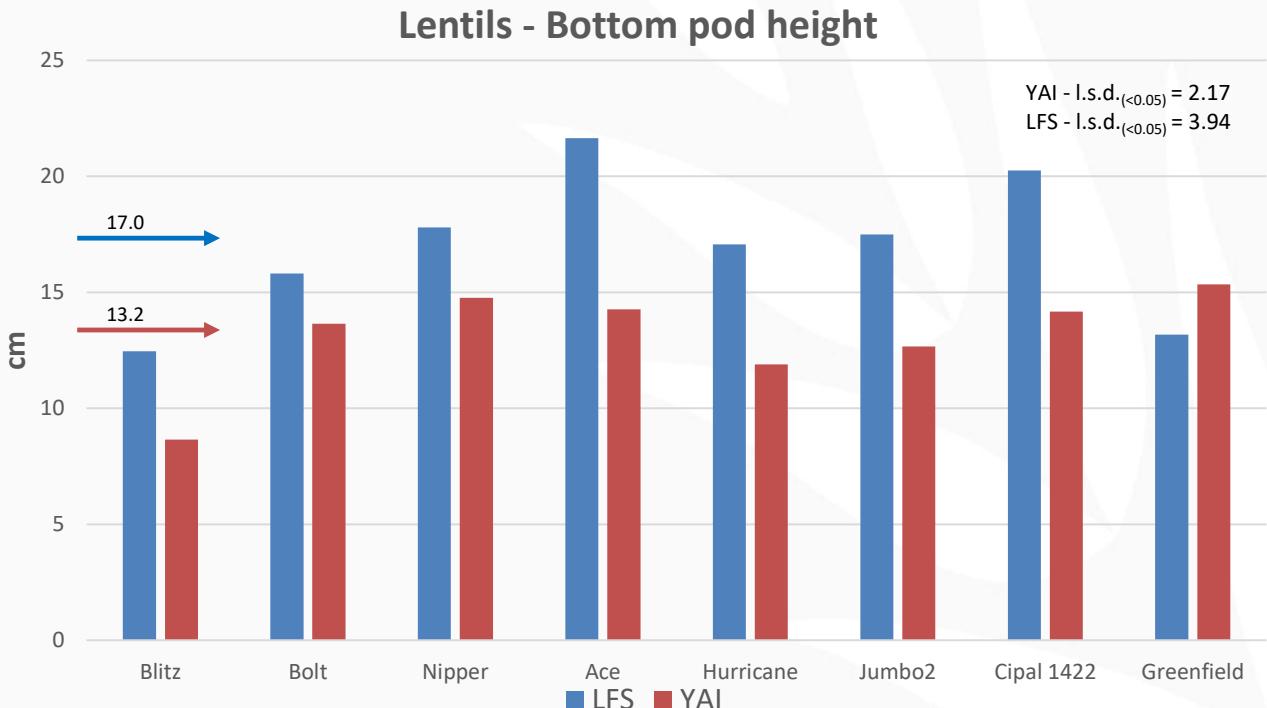
PROFITABLE PULSES



Lentils - Grain yield



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Take home messages

- Chickpeas achieved the highest yields with a Late April to mid May sowing date
- PBA Slasher, PBA Striker and CICA1521 were the highest yielding Chickpea varieties across all sites
- Lentils achieved the highest yields with mid April to mid May sowing date
- PBA Bolt, PBA Hallmark, PBA Hurricane XT and PBA Jumbo2 were the highest yielding Lentil varieties across all sites
- Irrigation management is critical
- Disease management of Ascochyta blight

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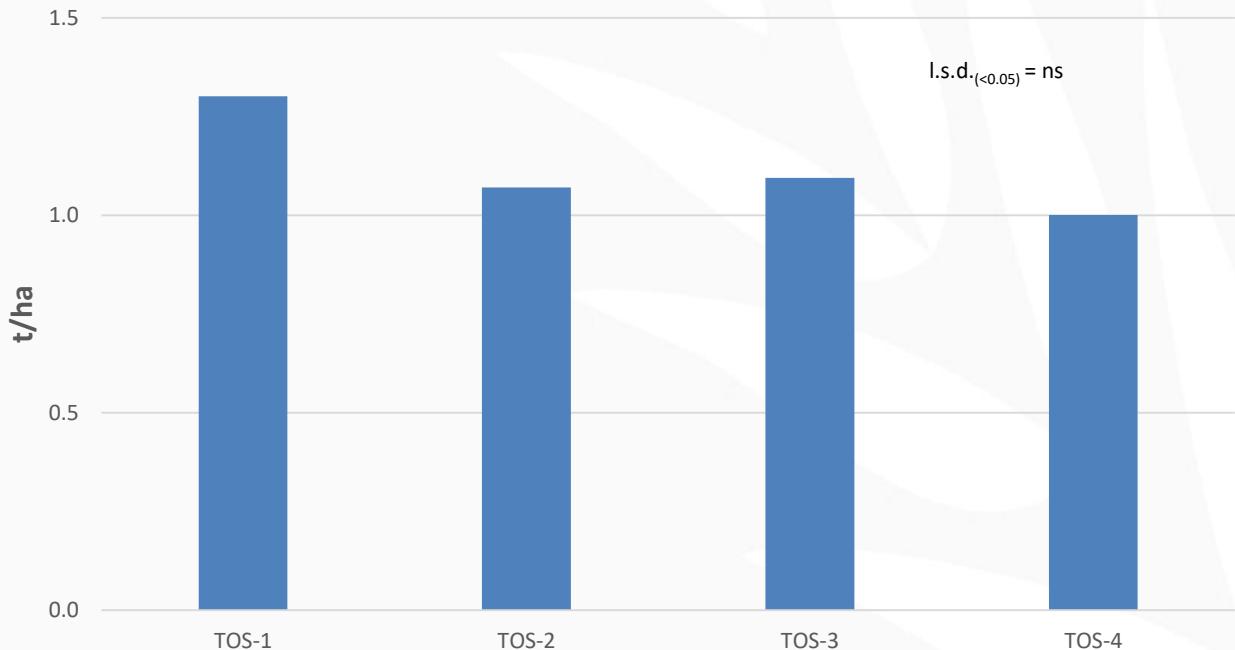
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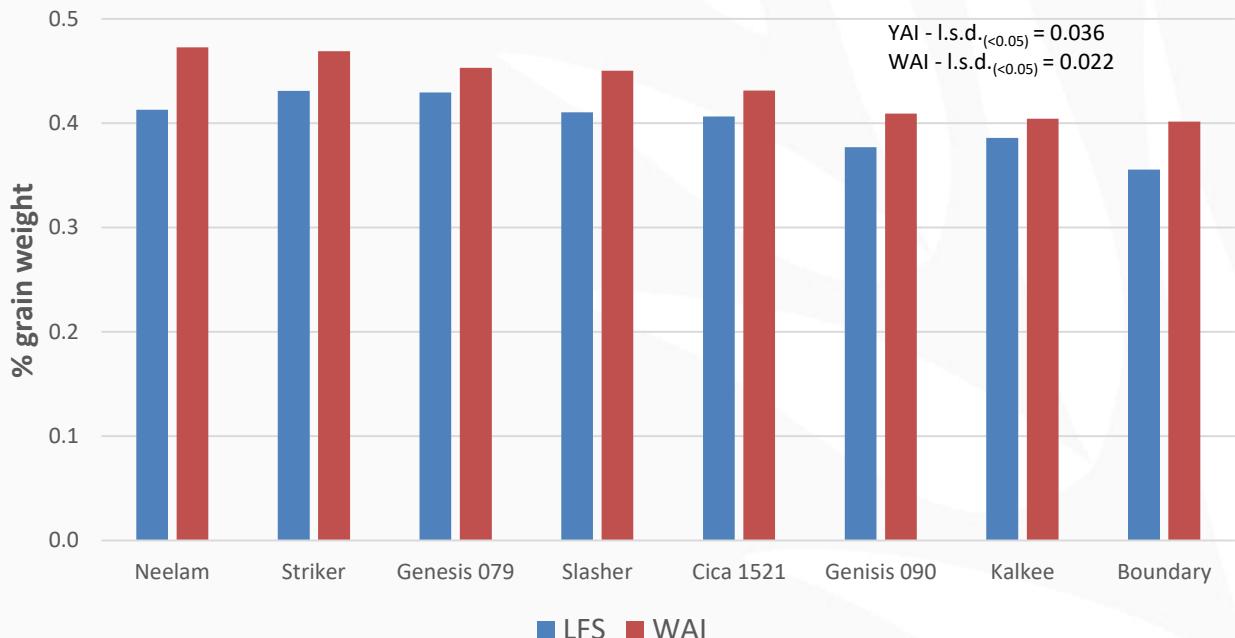
Trangie Chickpeas - Grain yield



PROFITABLE PULSES



Chickpeas - Harvest index



PROFITABLE PULSES



Chickpeas - Total biomass

