Site attributes

Warren 2025

Seasonal conditions

Table 1: *Rainfall at the Warren pulse site in 2025 compared with 2024 and the long-term average (LTA). In-crop rainfall (April to September) was 274 mm.*

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2024	86	76	50	74	38	59	65	69	14	44	87	40	702
2025	73	59	56	42	41	40	37	21	90	10	3	48	520
LTA	61	51	51	46	42	45	43	40	43	51	57	56	586

Soil characteristics

The soil at the Warren site is a Chromosol. The main limitation for pulse growth was low phosphorus. Predicta®B testing revealed a low to medium risk from low to medium population of *Pratylenchus thornei* (2.7 per gram of sample).

Table 2: *Soil characteristics at the pulse site at Warren in June 2025.*

Characteristic	Unit	Soil depth (cm)			
		0–10	10–30	30–60	60–90
pH	($CaCl_2$)	7.5	8.0	8.4	8.0
Organic carbon (W&B)	%	0.89	0.48	0.32	0.21
Phosphorus (Colwell)	mg/kg	23.0	<5.0	<5.0	<5.0
Nitrate nitrogen	mg/kg	17.0	9.8	8.0	2.1
Ammonium nitrogen	mg/kg	0.85	1.20	0.83	<0.60
Cation Exchange Capacity	meq/100g	25.1	33.9	42.0	54.4
Exchangeable aluminium	%	<1	<1	<1	<1
Salinity EC 1:5	dS/m	0.22	0.28	0.38	2.83

Site details

Table 3: *Key site management activities at the pulse site at Warren in 2025.*

Activity	Date	Comments
Soil moisture at sowing	All sow dates	Good
Sowing	Sowing date 1	14 April 2025
	Sowing date 2	8 May 2025
	Sowing date 3	30 May 2025
	All	Knife point press wheel
		Row spacing: 250 mm
		Phosphorus: 75 kg/ha MAP with seed
		Seed depth: 25–30 mm
Harvest	24 October	Faba beans, narrow leaf lupins
	27 October	Field peas, lentils
	6 November	Chickpea, Albus lupins
Crop sequence	2024	Wheat
	2023	Chickpea

Phosphorus rate and placement in faba bean and chickpea

Warren 2025

Key findings

- Faba beans were unresponsive to phosphorus with neither rate nor placement having an effect on crop establishment, biomass or grain yield.
- Chickpeas were also unresponsive to phosphorus rate and placement with inconsistent effects on crop establishment, biomass and grain yield.

Treatments

Table 1: *Phosphorus treatments on PBA Nasma(ф) faba beans and CBA Captain(ф) chickpeas at Warren in 2025.*

Treatment	Phosphorus	
	Placement	Rate (kg P/ha)
Control		0
With	With seed at sowing	5
		10
		20
IBS	Spread then incorporated by sowing	5
		10
		20
Split	With + IBS	5 + 5
		5 + 15

Table 2: *PBA Nasma(ф) faba bean plant establishment, biomass (assessed by NDVI) on 2 dates (DAS, days after sowing), and grain yield for each phosphorus treatment at Warren in 2025.*

Treatment	Phosphorus rate (kg P/ha)	Plant population (plants/m^2)	NDVI 82 DAS	NDVI 116 DAS	Grain yield (t/ha)
Control	0	39	0.643	0.822	2.80
With	5	39	0.707	0.843	2.93
	10	39	0.674	0.834	2.94
	20	35	0.712	0.825	2.92
IBS	5	36	0.675	0.830	2.98
	10	37	0.673	0.832	2.89
	20	35	0.650	0.828	2.89
Split	5 + 5	36	0.716	0.844	3.07
	5 + 15	36	0.679	0.827	2.86
l.s.d. (P = 0.5)		n.s.	0.0654	0.0385	n.s.

Table 3: *CBA Captain$^{\Phi}$ chickpea plant establishment, biomass (assessed by NDVI) on 2 dates (DAS, days after sowing), and grain yield for each phosphorus treatment at Warren in 2025.*

Treatment	Phosphorus rate (kg P/ha)	Plant population (plants/m^2)	NDVI 60 DAS	NDVI 94 DAS	Grain yield (t/ha)
Control	0	36.8	0.265	0.522	2.13
With	5	39.5	0.299	0.573	2.15
	10	43.3	0.302	0.601	2.18
	20	41.0	0.294	0.604	2.21
IBS	5	43.8	0.254	0.509	2.18
	10	45.3	0.271	0.582	2.12
	20	37.0	0.256	0.537	2.17
Split	10	39.3	0.269	0.533	2.11
	20	37.8	0.271	0.545	2.12
l.s.d. (P = 0.5)		8.27	0.0258	0.0515	n.s.

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