

Pre-sow ripping – comparison of pulse species and varieties

Gol Gol, Southwest NSW Mallee 2025

Overall plants established across both the ripped and unripped treatments was slow due to dry conditions, but consistent. The rate of establishment was notably slower in the ripped plots, particularly for lentils. No major differences between treatments were obvious at the end of July with some early flowering noted in the quicker maturing varieties of all crop types. Everything started to grow as temperatures warmed during August, however no major visual differences between ripped and unripped were noted throughout the season, despite the dry conditions.

Key findings

Chickpea

- Chickpea grain yield was consistent across ripping treatments and varieties averaging 1.64 t/ha.
- Peak biomass of chickpeas was similar in the ripped and unripped treatments, but varied by variety. The Kabuli varieties Genesis™ 090 (3.01 t/ha) and CBA2051 (3.22 t/ha) produced about 35% more biomass than the Desi varieties CBA Captain[Ⓛ] (2.35 t/ha) and Early pod (experimental line, 2.20 t/ha).

Faba bean

- Similar to 2024, faba bean biomass and grain yield was the lowest of all pulse species evaluated in 2025. Ripping improved yielded (0.80 t/ha) by 23% compared with the unripped treatment (0.65 t/ha). PBA Bendoc[Ⓛ] (0.62 t/ha) was lower yielding than the other varieties PBA Marne[Ⓛ], PBA Samira[Ⓛ] and FBA Coorong[Ⓛ] (~0.76 t/ha).
- Biomass production showed a similar trend to grain yield when comparing ripped (2.40 t/ha) and unripped (2.07 t/ha), a 16% increase. FBA Coorong[Ⓛ] (2.47 t/ha) and PBA Marne[Ⓛ] (2.39 t/ha) produced about 20% more biomass than PBA Bendoc[Ⓛ] and PBA Samira[Ⓛ] (~2.04 t/ha).

Field pea

- Field pea produced the highest grain yield (2.42 t/ha) of all pulse crops evaluated, which is consistent with previous seasons in this region.
- Ripping had no effect on grain yield and there was no difference between varieties.
- Peak biomass averaged 4.37 t/ha across all treatments, but the response to ripping varied. PBA Butler[Ⓛ] and PBA Twilight[Ⓛ] produced 15% more biomass in the unripped treatment, while APB2401 (experimental line) produced 15% more in the ripped treatment.

Lentil

- Ripping had no statistically significant effect on grain yield of lentils at Gol Gol in 2025. There was a potential trend of lower yields in the ripped treatment, which may relate to the slower establishment rate in this treatment.
- Grain yield of GIA Thunder[Ⓢ] and ALB Terrier[Ⓢ] were the highest (1.9 t/ha). GIA Lightning[Ⓢ] was 5% lower and ALB Dane[Ⓢ] 15% lower yielding.
- Both GIA Lightning and ALB Dane were later flowering, podding and maturing than GIA Thunder[Ⓢ] and ALB Terrier[Ⓢ]. In particular, ALB Dane[Ⓢ] was about 10 days later and its growth habit was more prostrate, which possibly contributed to lower yield.
- Peak biomass of lentils ranged between 2.96 and 3.99 t/ha, with no difference between ripped and unripped. ALB Dane[Ⓢ] produced the most biomass, 20% higher than GIA Lightning[Ⓢ] and 15% higher than GIA Thunder[Ⓢ] and ALB Terrier[Ⓢ].

Vetch

Biomass was measured at the start of podding to estimate hay yield. Samples were taken on: 2 September – Studenica[Ⓢ]; 8 September – Volga[Ⓢ]; and 15 September – Timok[Ⓢ] and Morava.

- Ripping had no effect on hay yield which averaged 2.92 t/ha across the trial. However, there were large differences between varieties, with Volga[Ⓢ] producing 3.55 t/ha, 12% higher than Timok[Ⓢ] (3.12 t/ha), 20% higher than Morava (2.83 t/ha) and 38% higher than Studenica[Ⓢ] (2.20 t/ha).

Trial details

Table 1: Trial management details for lentil, vetch, field pea, faba beans and chickpea in the pre-sow ripping trial at Gol Gol in 2025.

Activity	Details
Sowing Date	6 May 2025
Starter Fertiliser	MAP @ 60 kg/ha (phosphorus 21.9%, nitrogen 10%, sulfur 1.5%, calcium 1.6%)
Target plant population	Lentil: 120 plants/m ²
	Field pea: 40 plants/m ²
	Vetch: 50 plants/m ²
	Faba bean: 20 plants/m ²
	Chickpea: 35 plants/m ²
Post-emergent fungicides and insecticide – all crops	
29 July	Miravis® Star @ 500 mL/ha
28 August	Veritas® Opti @ 540 mL/ha + Trojan® @ 30 mL/ha

Treatments

Table 2: Treatments in the pre-sowing ripping trial comparing pulse species and varieties at Gol Gol in 2025.

Treatment	Details				
Ripping	Unripped				
	3 May; ripped to 30 cm				
Species	Chickpea	Faba bean	Field pea	Lentil	Vetch
Target plant density (plants/m ²)	35	20	40	120	50
Variety	CBA Captain [Ⓢ]	PBA Bendoc [Ⓢ]	APB Bondi [Ⓢ]	ALB Terrier [Ⓢ]	Morava
	CBA2051	PBA Marne [Ⓢ]	APB2401	ALB Dane [Ⓢ]	Studenica [Ⓢ]
	Early pod	PBA Samira [Ⓢ]	PBA Butler [Ⓢ]	GIA Lightning [Ⓢ]	Timok [Ⓢ]
	Genesis™ 090	FBA Coorong [Ⓢ]	PBA Twilight [Ⓢ]	GIA Thunder [Ⓢ]	Volga [Ⓢ]

[Ⓢ] varieties displaying this symbol are protected under the Plant Breeders Rights Act 1994

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Results

Table 3: Grain yield and peak biomass of four varieties of chickpea in ripped and unripped treatments sown 6 May at Gol Gol in 2025.

Variety	Grain yield (t/ha)			Peak biomass (t/ha)		
	Ripped	Unripped	Mean	Ripped	Unripped	Mean
CBA Captain	1.64	1.69	1.67	2.40	2.29	2.35
CBA2051	1.65	1.65	1.65	3.36	3.08	3.22
Early Pod	1.64	1.63	1.64	2.31	2.09	2.20
Genesis 090	1.59	1.64	1.62	2.93	3.09	3.01
Mean	1.63	1.65	1.64	2.75	2.64	2.69
I.s.d. ($P < 0.05$) Ripping	n.s			n.s		
I.s.d. ($P < 0.05$) Variety	n.s			0.30		
I.s.d. ($P < 0.05$) Variety * Ripping	n.s			n.s		

n.s. = no significant difference

Grain yield and peak biomass of four varieties of faba bean in ripped and unripped treatments sown 6 May at Gol Gol in 2025.

Variety	Grain Yield (t/ha)			Peak biomass (t/ha)		
	Ripped	Unripped	Mean	Ripped	Unripped	Mean
PBA Bendoc	0.69	0.55	0.62	2.19	1.96	2.08
PBA Marne	0.81	0.64	0.73	2.53	2.24	2.39
PBA Samira	0.86	0.71	0.79	2.19	1.80	2.00
FBA Coorong	0.82	0.68	0.75	2.67	2.27	2.47
Mean	0.80	0.65	0.72	2.40	2.07	2.23
I.s.d. ($P < 0.05$) Ripping	0.12			0.11		
I.s.d. ($P < 0.05$) Variety	0.08			0.31		
I.s.d. ($P < 0.05$) Variety * Ripping	n.s			n.s		

n.s. = no significant difference

Table 4: Grain yield and peak biomass of four varieties of field pea in ripped and unripped treatments sown 6 May at Gol Gol in 2025.

Variety	Grain yield (t/ha)			Peak biomass (t/ha)		
	Ripped	Unripped	Mean	Ripped	Unripped	Mean
APB Bondi	2.34	2.44	2.39	4.19	4.31	4.25
APB2401	2.43	2.42	2.43	4.56	3.97	4.27
PBA Butler	2.35	2.37	2.36	4.21	4.89	4.55
PBA Twilight	2.42	2.57	2.50	4.14	4.70	4.42
Mean	2.39	2.45	2.42	4.28	4.47	4.37
I.s.d. ($P < 0.05$) Ripping	n.s			n.s		
I.s.d. ($P < 0.05$) Variety	n.s			n.s		
I.s.d. ($P < 0.05$) Variety * Ripping	n.s			0.56		

n.s. = no significant difference

Table 5: Grain yield and peak biomass of four varieties of lentil in ripped and unripped treatments sown 6 May at Gol Gol in 2025.

Variety	Grain yield (t/ha)			Peak biomass (t/ha)		
	Ripped	Unripped	Mean	Ripped	Unripped	Mean
ALB Terrier	1.82	1.92	1.87	3.18	3.07	3.13
ALB Dane	1.45	1.68	1.57	3.52	3.99	3.76
GIA Lightning	1.62	1.88	1.75	3.05	2.86	2.96
GIA Thunder	1.83	1.88	1.86	3.14	3.16	3.15
Mean	1.68	1.84	1.76	3.22	3.27	3.25
I.s.d. ($p < 0.05$) Ripping	n.s			n.s		
I.s.d. ($p < 0.05$) Variety	0.11			0.25		
I.s.d. ($p < 0.05$) Variety * Ripping	n.s			n.s		

n.s. = no significant difference

Table 6: Hay yield and growth rate of four varieties of vetch in ripped and unripped treatments sown 6 May at Gol Gol in 2025.

Variety	Hay yield (t/ha)			Hay growth rate (kg/ha/day)		
	Ripped	Unripped	Mean	Ripped	Unripped	Mean
Morava	2.96	2.70	2.83	22	20	21
Studenca	2.40	1.99	2.20	20	17	18
Timok	3.26	2.98	3.12	25	23	24
Volga	3.71	3.39	3.55	30	27	28
Mean	3.08	2.77	2.92	24	22	23
I.s.d. ($P < 0.05$) Ripping	n.s			n.s		
I.s.d. ($P < 0.05$) Variety	0.19			1.5		
I.s.d. ($P < 0.05$) Variety * Ripping	n.s			n.s		

n.s. = no significant difference

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