



CRCNA: Developing an Oilseed industry for Northern Australia.

2020_2021 Summer trial.

Central region specific. To determine the optimal sowing rate for new soybean varieties: Kuranda, New Bunya, Mossman; compared to Leichhardt.

Why?

Sowing rate influences disease, pests, nutrition, weeds, yield and associated gross margins.

Farmacist Mackay. Soybean variety by sowing rate. Trial activities.	
Date	Key activity
01/12/20	Site ripped and cultivated.
14/12/20	Lime applied @ 2.5t/ha.
15/12/20	Liquaforce custom blend 650l/ha. N: 20kg, K: 40kg, S: 20kg, Mo: 100g.
17/12/20 – 18/12/21	Trial site sown: Kuranda, Mossman, Leichhardt New Bunya.
21/12/21	PB EXP and Kuranda sown (external to trial site).
26/12/20	Emergence noted – all varieties.
29/12/20	Plant counts.
1/02/21	R1 Biomass: New Bunya, PB Exp varieties.
17/02/21	R1 Biomass: Kuranda.
18/02/21	R1 Biomass: Mossman and Leichhardt.
18/02/21	Altacor applied. 70g/ha, 150ltr/ha water rate. Surfactant: Activator 300ml/ha.
02/03/21	Skope applied: 320ml/ha, Water rate: 100ltr/ha. Surfactant: Pulse penetrant 200ml/ha.
Total in-crop rainfall	54mm.
Total irrigation applied	100mm.
Total water received (ha)	6.46 ML.
Herbicide:	Roundup 2ltr/ha, Verdict 1ltr/ha, Spinnaker 120g/ha.

Methodology: In-crop observations, Biomass at R1 (beginning flowering) and R5 (commence pod fill). Harvest: yield, protein and oil content.

R1 biomass statistical outcomes:

Kuranda, Leichhardt, New Bunya: No significant effect of sowing rate upon either wet or dry biomass (t/ha).

Mossman:

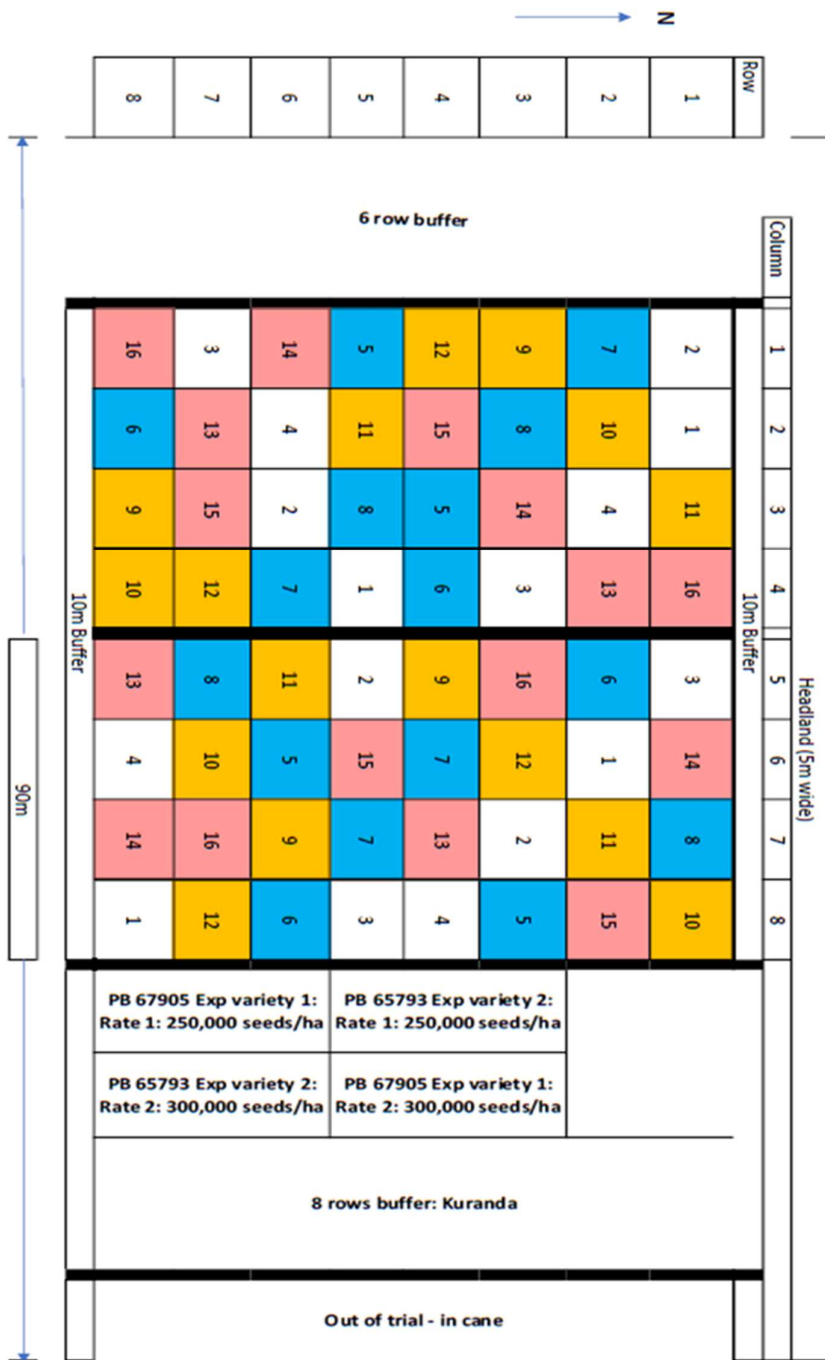
- No significant effect of sowing rate upon wet biomass (t/ha).

- A significant effect can be seen of sowing rate upon dry biomass (t/ha). 350,000 and 300,000 seeds per ha achieved significantly more biomass than 200,000 seeds per ha.

R1 biomass sampling observations:

- **Kuranda:** General decrease in average dry biomass (t/ha) and Total Crop N content (kg/ha) with increasing sowing rate.
- **Leichhardt:** Results fluctuate between sowing rate treatments.
- **Mossman:** General increase in wet biomass (t/ha) with increasing sowing rate. General increase in dry biomass and Crop N content up until 300,000 then a decline for 350,000 seeds per ha.
- **New Bunya:** General increase in dry biomass (t/ha) and Crop N content with increasing sowing rate.
- **PB Exp 1.** Increase in wet biomass, dry biomass (t/ha) and Crop N content (kg/ha) with increasing sowing rate.
- **PB Exp 2.** Increase in dry biomass (t/ha) and Crop N content with increasing sowing rate.

Variety	Sowing rate (per ha)	Average wet biomass (t/ha)	Average dry biomass (t/ha)	Estimated total Crop N content (kg/ha) *
Kuranda	200,000	9.75	1.84	84
	250,000	9.19	1.74	79
	300,000	9.25	1.73	76
	350,000	8.88	1.68	76
Leichhardt	200,000	11.80	2.03	91
	250,000	11.99	2.07	92
	300,000	11.30	1.95	82
	350,000	12.24	2.12	94
Mossman	200,000	10.81	1.71	77
	250,000	11.81	1.95	91
	300,000	12.29	2.11	97
	350,000	12.72	2.09	95
New Bunya	200,000	4.73	0.85	39
	250,000	4.70	0.86	38
	300,000	5.13	0.93	42
	350,000	5.41	0.96	44
PB Exp 1	250,000	3.41	0.72	28
	300,000	3.94	0.81	36
PB Exp 2	250,000	4.08	0.83	37
	300,000	3.93	0.89	39



Note: Trial Plots 20mtrs long by 3 rows wide @ 1.6 mtr row spacing
 Note: Exp varieties plots are 50mtrs long by 3 rows wide @ 1.6mtr row spacing

Sowing rate	Variety/Treatment no			
	Kuranda	Mossman	New Bunya	Leichart
200000	1	5	9	13
250000	2	6	10	14
300000	3	7	11	15
350000	4	8	12	16

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