

"Bean Agronomy Trial"

Mick Lines, SARDI

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Key Outcomes:

- Increasing plant density resulted in increased plant height, pod height and subsequent yield
- Early sowing resulted in an increase in bottom pod height and total plant height, however the plants were more likely to lodge.

Trial Objectives: To determine optimum sowing dates and sowing densities for maximizing yield of new faba bean varieties in high rainfall areas

Trial Duration: 2010-11

Location: Various

Farmer Co-operators: Jack Kay

Soil Type: Various

Lachie and Peter Seears

Paddock History: Various

Monthly Rainfall:

Rain	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	April-Oct	Total
Kelth, 2010	15.6	31.3	28.4	55.2	32.4	38.8	40.4	96.2	57	18.8	27.4	137.8	338.8	579.3
Shenwood, 2010	13	33.5	33.5	58.5	33.5	40.5	31.5	113	57.5	30	50	105	364.5	599.5
Woolsey, 2010	14	28.8	26.8	70.8	26.8	35.6	39.8	111	45.8	27	59.6	129.6	356.8	615.6
Frances, 2010	14.4	40.8	26.8	60.6	31.6	57.6	43.8	119.2	55.4	29.8	29.2	92.2	398	601.4
Commura, 2010	18	35.2	24.8	65.2	42	77.4	48.8	146.8	74.8	29.4	27.4	130.2	484.4	720
Millicent, 2010	16	30.8	23.2	89.2	44.4	74	76.2	192.8	83.8	22.4	51.4	105.2	582.8	809.4

Yield Limiting Factors: Early finish

Type of Trial: Replicated Plot Trial

Trial Design: 8m Long Plots x 8 Rows at 15cm Spacings (1.2m);
3 Replicates

Treatments:

Moyhall;

- Variety x 4; Nura, Farah, Fiord, 974*(611*974)/15-1 (abbreviated to 974* below)
- Sowing dates x 2; Early TOS (14th May) Late TOS (3rd June)
- Plant Densities x 3; 16, 24 and 32 plants/m²

Commura;

- Variety x 5; Nura, Farah, Aquaduke, Aquaduke_Gilb(grower selection), PBA Kareema, 974*(611*974)/15-1 (abbreviated to 974* below)
- Sowing Dates x 2; Early TOS (19th May) Late TOS (15th June)

Fertiliser applied at seeding MAP + Zn @ 90kg/ha (both sites)

Results:**Table 1: Effect of time of sowing on grain yield (t/ha) at Moyhall and Conmurra**

Variety	Moyhall		Conmurra	
	Early	Late	Early	Late
974*....	5.6	4.98	6.43	5.9
Aquadulce			7.18	6.19
Aquadulce_Gilb			6.62	5.83
Farah	5.08	4.71	6.95	6.51
Fiord	5.31	3.06		
Nura	5.58	4.78	6.64	6.84
PBA Kareema			5.65	5.66
LSD (P<0.05)	0.53 (0.33 same TOS)		1.40 (0.55 same TOS)	

Table 2: Effect of sowing date on lodging (1-9 score) of beans, Moyhall and Conmurra

Variety	Moyhall		Conmurra	
	Early	Late	Early	Late
TOS				
974*....	7.11	8	8.5	9
Aquadulce			7.7	8.8
Aquadulce_Gilb			8.5	8.7
Farah	4.78	7.33	5.3	8.3
Fiord	8.11	8.67		
Nura	6.67	8.78	4.8	8.3
PBA Kareema			7.8	8.7
LSD (P<0.05)	0.67 (0.76 same TOS)		0.83 (0.90 same TOS)	

Lodging Scale Used:

9 = Plot Vertical and Upright

0 = Plot Horizontal

Table 3: Average bottom pod height (cm) of beans at Moyhall and Conmurra

Variety	Moyhall	Conmurra
974*....	40.5	55
Aquadulce		61
Aquadulce_Gilb		60.5
Farah	33.6	45
Fiord	20	
Nura	33.9	51
PBA Kareema		52.5
LSD (P<0.05)	3.2	10

Table 4: Effect of Plant Density on Yield (t/ha), Moyhall 2010

Plant Density	Yield (t/ha)
16 plants/m ²	4.43
24 plants/m²	4.87
32 plants/m ²	5.36
LSD (P<0.05)	0.2

Table 5: Effect of Plant Density on Bottom Pod Height (cms), Moyhall 2010

Density	Height Bottom Pods (cm)
16 plants/m ²	27.3
24 plants/m²	34.4
32 plants/m ²	34.4
LSD (P<0.05)	2.8

Table 6: Effect of Plant Density on Bean Plant Height (cms), Moyhall 2010

Plant Density	Plant Height (cm)
16 plants/m ²	106.5
24 plants/m²	110.6
32 plants/m ²	111.7
LSD (P<0.05)	4.2

Table 7: Effect of Time of Sowing on Bean plant height (cms), Moyhall 2010

Variety	Early	Late
974*(611*974)/15-1	137.8	110
Farah	142.2	101.1
Fiord	112.2	72.2
Mura	117.8	83.3
LSD (P<0.05)	6.1 (6.8 same TOS)	

Table 8: Effect of Time of Sowing on Bottom Pod Height in beans, Moyhall 2010

TOS	Bottom Pod Height (cm)
Early	37.9
Late	26.1
LSD (P<0.05)	2.2

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