

REGIONAL PULSE AGRONOMY EXPERIMENTS AND UPDATES TO VMP'S FOR NEW VARIETIES – FIELD PEAS.

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Key words

Field Pea, plant population, row spacing, agronomy, pulses

Take home message

- Target a minimum of 60 plants per square metre regardless of row configuration.
- Sow on time, variety experiments sown in May average yield 2.01t/ha, June 1.13t/ha, July 0.91t/ha and August 0.66t/ha
- Wide rows can conserve water for later in the season in dry years, however careful planning for harvest is required.
- Plan for harvest at sowing
- Harvest on time to minimise losses to shattering, weather damage or possible crop failure
- Insect monitoring and control from the commencement of flowering to the end of grain fill is vital to successful production



VMP Update Yarrum ☺

Sow on time Mid May to Mid June. Aim for 60 plants per square metre, results show yield declines as plant population declines. Narrow rows out perform wide rows, experiments from 2005 and 2006 showed that 32cm rows achieved a higher yield than 64cm rows. Harvest on time as losses can be experienced from shattering or weather damage.


Summary of results for 2006

Variety experiments were conducted at Curban, Coonamble, Plant Breeding Institute (PBI) Narrabri, North Star, Tamarang, Walgett and Weemelah NSW and Hermitage and Lunderva QLD. Experiments at Curban, Coonamble, PBI, Walgett and Weemelah were sown in conjunction with plant population and row spacing experiments. The plant population and row spacing experiments included the following four varieties; Boreend☺, Yarrum☺, Parafield and 96-24 (OZP0610). The reason for using these varieties is Boreend☺ and Yarrum☺ are the two new varieties for Northern NSW and Queensland, Parafield was used as a standard that is grown throughout NSW, Victoria and South Australia, and 96-24 (OZP0610) is a potential new release variety for Northern NSW and Queensland.

Results from the sites varied markedly (figures 1&2 and Table 1) with drought severely affecting the Curban and Walgett sites, drought had a mild affect on Coonamble and Weemelah, and seemed to miss PBI Narrabri altogether with yields up to 3t/ha. Sowing date appears to have played a role in determining yield in variety and agronomy experiments, with field peas planted in May averaging 2.01t/ha, June 1.13t/ha, July 0.91t/ha and August 0.66t/ha.

Stand out performers in the variety experiments were Yarrum  1.49t/ha average (with a high of 3.62t/ha and a low of 0.24t/ha) Boreen  1.35t/ha (a high of 2.92t/ha and a low of 0.44t/ha). Experimental lines to look at include AP18, AP7, 95-1088 and OZP0610.


Plant population and row space generally followed expected trends i.e. narrow rows out yielding wide rows and recommended plant population out-yielding lower populations. These trends were more evident at higher yielding sites.

Water use in the row spacing experiment was monitored in each of the Yarrum  plots, which were placed half way between the plant rows, using a Neutron Moisture Meter (NMM). Figures 4-7 show water extraction at different stages through the growing season. The 32cm rows started extracting water at depth before the 64cm rows. This means the 64cm had a longer period to explore for stored soil water, however this did not translate into higher yield, the 32cm rows out yield the 64cm rows (figure 2).

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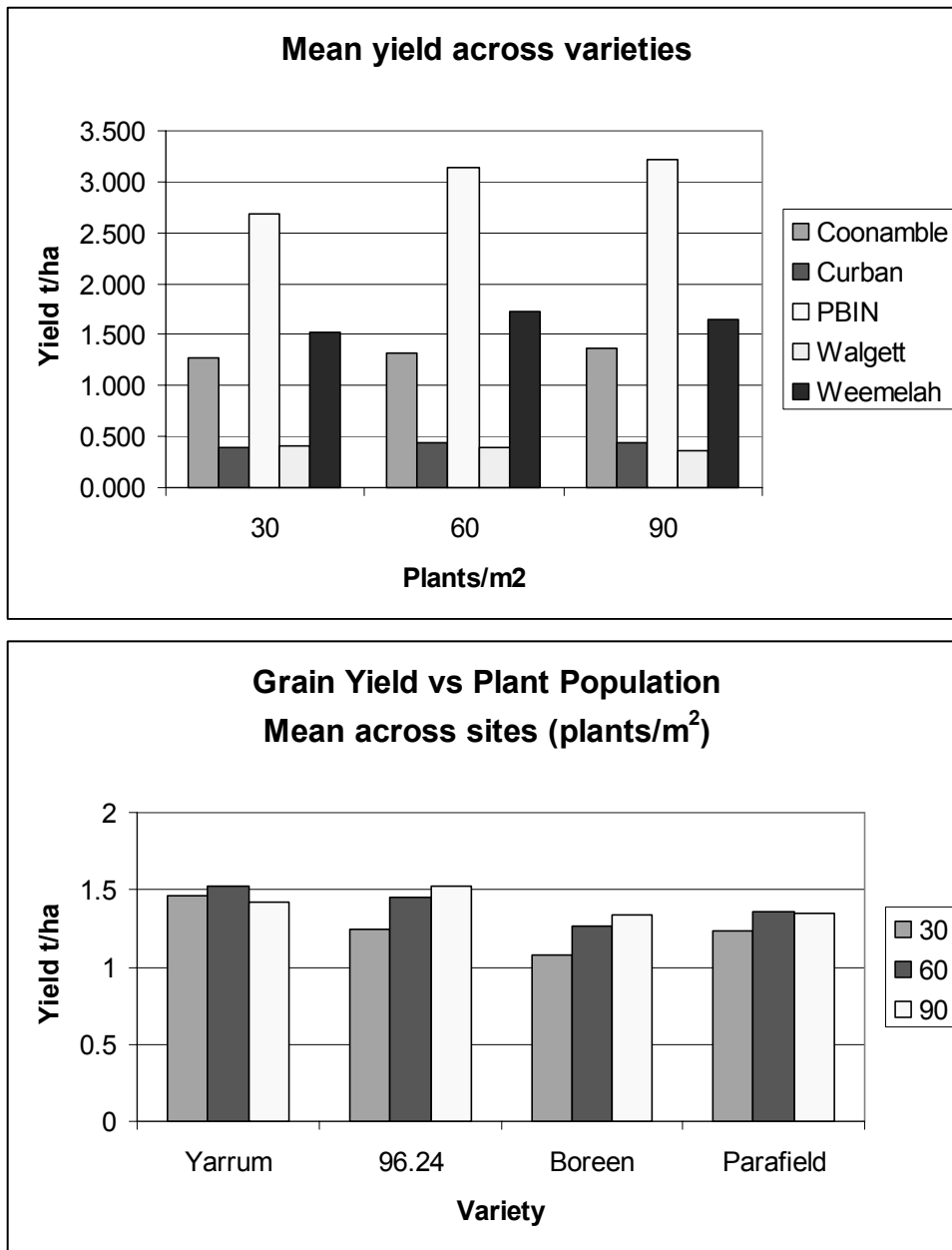


Figure 1: Plant density experiments mean yields 2006

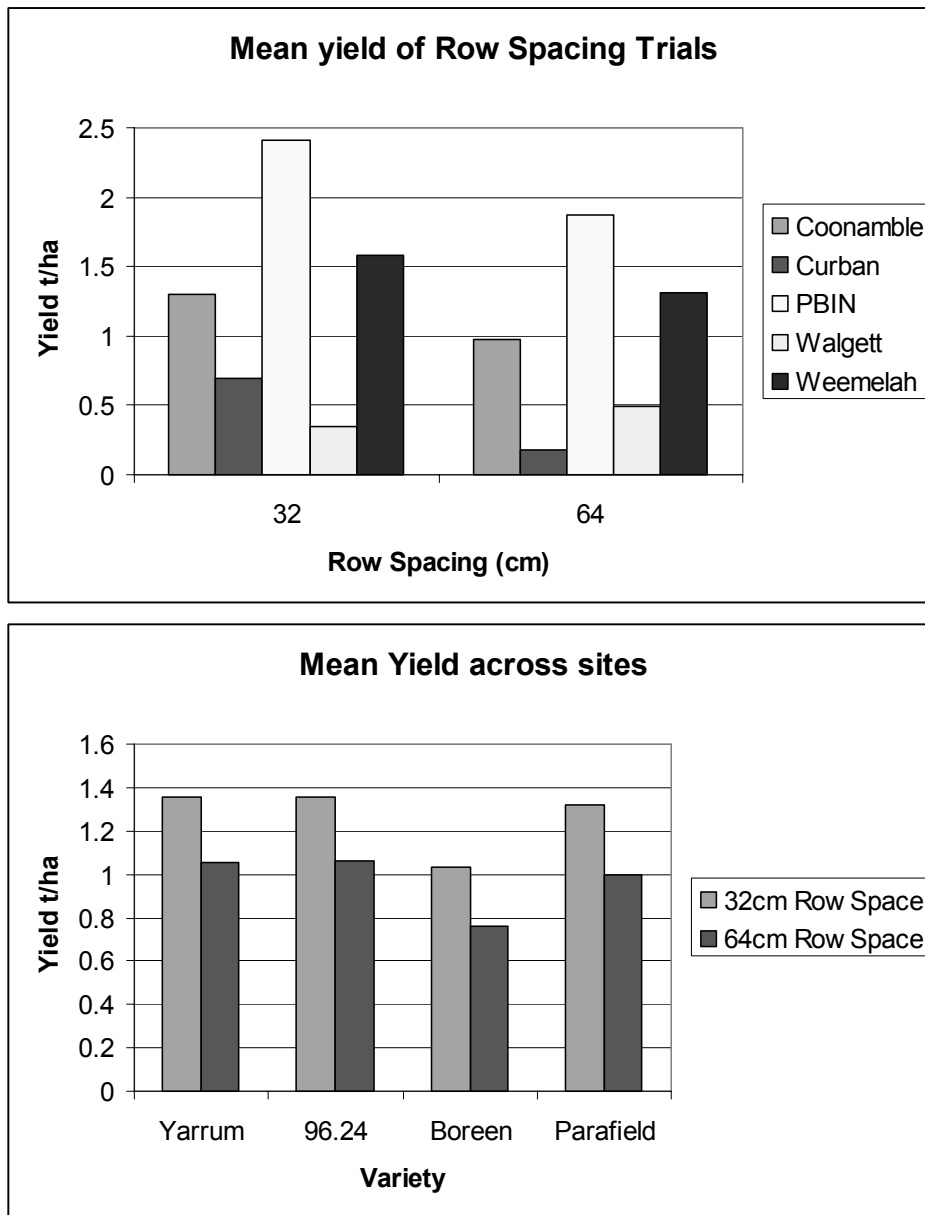


Figure 2: Row space experiments mean yields 2006

Table 1: Yield performance (t/ha) of selected lines and standards 2006

Planted	4/08/06	19/07/06	16/05/06	19/06/06	21/06/06	18/05/06	21/06/06	18/06/06	24/05/06	20/06/06	20/06/06	
Harvest	30/11/06		17/10/06	24/10/06	20/10/06	18/10/06	26/10/06	25/10/06	23/10/06	10/11/06	10/11/06	
Name	Hermitage Qld	Lundarva Qld	Weemelah TOS1	Weemelah TOS2	North Star	PBIN TOS1	PBIN TOS2	Walgett	Coonamble	Tamarang	Curban	Mean % Yarrum
AP18	0.86	1.03	2.21	1.73	2.47	3.88	3.18	0.51	1.40	0.81	0.52	1.69
95-1088	1.10	1.22	2.49	1.59	1.47	4.07	2.76	0.51	1.53	1.12	0.44	1.66
AP7	0.79	1.27	2.08	1.79	2.09	3.46	3.55	0.52	1.37	0.45	0.55	1.63
96-262*3	0.84	0.81	2.28	1.76	1.48	3.79	2.67	0.48	1.35	0.57	0.45	1.50
Yarrum	0.63	0.73	2.00	1.40	2.08	3.39	3.62	0.34	1.36	0.24	0.54	1.49
98-64*2	0.81	1.00	2.18	1.81	0.88	3.16	2.96	0.43	1.43	1.16	0.46	1.48
OZP0610	0.66	0.98	1.70	1.75	1.57	3.45	3.39	0.40	1.13	0.46	0.55	1.46
98-03*7	0.56	0.91	2.19	1.69	1.41	3.16	2.86	0.51	1.27	0.81	0.48	1.44
98-03*19	0.62	0.78	2.47	1.65	1.51	3.45	2.69	0.42	1.40	0.40	0.45	1.44
97-222*1W	0.47	0.97	2.54	1.64	0.99	3.46	3.07	0.42	1.31	0.46	0.31	1.42
97-64*2-7	0.95	0.86	1.69	1.56	1.55	3.49	2.79	0.36	1.07	0.80	0.51	1.42
97-223*2-1	0.53	1.11	2.00	1.67	1.21	3.55	2.88	0.40	1.24	0.49	0.36	1.40
92-104*6	0.72	1.25	2.14	1.60	0.99	3.00	2.89	0.36	1.00	1.05	0.37	1.40
98-275*4	0.87	0.93	2.06	1.64	1.46	3.02	2.75	0.47	1.09	0.57	0.36	1.38
97-064*6-4	0.80	1.13	1.79	1.50	1.71	2.65	2.75	0.33	0.98	0.98	0.54	1.38
97-241*6-4	0.41	0.79	1.83	1.67	1.13	3.58	2.97	0.39	1.31	0.53	0.43	1.37
98-03*4	0.66	1.36	1.98	1.34	1.55	2.86	2.33	0.52	1.41	0.51	0.52	1.37
Boreen	0.56	1.07	1.62	1.63	1.71	2.92	2.79	0.38	1.18	0.60	0.44	1.35
89P166-5-2	0.85	1.20	1.83	1.21	1.85	2.59	2.35	0.46	1.38	0.45	0.63	1.35
96-48	0.73	0.97		1.35		3.58	3.05	0.34	1.16	0.26	0.45	1.32
98-67*18	0.85	0.97	1.92	1.37	1.22	2.87	2.86	0.40	1.14	0.58	0.32	1.32
Cressy blue	0.79	1.38	1.55	1.42	1.71	2.99	1.92	0.33	1.21	0.56	0.64	1.32
97-212*3-4	0.66	0.92	1.86	1.67	1.16	2.50	2.77	0.48	1.24	0.61	0.56	1.31
97-236*1-6	0.57	1.05	2.07	1.55	1.08	2.69	2.47	0.38	1.28	0.85	0.42	1.31
98-283*11	0.35	1.05	2.34	1.53	1.52	2.45	2.31	0.41	1.32	0.71	0.43	1.31
99-059*13	0.58	0.72	2.14	1.48	1.20	2.72	3.00	0.41	1.37	0.31	0.41	1.30
92-102*17-2-4	0.86	0.95	2.06	1.24	1.31	2.81	2.43	0.33	1.13	0.61	0.43	1.29
97-223*2-3	0.46	0.73	1.76	1.71	0.85	3.53	2.67	0.40	1.26	0.35	0.34	1.28
97-230*6-1	0.68	0.69	1.89	1.58	1.19	2.73	2.73	0.40	1.12	0.66	0.35	1.27
95-032*10-3	0.75	1.08	1.51	1.48	1.10	3.04	2.63	0.35	1.47	0.11	0.47	1.27

Table 1 cont: Yield performance (t/ha) of selected lines and standards 2006

Planted	4/08/06	19/07/06	16/05/06	19/06/06	21/06/06	18/05/06	21/06/06	18/06/06	24/05/06	20/06/06	20/06/06	
Harvest	30/11/06		17/10/06	24/10/06	20/10/06	18/10/06	26/10/06	25/10/06	23/10/06	10/11/06	10/11/06	
Name	Hermitage Qld	Lundarva Qld	Weemelah TOS1	Weemelah TOS2	North Star	PBIN TOS1	PBIN TOS2	Walgett	Coonamble	Tamarang	Curban	Mean % Yarrum
Sturt	0.77	1.15	1.63	1.50	1.54	1.93	2.29	0.33	1.59	0.54	0.63	1.26
98-389*1	0.81	0.93	1.97	1.16	1.06	2.68	2.29	0.39	1.39	0.49	0.59	1.25
98-276*3	0.75	0.82	1.90	1.35	1.50	2.36	2.50	0.33	1.18	0.48	0.40	1.23
98-276*1	0.55	0.87	2.03	1.30	1.19	2.62	2.61	0.34	1.06	0.46	0.34	1.22
97-226*3-7	0.64	0.86	1.63	1.30	0.94	2.91	2.44	0.41	1.27	0.52	0.42	1.21
Parafield	0.59	0.98	1.63	1.20	1.59	2.59	2.17	0.35	1.24	0.31	0.69	1.21
97-170*3-11	0.84	1.01	1.66	1.39	1.20	2.23	2.50	0.35	1.36	0.15	0.56	1.20
97-333*2-1	0.44	0.88	1.79	1.61	1.35	2.20	2.48	0.30	1.28	0.47	0.39	1.20
96-35	0.55	0.67		1.38		2.95	3.10	0.27	1.16	0.11	0.54	1.19
99-188*5	0.47	0.76	1.86	1.53	1.32	2.39	2.38	0.36	1.12	0.41	0.47	1.19
98-319*11	0.47	0.67	1.65	1.22	0.78	3.00	2.94	0.27	1.02	0.30	0.39	1.16
99RS-2-3-16	0.68	0.95	1.87	1.17	1.24	1.80	2.30	0.30	1.44	0.45	0.46	1.15
99-239*11	0.23	0.59	1.70	1.45	1.10	2.83	2.80	0.31	1.06	0.24	0.33	1.15
97-340*4-1	0.72	0.69	1.55	1.30	0.86	2.54	2.55	0.36	1.13	0.28	0.50	1.14
Moonlight	0.66	0.61	1.14	1.29	0.70	2.81	2.89	0.29	1.39	0.19	0.43	1.13
97-398*1-6	0.47	0.50	1.87	1.27	0.99	2.57	2.59	0.28	1.24	0.18	0.43	1.13
Mukta	0.31	0.63	1.88	1.18	1.36	2.27	2.30	0.32	1.36	0.08	0.46	1.10
97-218*1-3	0.64	0.77	1.51	1.20	0.69	1.94	2.65	0.32	1.22	0.35	0.37	1.06
Kaspa	0.54	0.51	1.12	1.04	0.63	2.37	2.04	0.29	1.23	0.12	0.61	0.95
Mean	0.66	0.91	1.88	1.47	1.31	2.89	2.69	0.38	1.26	0.49	0.46	1.31
CV %	15.130	12.61	9.17	7.73	13.40	10.56	8.06	12.51	11.26	17.86	15.43	
Isd	0.109	0.1537	0.29	0.18	0.2376	0.4186	0.2938	.077	0.1905	0.1179	0.12	

Yield as % Yarrum 1999-2004 (across sites and years)

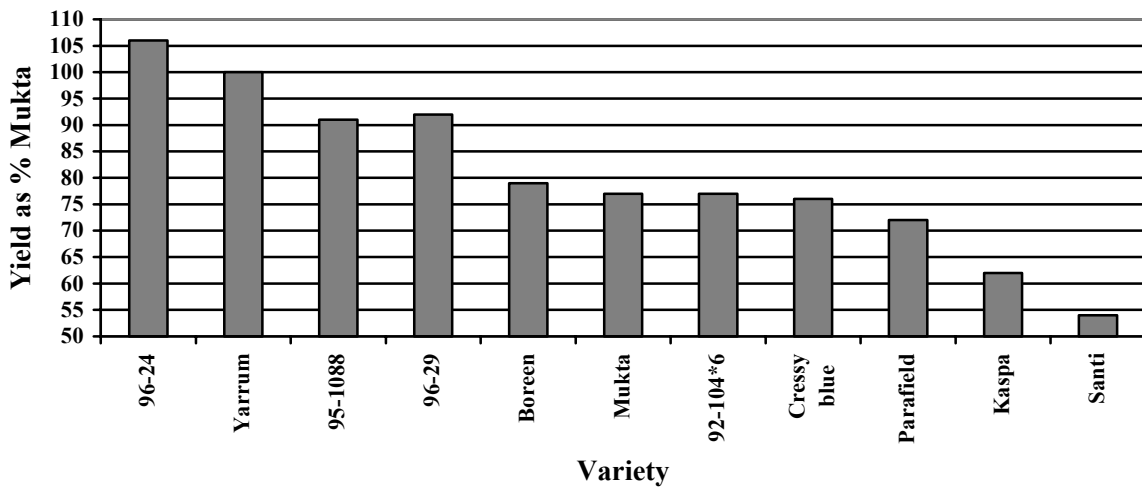


Figure 3: Across Sites and Years Analysis 1997-2004 (North) (NSWDPI “Winter Crop Variety Experiments 2004)

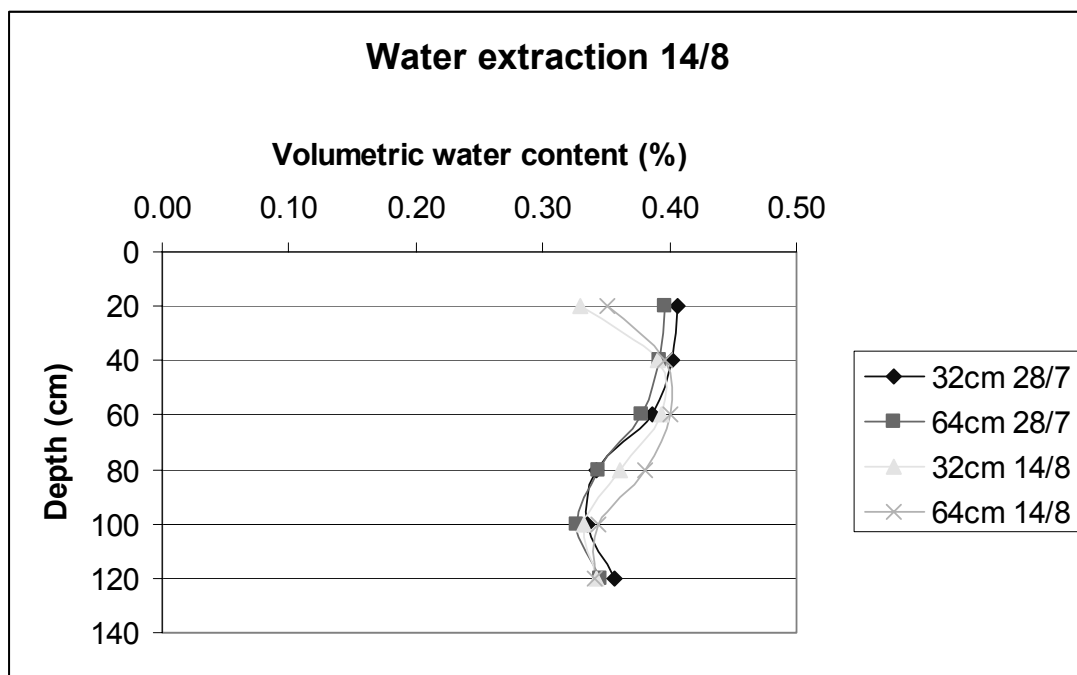


Figure 4: Water use of Yarrum in 32cm and 64cm rows 14/8/07. This figure shows that the 32cm rows have extracted more moisture in the 0-40cm root zone than the 64cm rows.

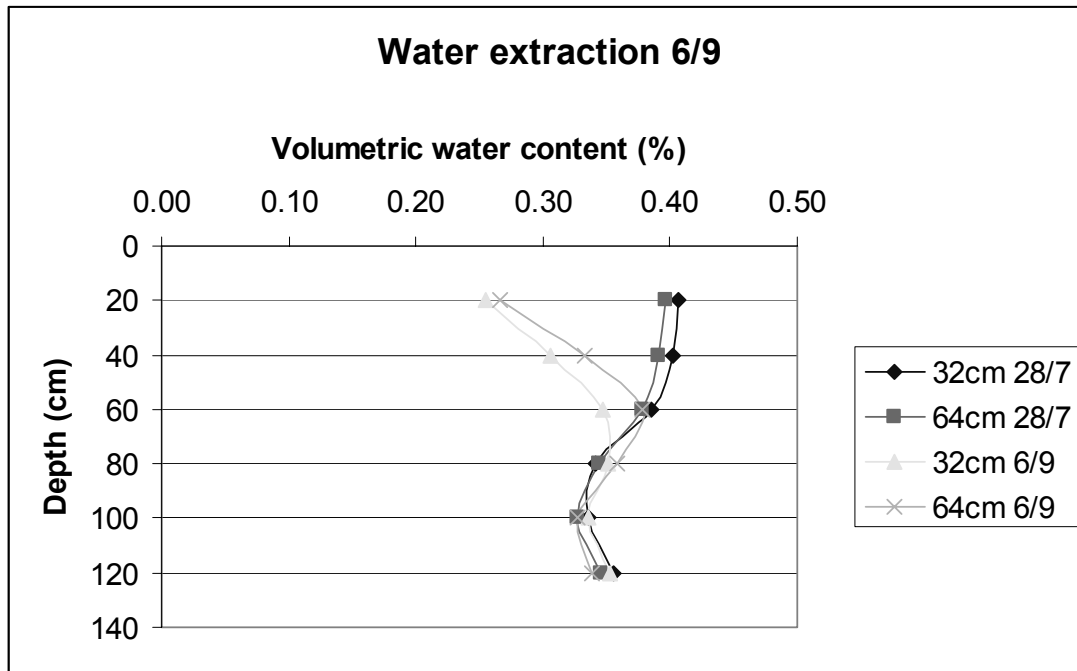


Figure 5: Water use of Yarrum in 32cm and 64cm rows 6/9/07. This figure shows that the 32cm rows have extracted more moisture in the 0-70cm root zone than the 64cm rows.

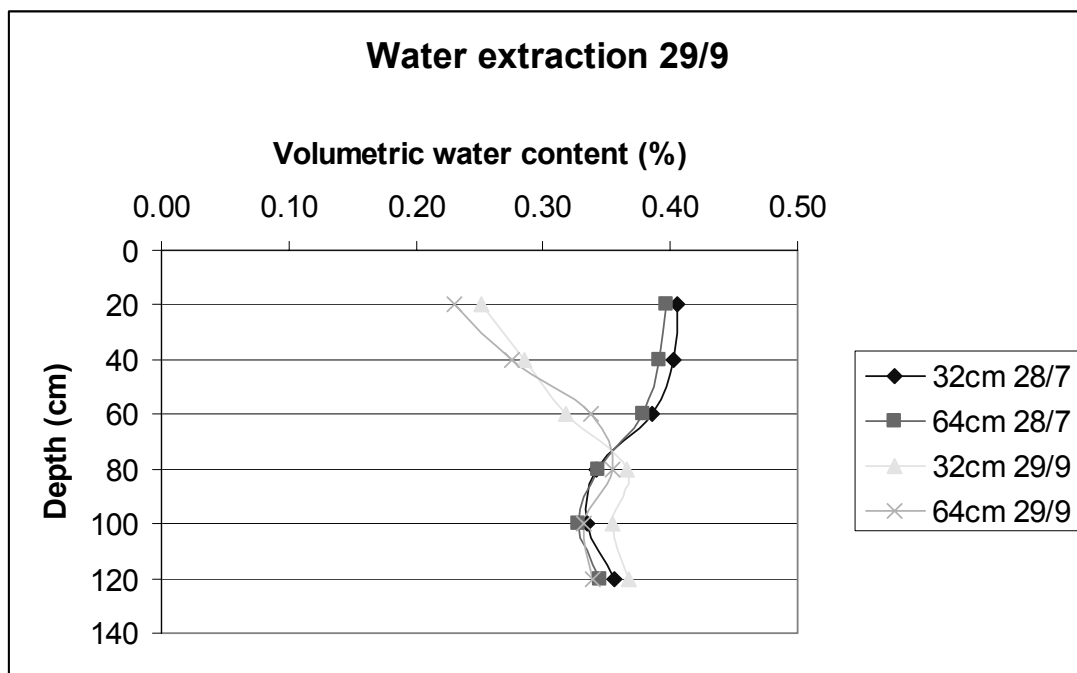


Figure 6: Water use of Yarrum in 32cm and 64cm rows 29/9/07. This figure shows that the 64cm rows have extracted more moisture in the 0-40cm root zone than the 32cm rows, however the 32cm rows have extracted more moisture in the 50-70cm root zone.

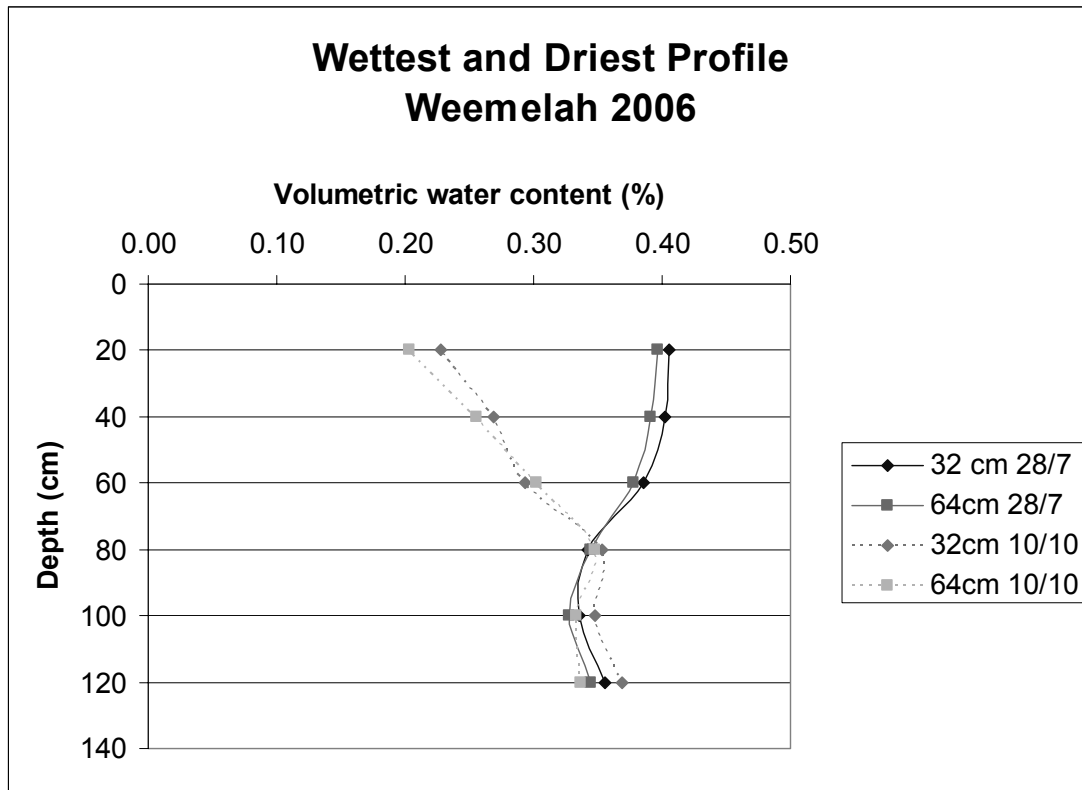


Figure 7: Water use of Yarrum in 32cm and 64cm rows from the full point (28/7/07) and driest profile at harvest (10/10/07). The 64cm rows have extracted more moisture in the 0-50cm root zone and have started to extract moisture down to the level of the 32cm rows at 60cm.