

- A significant capital consideration needs to be made. Due to this water security is important to ensure the investment has the opportunity to generate income.



"Improving irrigation in the Australian cotton industry"

GWYDIR VALLEY
IRRIGATORS ASSOCIATION
 INCORPORATED



Australian Government
 National Water Commission
 Raising National Water Standards Program



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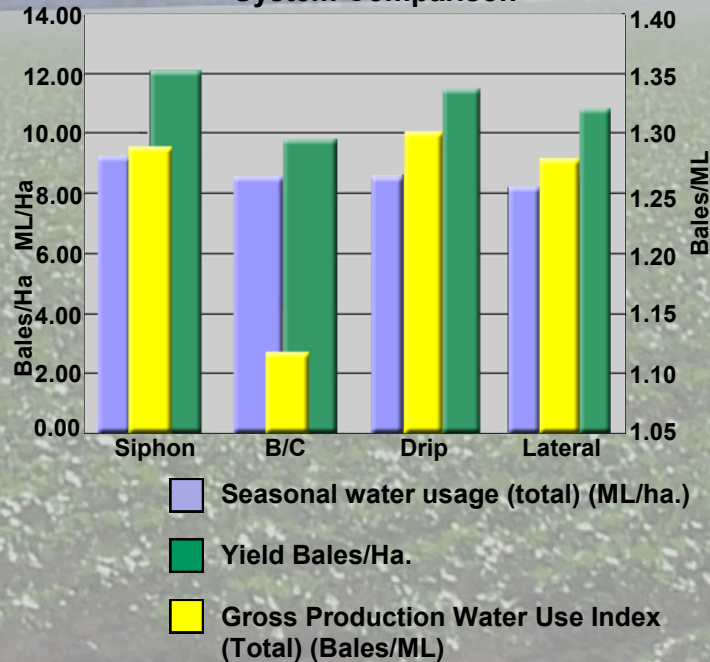
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Drip Irrigation



System Comparison



For a full report on trial results contact:

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This information has been prepared by the Gwydir Valley Irrigators Association (GVIA) to help growers make more educated decisions on their irrigation practices and in turn maximise their productivity per megalitre.

GVIA aimed to provide accurate comparative information by conducting an on farm trial on the water use efficiencies of four relatively common irrigation systems used across Australia and around the world.

The four systems that were trialed were lateral move, bankless channel, drip irrigation and furrow/siphon irrigation. Furrow/siphon irrigation was also recorded as a control on which to benchmark results.

The trials were undertaken in conjunction with Sundown Pastoral Company at "Keytah" 45km west of Moree NSW.

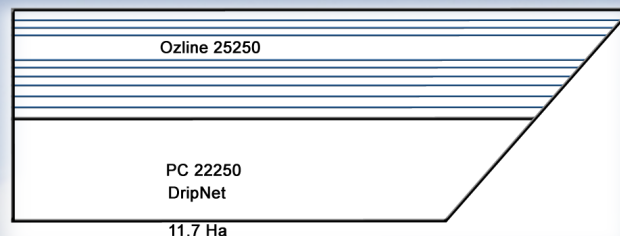
Drip / K30:

At the request of Netafim the drip was split into two fields. The variation between the two fields is the emitter and the emitter spacing. The northern field has a standard Ozline 25250 emitter at 0.5m spacing. The southern block has a pressure-compensated (P/C) nozzle set at 0.3m. The P/C nozzle is used to improve distribution uniformity. Only at a certain pressure will the nozzle begin to emit water.

Technical Information:

Area:	11.7 Ha
Plant spacing:	30"
Pressurizing cost:	\$42/Meg (181L/Ha@ \$1.30) \$235/Ha
Installation cost:	\$8547/Ha
Monitoring method:	Total water applied
Sowing date:	1/10/2009
Picking date:	22/4/2010
Applied water per hectare:	4.14 ML/Ha
Yield:	11.47 bales/Ha

15mm/day application capacity



Irrigation dates and water applied:

	Water On (m ³)	Water Off (m ³)	TOTAL ML	TOTAL ML / HA
20/11/09	2044	-	2.04	
27/11/09	1200	-	1.2	
2/12/09	3524	-	3.52	
9/12/09	3510	-	3.51	
16/12/09	3504	-	3.5	
22/12/09	3510	-	3.51	
13/1/10	3510	-	3.51	
19/1/1/10	3510	-	3.51	
22/1/10	3510	-	3.51	
26/1/10	4632	-	4.63	
30/1/10	3471	-	3.47	
4/2/10	3544	-	3.54	
11/2/10	4484	-	4.48	
23/2/10	2293	-	2.29	
27/2/10	2242	-	2.24	
Total for season			48.46	4.14

In-season Considerations/Lessons

Learnt:

Second-hand equipment:

- Due to budget constraints a second-hand motor, pump and filtration system were purchased.
- This may have contributed to programming issues.

System capacity:

- 15mm/day for application left no room for error.
- Programming issue or mechanical issues with pump may have contributed to plant stress and affected yield.

Programming/Management:

- Programming issues throughout season.
- Initially machine would not hold consistent pressure and would 'hunt', varying pressure, thus triggering alarms and turning the machine off.
- This caused complications in irrigation scheduling during peak season.

Pump breakdown:

- A broken seal in pump near start of February took four days to fix.
- Caused unnecessary stress on plant which may have affected yield.
- This caused complications in irrigation scheduling during peak season.

P/C vs. standard emitters:

- Both fields were managed the same throughout the season.
- Field 1 (standard emitters) received 3.73 ML/Ha.
- Field 2 (P/C emitters) received 4.25 ML/Ha.
- Due to programming issues field 2 had a full irrigation before rain; field 1 did not require an irrigation

