

# Bankless channel irrigation: An update

By Michael Grabham, NSW DPI Griffith and David Williams, NSW DPI Dubbo

The potential use of bankless channel irrigation in the cotton industry was flagged in the previous *Australian Cottongrower* (April–May 2005). But two Queensland irrigators began using bank-

less channel layouts in conjunction with conventional layouts on cotton nearly seven years ago. The authors along with two QDPI&F RWUE II staff visited one of the properties near St George in April to

gauge the performance of the layout in a cotton production system.

The property visited is successfully irrigating 320 hectares of cotton using bankless channel layouts with a further 350 hectares recently developed. The development is on a larger scale than its southern NSW counterparts.

Channels, channel stops, drainage and overall field dimension are larger with bays measuring 144 metres wide by up to 750 metres long with an area of around 11 hectares per bay. A bankless channel down each side of the bays irrigates the bays. Water logging concerns were dismissed by the irrigator visited who has bays with zero grade both along and across the bays and has yields consistent with cotton grown on nearby conventional furrow layouts.

The cotton grower visited has found the benefits of the layout include:

- Labour savings;
- Ease of irrigation;
- Ease and speed of infield machinery operations;
- Capacity and speed of drainage from storm runoff;



Theory in practice — 1.5 km of bankless channel irrigation in cotton at St George.



Large capacity structures are a part of bankless channels.



Negligible amounts of tailwater leave the field, but the higher capacity for storm events remains.

- No delays between cultivation and irrigation events; and,
- Negligible tail water.

Like all systems there are disadvantages. The disadvantages that are unique to this particular layout include:

- Weed management on check banks;
- Knowing when irrigation is complete;
- Some trash management problems; and,
- Inability to irrigate small areas separately — for example, for trial work.

Some of these problems with the system have been addressed through design



Conventional irrigation at the bottom of picture, bankless channel (centre) and new BC development at the top of picture.

changes or ideas from southern NSW. On this property though, the advantages of the system have outweighed the disadvantages. Recently 350 additional hectares were developed.

Interest is growing in the layout with at least one other grower in the St George area using the system and others planning to implement the system. Adoption and

development of bankless channel irrigation layouts is being driven by irrigators with the crop results and reduced labour inputs measuring the success of the system. To further understand and develop bankless channel layouts, objective measurements of the system's cropping and water use performance would be extremely beneficial to the industry.



These channel checks are large enough to drive machinery through, making channel maintenance easier. This particular bankless channel is 3.8 km long.