Case studies of irrigation scheduling and on farm water management in Eastern Australia

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On farm soil water monitoring to aid in irrigation scheduling has expanded rapidly in the past three years. The development of a 'user friendly' (1) package for soil water monitoring using the neutron probe has enabled farmers and consultants to obtain quantitative data on crop water use and root extraction patterns. This has allowed irrigation scheduling to be carried out on an objective basis and for water related field production problems to be solved. The solution of these field production problems can often substantially improve farm income with little change in inputs.

The following examples illustrate typical water related problems encountered and solved by farmers and consultants (2), (3), (4).

- The evaluation of drip irrigation compared with flood irrigation in terms of water savings and yield improvements for cotton at Wee Waa, NSW.
- The determination of infiltration as being the cause of a low yield problem for sorghum and sweet corn being irrigated with a centre pivot at Narromine, *NSW*.
- The determination of a whole farm irrigation efficiency by studying channel and tailwater soakage losses for use to arrange water ordering in periods of limited allocation at Moree, N.S.W.
- The quantification of a through drainage problem with furrow irrigation on an alluvial soil at Biloela, Central Queensland.
- The scheduling of irrigations on compacted soils for high cotton yields at Emerald, Central Queensland.
- Root pruning of cotton from interrow cultivation resulting in sudden wilting and decline in daily water use of cotton crops at Emerald, Central Queensland.
- 1. Cull, P., 1980. The Australian Cotton Grower, October, 1980,

2. Wilcox, J., and Cull, P., 1984. The Australian Cotton Grower, February, 1984.

3. Cull, P., Stone, M., and Struve, *S.*, 1984. Proc. Management of Murray Darling Headwaters Symposium, Toowoomba, 1984.

4. Cull, P., Priest, C., and Wilcox, J., 1984. Symposium on Root Zone. Limitations to Crop Production on Clay Soils, Griffith, 1984.