

Optimisation of manure management in southern cotton production.

Wendy Quayle, CeRRF Griffith, Deakin University. CRDC and National Landcare Programme, Smart Farms Round 1

At the IREC Field Station, commercial scale replicated back to back cotton field trials have been conducted. The trials have been designed to determine the impacts on cotton yield, plant growth, soil physicochemical properties and soil test nutrients when partially or completely substituting urea-N and inorganic P with nutrients contained in chicken litter.

Poultry litter has been applied at a range of rates from 0- 16 t/ha in a randomised block design. The litter N contribution has been topped up with urea- N to meet a final N rate recommended by consultants.

The combined urea-N:poultry litter treatments are compared with the farm standard mineral fertilizer program. Overall results indicate that for 2 years of back to back cotton, in season N and P rates recommended in the commercial fertilizer programmes can be fully met using poultry litter, either alone at rates of 16t/ha or in combination with urea-N at lower rates. Furthermore, overall organic amended treatments significantly maintained second year yields above mineral fertilizer, offsetting the decline that is often observed in the second year of commercial back to back cotton.

In the Riverina, where poultry litter is readily available, the information suggests the product offers a relatively reliable alternative fertilizer which may be useful should future mineral fertilizer price increase or policy incentives for organic waste are introduced.

Further research will quantify the cost comparison of poultry litter application with mineral fertilizer for in-season cotton nutrient supply and the economic implications for longer term productivity and soil sustainability benefits will be considered.

Dr Wendy Quayle
CeRRF Griffith
Deakin University
w.quayle@deakin.edu.au>