

FARM TRIALS UPDATE



Reef Rescue Water Quality Farm Trials Update

By John Agnew, AgriServ Central

Introduction

Run-off occurring this summer from two North Eton trial blocks (Q208 Plant) has been analysed for nutrient and herbicide as part of the Australian Governments Reef Rescue program. The aim of these trials is to show that industry promoted current best practices, will not only improve growers profitability, but will also provide water quality benefits.

The water quality monitoring sites have been set up on two farms with different soil types (loam over clay and black cracking clay) in collaboration with Reef Catchments, DERM and AgriServ Central. Both sites are looking at the effect of row spacing (controlled traffic versus conventional), nutrition (mainly nitrogen & phosphorus) and herbicide options (knockdowns & residuals) on productivity, profitability and water quality.

Loam soil site

Relatively low concentrations of nitrogen were found coming off the block in all treatments, because fertiliser had been incorporated & stabilised before the high

rainfall/runoff events. Side-dressing occurred in mid October and was followed up with irrigation 1 week later. A further 200mm of irrigation was applied between end October and end December, after which the first useful falls of rain occurred. Relatively high concentrations of phosphorus (20 times the clay soil site) were found however this block has high background P (BSES P of 100+ mg/kg). Low concentrations of herbicides were found coming off the block, due to soaking rain and irrigation prior to runoff events. Excessive summer rain causing runoff from adjacent blocks and flooding of water sampling gear meant some data was lost. January-March rainfall totalled 1645mm which was 70% above historic average (Figure 1).

Clay Soil Site

The black cracking clay site performed well in terms of the quality of results obtained. The 1.5m plot had about 20% more runoff than 1.8m. This may be due to the larger percentage of interspace compacted in the 1.5m treatment during working & fertilising. Nitrate nitrogen loss was about 3 times greater from the high N treatment

Farm Trials Update



Photos

Left: John Agnew and Amanda Bush installing paddock scale monitoring equipment

Right: Multi-block scale water quality monitoring site.

(133kg/ha applied N + legume N) versus lower N treatment (38kg/ha applied N + legume N). Assuming legume nitrogen was 250kg/ha then approximately 3.5% (13 kg/ha) & 1.5% (4 kg/ha) of total nitrogen potentially available to the cane was lost from high & lower N treatments respectively. Phosphorus loss was small for both treatments as they had the same amount at planting (40kg/ha) and soil background levels were low (BSES P < 10 mg/kg). Runoff occurred 8 days after residual herbicide application which lead to relatively high concentrations of diuron & hexazinone in water .

Multi block & Multi Farm Monitoring

Measurement of water quality in a near-by farm drain captures information from a small multi-block catchment (about 50ha). Further down the Sandy Creek catchment another in-drain water sampling site

captures information from multiple farms (about 3000ha). To make sense of water samples we are collecting management practice information including the area under controlled traffic, fertiliser and herbicide use. Changes in practices over time should be reflected in water quality change.

What Next?

Both plant cane blocks will be harvested in late August, when a comparison of yield and profitability will be made. Treatments will be re-applied in spring and monitoring of 1R will continue.

Detailed 1st year results will be available from September 2010. Growers wanting to know more about the work being done should contact Adam Folkers at Reef Catchments Mackay Whitsunday Inc. on 49 684208.

Actual rainfall V historic mean at North Eton loam soil site 09/10

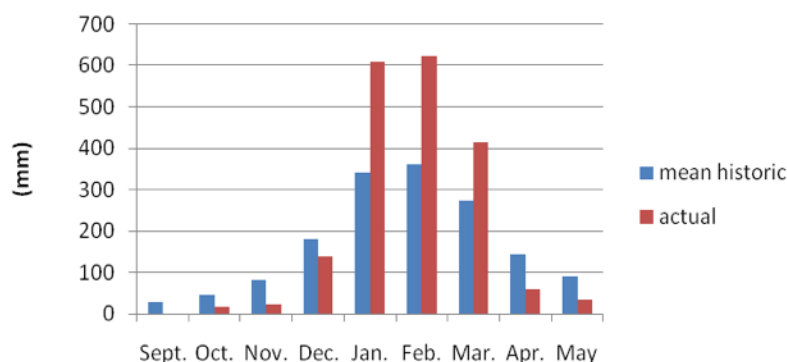


Figure 1- actual monthly rainfall at North Eton water quality trial versus historic mean

John Agnew, AGRISERV Central, 07 4954 5300



CARING
FOR
OUR
COUNTRY



Q2
Coasts
and
Country

