Improving the use of fertilisers in reef catchments

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Take aways

• Biggest factors in nutrient loss - RATE/TIMING

• Increasing NUE is the goal

• Fertiliser industry has a significant role to play
Drivers

• UNESCO
• **Reef 2050** targets – up to 80% DIN and 50% sediment by 2025 in priority areas
• Need to get there together
  – *Current industry best practice wont achieve targets*
• Water quality monitoring is improving our understanding of practices that minimise N loss
• SmartCane BMP agreement with industry – improved nitrogen standard by 2017
• BONSUCRO and future market access

Big corporate sugar consumers have made their position clear.

“100% sustainable sugar by 2020”
It's an active space..

- UNESCO
- Biofuels – sustainability criteria
- Biofutures
- Northern Australia initiative and expansion of ag
- Expansion of other industries – eg rice, corn

- + Increased focus – recent bleaching

OGBR - Reef Water Quality Program

Currently supporting:
- BMPs  (Cane, bananas, grazing)
- Science
  - Farm trials, monitoring etc.
- Reef regulations (record keeping, N&P application)
- Extension and decision support tools, e.g.
  - Safeguard for Nutrients
- Implementation of Taskforce recommendations
Priorities: nitrogen management (cane)

• Better promotion, awareness and adoption of 6ES across industry

• Update and personalise 6ES training - including promotion of economic benefits

• Promote importance of good farming practices (e.g. new farming system, timing of operations)

Priorities: nitrogen management (cane)

Moving to precision ag, finer scale application of nitrogen – to increase yield + NUE

• Fertilising at the management unit/zone

• Identifying low yielding zones (i.e. late cut cane, waterlogged/sodic soil)

• Identify yield constraints – then:
  – Address constraint to increase yield (e.g. gypsum, irrigation)

OR
  – Refine N rate to better match crop requirements
Priorities: nitrogen management (cane)

- Improving our understanding and providing tools to increase NUE:
  - EEFs
  - Weather forecasting
  - Sub soil constraint mapping

BMP

Smartcane BMP
- Phase 1 $3.345M – 2012-2015
- Phase 2 $5.855M – 2015-2017
- Currently funded until Dec 2017
- 1,425 farms (252,467 hectares) completed self assessment
- 135 growers accredited
- Committed to improved nitrogen management standards in BMP by 2017
BMP

Banana BMP

• $600,000 over three years in the Wet Tropics.
• Training and support
• Banana BMP record keeping app – Better Bunch
• 55% of the banana area in the Wet Tropics has participated in the BMP program.

Extension

• Currently provide $2m/yr to DAF to support cane and grazing adoption of best practice
• Also non-government providers – e.g. Farmacist, productivity services, SRA

• Significant increase in investment following GBR Taskforce recommendation
• $20m over next 4 years to 2020
Regulation

Current:
• Targeted reef compliance program
  – Wet Tropics and Burdekin (cane)
  – Soil testing, N & P application, records
  – Focus on education and support
  – Targeting those not doing BMP

Responding to Taskforce recommendations

• Establish **minimum standards** across all agricultural industries to reduce nutrients and sediment

• Mandate provision of **data** (e.g. yield, fertiliser use) to improve:
  – on-farm decision making
  – targeting of investment (extension, incentives, compliance)
Responding to Taskforce recommendations

As well as......

• Establish catchment pollutant load limits
• Agricultural intensification/expansion
• Water quality offsets
• Irrigation
• Urban, stormwater, industrial, point source

Research and Innovation

• Partnership with SRA – improving NUE
• Burdekin N trials continuing
• Real time water quality monitoring
• Safeguage for nutrients
• Mapping sub-soil constraints
• EEFs
Burdekin Nitrogen Trials

- 2011 to 2017 – approx. 23 growers
- Results show 6ES is more profitable than higher rates
- Now greater focus on communications and extension
- Led to “Burdekin trials phase 2” – RP161
  - Providing nutrient management planning for a larger group of growers (100 growers).

Qld. Gov/SRA NUE partnership

- Soil nitrogen mineralisation test (Allen)
- Improving NUE for crops with constrained yield (Skocaj)
- Estimating yield potentials at different scales (Bramley)
- Using climate forecasting to improve NUE (Everingham)
- Legume management strategies (Wang)
Real time water quality monitoring

- **Silkwood** – partnering with MSF farms
- **Lower Burdekin** – with BBIFMAC and local growers

- Successful pilots - led to further projects
- Encourages adoption of improved practices

Safeguage for nutrients

- Support tool for cane advisors and producers
- Identifies relative risk of N movement (up/down/across)
- **SRA incorporating in their training programs**
- Available online now
Qld Gov. & NESP

Project 2.1.8 – Improved Water Quality Outcomes from On-Farm Nitrogen Management

Mike Bell (UQ), Phil Moody (DSITI) and Tony Webster (CSIRO)

• Compare EEFs with standard N fertilizers
• Farm trials
• Test Productivity Unit Yield Potential
• Examine the water quality + economic impacts

• Links with Reef Trust – Phase 4 project

Reef Trust – Phase 4

• Large scale EEF trials
• Across all reef catchments
• Supported by nutrient management planning and extension
• Measure water quality / economics
• Qld and Australian Government co-investment
• Multiple growing seasons from 2017 to 2020
How can the fertiliser industry help?

• Transfer knowledge across industries

• Recommend and provide best practice soil testing and nutrient rates

• Agronomic advice to increase NUE – Irrigation, weeds, soil health

• Encourage record keeping and BMP uptake

Take aways

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For more information on the
Great Barrier Reef Water Science Taskforce and its Final
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