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RRRD056: Evaluating and improving A-Class practices to control nutrient losses from sugarcane

Peter Thorburn, CSIRO in collaboration with:

Reef Catchments

NQ Dry Tropics

Terrain NRM

Project Catalyst



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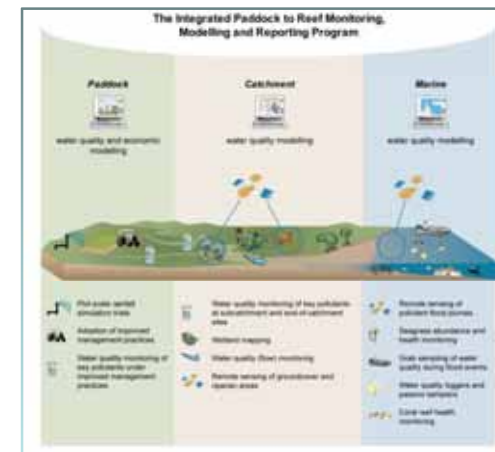
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Summary of Issue

- Reef Rescue activities focus on (D or) C \Rightarrow B
- A-Class practices being promoted and adopted
 - Project Catalyst
- A-Class practices need to be represented in the P2R
- Little known about water benefits of A-Class practices





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Project objectives

1. To determine improvement in nutrient losses from A-Class practice systems at suitable field sites established under Project Catalyst in the Mackay-Whitsunday, Burdekin and/or Wet Tropics NRM regions.
2. To evaluate longer-term water quality and economic benefits of A-Class practice systems through simulation studies on results from Project Catalyst sites and from previous experiments that have yet to be analysed.
3. To identify opportunities to improve the water quality and/or production benefits of A-Class practice systems based on the simulation capability built on analysis of experimental data.
4. To communicate results of the project farmers and Regional Bodies and those involved in Reef Rescue evaluation activities.





Approach: Team, Methods

1. Nutrient losses from A-Class practice systems
 - Monitoring WQ compared with C- or B-Class practices
 - In collaboration with Project Catalyst
 - Two wet seasons
2. Evaluating (through simulation) longer-term benefits of A-Class systems
 - Monitoring sites
 - Relevant previous studies
3. Can A-Class practice systems be improved?
 - sensitivity of WQ to *components* (e.g. irrigation scheduling, tillage, fertiliser placement and timing) of the A-Class practice *system*
 - Is refinement/improvement possible?
4. Communication and technology transfer
 - Regional Body involvement
 - With/through Project Catalyst
 - Collaborating growers
 - Catalyst communication outputs





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Geographic scope

1. Monitoring WQ

- A suitable Project Catalyst sites
- Preliminary ideas...Mackay, Burdekin, Herbert, Tully, ???

2. Relevant previous studies

- Trickle irrigation in Bundaberg
- Spray irrigation in the Burdekin
- N Replacement in Mossman
- ???



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Outputs

1. Nutrient losses from A-Class practice systems
 - Nutrient concentrations and loads under A-Class practices
 - Productivity of sugarcane under A-Class practices
2. Evaluating (through simulation) longer-term benefits of A-Class practices in sugarcane systems
 - Accurate modelling representation of A-Class practices in P2R
 - Documentation of long-term WQ benefits (and cost-effectiveness)
 - Benefits from RB's delivering WQ Grants for adoption of A-Class practices
3. Can A-Class practice systems be improved? Identification of:
 - Potential improvements to A-Class practice systems
 - Relative importance of the components of A-Class systems
 - Benefits of RB's targeting WQ Grants at particular components
4. Communication and technology transfer
 - Media such as hard copy fact sheets and web based information
 - Regional workshops to present and discuss the findings of the project
 - Reports and papers





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Synergies – Reef Rescue & external

- P2R
- Project Catalyst
- Regional Bodies
- Other projects exploring A-Class practices (or components)



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Management Implications

2. Benefits of A-Class practices in sugarcane systems
3. Can A-Class practice systems be improved?



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End user engagement & delivery

- Collaboration with Project Catalyst
 - Link with PC relationships
 - Deliver into PC communications ⇒ enhance grower learning
- Direct involvement of RB's in project
 - Receive early-phase outputs
 - Use in regional prioritisation processes
- Overlap between projects staff and P2R
 - Immediate and direct input of knowledge-gain into P2R

