

Two research programs uncovering secrets of the Reef: why growers should keep informed

By Jasmine Hunt

Queensland's sugarcane farms are located in some of the most picturesque coastal regions in the state, bordering rainforests, mountainous ranges and of course, the Great Barrier Reef.

Cane growers, as land managers, stewards and guardians of this landscape, form a large facet of many programs that aim to protect the iconic natural environments of Queensland.

As such, it is important for growers to keep up to date with research projects focusing on our tropical regions; and some growers may not yet have heard of the National Environmental Research Program Tropical Ecosystems (NERP TE) Hub, or the Reef Rescue Research and Development Water Quality Program (*Reef Rescue R&D*). Science outputs from these programs are building awareness of the connections between catchment activity, land use patterns and the possible impacts on the Great Barrier Reef.

National Environmental Research Programs (NERP)

On 13 September 2011, the federal Minister for Sustainability, Environment, Water, Population and Communities (DSEWPaC), Tony Burke, approved research plans for five research hubs funded by the department, under the National Environmental Research Program (NERP).

Funding of \$68.5 million over four years has been allocated to the NERP program, which aims to provide the first-class science essential for managing Australia's environments – applied, 'public good' research.

The NERP program's five Hubs are:

- Tropical Ecosystems (QLD)
- Northern Australia (NT).
- Landscapes and Policy (TAS).
- Environmental Decisions (QLD).
- Marine Biodiversity (TAS).



The NERP Tropical Ecosystems Hub is the largest of the five Hubs with more than 240 researchers undertaking 38 projects across north and far north Queensland and the Torres Strait. Research carried out under this hub is of particular interest to Australian cane growers.

The NERP TE Hub, administered by the Reef & Rainforest Research Centre (RRRC) aims to address issues of concern for the management, conservation and sustainable use of the Great Barrier Reef and its catchments; tropical rainforests including the Wet Tropics World Heritage Area; and the land and water assets supporting communities in the Torres Strait.

NERP TE Hub research

The NERP Tropical Ecosystems Hub research program has three themes, twelve research programs and 38 research projects. The research concentrates on three geographic areas: the Great Barrier Reef (GBR) and its catchments, Torres Strait, and the Wet Tropics rainforests.

There are a number of research programs within the Great Barrier Reef that are of particular interest to growers.

These research projects cover various components of water quality and climate

effects in the GBR, pesticides and their potential impacts on GBR ecosystems, impacts on seagrass communities, patterns of diversity and long term historical records of change in the GBR.

The specific NERP projects are listed below:

- Project 1.1: Monitoring status and trends of coral reefs of the Great Barrier Reef.

Fast facts

- Two new research programs will look to uncover the secrets of the Great Barrier Reef.
- A number of the research projects are focussed directly, or indirectly, on the sugarcane industry.
- Growers would be interested to note the *Reef Rescue R&D* program is looking into the impact on-farm activities have had on the reef, including the implementation of high-level technology on-farm.

- Project 1.2: Marine wildlife management in the Great Barrier Reef World Heritage Area.
- Project 1.3: Characterising the cumulative impacts of global, regional and local stressors on the present and past biodiversity of the Great Barrier Reef.
- Project 4.1: Tracking coastal turbidity over time and demonstrating the effects of river discharge events on regional turbidity in the Great Barrier Reef.
- Project 4.2: The chronic effects of pesticides and their persistence in tropical waters.
- Project 4.3: Ecological risk assessment of pesticides, nutrients and sediments on water quality and ecosystem health - Phase 1.
- Project 4.4: Hazard assessment for water quality threats to Torres Strait marine waters, ecosystems and public health.
- Project 5.1: Understanding diversity of the Great Barrier Reef: Spatial and temporal dynamics and environmental drivers.
- Project 5.2: Experimental and field investigations of combined water quality and climate effects on corals and other reef organisms.
- Project 5.3: Vulnerability of seagrass habitats in the Great Barrier Reef to flood plume impacts: light, nutrients, salinity.

Research projects will be explained in future editions of the *Australian Canegrower*, as we delve into what's happening, research uncovered so far and what this means for growers.

Future topics to be covered in the *Australian Canegrower* include:

- Pesticides and impacts on Great Barrier Reef ecosystems.
- Reduction in coral cover on the Great Barrier Reef and possible causes.
- Interactions between reduced water quality in wet season and Crown of Thorns starfish.

More information on the NERP program can be found at:
www.nerptropical.edu.au ■

Reef Rescue R&D – linking on-farm practices and environmental impacts

The Reef Rescue Research and Development Water Quality Program (*Reef Rescue R&D* or RRRD) is designed to improve the understanding of the link between land management practices and environmental impacts, and improve water quality across the Great Barrier Reef.

Funded under the federal government's Caring for our Country program, the \$9 million *Reef Rescue R&D* contains 18 projects. These projects are broken down into six themes: dairy; pesticides; agriculture; grazing; monitoring and reporting; and sugarcane.

The Reef and Rainforest Research Centre (RRRC) also coordinates *Reef Rescue R&D*.

The goal of the RRRD program is to raise awareness of the links between management practice and environmental impacts, and to support landholders to improve management practices.

These projects will be of interest to growers:

- RRRD056: Evaluating and improving A-Class practices to control nutrient losses from sugarcane.
- RRRD004: Advanced drip and optimised furrow irrigation to minimise sediment, nutrient and pesticide losses to the environment

through deep drainage and runoff from sugarcane and banana industries of wet tropics in northern Queensland.

- RRRD020: Mineralisation of nitrogen within the sugarcane cropping system following legume fallows and its effect on water quality.
- RRRD037: Pesticide dynamics in the Great Barrier Reef catchment and lagoon: management practices in the sugarcane industry.
- RRRD011: Capturing historic small catchment study (paddock scale) data to support quantification of management impacts on water quality on the Great Barrier Reef.
- RRRD039: Integrated assessment of BMP cost-effectiveness and decision tool for regions and landholders.
- RRRD010: Factors affecting adoption of land management practices that have water quality benefits in the GBR catchments: Evaluation scenarios for cane farming.

The *Australian Canegrower* will report on these projects in due course. A number of these projects will be reported on in detail in future editions of the magazine.

For more information on RRRD, visit www.reefrescueresearch.com.au ■

