

Reef Rescue

IMPROVING WATER QUALITY OF THE GREAT BARRIER REEF LAGOON



NQ Dry Tropics NRM



Reef Rescue program for horticulture

The horticulture component of the Federal Government's Reef Rescue program has been designed by the horticulture industry in consultation with the Natural Resource Management (NRM) regional groups to ensure maximum return on investment. It takes into consideration the unique challenges facing the industry with respect to uptake and reporting of improved farm management practice.

Growcom has developed (with assistance from NRM groups) the Farm Management System Water Quality module which integrates existing resources and programs, captures data relating to practices and provides a mechanism for providing targeted extension support across the whole horticulture industry. This approach is fundamental to the horticulture component of the Reef Rescue program and has already delivered positive outcomes.

The 2009-2013 horticulture program is building on these outcomes to ensure that adoption of best practice is accelerated and the Australian government has clear evidence that Reef Rescue investment in the industry has been successful.

Specifically the overall program will deliver:

- Improved practices on horticulture enterprises relating to nutrient, sediment and chemical management sufficient to ensure improved water quality leaving the farm and hence improved reef water quality outcomes.
- Streamlined delivery of incentive funds across regions via a mechanism that links funding levels to water quality improvement outcomes.
- Data capture across the horticulture industry using the Farm Management System to improve the capacity of

the industry to benchmark its performance and ensure continuous improvement.

- Reporting on the uptake of best practice facilitated by all facets of the Reef Rescue program from participation in capacity building activities to works funded through the grants program.
- Capacity building across the multiple commodities that comprise the horticulture industry.
- Effective communication to industry stakeholders and the broader community to ensure widespread adoption of, and support for, the program.

Did you know?

"Farming and processing practices within the horticulture sector can significantly benefit the quality of water that enters the reef lagoon" (Brodie et al, 2007).

Horticulture within the Great Barrier Reef Catchment is worth more than \$800 million per annum produced on around 1000 farm enterprises covering 62 500 hectares.

The region produces most of Australia's banana, tropical fruit, mandarin, macadamia, avocado, fresh tomato and winter vegetable crops.



Growcom's Farm Management System - bringing about change

The Growcom Farm Management System (FMS) is a risk based assessment process undertaken by horticulture growers prior to submitting their application for incentive funding for a Reef Rescue project.

The FMS is a data collection tool currently consisting of three modules: water use efficiency, soil nutrient management and water quality.

For the delivery of Reef Rescue the water quality module is utilised. The module asks the growers a series of questions about their current management practices to identify potential risks and opportunities for improvement.

The program then generates an action plan for the farm providing growers with:

- the level of risk their practices pose
- recommended action to correct the problems
- resources to access assistance with implementation.

In addition to measuring current practices the tool also provides a farm benchmarking tool to measure improvements once a project has been implemented.

Benefits to growers and industry

From a grower's perspective, Growcom FMS can assist in identifying areas of farm management risk previously not considered and pinpoint the potential impact of this weakness on the farm business.

The process assists growers in prioritising where the farm would most benefit from investment to improve practices.

The extension officer can also identify potential sources of funding.

The Growcom FMS also enables growers to complete components of Quality Assurance programs (e.g. Freshcare Food Safety, Globalgap, WQA, SQF2000 and Freshcare Environmental). It can also assist growers to develop their response to regulatory requirements such as Queensland's Land and Water Management Planning.

From the industry perspective, the FMS enables Growcom to benchmark the current practices being undertaken in the horticulture industry, identify the need for new programs and funding sources, improve delivery of ongoing projects and better target on the ground activities to assist growers to meet and exceed established Best Management Practice.

Individual farm data confidentiality is a key principle of the project. Data gathered at the property level is aggregated to protect the grower's privacy while at the same time ensuring regional and commodity data can be analysed and compared.

The Growcom Farm Management System provides a unique data collection and analysis tool for the first time in horticulture. Additional modules are planned.

Growcom's role in Reef Rescue 2009 - 2011

In 2009, Queensland's peak horticulture body Growcom set a target of assessing 400 growers under its Farm Management System (FMS) risk assessment framework as the first step in achieving the adoption of better land management practices aimed at improving water quality reaching the reef lagoon. This target will contribute to the Federal Government's overall Reef Rescue target of 1300 farmers over three years.

As of 1 June 2011, 455 growers covering 44 500 hectares have completed the risk assessment process with 84 per cent receiving financial assistance under the Reef Rescue program to implement practice changes to better manage sediment, nutrient and chemicals on their properties.

This target was achieved with the help of Growcom's regional extension officers who have established good relations with the growers based on trust.

They have been supported by effective communication highlighting the benefits of the FMS process and the proven usefulness of the tool itself.

Workshops, training sessions, field days and bus tours have demonstrated what can be achieved and have generated a great deal of interest from growers. Anecdotal evidence suggests that many growers are now performing practice changes apart from the Reef Rescue program, primarily due to learning about what is happening on farms around them and the benefits that have accrued.

The Growcom Farm Management System will continue to support growers' efforts to identify risks on their farms and the best ways to overcome them. It will also provide the Reef Rescue program with concrete evidence of improvements to farm practices in horticulture and solid returns on the Federal Government's investment in the industry.

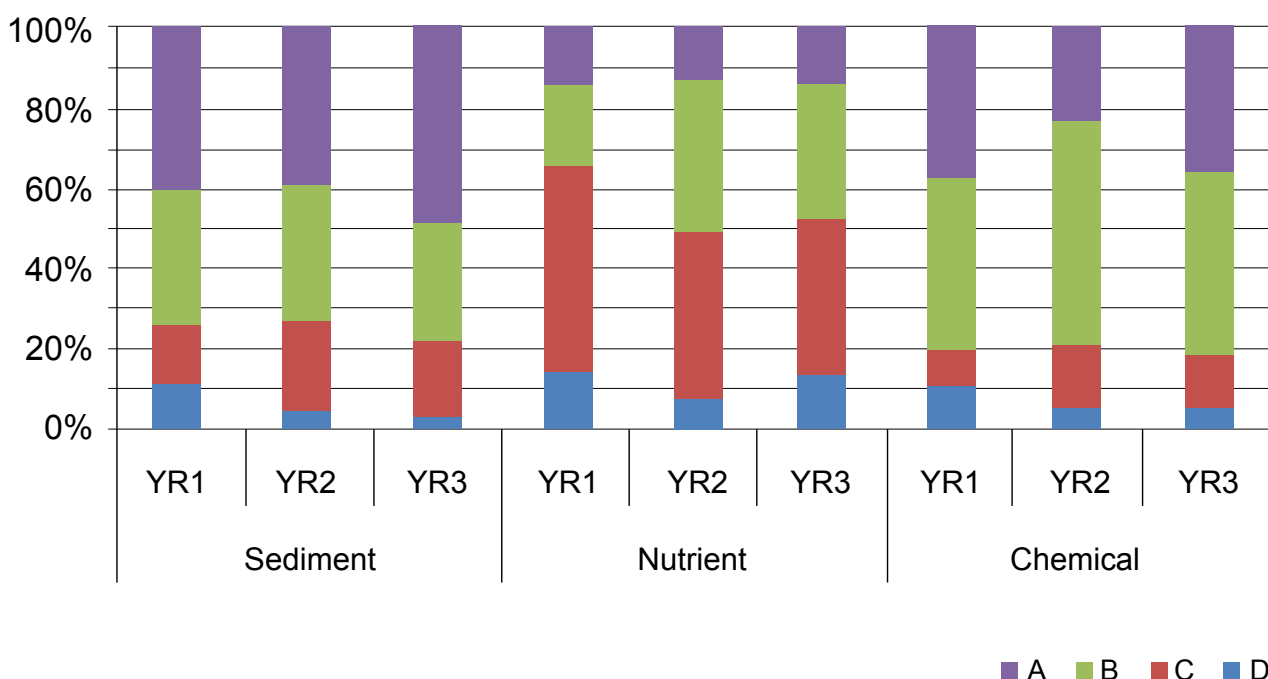


Improving horticultural farm practices in the NQ Dry Topics NRM region

These charts show the progressive shift in horticultural farm practices relating to sediment, nutrient and chemicals within the NQ Dry Topics NRM region in the past three years (December 2008 – June 2011).

Compiled from the Growcom Farm Management System database the data shows an ever increasing participation level (growers and area) culminating at June 2011 with 84 horticulture growers farming 13 457 hectares.

Graph one: percentage of horticultural growers per practice level / per year



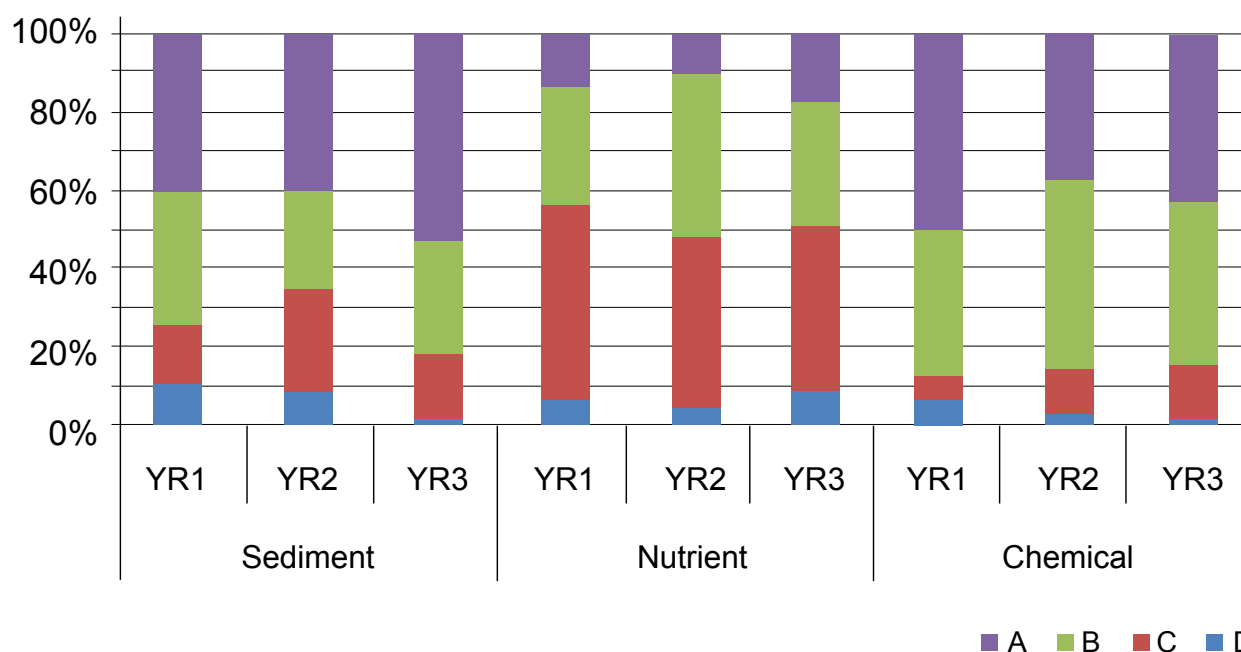
Best practice for **sediment** management (A & B class) adoption has increased by 5 per cent and those growers operating at code of practice (C class) has increased by 5 per cent. Producers utilising sediment management practices considered unacceptable (D class) have decreased by 8 per cent.

Best practice for **nutrient** management (A & B class) adoption has increased by 14 per cent and those growers operating at code of practice (C class) has decreased by 13 per cent. Producers utilising nutrient management practices considered unacceptable (D class) have decreased by 1 per cent.

Best practice for **chemical** management (A & B class) adoption has increased by 2 per cent and those growers operating at code of practice (C class) has increased by 4 per cent. Producers utilising chemical management practices considered unacceptable (D class) have decreased by 6 per cent.



Graph two: percentage of area (ha) managed per practice level / per year



Best practice for **sediment** management (A & B class) area adoption has increased by 8 per cent and the area managed at code of practice (C class management) has increased by 2 per cent. Area managed using practices considered unacceptable has decreased by 10 per cent.

Best practice for **nutrient** management (A & B class) area adoption has increased by 5 per cent and the area managed at code of practice (C class management) has decreased by 7 per cent. Area managed using practices considered unacceptable has increased by 2 per cent.

Best practice for **chemical** management (A & B class) area adoption has decreased by 2 per cent and the area managed at code of practice (C class management) has increased by 8 per cent. Area managed using practices considered unacceptable has decreased by 5 per cent.

Legend: ABCD management practices

Level	Category	Description
A	Cutting Edge	Likely best management practice but needs more data for validation or further technical development
B	Best Practice	Current best management practice
C	Compliant	Legislative requirement, code of practice or locally agreed duty of care
D	Degrading	Unacceptable and potentially degrading practices

Legend: delivery years

YR1 – 2008 / 2009
YR2 – 2009 / 2010
YR3 – 2010 / 2011

Case Study

Chemical and pesticide management

Maria and Neville Jones

Growing gourmet tomatoes – Bowen region

What used to be done

Prior to receiving funding the farm's spraying equipment was inefficient in applying chemical. The equipment used was of a very basic nature and did not have up to date technology for monitoring and controlling spray accuracy and drift.

How this practice changed

New machinery was purchased which has self centering booms with hydraulic adjustments, electrically controlled manifolds and spray controllers allowing for low volume targeting.

System features

- self centering booms with hydraulic adjustments
- electrically controlled manifolds and spray controllers
- low volume targeting
- a more accurate delivery system.

Benefits of this system

There has been a noticeable improvement in fruit quality and less fruit damage as a result of accuracy in targeting the pests.

"As anticipated, this has made a vast improvement to the timing, accurate targeting and efficiency of the whole operation. We now feel more confident that the plant is receiving the spray, not the ground," Neville Jones said.

Savings

With this machinery there is an estimated saving of 8 – 10 per cent in chemical usage.

With the second round of funding Mr and Mrs Jones applied for a GPS system. It was recognised that integrated precision practices across the broad spectrum of the growing process needed to be introduced.

"The introduction of the Reef Rescue grants has provided an important and timely opportunity for the farming and wider community to reflect and consider the impact that general practices could have on the reef," Mr Jones said.

"We feel that this has given us the opportunity to be more attuned to

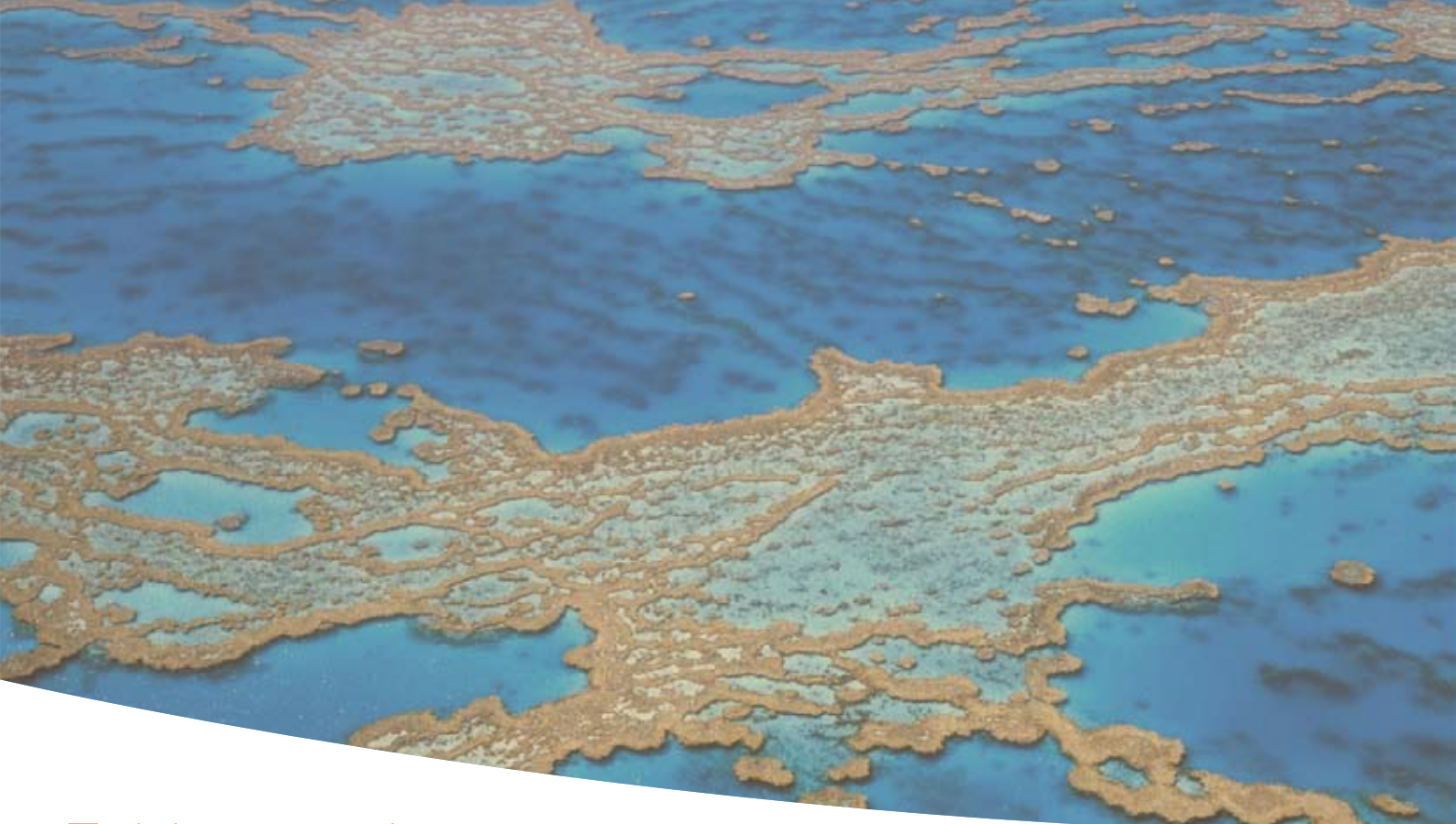
any changes that can be or should be made to improve the health of the environment generally and the reef in particular. This in itself should have important ramifications as people become more aware what improvements are possible across our individual operations.

"Farmers generally are very aware and considerate of their environment and the need to conserve all that is good about it.

"It is also important that there is the recognition that the farming community can not always implement some of these improvements easily, due to lack of funds. Assistance with funding is vital."



"Overall the improvements that we have put into practice with both the GPS and the Spra Coupe have proved to be a great asset to both the efficiency and sustainability of our farming operations." Neville Jones.



Training snapshot

Training needs identified and delivered as a result of the Growcom Farm Management Systems program include:

Implementing infield management

This includes, inter-row management, control traffic / tram tracking, drainage works, buffer zones, sediment traps and soil mapping.

Training topics:

- understanding how infield management practices can reduce losses of nutrients and chemicals via runoff and sediment loss
- what can be implemented to further reduce farm losses via implementation of buffer zones and sediment traps which potentially could become wetland areas.

Soil analysis and nutrient budgeting

Training topics:

- how to take a sample
- interpretation of soil test data
- what is a nutrient budget

- making budgets work for you
- demonstration of a nutrient balance software package.

Fertigation

Training topics:

- which fertigation system is right for your situation?
- identifying fertigation systems and how they operate, their faults and management issues
- the solubility and compatibility of various fertilisers
- determining application timing to ensure fertilisers reach the desired block and determining how long it will take to flush the system.

Integrated Pest Management (IPM)

Training topics:

- using IPM to control weeds requiring residual herbicides
- using IPM to improve efficacy and crop performance
- improved strategies to assist management of Silver Leaf White Fly in crops.



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Reef Rescue is funded by the Australian Government through its Caring for Our Country initiative.

