

Crop nutrient application rates

Match nutrient rate to crop needs by varying application rates and timing between blocks, guided by soil tests, crop class, cane variety, soil type, block history, soil conditioners and yield expectations.

Water quality

Excess fertiliser application can lead to higher nitrogen loss through leaching, water and sediment runoff. This affects the quality of water runoff from the farm. Fertiliser application should be optimised through the implementation of a detailed nutrient management plan. To minimise nutrient loss, you should account for the physical and chemical properties of the soil, yield potential, block history and possible loss pathways. Optimising the timing of application based on crop stage / plant requirements and seasonal conditions will also significantly reduce the potential for loss (34S & 35S & 39S & 40S & 30S).

Costs and benefits

Targeted soil and leaf testing are cost effective tools for optimising nutrient inputs, and testing can be tailored to the needs of the crop. Timing of applications based on crop stage and seasonal conditions significantly influences the crops utilisation of applied nutrient inputs. In some instances keeping detailed records of inputs and test results is required under the reef regulations. It is recommended that you track application rates and inputs over the life of the crop. This also serves as a business tool in assessing your enterprise's profitability (16S).

Field experiments in the Wet Tropics

A field experiment conducted on Pin Gin soils in the Wet Tropics in 2007-08 showed comparable yields can be obtained where nitrogen application is lower than conventional rates. Comparable yields were demonstrated when nitrogen was applied at a rate of 25-32kg/ha below conventional rates. Trials have shown that nitrogen topdressing is ineffective after a legume crop (35S & 6S).

Farm case study in the Wet Tropics

An Innisfail farmer operating a zonal tillage system modified a fertiliser applicator. Application rates were varied according to soil type, drainage characteristics and the sugarcane variety planted. This resulted in a reduction in costs and time in the application of fertiliser and an improvement in the efficiency of nutrient inputs. It was anticipated that an improvement in soil health would be achieved in time. Healthy soils may reduce the incidence of disease and pests, such as cane grubs (2S).

There were no examples found in the other sugarcane producing regions of Mackay-Whitsunday, Burdekin, and Burnett-Mary of the economic impacts (either positive or negative) to a grower of varying nutrient application rates. It is anticipated that relevant information may be provided in the future



Sugarcane extension services

Smartcane BMP

This program assists growers to ensure their practices on farm are at industry standard. It was released in December 2013. It was developed by CANEGROWERS and funded by the Queensland Government.

Website: http://www.canegrowers.com.au/page/Industry_Centre/bmp/

Fertcare

This program is a joint initiative of the Australian Fertiliser Services Association and the Fertiliser Industry Federation of Australia. It provides training, quality assurance, certification and accreditation. The training program delivers training in managing food safety, environment and occupational health and safety risks associated with the storage, handling and use of fertilizer and soil ameliorant products.

Website: www.fifa.asn.au

Phone: 02 6230 6987 (Canberra)

Email: fertilizer@fifa.asn.au

Project catalyst

Project Catalyst is a partnership between Reef Catchments NRM, the Coca-Cola Foundation, WWF and Mackay Whitsunday sugarcane farmers. The project has also expanded into, both, the Wet Tropics and Dry Tropics NRM regions. It aims to improve water quality and reduce the impact of pollution in the Great Barrier Reef, using innovative land practices.

Website: <http://reefcatchments.com.au/land/project-catalyst/>

Phone: 4043 8000 (Terrain Innisfail)

Email: info@terrain.org.au and/or belinda.billing@reefcatchments.com

Sugarcane economic tools

Farm economic analysis tool for sugarcane

Developed by the Department of Agriculture, Fisheries and Forestry, this excel spreadsheet is designed to assist growers in assessing the profitability in changes to their farm management practices.

Website: <http://www.daff.qld.gov.au/plants/field-crops-and-pastures/sugar/farm-economic-analysis-tool>

Phone: 13 25 23 (DAFF)

Supplementary resources

SmartCane Best Management Practice booklet series

Developed by BSES, Canegrowers and EPA, this series of seven booklets provides an overview of general principles of best management practice related to various aspects of a crop cycle.

Website:

http://www.canegrowers.com.au/page/Industry_Centre/Publications/Manual_of_Cane_Growing/

Phone: 3331 3333 (BSES Brisbane) 3864 6444 (Canegrowers Brisbane).

Wetlands management handbook

Farm Management Systems (FMS) guidelines for managing wetlands in intensive agriculture. Developed by the Australian and Queensland governments, as part of the Queensland Wetlands Program. The guide provides information to landholders and extension officers on:

- Identifying wetlands
- Wetland management
- Artificial wetland creation

The guide was designed to complement other industry FMS programs, for holistic farm management. <http://wetlandinfo.ehp.qld.gov.au/wetlands/resources/publications/reports.html>

Phone: 13 74 68.

Why consider improved practices?

There are expected economic benefits for farmers in transitioning towards a system of improved management practices. This is based on economic analyses that have been undertaken on farming system practices in each of the sugarcane producing regions of the Wet Tropics, Mackay-Whitsunday, Lower Burdekin and Burnett-Mary.

Economic analyses have shown that it is possible for a farming enterprise to improve profitability whilst operating with improved management practices. It is recommended that you assess your specific farming circumstances before undertaking any practice changes.

Is there any evidence that improved practices have a benefit for my farm?

Wet tropics study one

Economic studies in the Tully region have indicated that adopting improved management practices may be economically viable. Benefits included a higher gross margin and positive net present value. This was demonstrated when the farm transitioned from C class to B class management practices over a five to 10 year period (26S & 23S).

Wet tropics study two

In 2004, modelling of a typical farm near Cairns showed that incorporating improved practices of reduced tillage, legume fallow and reduced nitrogen application leads to an increase in income levels. Although this analysis indicated a small reduction in crop yield, financial returns were enhanced through a reduction in tillage operations, increased efficiencies and inputs over a full crop cycle. Overall, operating with these combined improved practices provides important economic benefits to a farmer at the plot level and provides positive effects on profitability (30S & 32S).



Mackay-Whitsunday

Economic analysis of a 150ha demo farm in the Mackay region indicated that transitioning to a system of improved management practices may have a negative impact on profitability over the short to medium term. Results demonstrated a higher farm gross margin when adopting practice changes. However, the substantial capital costs may result in a negative return on investment in some instances. It is recommended you assess your specific farming circumstances before changing any management practices (5S).

Burdekin

Economic analyses of demo farms in the Burdekin region have indicated that adopting improved management practices may be economically viable. Benefits included a higher gross margin and positive net present value. This was demonstrated when a farm transitioned from C class to B class management practices over a five to 10 year period (21S & 22S & 24S & 25S).

Burnett-Mary

A 2006 case study of a mixed cropping farm in the Burnett-Mary (943ha cane and 160ha peanuts), showed there are benefits in adopting improved management practices. The changes included controlled traffic with GPS, reduced tillage, scheduled flood irrigation and fallow legume cropping. The peanut crop was slashed, left on the ground and worked into the soil prior to planting the sugarcane. The study indicated a significant increase in gross margin over a projected 10 year timeframe with increases in labour efficiency and reduced tractor hours. Retaining peanut residue on the surface provided approximately 60 kg/ha of nitrogen. The tillage requirements for seed bed preparation were significantly reduced (11S).

More information

If you would like to contact DAFF about the information presented in this factsheet, contact us on: 13 25 23, for the cost of a local call within Queensland, or 07 3404 6999, or email us at: ReefPlan@daff.qld.gov.au



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