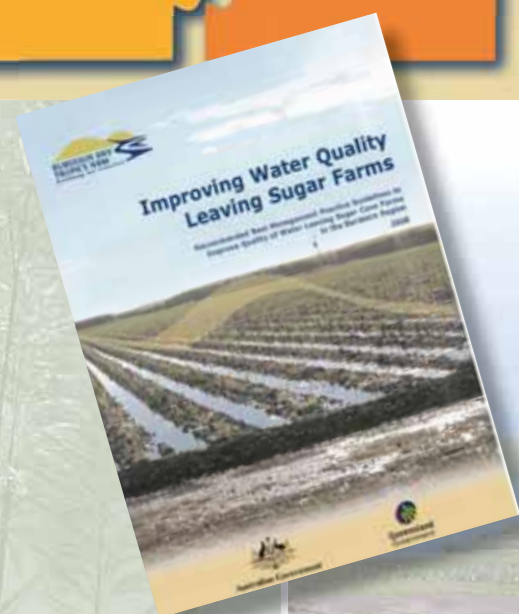




## Development of the ABCD framework for Sugar Cane Farm Practices

The identification and validation of Best Management Practice Guidelines for water quality in the sugar cane industry was a focal point in the development of the Burdekin Water Quality Improvement Plan. The development of 'Improving Water Quality Leaving Sugar Farms' was achieved through a collaborative process that involved the Australian Centre for Freshwater Research, BSES, Bowen Burdekin Integrated Floodplain Management Advisory Committee, CSIRO, Queensland Primary Industries and Fisheries (QPI&F), Burdekin Productivity Services (BPS), NQ Dry Tropics and local canegrowers. The process involved a comprehensive science and grower focus consultation. Detailed information can be found on the NQ Dry Tropics website: [www.nqdrytropics.com.au](http://www.nqdrytropics.com.au) or a copy of the brochure 'Improving Water Quality Leaving Sugar Farms' can be obtained from BSES or NQ Dry Tropics.



Further to the development of Best Management Practice Guidelines, an ABCD framework has been designed to communicate different levels for management practice categories. The ABCD framework provides a definition and a scale of improvement from 'old' to 'cutting edge' practices. The framework is based on criteria relating to management of:

- nutrient management
- pesticide management
- soil health
- water and irrigation management
- record keeping.



## The ABCD Framework:

- has been developed in consultation with local growers
- promotes sustainability
- promotes long-term profitability
- supports Reef Rescue
- supports on-farm innovation
- is supported by the cane industry
- will benefit our region's waterways
- will optimise nutrient and chemical use
- will optimise water use.

For more detailed information on the ABCD framework go to [www.nqdrytropics.com.au](http://www.nqdrytropics.com.au)

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# REEF RESCUE ABCD FRAMEWORK

for Sugar Producers  
in the Burdekin 2009





## Burdekin ABCD framework for Water Quality

The ABCD framework is a guide for sugar cane growers in the Burdekin to adopt improved farming practices under the Australian Government's Reef Rescue program.

The framework has been developed from the Burdekin Water Quality Improvement Plan and broadly categorises and describes improved farming practices according to their water quality outcomes. Over time it is the intention that emerging technologies will become proven best management practices and that the ABCD framework will be up-dated accordingly.

The A and B class farming practices described in this document are designed to reduce the water quality impact and increase the efficiency of on-farm operations relating to:

- nutrient management
- pesticide management
- soil health
- water and irrigation management
- record keeping.

		<b>D</b> Old Practice	<b>C</b> Code of Practice	<b>B</b> Best Management Practice	<b>A</b> Cutting Edge Practice
<b>Nutrient Management</b>	NUTRIENT RATES	Flat rate for whole farm above old industry recommended rates.	Flat rate for whole farm at old industry recommended rates (240kg N/ha for ratoons).	Variable rates between blocks based on soil type using current industry recommendations. Mill by-products, nutrients in groundwater and fallow history taken into account.	Variable rates within blocks based on soil type using current industry recommendations. Mill by-products, nutrients in groundwater and fallow history taken into account.
	TIMING			Prior to mid-October (in moist soil) 3-5 days after first irrigation.	Prior to mid-October (in moist soil) 3-5 days after first irrigation.
	PLACEMENT	All on surface or in cutaway (plant).	Sub-surface.	Sub-surface and rate controlled accurately with fertiliser box shut off at end of paddock (no fertiliser in tail drain) liquid products applied above surface three days prior to first irrigation.	Sub-surface and rate controlled accurately with fertiliser box shut off at end of paddock (no fertiliser in tail drain).
	ACCURACY	Box rarely calibrated.	Fertiliser box calibrated annually.	Fertiliser box calibrated weekly and between product changes.	Fertiliser box calibrated with each paddock and between product changes.
	PLANNING	Future rates based on past application rates.	Future rates adjusted for plant and ratoons.	Nutrient management plan (based on Six Easy Steps or N replacement).	Nutrient management plan (based on Six Easy Steps or N replacement, soil mapping and yield mapping).
<b>Pesticide Management</b>	USE OF RESIDUALS	Heavy reliance on residual herbicides with no attempt made to minimise runoff losses.	Use of both residual and knockdown herbicides.	Knockdown herbicides replace residuals where practical. Variable weed strategies between blocks. Sprays off as machine turns around.	Primary reliance on knockdown herbicides over residuals. Variable weed strategies within blocks. Sprays off as machine turns around.
	CHEMICAL RATES	Maximum use at or above label rates regardless of weed pressure using standard spray rig.	Chemicals applied using standard spray rig, and applied at lowest effective rate.	Chemicals applied at lowest effective rate using rate control monitors. Use shielded sprayers where appropriate.	Implementation of new technology for improved placement and application efficiency (shielded sprayers, weed seekers) using GPS guidance and computerised rate control monitors.
	TIMING	Ad hoc.	Spray as per label recommendations.	Spray as per label recommendations with all weeds controlled before four leaf stage. Multiple weed control events during fallow.	Spray as per label recommendations with all weeds controlled before four leaf stage. Multiple weed control events during fallow.
	WORKPLACE HEALTH AND SAFETY	Keep Material Safety Data Sheets.	Keep Material Safety Data Sheets, lockable storage, appropriate disposal of chemical and containers.	Lockable storage with bunded area, appropriate disposal of chemical and containers and maintain Chemcert accreditation or equivalent.	Lockable storage, bunded wash-down area with sump to trap chemicals, appropriate disposal of chemical and containers, and maintain Chemcert accreditation or equivalent.
	CALIBRATION	Never.	Once a year.	Once per month.	Once per month.
	PLANNING	One strategy for entire farm.	More than one herbicide strategy for entire farm.	Variable herbicide strategies between blocks and Herbicide Management Plan implemented.	GPS based Herbicide Management Plan implemented.
<b>Soil Health</b>	FARMING SYSTEM			All operations based on controlled traffic beds with GPS guidance for bedforming, planting, and harvesting operations.	All operations based on controlled traffic-permanent beds with GPS guidance for all in-crop operations (including harvesting operations).
	PLANT CANE	Cultivated conventional.	Minimum tillage.	Zonal tillage during establishment of plant crop.	Zonal tillage during establishment of plant crop.
	RATOONS	Cultivated conventional.	Minimum tillage	Minimum tillage with GPS guidance.	Minimum tillage with GPS guidance.
	FALLOW	Cultivated bare fallow.	Minimum tillage bare fallow with chemical weed control.	Fallow crop during fallow period and ground cover maintained on headlands.	Harvested fallow crop during fallow period and ground cover maintained on headlands.
	AMELIORANTS		Ameliorants applied where necessary.	Variable rate ameliorants applied based on a soil tests.	Variable rate ameliorants applied based on a prescription map.
	TRASH UTILISATION	Burnt.	Burnt.	Green cane trash blanket on suitable soils where practical.	Green cane trash blanket.
	HEADLANDS			Ground cover maintained on headlands and drains.	Ground cover maintained on headlands and drains.
	PLANNING			Soil management plan based on soil maps.	Soil management plan based on GIS soil maps and management zones across farms using emerging technologies.
<b>Water and Irrigation Management</b>	METHOD	Furrow irrigation.	Furrow irrigation.	Furrow irrigation with optimised volumes which minimise excess runoff and deep drainage.	Drip, overhead or optimised furrow irrigation to match crop requirements and minimise loss to deep drainage.
	SCHEDULLING	Scheduling by guesswork or set cycle.	Some scheduling efforts (minipans etc.).	Quantitative scheduling and soil moisture monitoring.	Quantitative scheduling, soil moisture monitoring, and precision water application across soil type or management zones using software.
	METERING	No metering.	No metering.	Metering.	Metering and pump audits.
	FURROW SHAPE AND LENGTH	No adjustment of furrow shape and length to soil type.	Appropriate furrow shape for soil type.	Appropriate furrow shape and length for soil type and slope.	Appropriate furrow shape and length for soil type and slope.
	DRAINAGE		Laser levelling only.	Recycle pits on suitable soil types capturing first flush.	Recycle pits on suitable soil types capturing first flush and pit bypass overflow.
	AFTER FERTILISING			Delayed 2-5 days (depending on soil type) post fertilising.	Delayed 2-5 days (depending on soil type) post fertilising.
	WATER QUALITY MONITORING			Simple water quality monitoring of water leaving the farm (e.g. PIXEL)	More detailed water quality monitoring of water leaving farm.
<b>Record Keeping</b>	ALL FARM RECORDS	Kept in head.	Basic record keeping using a farm diary and spray log book.	BSES paddock journal or better, and spray log book.	Farm management software incorporating spray logbook.

