

Mackay Whitsundays

REEFWISE FARMING PROJECT

Supporting farms, safeguarding the Great Barrier Reef

Runoff Consequences

Agricultural fertiliser and pesticide losses carry both environmental and economic consequences.

- **Wetlands are disappearing** - over 80% lost in the Pioneer and Plane basins due to land clearing and changes in water flow.
- **Nutrient runoff fuels algae** - fertiliser losses from paddocks contribute to blooms that stress freshwater and reef ecosystems.
- **Sediment and chemicals slow recovery** - soil erosion and agricultural chemicals reduce coral and seagrass resilience.
- **Pesticides affect aquatic life** - chemicals from farms can harm plants and animals that maintain healthy waterways.
- **Heavy rainfall increases losses** - short, intense events wash nutrients and chemicals quickly from paddocks into rivers and the Reef.

Why Water Quality Matters

The Mackay Whitsunday Reefwise Farming Project is being delivered between 2025 and 2028 to reduce pesticide and dissolved inorganic nitrogen loads across the Mackay Whitsunday Isaac region, combining practice change, tailored agronomy advice and targeted incentives.

The region is defined by its Whitsunday Islands, tropical beaches, coral reefs, seagrass meadows, mangroves and national parks. These marine and coastal ecosystems underpin tourism and the local economy but are sensitive to changes in water quality. Sugarcane farming is central to the region's identity and is the dominant intensive agricultural land use, with more than 100,000 hectares, while dam and weir construction and cleared floodplains have altered wetland connectivity and placed pressure on natural assets and regional hydrology.

Key industries including agriculture, mining, ports and tourism interact closely with local ecosystems. Coordinated on-farm management, including reducing nutrient and chemical losses, maintaining healthy soils and implementing best-practice approaches, contributes to both productive farms and a healthy Great Barrier Reef.

Sugarcane Priority Actions

Practical land management targets that help growers sustain water quality while maintaining productive farms.

Focus Area	Priority Actions	Benefit
Nitrogen (DIN)	Account for N from legume rotations and mill mud (<100 wet t/ha) Address soil chemical constraints, drainage, and waterlogging Reduce N application by up to 20% with enhanced efficiency fertilisers. Use available irrigation efficiently to maintain yield without extra inputs	Better N planning, avoids over-application Improves yield and nutrient use efficiency Maintains yield while reducing losses Maximises crop productivity and nutrient efficiency
Phosphorus	Account for Phosphorus from mill mud application (<100 wet t/ha)	Supports balanced soil fertility
Pesticides	Optimise application timing and chemistry	Reduces risk to waterways and freshwater life

Source: Queensland Department of Primary Industry (2025). Review of land management targets — Reef 2050 Water Quality Improvement Plan: summary report.

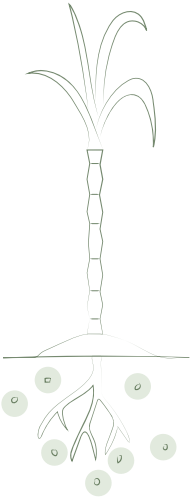
From Paddock to Reef

How on-farm decisions and natural systems work together to reduce runoff and protect the reef

01

THE PRODUCTIVE Paddock

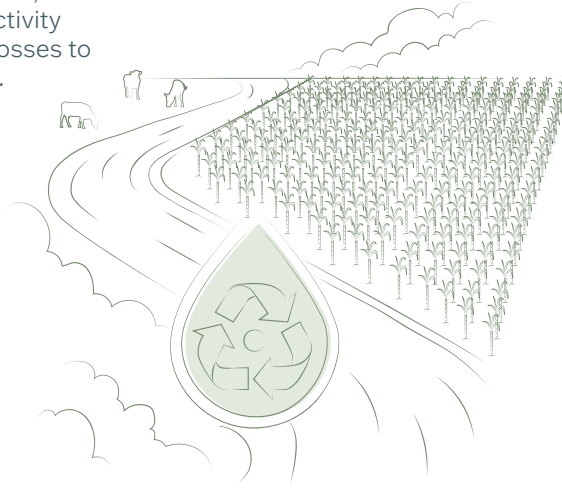
The right product, rate, timing and placement keeps nutrients and pesticides on-farm, boosting productivity while reducing losses to local waterways.



02

THE FARM BUFFER

Treatment systems such as healthy, intact riparian vegetation and recycle pits act as filters. They slow runoff and help trap nutrients, pesticides and sediment before water leaves the farm.



03

LOCAL WATERWAYS

Healthy creeks support local biodiversity and recreational fishing. Reducing runoff from your paddocks helps restore the backyard ecosystems that connect your farm to the coast.



04

COASTAL WETLANDS

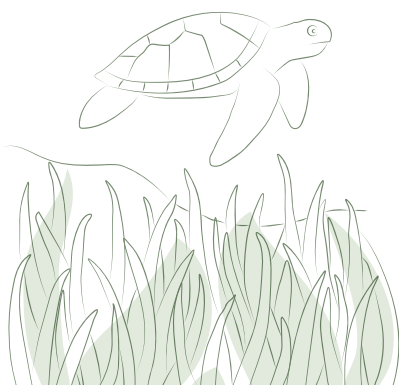
Wetlands act like natural kidneys. They filter nutrients, sediment and pesticides from runoff, support fish nurseries, and help protect your farm during heavy rain and floods.



05

INSHORE ECOSYSTEMS

The way you manage your land makes a real difference downstream. Managing sediment, nutrients and pesticides helps keep coastal waters clear and protects seagrass and reef habitats for fish, turtles dugongs and other marine life.



06

THE GREAT BARRIER REEF

Clean water is the foundation of reef resilience and recovery. Your on-farm actions contribute to the collective effort restoring the health and resilience of this global icon.



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Frequently asked questions

Based on the Water Quality Science & Agriculture Hub, funded by the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

Question	Answer
How do imidacloprid and herbicides affect the Reef?	<ul style="list-style-type: none"> • Insecticides (e.g., imidacloprid) and herbicides (e.g., diuron) can harm aquatic plants and animals, reduce biodiversity and affecting Reef resilience. • Highest risk occurs close to paddocks where chemical levels are concentrated.
How does fertiliser impact the Reef (~100 km offshore)?	<ul style="list-style-type: none"> • Heavy rainfall carries nutrients from paddocks to creeks, rivers, and the coast. • Fertiliser runoff can fuel algal blooms in wetlands and inshore waters. • Affects aquatic life, including fish and crustaceans that move between freshwater and marine habitats, so local impacts flow through to the Reef.
Why sample paddock water quickly after rain?	<ul style="list-style-type: none"> • Measures nitrogen losses accurately. • Nitrogen changes form or is absorbed by algae, plants, and microbes, which can stress waterways or cause fish kills. • Helps show how better practices keep nutrients on farm.
Why do pesticide guidelines change?	<ul style="list-style-type: none"> • Guidelines protect people and the environment. • Based on the latest research and updated as new science emerges.
Why should I think about water quality with a recycle pit?	<ul style="list-style-type: none"> • Designed for small irrigation events, not whole-farm rainfall. • Overflow can carry nutrients and pesticides to creeks and wetlands. • Used correctly, pits improve irrigation efficiency and reduce runoff leaving the farm.



Expression of Interest
To be considered for future opportunities please scan the QR Code and complete the EOI form on our website.

