



# Lower Herbert cane farms

## MANAGING WATER QUALITY IN THE WET SEASON

The Lower Herbert, near Ingham, is one of Queensland's largest sugarcane growing regions, covering around 67,000 hectares. For over a century, it has been the primary source of employment and is at the heart of the local community.

The uniqueness of the region sitting across the wet and dry tropics makes it highly suitable for growing sugarcane. Yet, as one of the most intensively cropped regions, this area presents a challenging balance for growers in managing fertiliser and pesticide losses from paddocks.

### Water quality challenges

The Herbert River discharges one of the largest volumes of water annually in the Great Barrier Reef catchment – exporting the highest level of dissolved inorganic nitrogen (a key component of fertiliser).

Extensive historical clearing has removed many wetlands and vegetation on floodplains in the Lower Herbert region, especially Melaleuca forests. This vegetation once slowed water, retaining and filtering water while holding sediments and nutrients on the land.

With less vegetation, intense rainfall runoff flows more freely over the land. This, combined with intense cropping across large areas, has heightened the risk of floodwaters washing fertiliser and pesticide off the paddocks into the catchment.

Growers are taking control of farming practices to directly reduce paddock runoff, with local scale water quality monitoring projects helping growers identify hotspots of fertiliser losses.

Growers are **embracing water quality data** to improve practices



## Water quality in the lower Herbert

### Impacts to inshore marine areas

The Lower Herbert is home to the Hinchinbrook Channel, one of Australia's largest and most diverse mangrove areas. The region is also home to offshore islands and fringing reefs. Together, they serve as vital habitats for fish nurseries, dugongs, and bird species. The area is also locally renowned for recreational fishing. Runoff can lower the resilience of these ecosystems and lead to macroalgae overgrowth on coral reefs, among other impacts.

### Freshwater habitats and species

As a perennial river, the Herbert supports diverse freshwater species. This includes barramundi, jungle perch, sooty grunter, and freshwater shrimp. High pesticide levels can diminish macro-invertebrates, a crucial food source for these fish.

Good water quality can bolster the health of these freshwater and marine ecosystems. Growers play a pivotal role to reduce runoff to their local waterways.



## Embracing practices for **better outcomes**

Making good land management decisions benefit both the farm and the environment.

### Benefits for the farm

- Effective use of machinery reduces ground compaction, enhancing water infiltration for better soil health.
- When precision technology is used to apply fertilisers and pesticides, the use and cost of these products are reduced.
- Using rotational cropping, such as legumes, improves soil health and structure. This reduces the reliance and cost of synthetic fertilisers.
- By accounting for organic nutrients added to the paddock, such as fallow crops and mill mud, synthetic fertiliser application rates are lowered. This strategy optimises fertiliser rates, which can increase crop yields and reduce input costs.

### Benefits to the environment

- Improved water quality in existing natural wetlands enhances nursery grounds for fish and migratory birds.
- Good water quality strengthens resilience, allowing freshwater and marine ecosystems to thrive and recover. This includes improved seagrass meadow condition and coral recruitment and recovery.

## Water quality programs **boost confidence**

Growers play a pivotal role in controlling the amount of nutrients and pesticides lost from the paddock in reaching local waterways. The Lower Herbert Water Quality Program has made water quality data more accessible, allowing growers to understand their losses and take control of management practices to directly reduce paddock runoff.

### Sensor technology



Using sensor-based technologies throughout the stream networks, 'hotspot areas' and key fertiliser loss periods can be identified. Growers can respond by carefully managing application methods and product choices.

### Understanding peak fertiliser losses



Peak runoff losses occur during initial heavy rainfall when new cane crops are fertilised. The real-time monitoring helps growers match higher fertiliser losses with specific farming practices for timely adjustments.

### Improving soil health and nutrients inputs



Growers are trialling multispecies rotational crops and the application of targeted mill mud as alternative fertiliser inputs. This improves soil health and structure, while reducing the reliance and cost of synthetic fertilisers.

### Pesticide and fertiliser management



Growers carefully manage application methods and product choices. For fertilisers, this includes timing, rates, placement, and product selection. For pesticides, it involves timing, product choice, and strategic application. Machinery can allow for precise application.

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