

SANDY CREEK PROJECT

FIELD TRIAL

Beating guinea grass – improving yield, profit and water quality

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The sugarcane industry in the Mackay/Whitsundays area has been identified as an industry with the opportunity to improve water quality in the Great Barrier Reef catchment. Numerous projects are currently in progress to assist farmers in the transition to improved chemical and nutrient application while maintaining or improving productivity for the region. Farmacist, an independent agronomic organisation, has been conducting trials and working closely with growers to launch the industry into the future. One of these projects is the Sandy Creek Project focusing on improving farming practices that benefit the grower and water quality.

FALLOW MANAGEMENT

A trial conducted by Farmacist aimed to address weed pressures in sugarcane with an improved fallow management technique. The blocks chosen for the trial were identified to have a high weed pressure. Weeds including, Guinea and feathertop Rhodes grasses, were two of the greatest pressures in the block. These grasses have proven to be challenging to control in sugarcane, building up over ratooning crops, leading to a high dependence on chemical usage and early ploughout. Increased chemical usage reduces grower economic returns and may negatively impact water quality.

The trial investigated the differences between standard practice versus new practices for fallow management. On this farm, to control weeds, a clean bare fallow period using repeat application of knockdown herbicide was standard practice for the farmer. The new management strategy was to plant a soybean cover crop before planting back into cane.

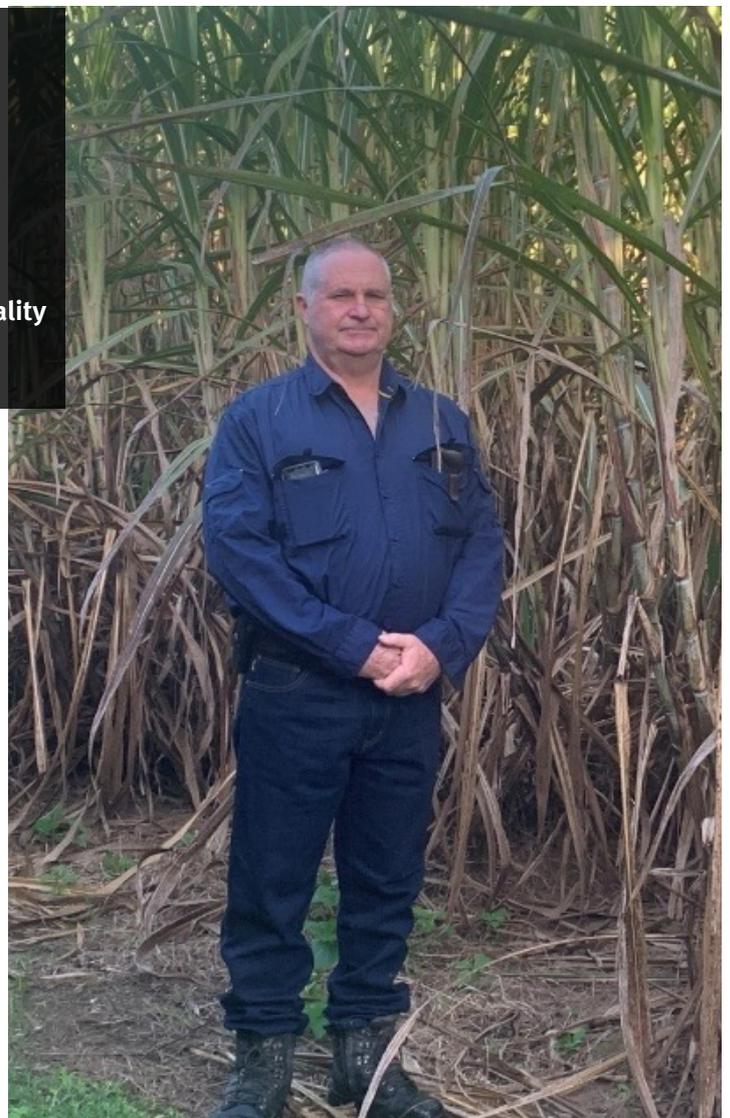


Figure 1: Trial site grower Steve Young

TRIAL SITE DETAILS

Soybean plants established a quick ground cover over the site, providing the first weed suppressant through shading. This demonstrated an unrivalled approach when compared to the bare fallow area. The combination of excellent ground cover from the soybean crop and the effective application of a pre-emergent herbicide provided near perfect weed



Figure 2: Top above water furrow – 2nd ratoon showing significant guinea grass infestation (light green), below is weed-free plant cane.

control. No Guinea or Feathertop Rhodes grasses are present in the new fallow practice.

The grower had the option for a green manure crop, or to take to harvest. An increase in soybean prices around the time lead to the decision to harvest the crop for grain. Not only was the new practice assisting with improved water quality but the economic gross margin for harvesting the soybean crop was over \$1000/ha higher than the standard practice of a chemical controlled, bare fallow. This excluded the benefits of nitrogen input from the soybean which could be as high as 100 kgN/ha.

The sugarcane planting occurred after cultivating the ground post-harvest of Soybeans. One season on, weed pressure differences in the plant cane compared to the ratooning cane can be easily identified in drone imagery (Figure 2). The new herbicide program will be the grower's new standard in the future of his sugarcane fallow management system; using residual and knockdown herbicides which have a lower risk to runoff and toxicity to the environment. The specific herbicides used will be determined by the types and densities of weed populations present at the time.

Table 1: Aquatic risk index for active ingredient applied

	Standard Practice	New Practice
Aquatic Risk (x1000)	2,212,395	1,170,288

The new management strategy has shown greater profits, reduced aquatic risk from runoff and improvements of the grower's sugarcane production into the future. This trial outlines how an effective fallow management can increase productivity and reduce aquatic risk within the Mackay region.

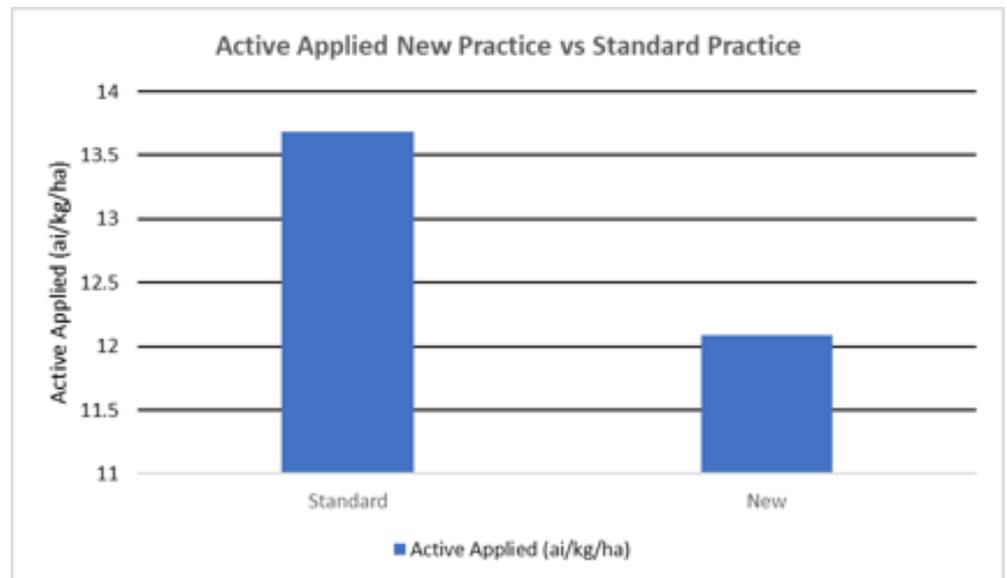
ABOUT THE PROJECT

The Sandy Creek Project will:

- ▶ monitor sub-catchment water quality
- ▶ conduct paddock scale run-off trials
- ▶ direct extension activities to growers across the Sandy Creek sub catchment to improve chemical management practices
- ▶ provide a chemical management plan and targeted one-on-one agronomic services to all engaged growers in the Brightly south branch sub-catchment
- ▶ utilise grower led sub-catchment groups to promote WQ results and improved practices
- ▶ communicate the project, the outcomes and lessons learned to the broader Sandy Creek landholders
- ▶ apply strategies to overcome barriers to management practice change.

Figure 3 outlines the differences in active chemicals applied to the site. Observed also was a reduced aquatic risk for the active applied (table 1). A reduction of 11% of total active chemicals being applied outlined how the new practice can decrease chemical usage.

Figure 3: Total active chemicals applied using each practice method



The Sandy Creek project has been funded by the Queensland Government's Reef Water Quality Program since 2015 after a group of growers sought assistance from the government to identify and better understand pesticide losses from their farms. Since 2018 there has been an increased focus on the Brightly sub catchment within Sandy Creek catchment because of its defined catchment and small number of growers.

