

PRACTICE FACT SHEET

MILL MUD AND ASH BY-PRODUCTS. THE BENEFITS OF A LOWER RATE.



Project Catalyst is a grower-led innovation project in sugarcane that was formed to explore, validate and broadly adopt management practice changes for productivity gains and improved water quality for the Great Barrier Reef.



HISTORY OF MILL MUD AND ASH

Since the turn of the century mill by-products like mud and ash have been used as a fertiliser source for the sugarcane industry. These products are also great soil conditioners remediating problematic soils (ie. sodic, heavy clay and very sandy soils).

In the past high application rates have proved to be uneconomical for growers who do not farm near the mills because of the high transport costs. Recently a better understanding of the benefits of mud and ash combined with new application technologies have made it more cost effective for growers to take advantage of these products across the district.

WHAT IS MUD AND ASH?

- **Filter mud** is the material remaining after cane juice is clarified and filtered through the milling process. It contains soil that enters the factory with cane supply, plus organic material in the form of sugars, bagasse and lime used during the clarification process.
- **Boiler Ash** is the material remaining after combustion of bagasse in the mill boilers. Bagasse is the main fuel used by sugar mills.



WHY CONSIDER MILL BY-PRODUCTS?

1. Soil Health –There is significant opportunities to improve soil texture, structure, biology, and water holding capacity of soils.
2. Nutrient Availability – Mill by-products contain the following nutrients: nitrogen, phosphorus, potassium, calcium, magnesium zinc, and copper. Not all nutrients will be immediately available to the crop (such as nitrogen) and for this reason it is important to apply the right amount of follow up fertiliser to correct delayed nutrient availability.

Table 1 - Estimated nutrient availability

Nutrient	Amount of Nutrient applied (kg/ha)		
	Mill Mud (50t/ha)	Ash (50t/ha)	Mud/Ash (50t/ha)
Nitrogen	170 kg/ha	25 kg/ha	105 kg/ha
Phosphorus	115 kg/ha	60 kg/ha	90 kg/ha
Potassium	25 kg/ha	245 kg/ha	85 kg/ha
Sulfur	15 kg/ha	60 kg/ha	20 kg/ha
Calcium	240 kg/ha	160 kg/ha	195 kg/ha
Magnesium	40 kg/ha	100 kg/ha	50 kg/ha

See estimated nutrient table.

Nutrients shown in kg/ha of wet weight based on product analysis conducted by Wilmar in 2019

Note: These nutrient contents varies depending on moisture content and the source of the material. These nutrient values are based on the Wilmar Herbert District Mills (both Victoria and Macknade).

WHAT ARE THE BENEFITS OF USING A LOWER RATE OF MUD?

The new spinners on the mill mud and mud/ash trucks can now apply the products at rates as low as 50t/ha wet weight banded on the stool area.

Banded applications at lower rates of mill mud-based products will reduce transport costs and allow growers to utilise the products further from the mill.

Research trials conducted in the Herbert showed that that application

of mill by-products at rates as low as 50 t/ha will increase cane yield. It was also found that CCS declined when the rate of mill mud increased, so lowering rates will greatly assist with the management of CCS at harvest.

For more information concerning the use of mill mud and mud ash mixtures and associated nutrient management contact HCPSL Extension Agronomy staff on 07 4776 1808.



Great Barrier Reef Foundation



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