

Mill ash a key ingredient in managing clay soils

A grower-led project in the Herbert has shown that mill ash can deliver lasting soil improvement in heavy clay soils.



Vince Russo, who farms in the Herbert, said that local growers were starting to incorporate furrows and slots into their farming practices, and he was keen to put some numbers behind it.

"In the Herbert we've got some pretty large areas of clay soils. While clay soils are fertile, waterlogging has a real impact on our yield potential," Vince said.

"Through this project we've spent the last two years trialling ways to improve internal soil drainage crop establishment and cane yields."

"We'd been hearing about the benefits of applying mill ash and wanted to see if they would work in our farming system."

As part of the project, Vince applied five different treatments.

1. conventional land preparation (which included deep ripping)
2. mill ash filled slot on a preformed mound on GPS
3. mill ash broadcast
4. mound pre-wet season and zonal tillage on GPS
5. conventional land preparation, with applied Bioactivate®.

"We could really see a difference in soil condition at planting," he said.

"The conventional treatment had larger clods, while the alternative treatments had smaller clods and finer particles. We also saw some positive results in the crop establishment in both of the ash treatments."

"Tiller counts ranged from around 16 in the ash filled slot, compared to 12 in the conventional treatment," he said.

Vince added that while they were pleased with the high shoot counts, he was disappointed that they didn't see the increase in yield he was expecting.

"We planted the trial block with KQ228, which unfortunately proved to be a disappointment as it was affected by yellow canopy syndrome," he said.

"We were able to see some differences in yield, but I don't think the result was as great as we could have achieved if it hadn't been for yellow canopy syndrome."

"What we did see though was that ash had some long-lasting benefits."

The total cane per hectare (tcph) in plant cane was highest in the ash treatments (broadcast ash treatment: 102 tcph, and ash filled slot: 87.05 tcph) compared to the lowest performing treatment (zonal tillage: 72.64 tcph).

In first ratoon cane there was an even bigger difference between the higher

performing ash treatments (broadcast ash treatment: 77.28 tcph, and ash filled slot: 75.47 tcph) and the lowest performing conventional treatment (zonal tillage: 64.45 tcph).

"While the broadcast application of ash was effective, it is not really an economically viable option," Vince said.

"We worked with local company, SnE Plant Hire who developed a zonal mill mud and ash applicator that proved effective in distributing the mill ash. This applicator is now commercially available to growers throughout the district."

"This should make it easier for other growers who are farming heavy clay soils to apply mill mud and ash treatments."

"In the Herbert 60 percent of our soils are clay soils. Even if a few growers adopted this treatment I think we'd see some good outcomes across the district," he said.

"I would tell people that if they are interested incorporating mill mud or ash into their farming system they get onto it quickly."

"Mill mud and ash are in high demand, so it would pay to get your name down early."

This project received funding through SRA as well as the Woolworths Fresh Food Future Program.

Project details

Key Focus Area: 2

Soil health and nutrient management

Project name

Improvement of internal soil drainage and yield on heavy clay soils in the Herbert

Project number

2010/053

Principal provider

LUMPS

Project end date

December 2014