

Ingham farmer pleased with Twin N trial

Supplied by Mapleton Agri Biotec Pty Ltd

An issue of major concern among sugarcane growers in the wet tropics is how to maintain good cane yields with reduced nitrogen fertiliser applications. There are 'many ways to skin a cat' as the saying goes, but one way that is showing great promise is through the use of certain nitrogen fixing bacteria that can associate with sugarcane and other crops.

Crop plants cannot directly access nitrogen from the air. However, certain bacteria can. Most are aware of rhizobia bacteria that form the root nodules on legume crops, supplying them with nitrogen. There are also many other species of microbe that can fix nitrogen from the air and are able to associate with plants other than legumes, in a more casual relationship, without forming nodules.

Ingham farmer, **Brian Tabone**, has been trialling a new product, Twin N,

on his family's Herbert River farm. In early October last year Brian started an on-farm trial of nitrogen fixing bacteria of various species. He applied it to two varieties of plant cane – Q183 and Q200 on a total of 3 ha. There were two blocks of Q183 and three of Q200. Each replication of the treatment was on an area of 0.6 of a hectare.

Developed by Australian company, Mapleton Agri Biotec, Twin N's formulation is based on high numbers of beneficial bacteria that can be cultured and freeze dried to form an inoculant and then be re-hydrated for crop application.

Brian says an essential requirement for effective uptake of the microbes is that they must get to the crop's roots without drying out.

"We fixed up an applicator to inject the inoculant with plenty of water sub-surface behind coulter tines that ran between the rows of cane. As it

had been very dry, we applied some irrigation before and after application to make sure of soil moisture," he said

"As well as applying the microbes, we also reduced the nitrogen fertiliser on the 3ha of trial blocks by 25% - the only nutrient reduced in this trial was nitrogen."

The trial blocks were harvested in mid September this year, and careful records were taken of the CCS levels and weight of cane taken off each block. For comparison, three blocks of Q200 cane that had received just the standard fertiliser were harvested and measured. Likewise, two blocks for the Q183 cane. These blocks were of the same area as the treatment blocks – totalling three hectares.

"The overall average for the 3ha showed a 13% increase in yield over the standard fertiliser blocks, with a slight increase in CCS levels," Brian said.



"The three replication measurements for the treatment and standard trials in the Q200 cane made possible an analysis for statistical significance of the increase in yield.

"The Q200 cane with the microbe application yielded 15% more than the standard fertiliser and running the figures through a T test showed this to be of very high significance. CCS levels were both good, at over 15."

Brian reported that the Q200 plant cane average for the three comparison blocks receiving standard fertiliser was 95t cane/ha. The average for the same variety receiving just 75% the nitrogen fertiliser, but benefiting from the microbe association, was 110t cane/ha.

Mapleton Agri Biotec says that a T test showing the possibility of this being a random chance result was just 0.18%.

Brian says he was pleased with the results and that he would now like to expand the trial area.

"This trial showed that by getting a good microbial inoculation in a cane crop, costs can be saved and yields increased in an environmentally friendly way," he said. ■