

Basecutter sensor is 'like being on automatic pilot'

By Nick Kennedy

A new basecutter height control system is helping to improve the performance of sugarcane harvesters and ensure stools are in good condition to enable a good start for the next season's crop.

Ultra-sonic sensors and control instrumentation are fitted to existing sugarcane harvesters and are operating in this season's harvest in trials being held in Isis, Mackay, Ingham and northern New South Wales.

Brian Robotham, of SCAN Consulting, is assisting gps-Ag to introduce this technology in Australia. The ultra-sonic height control system was developed by Norac, a Canadian company with a proven track record in ultrasonic spray boom height controllers and weighing systems.

"The logic of the system is that the row profile at the basecutter is similar to the row profile at the rear of the harvester and the system continuously updates for variations in row profile measures at the rear sensors," he said.

"The system is able to maintain a pre-determined cutting height while harvesting a crop row. It is one less task for the harvester operator to worry about.

"Growers receive a more uniform cutting height of cane resulting in less stool damage and fewer plant stools removed, hence longer, more productive ratoon crops and better pickup of lodged cane.



The front sensor is well protected by the crop dividers that move forward and down as they are lowered for harvesting.

"As a result, there is more cane taken to the mill and less soil in harvested cane with a higher CCS received for the harvested crop. Harvesting contractors have reduced operating costs and achieved higher cutting rates."

Mr Robotham said soil contamination was a major problem for the sugar industry. Cutting at 50 mm below the soil surface results in 'tillage' of about 750 tonnes of soil per hectare.

"The 'tilling' of this soil greatly increases the wear rate of basecutter blades. Soil also causes wear throughout the entire harvester from basecutter blades, feed rollers, choppers, conveyor, extractor fan blades and extractor hoods," he said.

Under wet conditions, soil with the cane can cause mud build-up on rollers and in the extractor, which reduce harvesting rates. Soil with the cane also increases wear throughout the milling train. It makes extracting the sugar more difficult as soil is another impurity to be removed during this process. At the end of the milling process, there is the added cost of transporting and spreading the mill mud back onto the fields.

"There are incorrect perceptions in the industry that cane cut below the soil surface will ratoon better. Even a small butt or stub left in the field does not cost the grower significantly in lost sugar," said Mr Robotham.

The basecutter is located directly below the harvester operator's seat.



The rear sensor is mounted behind the wheel which allows reading of the 'undisturbed row' and hence is not influenced by rear wheel sinkage.



Brian Robotham gets some feedback from Isis Cane Services harvesting operator Pat Halpin on the basecutter height control.

Some operators have a good 'feel' for the cutting heights while others sometimes experience sub-standard results. Adjusting basecutter height is an additional task for the harvester operator that can have a significant effect of the quality of the harvest job and the next year's ratoon crop.

As the row profile varies within the row or within a block, the Norac system continually 'updates' the theoretical row profile based on the data from the three rear sensors and adjusts the basecutter height to suit.

Mr Robotham said the system compliments having auto-steer in the harvester as it frees the operator to concentrate on other more critical tasks while knowing they are consistently



Data from the base cutter height control can be viewed in the harvester in conjunction with GPS information.

achieving the best tracking of the crop row.

Isis Cane Services harvesting operator Pat Halpin thought the system would be fantastic once final settings are determined.

"It's like being on automatic pilot having the basecutter sensor as well as GPS," he said.

"The harvesting can be done quicker because it's doing a better job, getting more cane and less soil."

Mr Robotham said the feedback from harvester operators has been essential to 'tune' the basecutter height control system to suit Australian conditions. Several units are also in operation with US Sugar in Florida and these results are being used to fast-track the commercialisation of the ultra-sonic basecutter control system.

Results indicate the system has a role in improving the quality of sugar produced and ensuring the harvester operator can consistently produce the best cutting job in fields with varying row profiles. ■



The basecutter height control ensures less soil in harvested cane and less dust during harvesting.

Hand cane cutting champions

The 2009 Australian Hand Cane Cutting Championship is on at the Donnelly's farm at Dalbeg on Sunday, 20 September. Join in festivities such as tug-of-war, cut, top and load relay, a celebrity event, great food and entertainment throughout the day. For more information contact Shirley Donnelly on 07 4784 0147. ■



Pictured is hand cutting of green cane at Sarina in the 1930s. The man at right is the late Percy Kerr, father of former CANEGROWERS Communications Manager Bill Kerr.

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