May 2023

MPUMALANGA EXTENSION MATTERS

Komatipoort
MARIUS ADENDORFF
Komatipoort Mill, Squamans Farm,
+27 (0)83 655 5011
marius.adendorff@sugar.org.za

Malelane
JAN ERASMUS
MCGA Building, Mhlati Farm
+27 (0)66 114 0656
jan.erasmus@sugar.org.za

P&D
KARLIEN TRÜMPELMANN
Lowveld LPD&VCC Office, Mhlati Farm
+27 (0)83 335 3846
karlien.trumpelmann@sugar.org.za

Preliminary findings on pithing in the Malelane area with a focus on N53

Worldwide, pithiness in sugarcane has not been widely researched.

According to the literature, two types of pithing occur:

- Central core pithiness. The type that can be present throughout the stalk (and that was regularly seen in N53 early this season).
- A type of pithiness generally associated with flowering. This type starts near the top of the stalk and spreads downwards (island pithiness).

The specific type of pithiness observed in N53 is thought to be related to factors such as:

- Periods of waterlogged conditions caused by the very high February rainfall.
- Very fast internode elongation in response to good growing conditions, then compounded by the impact of loadshedding on irrigation cycles especially during the dry autumn months (March and April).
- Excess plant fertilisation.

The occurrence and impacts of pithiness as a result of flowering are expected to become visible soon. It could be that this type of pithiness is already displaying in the N23 delivery results.

Initial surveys generally focussed on compiling a ranking of the various degrees of pithiness observed. The idea was to link the ranking to internode density so that a model for a practical infield pithiness screening test could be developed. The hypothesis was that a high degree of pithiness would cause the affected internodes to be less dense so that they would float in water or a saline solution and that measures to mitigate the probable impact on cane quality could then be determined on-farm. This did not prove to be the case because it was found that pithing did not impact the density of the internodes sufficiently to develop an infield screening test.

It was found that the degree of pithiness of an internode could range from spongy, fibrous plant tissue to as wide as a 7mm piping. The degree of piping per internode could vary between 3mm and 7mm throughout the whole stalk.

Notwithstanding the lack of a practical screening test as a base for on-farm decision-making regarding the degree of pithing, there are other results (from a 10 month crop of N53 with an average of 3.45mm wide piping along the length of the stalk) which point to factors which should be considered to avoid delivering a field below the 78% purity threshold:

Date	Test	Moisture		Brix	Purity	RV%
11/5/2023	CTS	71.21		17.02	90.48	13.78
11/5/2023	PurEst	70.5	Top	19.8	87.6	12.2
			Middle	21.2		
			Bottom	20.8		
04/5/2023	PurEst	68.8	Top	23.03	89.9	13.5
			Middle	22.97		
			Bottom	22.8		

Together with actual delivery results at Malelane Mill (so far >2400 tons of N53 tested <78% purity), the above results suggest that currently, a young, millable standing crop (of N53 in this case), with pithing, should be tested with the PurEst App when determining the harvest schedule for the farm. Should the test indicate that a younger crop suffering from pithing is mature, it may be wise to deliver the field earlier than planned (while the cane quality is still high), rather than aging the crop further and running the risk of quality deteriorattion (due to pithing) to levels below the 78% purity threshold at the Mill.

There is a high risk that the same will happen to cane suffering from pithing associated with flowering.

Superficially, the thinking is that the pithing interferes with the transport of water from the roots to the canopy of the plant. The plant can cope with the situation up to a point whereafter the build up of stalk moisture results in an increase in the brix and dilutes the purity to below threshold. However, this still needs to be confirmed.

Acknowledgements:

Tania Cronje (RCL Malelane Cane Supply)

Futhi Msimango (RCL Agronomist)

David Harris (CTS Manager Malelane)

Dwain de Witt (MIS Manager)