The Cane Grower

The Newsletter of the South African Cane Growers' Association
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Improving profits!

By T Funke and AB Gabriel—Industrial Affairs Division

A recent Mill Group Board (MGB) workshop facilitated by CANEGROWERS emphasised the importance of ensuring the accuracy of crop estimates as many important decisions are based on its accuracy. For example, at the grower level, good estimates will facilitate planning of daily rateable deliveries to the mill. At the industry level, the crop estimate is used to calculate the quantity of sugar that is available for sale to export markets. Export marketing requires that the quantum of available sugar for export, is known well in advance in order to secure sales to premium markets at the best possible prices, thereby ensuring maximum returns for the industry. In other words, hedging price risks.

Inaccurate crop estimates could lead to the industry being over-committed and unable to fulfil export obligations that are based on optimistic forecasts. Under-estimation of the crop would have the opposite effect and could cause the industry to carry-over sugar that might have been marketed if earlier estimates were more accurate. Inaccurate estimates are costly and ultimately affect the monthly RV price that is declared during the course of the season.

The risks associated with an over estimation of the crop became apparent during the past season, largely due to the impact of the drought. At the start of the season the RV Price estimate of R2 480.76 was based on a crop estimate of 19.122 million tons of cane and 2.25 million tons of sugar. At that stage it was estimated that there would be 671 706 tons of sugar available for export marketing.

The final figures for the 2010/11 showed an RV price of R2 574.12, a cane crop of 16 015 649 tons and sugar production of 1.909 million tons. The final cane crop was 3.107 million tons below the initial crop estimate and sugar production dropped by 331 790 tons. As a result the sugar industry had over-committed on the export market resulting in the importation of sugar in order to meet those export obligations at a significant cost to the industry.

It can be argued that the impact and effect of the drought were unknown and underestimated. However, climatic factors are a main driver in crop estimating and this eventuality should have been included in the estimates.

This article highlights some of the tools and resources that growers at grower's disposal to help improve the accuracy of crop estimates.

It is important to quantify the impact that the climate has had on your own production. The following climatic factors are the main drivers that impact your cane yields:

- Temperature (optimum for germination 32-38°C but growth between 25-34°C)
- Solar radiation (good growth at 18 – 36 MJ/m^2)

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Challenges facing collective farming units

By CL Mthembu—Regional Economic Advisor : South Coast

The sharing of common bulk infrastructure, such as the main river pump, affords Mpumalanga small scale growers to be one of the most organized and productive collective Farmers Association (FA) in the sugar industry. This collective is basically made up of individual farmers who have cane delivery agreements (CDA) with the mill as well as an individual right to occupy (RTO) from the tribal authority. This FA is governed by an Executive Committee which manages its institutional affairs including, amongst others, the maintenance of the bulk infrastructure and payment of Electricity bills to Eskom.

The projected 29% increase in electricity tariffs announced by Eskom earlier this year will negatively affect all cane growers but especially those in FA's where there are a number of abandoned fields. The irrigation design and size of the bulk infrastructure matches the size of the area under cane (AUC) for that particular FA which are also known as irrigation projects.

In a case where there is an abandoned field, the other growers in the project pick up the additional costs of the abandoned field, i.e. maintenance and electricity. The average size of land in this sector is 7 ha.

Table 1: CDA area *vs* area delivered last season 2010/11

	Malelane	Komati
Area under cane (CDA)	2 582.90	6 060.40
Ha delivered (2010/11)	1 558.80	5 133.20
Variance	1 024.10	927.20
2010/11 Season tons cane	99 129.80	341 119.00
2009/10 Season tons cane	100 445.06	309 935.24
2010/11 Eskom	3 641 509.00	8 909 208.73
30% Eskom hike	4 733 961.70	11 581 971.35

Table 1 shows the original area as per CDA and the actual area delivered the previous season. As can be seen from the table, the tonnage in Malelane has decreased thereby putting the remaining project growers in a difficult position.

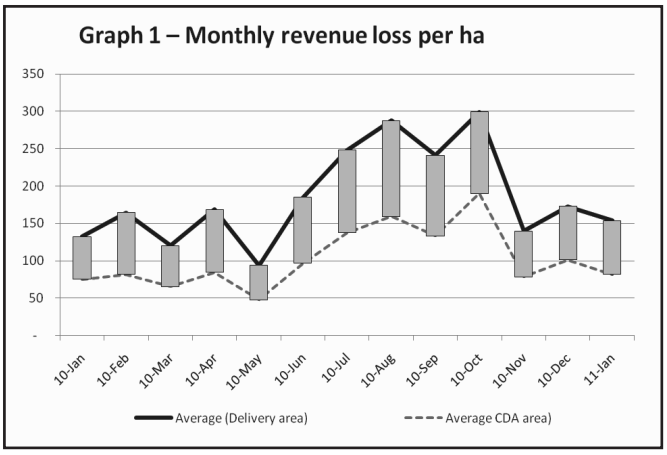
The variance in both examples are mainly due to abandoned fields which are often left idle for reasons ranging from family disputes, deceased estates, drainage and wetlands problems to growers with negative credit listings resulting in failure to raise operational credit.

A comparison of the amount paid per ha (delivered) for electricity as to what should have been paid if all the AUC (CDA) delivered, shows a significant shortfall for the remaining project growers as can be seen in Table 2. This shows a combined area total of R5 202 146 of additional revenue due by remaining project for electricity charges on the abandoned farms (1 951ha).

Table 2: Monetary differences (Malelane and Komati) – (Rands/ha)

	Malelane	Komati
Total Eskom bill *vs* ha delivered	2 336	1 736
Projected increase *vs* ha delivered 2010/11 season	3 037	2 256
Eskom bill *vs* CDA area	1 410	1 470
Projected increase *vs* CDA area	1 833	1 911
Difference	926	266
Projected loss in revenue to Eskom	3 110 117	2 092 029
Average t/ha for the area	63.59	66.45

Electricity costs have a big impact in the irrigated areas and the remaining growers will have to pick up the additional costs which equates to an average of approximately 7ha per grower. The graph below shows the loss in revenue/ha/month.



Stakeholders have put much effort into replanting abandoned fields in an effort to alleviate the additional burden placed on remaining growers in the project. This process involved a lot of social dynamics and the role played by social facilitators in assisting the growers and emphasizing the importance of revitalizing the abandoned fields, is acknowledged. ●

NIRS: Near or far?

By CG Gillitt—Regional Manager: North Coast

The sugar industry has been investigating the application of Near-infrared spectroscopy (NIRS) technology for Direct Analysis of Cane (DAC). NIRS is a spectroscopic method that uses the near-infrared region of the electromagnetic spectrum (from about 800 nm to 2500 nm). Currently there are two potential NIRS applications under investigation, NIRS for DAC as well as NIRS for factory streams. The former technique is being researched by Cane Testing Services (CTS) and the latter is being investigated by the Sugar Milling Research Institute (SMRI). Both use a similar technique for application of NIRS, but the basis for testing is different (DAC versus sugar factory process streams).

NIRS technology for the analysis of shredded cane samples has been selected by the South African sugar industry as a viable option that can significantly decrease the operating costs of cane testing while increasing cane consignment testing frequencies. The NIRS technique involves the estimation of pol, Brix, moisture, fibre and RV by using NIRS spectra readings for cane samples. It is a secondary method meaning that it relies on a primary (or reference) measurement in order to calibrate the NIRS measurements. The readings are calibrated through the establishment of equations determined by statistical correlation of NIRS values with values determined by the conventional laboratory reference methods (or primary methods). Provided that the correct protocols are followed in developing the NIRS calibration equations, NIRS predictions (secondary method) can achieve good precision that is comparable to the laboratory (primary) tolerances. For NIRS to be an acceptable alternative to the primary method, it is critical that NIRS closely replicates the primary method.

So are we near or far to implementing a NIRS DAC system? There are further testing requirements to be finalised as well as a debate on certain legal aspects surrounding the use of the process. When finished, a more specific timeframe can be estimated.

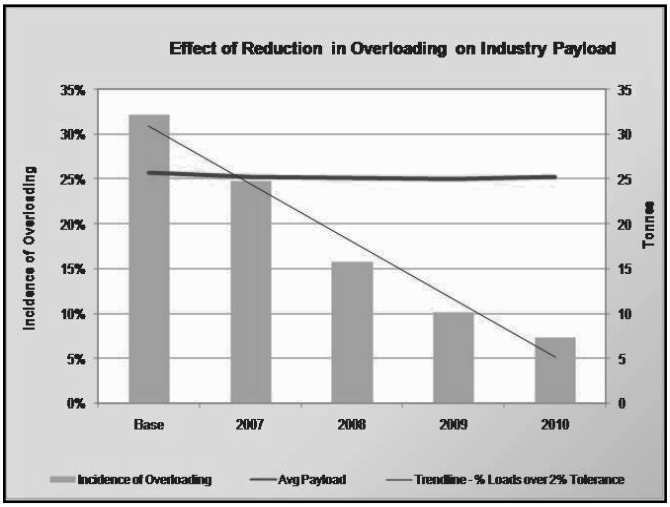
The cost-benefit outcome for NIRS implementation is dependent on how it is positioned in the cane preparation process. The best outcome estimated by CTS is for the system to be positioned at the DAC sample point. Recent projections show an average payback period of 1.3 years and annual (permanent) savings projected at over R10 million (industry wide). This choice of positioning would be reliant on the outcome of the BSES license consideration. Alternative installation points may not be subject to the BSES patent, but their cost-benefit scenarios are less favourable. If the system is installed within the CTS laboratory, the payback period extends to 2.1 years and the savings are reduced to a level slightly over R4 million, which is still attractive, but much less so compared with the DAC sample point option. Alternatively NIRS could be applied with core sampling at the weighbridge. This system has been extensively researched and remains a possible option for the industry, however this cost-benefit scenario is the least attractive option. The latest projections show an average payback period of 10.3 years and annual permanent savings a just over R4 million.

In conclusion, NIRS technology will bring significant savings to the industry and increased cane testing frequencies. The implementation date remains uncertain (due to resolution of patent licensing issues) but **could** possibly begin as early as next season (although the deciding factors are outside of our control). The provision of testing facilities at each mill is the responsibility of the respective Mill Group Boards (MGB) and the potential implementation costs should be considered by MGBs in order to make provision for the capital outlay. ●

Thanks to Seelan Naidoo, CTS General Manager, for providing reference material for this article.

Road Transport Management System

Sugarcane hauliers and the Sugar Industry Road Transport Management System (RTMS) Steering Committee have been congratulated by the KZN Department of Transport for having achieved a 25% decrease in overloading during the past four years. The RTMS has demonstrated that 20 million tonnes of cane can be transported safely with minimal impact on the road network through a process of self-regulation. Future focus will be on making sure that this is not coming at a cost to growers through under-loading—so sign up with the latest management tool called Inform Me Too (www.in4me2.com) to ensure that you get real time information to manage your cane loading effectively. ●



Source: KZN Department of Transport Annual Report 2010/11

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- Rainfall or irrigation applied (1100-1500mm p/a with correct distribution)
- High relative humidity levels (80-85% during the growth period and 40-65% during ripening)
- The timing and occurrence of all of the above

The occurrence of these factors makes the task of crop estimating complex as these factors are constantly changing throughout the season and so too should each grower's estimate. In order to do this accurately growers should make use of data and other information on a regular basis. The information that needs to be accessed in order to put forward accurate estimates includes:

- Climatic information, historical, current and forecasts.
- Field records determining historical tonnage, area and yield.
- Soil types and their water holding capacity (TAM).
- Proposed cutting cycle for all fields comprising areas to be harvested and their expected age and yield.

At a local level the first resource growers have at their disposal is their local extension officer who has access to sophisticated simulation models and will also be able to provide growers with reliable information, such as long term weather forecasts. They are also well trained in compiling a detailed cutting cycle schedules. In addition to the local extension officers, the internet also offers a wealth of information that can provide growers with accurate and timely weather updates and forecasts.

The actual process of determining a cutting cycle and ultimately an estimate requires an assessment of the yield for the standing crop, which should be done in March of every season. Good estimates can be made by calculating the stalk population (number of stalks per metre x length of row per hectare) then multiplying this by the average mass of selected "average sized" stalks.

In order to complete the seasons estimate the additional growth that accrues between March and actual harvest also needs to be taken into account. This is done in conjunction with a grower's cutting cycle and growth increment tables, which account for various levels of expected productivity.

All fields are added together to give the farm estimate. Progressive cane estimates are required each month from March through to September/October where the yields from fields harvested should be recorded alongside the estimated yields. If actual yields are consistently above or below the initial estimates then the estimates of those fields still to be harvested need to be adjusted accordingly. Adjustments to grower estimates are usually bound by certain Mill Group Board rules, which vary between areas. However, by the time the final estimate is called for in September/October, the remaining fields should be able to be estimated relatively accurately.

Various other agricultural industries are using satellite imagery to determine yields and potential crop volumes for coming seasons. Until such information is available in the South African sugar industry, growers will still be required to submit individual estimates.

Poor cane estimates can have negative effects on growers' profit because season lengths are often extended or the milling season is skewed off the peak sucrose period reducing the growers' average RV/ton of cane delivered.

As noted earlier, poor crop estimating also impacts on the export sales of sugar and the marketing thereof, which in turn has an impact on the RV price. It is therefore in the interest of all cane producing farmers to strive towards providing the industry with more accurate estimates. ●

Price of Recoverable Value (RV) in Cane

APRIL 2011 RV PRICE FOR 2011/12 SEASON

The Sugar Association has declared the April 2011 RV price for cane delivered in **March 2011**:

RV PRICE: R2 842.95 per ton of RV
"d" factor 0.370537

The price is based on a crop of **16 537 011** tons of cane which converts to **1 932 350** tons of sugar at a cane to sugar ratio of **8.56.** The average RV content is **12.33%.**

EXTENSION LEVY

The average regional levy (excl. VAT) payable by participating growers for Extension Services for cane delivered during the 2011/12 season is:

R0.73 per ton of cane

Briefly…

Farewell…

Carol Mkhize, a bookkeeper in CaneFarms left CANEGROWERS at the end of April to relocate to Johannesburg.

Welcome…

Tshepo Pilusa joined CANEGROWERS as Research Economist on 1 May 2011 based in Head Office.

Lee Grobler joined CANEGROWERS on a contract basis as a bookkeeper in the CaneFarms Division. ●