RSAgri
Sourcing for Millers

To: **The Maize Trust**
Administrator

Attention: Mr Leon du Plessis

From: Colin Wootton

30 March 2008

Dear Leon,

Re: ARC Milling Index Project M 102/10 – Initial Report

In order to get some background on this project I attended the Maize Quality Meeting in Potch on the 14 February and have had two further discussions with the management and project leaders from the ARC. I have also met with Luther Pretorius. Unfortunately, I have been unsuccessful in meeting with the plant breeders, in this case Monsanto, and so have been unable to canvass any views that they may have on this project.

Findings
The project progress was seriously affected with the resignation of the original Project Manager, Apie Pretorius in 2005. New appointments had to be made and I understand much time and energy was spent in firstly recovering the previous work and then becoming familiar with the content. This was probably the biggest set back to the project. I have not been able to establish whether this early work has since been properly recorded and documented in a way that, should any of the current team depart, it will be a relatively simple task for others to take over. The same is true for the new work that has been completed so far by the existing team. However, I believe this may be an internal ARC housekeeping issue and not within my terms of reference.

Possibly as a result of the above there seems to have been a lack of confidence within the ARC to support their work in the face of challenges from other role players and to maintain focus and momentum on the project. The project has experienced delays while these issues have been reviewed. In addition, the project brief has been allowed to grow and, while covering interesting aspects to the roll players, did not originally form part of the project brief. Here I refer to tests such as bulk density, kernel mass, breakage susceptibility, fat, protein, etc. Also, large sample sizes have been suggested for completing some of the work, which have since been shown to be unnecessary.
There was also a time when the samples analysed were only from newly registered cultivars and did not reflect the commercial situation. Direction needed to be altered with some delays in gathering information.

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However, in considering the current position I am encouraged that the project is going in the right direction. We must ensure that the Milling Index remains the main focus over the next 12 months but it does seem that all the necessary requirements are in place for the work to be completed.

Recommendations

The main objective is to establish whether it is possible to have a Milling Index Value (MI) that can be used to assess the potential milling value of a variety but which could also give valuable information to breeders in the development of new cultivars.

To establish this I believe the following is required.

- Refine the NIT calibration
- Confirm the correlation and repeatability of the Milling Index values

Refining the NIT calibration is ongoing, as is the continued gathering of information on the commercially available cultivars. These should not end with the completion of this specific project, unless it is established that a reliable MI value is not possible.

More data is required to complete the above and the following is in place to achieve this.

- 37 commercially available white maize cultivars planted over 3 localities and 3 plots per locality, will be available as soon as these are ready for harvesting sometime after May. These will all have been sub pollinated ensuring that each variety is absolutely pure.
- In addition, these varieties have been duplicated over the same localities but in this case open pollination has been allowed, thereby not ensuring the purity of the cultivar. If a good correlation is found with the pure varieties then it will make future sampling much easier and could cover a broader range of samples.

In support of the MI values it has been requested that these values be compared to a commercial milling process. The following is in place to achieve this.

- 5 commercially available cultivars have been planted at a single location in Bothaville and are open pollinated. When harvested the 5 groups will be sent to a commercial mill and separately milled under controlled conditions. Samples of whole maize and also of milled product will be taken from each of the 5 tests and forwarded to the ARC who will perform the standard MI values using the NIT apparatus and Roff milling system to establish whether a correlation exists.

In addition to the three main focus areas above, the whiteness index and kernel size tests will continue as these are already forming part of the MIG booklet. Also bulk density and breakage susceptibility tests will be conducted on the samples available. These latter tests are not really necessary to achieve the stated objectives and while I am very aware

of the risk of losing focus I have established that little additional effort is required to gather this information and so I believe these should be included in the scope of work.

In a mentorship capacity I would now see my functions as follows.

- Ensure that focus and momentum is maintained around the project objectives.
- Monitor the critical path functions making up the project objectives and ensure that inter dependent functions are coordinated. Assist the ARC in communicating these activities amongst the role players.
- Impart any milling knowledge prior to and during the commercial tests in Kroonstad and also on the Roff Milling System.
- Liaise with various role players to obtain information and keep everyone updated on a more regular basis to ensure that any concerns are addressed and, if required, that these be incorporated into the project programme.
- Together with the ARC monitor the data as this becomes available to assess whether objectives are being met.

Cost

The cost for the duration of the 12 month project is R48,000.00 excluding VAT. This will be effective from the 1 April 2008 and covers all related expenses.

The initial investigation is outside of the above amount and will be invoiced separately. Estimated currently at R8,000.00 excluding VAT

I trust that this is in order but if there is any additional information required, which you feel is important to present to the members, then please feel free to contact me.

Yours Sincerely

Colin Wootton