SOUTH AFRICAN
COMMERCIAL MAIZE QUALITY
2013/2014

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* **The Maize Trust for financial support in conducting this survey.**
* **The Grain Silo Industry and its members for providing the samples to make this survey possible.**

1. Introduction

During the harvesting season (April to August), a representative sample of each delivery of maize at the various silos was taken according to the prescribed grading regulations. The sampling procedure for the samples used in this survey is described on page 84. A total of 930 composite samples, proportionally representing white and yellow maize of each production region, were received and analysed for quality. The samples consisted of 451 white and 479 yellow maize samples.

The quality attributes which were tested for, include:
a. RSA grading: All samples were graded according to the following factors, as defined in the South African grading regulation: defective kernels above and below 6.35 mm sieve, total defective kernels, foreign matter, other colour, total deviation and pinked kernels.
b. USA grading according to regulations on all samples to determine the following factors: Grain density expressed as Hectolitre mass, heat damaged, total damaged, broken corn and foreign matter (BCFM) and other colour.
c. Nutritional values (on all samples): Crude protein, crude fat and starch.
d. Physical Quality factors (on all samples): Hectolitre mass, 100 kernel mass, kernel size, breakage susceptibility, stress cracks and milling index.
e. All white maize samples were milled on the Roff laboratory mill and the whiteness index of the maize meal determined.
f. Mycotoxin analyses were performed on 350 samples representative of white and yellow maize produced per region.
g. Testing for the presence of Genetically Modified (GM) maize were performed on 100 samples representative of white and yellow maize produced per region.
Please refer to the methodologies followed on pages 84 - 88.

The maize crop quality survey is performed annually by the Southern African Grain Laboratory NPC (SAGL). SAGL was established in 1997 on request of the Grain Industry. SAGL is an ISO 17025 accredited testing laboratory and participates in one national and sixteen international proficiency testing schemes as part of our ongoing quality assurance procedures to demonstrate technical competency and international comparability.

The results are available on the SAGL website (www.sagl.co.za). The hard copy reports are posted to all the Directly Affected Groups and interested parties. The report is also available for download in a PDF format from the website.

In addition to the quality information, production figures (obtained from the Crop Estimates Committee (CEC)) relating to hectares planted, tons produced and yields obtained on a national as well as provincial basis, over an eleven season period, are provided in this report. SAGIS (South African Grain Information Service) supply and demand information over several years is provided in table and graph format. The national grading regulations as published in the Government Gazette of 8 May 2009, are also included.

The goal of this crop quality survey is to accumulate quality data on the commercial maize crop on a national level. This valuable data reveal general tendencies, highlight quality differences in the commercial maize produced in different local production regions and provide important information on the quality of commercial maize intended for export (if any).

The Maize Trust investment in the annual Crop Quality Surveys, has created a unique and extremely useful database of crop quality measurements over several seasons and regions. Up to now, the data has only been presented in table and graph format, but has never been used for trend analyses or to assist in the development of prediction models such as the Milling Index Model.

In order to address this issue, SAGL undertook a data mining project, titled "Data Mining of past eleven