

# SOUTH AFRICAN

## COMMERCIAL MAIZE QUALITY

2006/2007

### Acknowledgments

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### Introduction

The calculated final commercial crop figure for maize for the 2006/2007 season by the National Crop Estimates Committee was 7 125 000 tons. This is 7,7 % higher than the previous season's 6 618 000 tons. The average production from 1996/97 to 2005/06 was 8,63 million tons. The major maize-producing region was the Free State (2 787 000 tons), followed by Mpumalanga (1 441 500 tons) and the North West (1 271 500 tons). White maize contributed 60 % to the total production, which is 2 % less than the previous year.

900 composite samples, proportionally representing white and yellow maize of each production region, were analysed for quality. All samples were graded according to RSA and USA grading regulations. 100 kernel mass, kernel size, breakage susceptibility, stress cracks, milling index, fat, protein and starch were determined on all samples. Roff milling and whiteness index were done on white maize samples. Mycotoxin analyses as well as testing for GM maize were performed on 90 samples representative of white and yellow maize produced per region.

The 900 samples analysed consisted of 563 white maize samples and 337 yellow maize samples. Of the 563 white maize samples analysed, 81 % were WM1, 12 % WM2, 7 % WM3 and only four samples were of the Class Other Maize white. Of the 337 yellow maize samples analysed, 78 % were YM1, 18 % YM2, 2 % YM3 and eight samples were of the Class Other Maize yellow.

The maize crop quality survey is annually done by the Southern African Grain Laboratory (SAGL).

### Crop quality

This crop was of good quality and 80 % of the crop graded as maize grade 1. Smaller size kernels were distinctive of this crop. The defective deviation that occurred the most above the 6,35 mm sieve, was discolouration that exceeds the normal browning at the connection tip, this is caused by water damage.

The kernel size were markedly smaller than previous seasons and the 100 kernel mass averaged 28,9 g (4,0 g lower than the previous season). The average hectolitre mass was 77,5 kg/hl (75,9 kg/hl during 2005/2006).

The average percentage of total defective kernels of 5,1 % was lower than the previous season's 7,8 %.

The average fat content was 3,7 % (db), average starch content 73,0 % (db) and average protein 9,4 % (db). The average fat content were lower than the ten year average of 4,0 % (db), the average protein content were 0,5 % higher than the ten year average. The average starch content increased from 71,2 % (db) the previous season to 73,0 % (db).

The average milling index was 98,3 about 7 higher than the previous season's 90,8. This indicate slightly better extraction even with the smaller kernels.

Very little visual fungi such as *Fusarium sp.* and *Diplodia sp.* were present and the mycotoxin levels averaged lower than in previous seasons.

Ninety-seven percent of the samples tested positive for MON 810 (Bt maize event) and fifty-nine percent positive for NK 603 (RUR).