

## Main maize producing provinces ~ comparison of results

The quality of the maize produced in the three main maize production provinces, namely the Free State (regions 21 to 28), Mpumalanga (regions 29 to 33) and North West (regions 12 to 20) are compared below, the values provided are all weighted averages.

Average test weights expressed in kilogram per hectoliter for white maize, were 75.9 kg/hl in North West, 76.0 kg/hl in the Free State and 77.1 kg/hl in Mpumalanga. Yellow maize varied from 75.3 kg/hl in the Free State to 76.4 kg/hl in North West and 76.9 kg/hl in Mpumalanga. The white maize 100 kernel mass values ranged from 34.8 g in Mpumalanga to 36.4 g in the Free State, North West averaged 35.0 g. Yellow maize kernels had the highest average 100 kernel mass in Mpumalanga with 32.0 g, followed by 30.5 g in North West and 30.2 g in the Free State.

Kernel sizes are indicated by the fraction (percentage) of sample larger than a 10 mm sieve as well as the percentages larger and smaller than an 8 mm sieve. The largest white kernel size with regards to the percentage of kernels larger than a 10 mm sieve, was found in the Free State (31.1%), followed by North West (25.9%). Mpumalanga had the smallest white kernel sizes (16.8%) on average. Mpumalanga had the largest yellow maize kernels, averaging 8.4% kernels larger than the 10 mm sieve, followed by North West with 7.8% and the Free State with 7.6%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 1.0% for both white and yellow maize passing through the 6.35 mm sieve. North West averaged 1.1% and 1.3% for white and yellow maize respectively and the Free State 1.3% and 1.9% for white and yellow maize respectively. The percentage stress cracks on white maize did not vary much and ranged from 7% in North West to 8% in both the Free State and Mpumalanga. On yellow maize these averages varied between 6% in Mpumalanga, 7% in North West and 9% in the Free State.

The percentage total defective kernels, is the sum of the defective kernels that remained above the 6.35 mm sieve and the defective kernels which passed through the 6.35 mm sieve. Defective kernels include amongst others, mouldy, discoloured, insect damaged and small kernels that can pass through the 6.35 mm round hole sieve. The averages for white maize in the production regions of these three provinces ranged from 4.8% in North West, 5.1% in Mpumalanga and 5.6% in the Free State. The highest percentage total defective kernels on yellow maize (5.2%) was found in the Free State, followed by Mpumalanga with 4.7% and North West with 4.5%. Please see page 102 for the definition of Defective maize kernels as quoted from the Grading Regulations.

The average milling index on white and yellow maize (yellow maize in brackets) was as follows: Mpumalanga averaged 75 (74), North West 70 (79) and the Free State 69 (69). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (77.5%), followed by North West (76.7%) and the Free State with 76.6%.

The meal obtained from the white maize in North West gave an average whiteness index of 41.8 (unsifted) and 38.6 (sifted). The Free State gave an average of 41.0 (unsifted) and 37.3 (sifted) while Mpumalanga averaged 37.9 (unsifted) and 33.8 (sifted).

The nutritional component analyses namely crude fat, crude protein, crude fibre and total starch compared well between the three provinces and reported values within narrow ranges. The Free State and Mpumalanga both averaged 4.0% fat on white maize, North West averaged 4.1%. The average fat content on yellow maize was 3.9% in the Free State and 4.0% for both North West and Mpumalanga. The lowest average protein content on white maize was found in North West (8.0%) and the Free State (8.2%), while Mpumalanga averaged 8.4%. The protein content on yellow maize was 8.4% in the Free State, to 8.7% in North West and 8.9% in Mpumalanga. Crude fibre on white maize averaged 2.1% in all three of these provinces. Crude fibre on yellow maize reported 2.2% for both the Free State and Mpumalanga with 2.1% in North West. North West had the highest average starch content on white maize, namely 75.3%, followed closely by the Free State with 75.2% and Mpumalanga with 74.5%. The yellow maize starch content ranged from 73.4% in Mpumalanga, to 74.0% in the Free State and 74.1% in North West. These values are all reported on a dry basis.