

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, ranged between 74.8 in North West, 76.3 in the Free State and 76.7 in Mpumalanga. Yellow maize varied from 75.4 kg/hl in the Free State to 76.3 kg/hl in North West and 76.8 kg/hl in Mpumalanga. The white maize 100 kernel mass values ranged from 32.2 g in North West to 34.8 g in Mpumalanga, the Free State averaged 33.5 g. Yellow maize kernels had the highest average 100 kernel mass in Mpumalanga with 32.5 g, followed by 29.0 g in North West and 28.8 g in the Free State.

Kernel sizes are indicated by the percentage of sample above a 10 mm sieve as well as the percentages above and below a 8 mm sieve. The largest white kernel size with regards to the percentage of kernels above the 10 mm sieve, was found in the Free State (24.6%), followed by North West (23.0%). Mpumalanga had the smallest white kernel sizes (19.9%) on average. Mpumalanga however had the largest yellow maize kernels, averaging 9.3% kernels above the 10 mm sieve, followed by North West with 6.6% and the Free State with 5.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.6% for both white and yellow maize passing through the 6.35 mm sieve. North West averaged 0.9% and 1.0% for white and yellow maize respectively and the Free State averaged 0.8% and 0.9% for white and yellow maize respectively. The percentage stress cracks on white maize ranged from 11% in Mpumalanga to 12% in the Free State and 13% in North West. Stress cracks on yellow maize varied between 11% in Mpumalanga, 12% in North West and 14% in the Free State. These values are slightly lower than those of the previous two seasons when the highest percentages of the last 21 seasons for which stress crack results are available, were reported.

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 production regions in all three of these provinces averaged 5.1% for white maize. The highest percentage total defective kernels on yellow maize (4.8%) was found in the Free State, followed by North West with 4.0% and Mpumalanga with 3.7%. Please see page 103 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 77 (77), the Free State 70 (74) and North West 69 (82). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from the Free State (78.0%), followed by Mpumalanga (77.7%) and North West with 77.1%.

The meal obtained from the white maize in North West gave an average whiteness index of 39.2 (unsifted) and 30.0 (sifted). The Free State gave an average of 37.3 (unsifted) and 27.2 (sifted) and Mpumalanga 32.6 (unsifted) and 23.3 (sifted).

The nutritional component analyses namely crude fat, crude protein, crude fibre and total starch compared well between the three provinces. All three averaged 4.0% fat on white maize. The average fat content on yellow maize ranged from 3.9% in the Free State to 4.0% in North West and 4.1% in Mpumalanga. The lowest average protein content on white maize was found in North West and the Free State, both with 8.0%, Mpumalanga averaged 8.6%. The protein content on yellow maize varied from 8.5% in the Free State to 8.6% in North West and 8.9% in Mpumalanga. Crude fibre on white and yellow maize and in all three of these provinces, averaged 2.3%. North West had the highest average starch content on white maize, namely 75.8%, followed closely by the Free State with 75.7% and Mpumalanga with 75.2%. The yellow maize starch content ranged from a low of 74.3% in Mpumalanga to a high of 75.2% in North West. The Free State averaged 74.8%. These values are all reported on a dry basis.