

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, 75.3 in the Free State and 76.8 in Mpumalanga. Yellow maize varied from 75.1 kg/hl in the Free State to 76.2 kg/hl in Mpumalanga and 77.2 kg/hl in North West. The white maize 100 kernel mass values ranged from 32.6 g in Mpumalanga to 35.6 g in North West, the Free State averaged 35.1 g. Yellow maize kernels had the highest average 100 kernel mass in North West with 30.8 g, followed by 29.7 g in Mpumalanga and 29.2 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 North West (30.6%), closely followed by the Free State (30.5%). Mpumalanga had the smallest white kernel sizes (18.8%) on average. Mpumalanga however had the largest yellow maize kernels, averaging 10.4% kernels above the 10 mm sieve, followed by North West with 8.0% and the Free State with 6.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.9% for both white and yellow maize passing through the 6.35 mm sieve. North West averaged 1.1% for both white and yellow maize and the Free State averaged 1.2% also for both white and yellow maize. The percentage stress cracks on white maize ranged from 13% in Mpumalanga to 17% in North West and the Free State. Stress cracks on yellow maize varied between 12% in Mpumalanga, 13% in North West and 16% in the Free State. These values are very close to that of the previous season when the highest percentages of the last 20 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. White maize averages ranged from a low of 5.6% in Mpumalanga to a high of 13.0% in the Free State. North West averaged 9.9%. The highest percentage total defective kernels on yellow maize (10.4%) was found in the Free State, followed by North West with 5.9% and Mpumalanga with 5.0%. 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 77 (78), the Free State 72 (73) and North West 70 (81). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (76.8%), followed by North West with 76.0% and the Free State with 75.9%.

The meal obtained from the white maize in North West gave an average whiteness index of 33.6 (unsifted) and 23.4 (sifted). The Free State had an average of 31.7 (unsifted) and 22.3 (sifted) and Mpumalanga 30.5 (unsifted) and 19.6 (sifted).

The nutritional component analyses namely crude fat, crude protein, crude fibre and total starch compared well between the three provinces. North West and the Free State both averaged 4.1% fat on white maize, Mpumalanga averaged 3.9%. The average fat content of yellow maize ranged from 3.9% in both Mpumalanga and the Free State to 4.0% in North West. The lowest average protein content on white maize was found in North West with 8.1%, the Free State averaged 8.4% and Mpumalanga 8.8%. The protein content of yellow maize varied from 8.5% in North West to 9.1% in Mpumalanga and 9.2% in the Free State. Crude fibre on white maize averaged 1.9% in all three of these provinces. In yellow maize, both North West and Mpumalanga averaged 1.9%, the Free State averaged 2.0%. North West had the highest average starch content on white maize, namely 73.4%, followed by the Free State and Mpumalanga both with 73.2%. The yellow maize starch content ranged from a low of 71.8% in the Free State to a high of 73.0% in North West. Mpumalanga averaged 72.2%. These values are all reported on a dry basis.