

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 75.4 in the Free State, 75.6 in North West and 76.9 in Mpumalanga. Yellow maize varied from 76.0 kg/hl in North West to 76.7 kg/hl in both Mpumalanga and the Free State. The white maize 100 kernel mass values ranged from 32.3 g in Mpumalanga to 34.1 g in the Free State, North West averaged 33.5 g. Yellow maize kernels had the highest average 100 kernel mass in the Free State with 30.7 g, followed by 29.7 g in Mpumalanga and 29.2 g in North West.

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 (31.2%), followed by North West with 26.0%. Mpumalanga had the smallest white kernel sizes (18.5%) on average. Mpumalanga however had the largest yellow maize kernels, averaging 9.3% kernels above the 10 mm sieve, followed by the Free State with 7.7% and North West with 6.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.8% of white maize and 0.7% of yellow maize passing through the 6.35 mm sieve. North West averaged 1.9% for both white and yellow maize, while the Free State averaged 2.1% and 0.9% for white and yellow maize respectively. The percentage stress cracks on white maize ranged from 13% in Mpumalanga, to 17% in North West and 19% in the Free State. Stress cracks on yellow maize varied between 13% in both Mpumalanga and the Free State to 16% in North West. These are the highest percentages of the last 19 seasons for which stress crack results are available.

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 4.6% in Mpumalanga to a high of 12.7% in the Free State. North West averaged 8.2%. The highest percentage total defective kernels (8.1%) on yellow maize was found in North West, followed by the Free State with 5.7% and Mpumalanga with 4.3%. Please see page 97 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: North West averaged 80.5 (83.2), Mpumalanga 79.0 (78.1) and the Free State 75.0 (79.9). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (76.2%), followed by the Free state with 76.0% and North West with 75.7%.

The meal obtained from the white maize in the Free State gave an average whiteness index of 31.2 (unsifted) and 21.2 (sifted). North West had an average of 30.3 (unsifted) and 20.5 (sifted) and Mpumalanga 28.7 (unsifted) and 18.8 (sifted). Results were similar to that of last season.

The nutritional component analyses namely fat, protein, starch and crude fibre compared well between the three provinces. The Free State and Mpumalanga both averaged 3.9% fat on white maize, North West averaged 4.1%. The average fat content of yellow maize ranged from 4.0% in both Mpumalanga and the Free State to 4.1% in North West. The lowest average protein content on white maize was found in the Free State and Mpumalanga (8.9%), North West averaged 9.1%. The protein content of yellow maize varied from 9.2% in Mpumalanga to 9.4% in North West and 9.5% in the Free State. The Free State had the highest average starch content on white maize, namely 73.7%, followed by the Mpumalanga with 73.6% and North West with 73.5%. The yellow maize starch content ranged from a low of 72.4% in the Free State to a high of 72.7% in North West. Mpumalanga averaged 72.5%. Crude fibre averages on white maize varied from 1.9% in North West to 2.0% in the Free State and 2.2% in Mpumalanga. All three provinces averaged 2.0% for crude fibre on yellow maize. These values are all reported on a dry basis.