

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 figures provided are all weighted averages.

Average test weights expressed in kilogram per hectoliter for white maize, varied from 76.6 in North West to 77.4 in both Mpumalanga and the Free State. Yellow maize ranged between 76.2 kg/hl in the Free State to 77.1 kg/hl in Mpumalanga. The white maize 100 kernel mass values ranged from 33.9 g in Mpumalanga to 34.7 g in the Free State, North West averaged 34.0 g. Yellow maize kernels had the highest average 100 kernel mass in Mpumalanga with 31.3 g, followed by 30.6 g in the Free State and 30.3 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 percentage of kernels above the 10 mm sieve, was found in North West (29.5%), in the previous season, North West had the smallest kernel size. The Free State followed closely with 28.8% and the smallest kernel sizes on average was found in Mpumalanga, namely 19.6%. Yellow maize kernels in North West was found to be the largest (as with white maize), averaging 11.9%, followed by Mpumalanga with 11.5% and the Free State with 10.6%.

Little variation was observed with regards to breakage susceptibility between the provinces. North West and the Free State, both with 1.1% had the highest percentage of white maize passing through the 6.35 mm sieve, Mpumalanga averaged 0.9%. Yellow maize varied from 0.9% in Mpumalanga, to 1.0% in North West and 1.1% in the Free State. This indicates that the maize in the Mpumalanga was slightly less susceptible to breakage. The percentage stress cracks on white maize ranged from 9% in Mpumalanga, to 11% in the Free State and 12% in North West. Stress cracks on yellow maize varied from 8% in Mpumalanga to 12% in the Free State, North West averaged 11%. These percentages are slightly higher than in previous seasons.

The percentage total defective kernels, is the sum total 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 3.9% in Mpumalanga to a high of 6.0% in North West. The Free State averaged 5.7%. The highest percentage total defective kernels on yellow maize was found in the Free State (5.7%), followed by North West with 5.5% and Mpumalanga with 3.7%. Please see page 91 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 80.3 (78.7), the Free State 77.3 (76.6) and North West 76.4 (84.7). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (79.3%), followed by North West with 79.0% and the Free State with 78.8%.

The meal obtained from the white maize in North West gave an average whiteness index of 31.0 (unsifted) and 20.2 (sifted). The Free State had an average of 29.5 (unsifted) and 19.0 (sifted) and Mpumalanga 28.9 (unsifted) and 18.4 (sifted). All averages were higher than last season, indicating slightly whiter meal this season.

The nutritional component analyses namely fat, protein and 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 4.0% in Mpumalanga to 4.1% for both North West and the Free State (as with white maize). The lowest average protein content on white maize was found in North West (8.6%), the Free State and Mpumalanga both averaged 8.8%. The protein content of yellow maize varied from 9.0% in North West to 9.1% in Mpumalanga and 9.2% in the Free State. North West had the highest average starch content on white maize of 73.4%, followed by the Free State and Mpumalanga both with 72.9%. The yellow maize starch content ranged from a low of 71.4% in the Free State to 71.9% in Mpumalanga and 72.0% in North West. These values are all reported on a dry basis.