

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 76.8 in North West to 78.2 in the Free State. Yellow maize ranged between 76.3 kg/hl in Mpumalanga to 77.1 kg/hl in North West. The white maize 100 kernel mass values ranged from 32.8 g in North West to 35.9 g in Mpumalanga, the Free State averaged 35.4 g. The yellow maize kernels followed the same trend with 31.1 g in North West, 32.5 g in the Free State and 34.3 g in Mpumalanga.

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 the Free State (27.2%), as in the previous season. North West had the smallest kernel sizes namely 18.5%, Mpumalanga averaged 20.6%. Yellow maize kernels in Mpumalanga was found to be the largest on average 13.4%, followed by the Free State with 11.4% and North West with 10.3%.

Little variation was observed with regards to breakage susceptibility and especially stress cracks between the provinces. North West, with 1.4% had the highest percentage of white maize passing through the 6.35 mm sieve, followed by the Free State and Mpumalanga with 1.2% and 0.8% respectively. Yellow maize again followed the same trend with 1.6% in North West and the Free State and Mpumalanga following with 1.2% and 1.1%. This indicates that the maize in the North West was slightly more susceptible to breakage. The percentage stress cracks on white maize varied from 9% in North West, to 7% in the Free State and 6% in Mpumalanga. Stress cracks on yellow maize ranged from 7% in Mpumalanga to 9% in North West. These percentages again showed the same trend as on white maize. These percentages are slightly higher than in the previous season.

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 3.8% in the Free State to a high of 5.4% in North West. Mpumalanga averaged 4.1%. The highest percentage total defective kernels on yellow maize was found in North West (4.9%), followed by the Free State with 4.3% and Mpumalanga with 2.9%. Please see page 92 for the definition of Defective maize kernels as quoted from the Grading Regulations.

The average milling index on white and yellow maize was as follows: Mpumalanga averaged 81.1 (76.5), the Free State 80.8 (73.8) and North West 76.2 (84.4). The values in brackets are the yellow maize averages. The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from North West (78.7%), followed by the Free State with 78.6% and Mpumalanga with 78.3%.

The meal obtained from the white maize in North West gave an average whiteness index of 26.7 (unsifted) and 19.4 (sifted). The Free State had an average of 26.6 (unsifted) and 18.4 (sifted) and Mpumalanga 23.1 (unsifted) and 14.1 (sifted). All averages were lower than last season, indicating slightly less white meal this season. Factors that can influence meal whiteness such as the presence of defective kernels and other colour maize were however comparable to the previous season.

The nutritional component analyses namely fat, protein and starch compared well between the three provinces. North West and Mpumalanga both averaged 4.2% fat on white maize, The Free State averaged 4.1%. The average fat content of yellow maize ranged from 4.0% in North West to 4.2% in Mpumalanga. The lowest average protein content on white maize was found in North West (8.4%), Mpumalanga had the highest average of 8.9%, the Free State averaged 8.7%. North West and the Free State both averaged 8.9% protein on yellow maize, Mpumalanga averaged 9.0%. North West had the highest average starch content on white maize of 74.4%, closely followed by the Free State with 74.2% and Mpumalanga with 73.7%. The yellow maize starch content ranged from a low of 73.4% in Mpumalanga to 73.6% in the Free State and 74.2% in North West. These values are all reported on a dry basis.