

3.1 Main production regions – summary of results

The quality of the maize produced in the three main maize production regions (North West, Free State and Mpumalanga) compared quite well overall. The figures given below are all weighted averages.

North West had the highest hectolitre mass of 78.1 kg/hl, followed by the Free State with 77.3 kg/hl and Mpumalanga with 76.4 kg/hl. North West also had the highest 100 kernel mass of 30.5 g. The Free State had the lowest 100 kernel mass of 29.6 g.

The percentage stress cracks observed in the three regions compared very well, with the Free State and North West averaging 6% and Mpumalanga 5%. North West and Mpumalanga had the same percentage of maize passing through the 6.35 mm sieve with the breakage susceptibility test namely 1.0%, which was only 0.1% lower than that of the Free State.

The Free State had the highest percentage of kernels above the 10 mm sieve (16.1%) and North West the lowest (15.6%). Mpumalanga had the lowest percentage total defective kernels of 3.3%, followed by the Free State with 5.0% and North West with 5.1%. This trend was also seen in the previous season.

The average milling index in Mpumalanga was 84.8, 92.4 in the Free State and 97.0 in North West. Mpumalanga also had the lowest percentage total extraction on the Roff laboratory mill, namely 78.3%. The Free State had the highest with 79.7%, with North West slightly lower on 79.4%.

The meal obtained from the white maize in North West gave an average whiteness index of 27.5 (unsifted) and 23.0 (sifted). The Free State had an average of 29.4 (unsifted) and 25.6 (sifted) and Mpumalanga 29.2 (unsifted) and 22.0 (sifted).

In general there were no significant differences in the nutritional components. North West had the highest fat content of 4.1%, followed by the Free State with 4.0% and Mpumalanga with 3.8%. The protein content ranged from 8.7% (Free State) to 8.9% (North West), Mpumalanga averaged 8.8%. North West and the Free State had starch contents of 72.5% and 72.8% respectively. Mpumalanga had the highest starch content of 73.0%.

4. Imported Maize

A total of 38 imported maize samples were received for the season 1 May 2011 to 30 April 2012. Sixteen of the samples originated from Romania and twenty-two from the Ukraine. The quality of the imported maize is compared to the quality of South African maize from the corresponding period.

The imported maize had on average lower hectolitre mass than the local maize, 74.1 kg/hl for Romania and 72.7 kg/hl for Ukraine, compared to 76.2 kg/hl locally. Romania had an average 100 kernel mass of 32.6 g compared to the 29.9 g of the Ukraine and 31.9 g of South Africa.

The percentage stress cracks observed on imported maize is significantly higher (35% and 66%) than that of local maize (5%). Breakage susceptibility, as can be expected, showed the same trend. The imported maize kernels were on average smaller than locally produced maize.

South African maize had on average lower protein and fat contents than imported maize, 7.8% and 3.6% compared to 8.3% and 3.8% of Romanian maize and 8.4% and 4.2% of Ukrainian maize. South African maize had the highest average starch content of 74.2%, compared to the 72.5% of the Ukraine and 73.1% of Romania.

Mycotoxin and GMO analyses were done on four composite samples comprising maize from Romania and seven comprising maize from the Ukraine. None of the imported composite samples tested positive for Aflatoxin or Ochratoxin A. The same can be said for the 28 local yellow maize samples tested. The Fumonisin B₁ levels on the imported maize were lower than that of the local maize. Ukrainian maize had the lowest Fumonisin B₁ level. Deoxynivalenol levels on the Romanian, Ukrainian and South African maize compared well.

All of the composite samples gave GM levels lower than the limit of quantification for both the Cry1Ab and CP4 EPSPS traits. South African yellow maize on average tested positive for both of these traits.

As from 1 May 2012 to date, no import maize samples have been received for analysis.

The quality results of the imported maize are given on pages 65 and 66.