

Maize quality (Summary)

Overall

The white maize graded slightly better than the yellow maize and had an average hectolitre mass of 78,1 kg/hl while the yellow maize averaged 76,4 kg/hl. White maize had bigger kernels than the yellow maize.

Yellow maize had a slightly lower fat content (3,5 % (db)) than white maize (3,9 % (db)), while the starch content in yellow maize (73,3 % (db)) were slightly higher than in white maize (72,9 % (db)). The average protein content in white maize was 9,3 % (db) and in yellow maize 9,5 % (db).

Main production regions

The maize quality of the three main maize producing provinces differed in some aspects.

Free State

This province produced 40 % of all the commercial maize in South Africa, of which 67 % was white maize and 33 % yellow maize.

The weighted average percentage total defective kernels for the Free State was 4,4 %. North West averaged 7,2 % and Mpumalanga 3,9 %.

The maize produced in the Free State averaged a hectolitre mass of 77,9 kg/hl. (North West 77,5 kg/hl and Mpumalanga 76,3 kg/hl.) The white maize in the Free State averaged 78,4 kg/hl and the yellow maize 76,0 kg/hl.

The 100 kernel mass for the Free State averaged 29,2 g, with the white maize averaging 30,1 g and the yellow maize 27,0 g. (Mpumalanga and North West averaged 27,0 g and 29,0 g respectively.)

This province had the “largest” kernel size with an average of 14,9 % of the maize having kernels > 10mm. (Mpumalanga was 12,8 % and North West 14,2 %.)

Stress cracks were the lowest in the Free State (2,7 %), then the North West with 3,1 %, and Mpumalanga had 3,8 %.

The average milling index in the Free State

was 98,3 %, 101,4 % in North West and 94,5 % in Mpumalanga.

Mpumalanga

This province produced 21 % of the total commercial maize production in South Africa, of which 49 % was white maize and 51 % yellow maize.

In all three provinces white maize averaged about 3 g higher 100 kernel mass than yellow maize, while the hectolitre mass of white maize averaged about 2 kg/hl higher than yellow maize.

The maize kernels produced in Mpumalanga had an average breakage susceptibility of 1,9 g passing through the 6,35 mm sieve while the Free State and Mpumalanga had averages of 1,5 g and 1,9 g respectively passing through the 6,35 mm sieve.

All three provinces gave an average fat content between 3,5 % and 3,9 %. The starch content in these three regions averaged between 72,5 % to 73,3 %.

Mpumalanga had the lowest incidence of both Fumonisin and Deoxynivalenol.

North West

This province produced 18 % of all the commercial maize grown in South Africa, of which 83 % was white maize and 17 % yellow maize.

The average defective kernels for North West above the 6,35 mm sieve averaged the highest with 5,1 %, the Free State followed with 2,1 % and Mpumalanga with 1,9 %. The average defective kernels below the 6.35 mm sieve for all three regions were more or less the same.

The North West gave the highest average protein of 9,7 % (db), followed by the Free State (9,4 %) and Mpumalanga (9,3 %).

The white maize from North West gave the highest average whiteness index of 20,4 (sifted 87:13). (The Free State had an average of 21,1 and Mpumalanga 19,2).

North West had the highest incidence of Fumonisin while Free State had the highest incidence of Deoxynivalenol.