Crop quality of the 2013/2014 season

The percentages of samples having protein contents in the intervals 10.0 – 10.9%, 11.0 - 11.9% and 12.0 - 12.9% were very similar, resulting in a flattened normal curve compared to previous seasons. The Winter rainfall areas again reported the lowest average whole wheat protein, namely 10.7%. The Free State areas reported the highest average protein content (12.7%) followed by the 12.0% of the Irrigation areas. The protein content is reported on a 12% moisture basis. Whole wheat protein content is on average 0.5 to 1.2% higher than that of flour. The protein loss can be attributed to the removal of the bran and aleuron layer as well as the germ during milling. Please refer to Graphs 10 and 11 on the next page for the protein content distribution over seasons and between production areas.

The average hectolitre mass of 79.5 kg/hl, although 1.8 kg/hl lower than the previous season was still well above the minimum of 77 kg/hl required for Grade 1 wheat. In total 41 samples reported values below 77 kg/hl, of these 56% was from the Western Cape (Winter rainfall area) and 32% from the Free State. The regional averages ranged from 78.6 kg/hl in the Winter rainfall area to 80.9 kg/hl in the Irrigation areas.

The weighted average thousand kernel mass decreased with almost 1 g from the previous season to 39.3 g. The weighted average screenings (1.8 mm sieve) of 1.58% was similar to previous seasons.

The weighted average falling number was 337 seconds, the lowest the past eleven seasons. 6% of the samples reported falling number values lower than the 220 seconds minimum for Grades 1 to 3.

The weighted mixogram peak time on flour from the Quadromat mill averaged 3.0 minutes, comparing very well with the ten year average (2.9 minutes) as well as previous seasons. The weighted mixogram peak time of the flour from the Bühler mill was 2.8 minutes, equal to the mixing time last season.

Extraction rate is an indication of the flour yield that can be obtained from a given amount of wheat. The extraction rate achievable on industrial scale mills is a number of percentage points higher than on laboratory scale mills due to an increase in roller surface area. For the purpose of this survey composite samples per class and grade per production region are milled and then further analysed for quality. The weighted average Bühler MLU 202 laboratory mill extraction for the 70 composite samples was 73.2%.

The average Kent Jones colour this season was -2.9 KJ equal to that of the previous season. The 2013/2014 survey is the second survey that includes dry colour determinations by means of a Konica Minolta CM-5 spectrophotometer. The CIE L*a*b* values were reported as follows, with the average and range (in brackets) for each of the colour coordinates: L* 93.99 (93.11 – 94.59), a* 0.40 (0.29 – 0.57) and b* 9.50 (8.49 – 10.63). The colour values did not differ significantly from those obtained last season (L* 93.85 (93.14 – 94.39), a* 0.41 (0.26 – 0.54) and b* 9.92 (8.65 – 11.35)). L* represents lightness (100 being white and 0 being black), a* represents green to red variation and b* represents variation from blue to yellow.

Rapid Visco Analyser (RVA) analyses were performed for the first time this season on the composite samples. The average peak viscosity of the samples analysed was 2170 cP (centipoise), the minimum viscosity 1750 cP and the final viscosity 2432 cP (centipoise). The analysis conditions were kept constant during all of the analyses.

The wet gluten (14% mb) averaged 29.5% and the dry gluten also on a 14% moisture basis, 10.4%. These values indicated a good quality gluten if the flour protein content of 10.7% is considered. The average gluten index value was 86, ranging between 50 and 97. The gluten index provides an indication of the gluten strength (higher being better) and is not influenced by the protein content. The average gluten index value last season was 83.

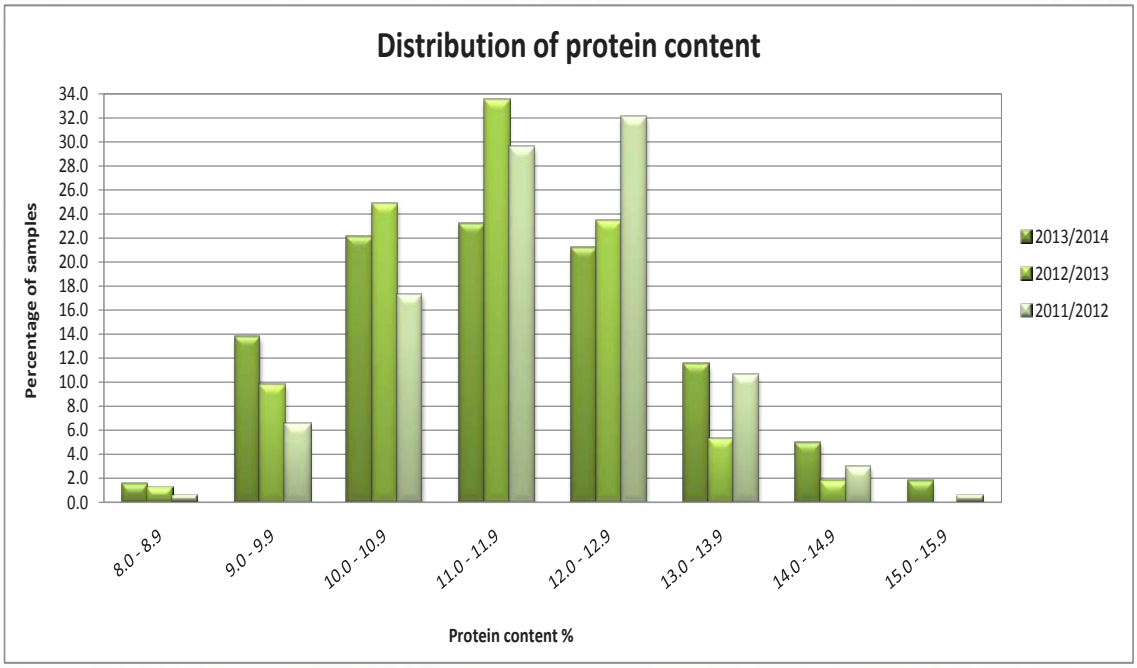
The farinogram had a weighted average water absorption of 60.1% (60.8% the previous season) and a weighted average development time of 5.2 minutes (5.1 minutes previous season). The stability values of 8.0 and 7.9 minutes compared equally well. The weighted average alveogram strength was 37.6 cm^2 and the weighted average P/L value 0.74 (36.7 cm^2 and 0.96 the previous season). The distensibility of the dough reported on the Alveograph was slightly longer during 2013/2014. A combination of this and also a slightly lower stability

value resulted in the observed decrease in P/L value. The weighted average extensogram strength was 92 cm² (84 cm² previous season).

The 100 g loaves baked using the straight-dough optimized bread making method, received an evaluation rated as "Excellent". The basis for this evaluation refers to the relationship between the protein content and the bread volume.

Only one of the forty samples selected to represent different regions as well as classes and grades, tested positive for mycotoxin residues, deoxynivalenol (DON) to be specific with a level of 151 µg/kg.

Graph 10: Differences in the distribution of protein content over the last 3 seasons



Graph 11: Differences in the distribution of protein content between the 3 production areas