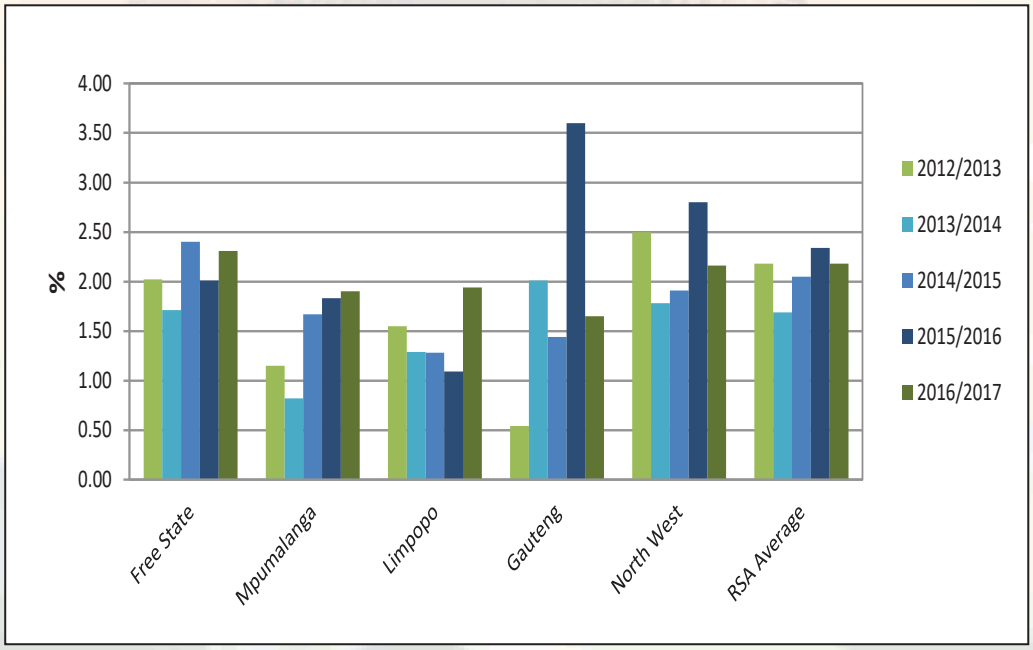
Sunflower Crop Quality 2016/2017 – Summary of results

Eighty five percent (150) of the 176 samples analysed for the purpose of this survey were graded as Grade FH1, with 26 of the samples downgraded to COSF (Class Other Sunflower Seed). The percentage of FH1 samples increased compared to the 78% of the previous season and is similar to the 86% of the 2014/2015 season.

- Five samples were downgraded as a result of a combination of the percentage damaged sunflower seed exceeding the maximum permissible deviation of 10% as well as the presence of an undesired odour.
- Seventeen of the samples were downgraded as a result of the percentage of either the screenings or the collective deviations or a combination of both exceeding the maximum permissible deviations of 4% and 6% respectively.
- Two samples were downgraded as a result of a combination of the foreign matter and collective deviations exceeding the maximum permissible deviations of 4% and 6% respectively.
- The remaining two samples were downgraded as a result of a combination of one or more of the following deviations exceeding the maximum permissible deviation: percentage damaged sunflower seed, percentage sclerotia, percentage collective deviations as well as the presence of an undesired odour.

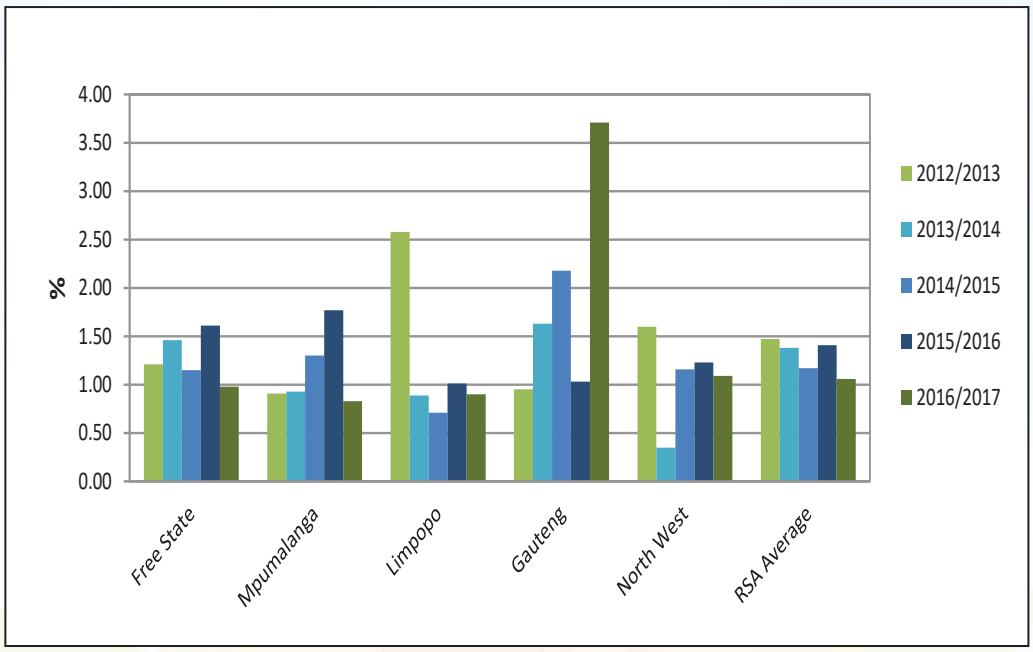
The Free State province (76 samples) reported the highest weighted average percentage screenings namely 2.31%, followed by North West (N = 76) and Limpopo (N = 11) provinces with 2.16% and 1.94% respectively. Gauteng (three samples) reported the lowest average percentage screenings of 1.65%. Last season, Gauteng reported the highest average percentage screenings. The weighted national average was 2.18% compared to the 2.34% of the previous season.

Graph 16: Average percentage screenings per province over five seasons



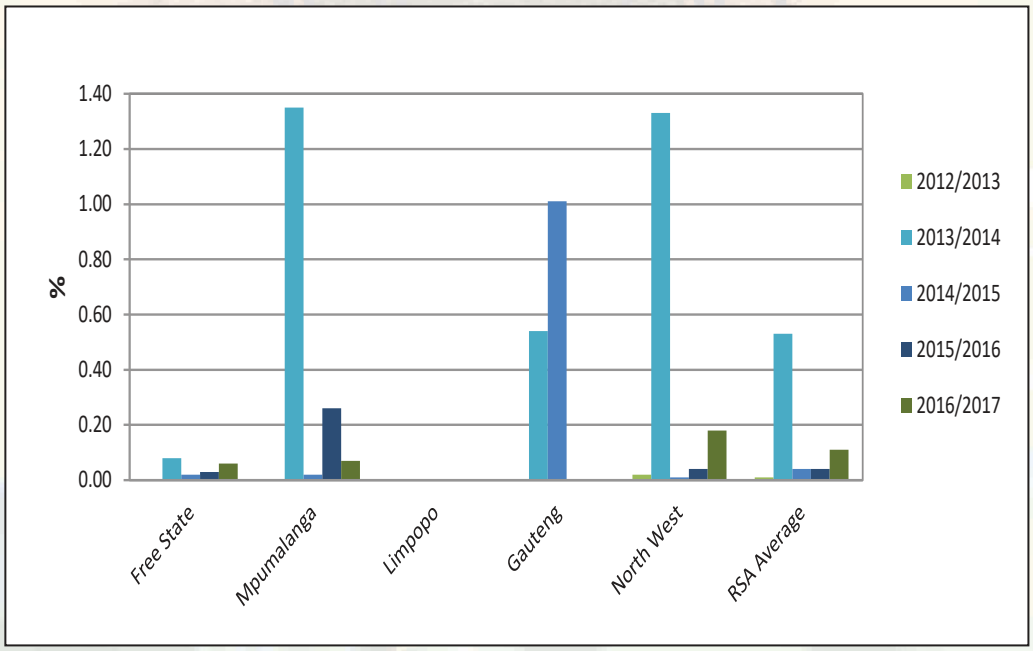
The highest weighted percentage foreign matter (3.71%) was reported on the samples from Gauteng. The Free State and North West provinces averaged 0.98% and 1.09% respectively. The lowest average percentage was found in Mpumalanga, namely 0.83%. The RSA average of 1.06% was the lowest of the five seasons for which the crop quality survey has been conducted.

Graph 17: Average percentage foreign matter per province over five seasons



The number of samples received for this survey that contained sclerotia from the fungus *Sclerotinia sclerotiorum*, increased from 18 samples (10%) in the previous season, to 28 samples (16%) this season. Fourteen of these samples originated in the Free State province, 13 in North West and one in Mpumalanga. The highest percentage (5.52%) was present on a sample from North West, this was the only sample that exceeded the maximum permissible deviation of 4%. Weighted average levels ranged from 0.06% in the Free State to 0.18% in North West. The national average of 0.11% was slightly higher than the 0.04% of the previous two seasons.

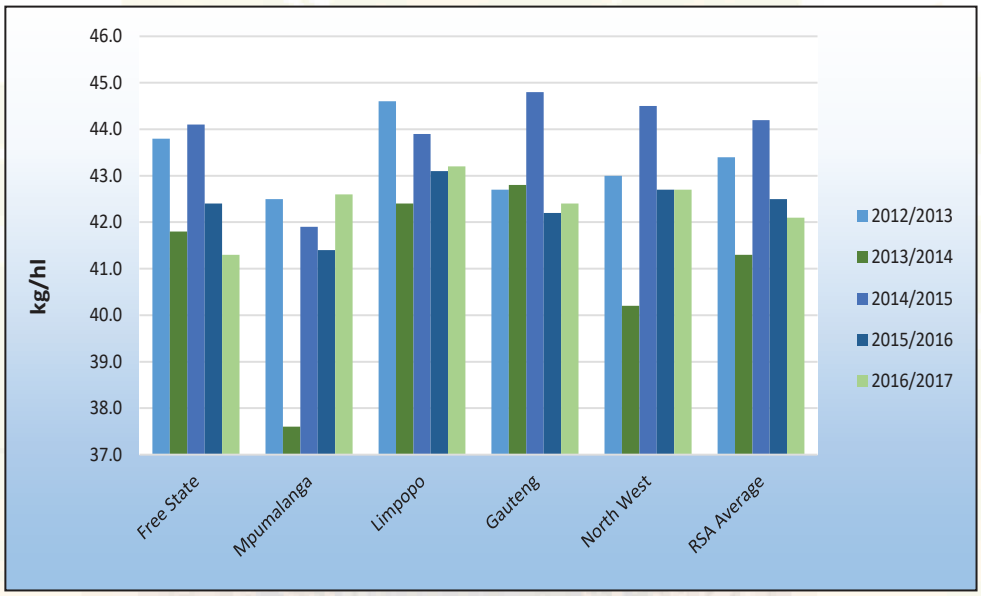
Graph 18: Average percentage sclerotia per province over five seasons



Test weight does not form part of the grading regulations for sunflower seed in South Africa. An approximation of the test weight of South African sunflower seeds is provided in Table 3 for information purposes. The g/1 L filling weight of sunflower seed were determined by means of the Kern 222 apparatus. The test weight was extrapolated by means of the following formulas obtained from the Test Weight Conversion Chart for Sunflower Seed, Oil of the Canadian Grain Commission: $y = 0.1936x + 2.2775$ (138 to 182 g/0.5 L) and $y = 0.1943x + 2.1665$ (183 to 227 g/0.5 L). Please see also Graph 19 for a comparison of the test weight per province over the last five seasons.

Table 3: Approximation of test weight per province over three seasons									
Province	Test weight, kg/hl								
	2016/2017 Season			2015/2016 Season			2014/2015 Season		
	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples
Free State (Regions 21 - 28)	41.3	34.2 - 45.1	76	42.4	36.3 - 48.1	80	44.1	38.9 - 49.9	69
Mpumalanga (Regions 29 - 33)	42.6	35.0 - 42.2	10	41.4	35.0 - 42.2	7	41.9	35.0 - 42.2	8
Limpopo (Region 35)	43.2	40.4 - 45.5	11	43.1	42.7 - 43.8	7	43.9	42.2 - 50.5	8
Gauteng (Region 34)	42.4	41.2 - 43.7	3	42.2	41.7 - 42.8	2	44.8	42.2 - 47.6	5
North West (Region 12 - 20)	42.7	39.1 - 45.1	76	42.7	40.0 - 46.2	80	44.5	34.0 - 48.9	86
RSA	***42.1***	***34.2 - 45.5***	***176***	***42.5***	***35.0 - 48.1***	***176***	***44.2***	***34.0 - 50.5***	***176***

Graph 19: Comparison of the test weight per province over five seasons



The nutritional component analyses, namely crude protein, -fat, -fibre and ash are reported as % (g/100g) on an 'as received' or 'as is' basis. See Table 4 for a summary of the RSA Sunflower Crop Quality averages of the 2016/2017 season compared to those of the 2015/2016 season.

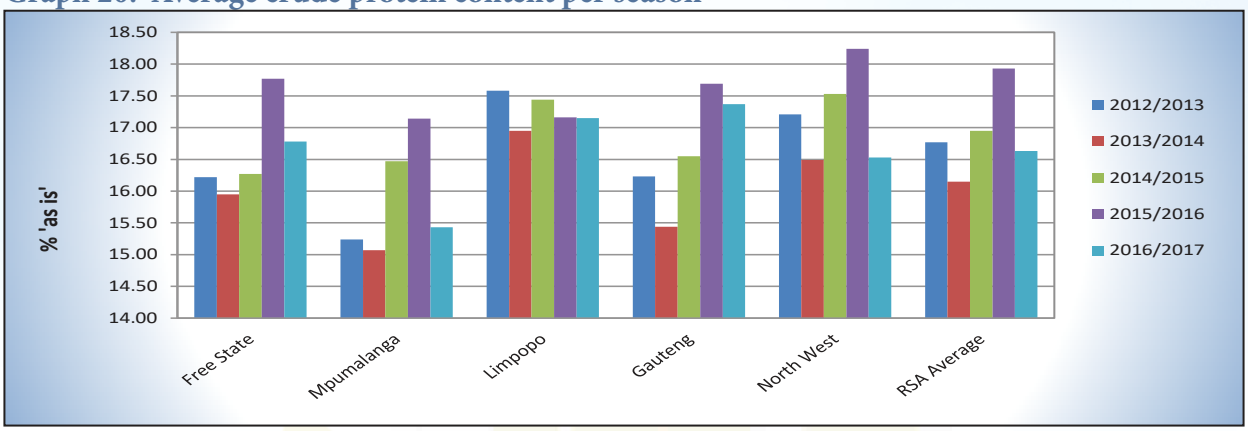
The weighted average crude protein content this season was 16.63%. This average is 1.30% lower than the previous season but equal to the average of the first three seasons of this survey. Gauteng had the highest weighted average crude protein content of 17.37% and Mpumalanga the lowest with 15.43%. Mpumalanga has consistently reported the lowest average protein content over the last five seasons. The Free State's crude protein content averaged 16.78% and that of North West 16.53%. The weighted average crude fat percentage of 38.6% was the second lowest of the last five seasons and 0.4% higher than the previous season. Mpumalanga had the highest weighted average crude fat content of 40.2%. The lowest average fat contents were observed in North West and the Free State with 38.4% and 38.5% respectively.

The weighted average percentage crude fibre is the highest of the five seasons at 21.0%. Average values varied between 19.4% in Gauteng to 21.6% in North West. The weighted average ash content is slightly lower (2.52%) than last season (2.59%). The provincial averages ranged from 2.29% in Mpumalanga to 2.67% in both Limpopo and the Free State.

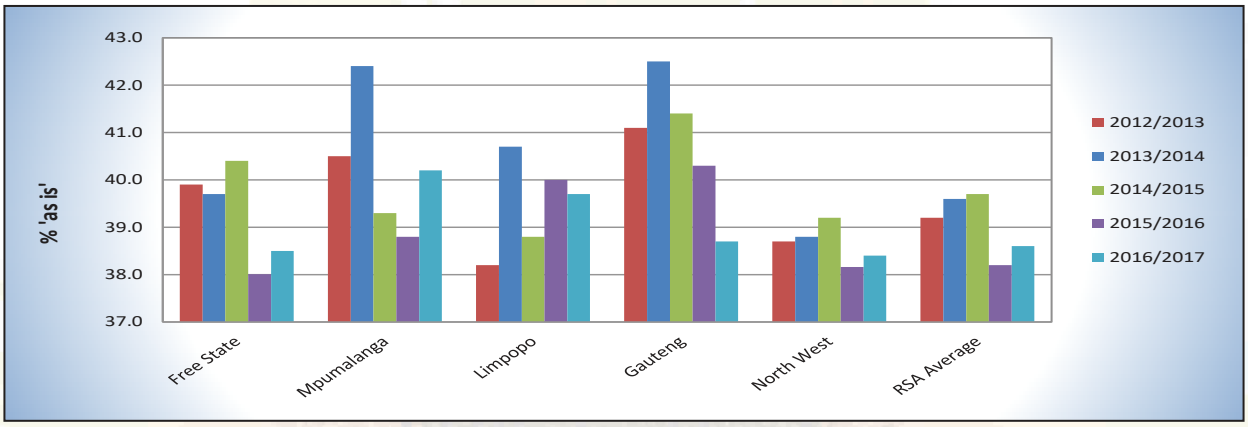
Graphs 20 to 23 on page 18 provide comparisons between provinces for the nutritional components discussed above.

Please also see pages 20 to 26 for the average sunflower quality per region.

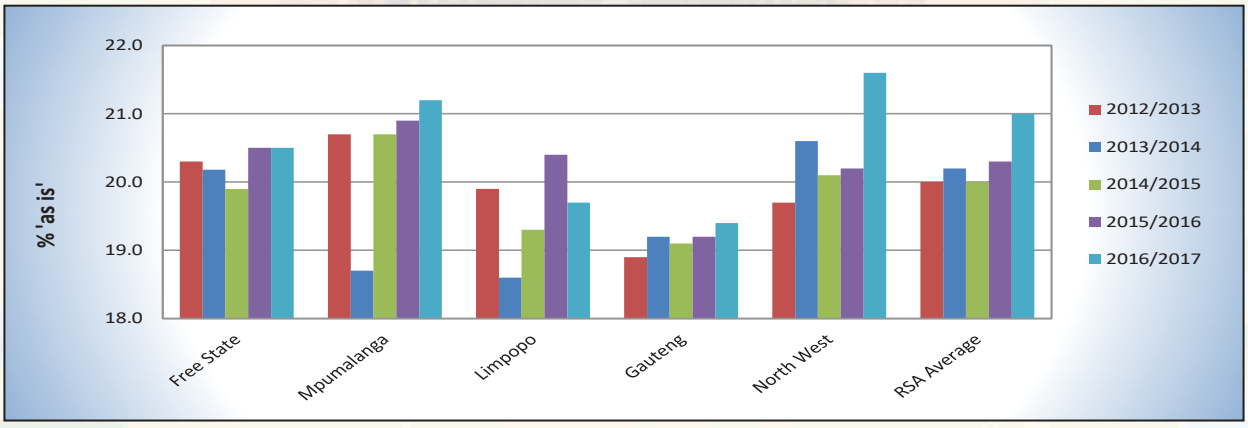
Graph 20: Average crude protein content per season



Graph 21: Average crude fat content per season



Graph 22: Average crude fibre content per season



Graph 23: Average ash content per season