

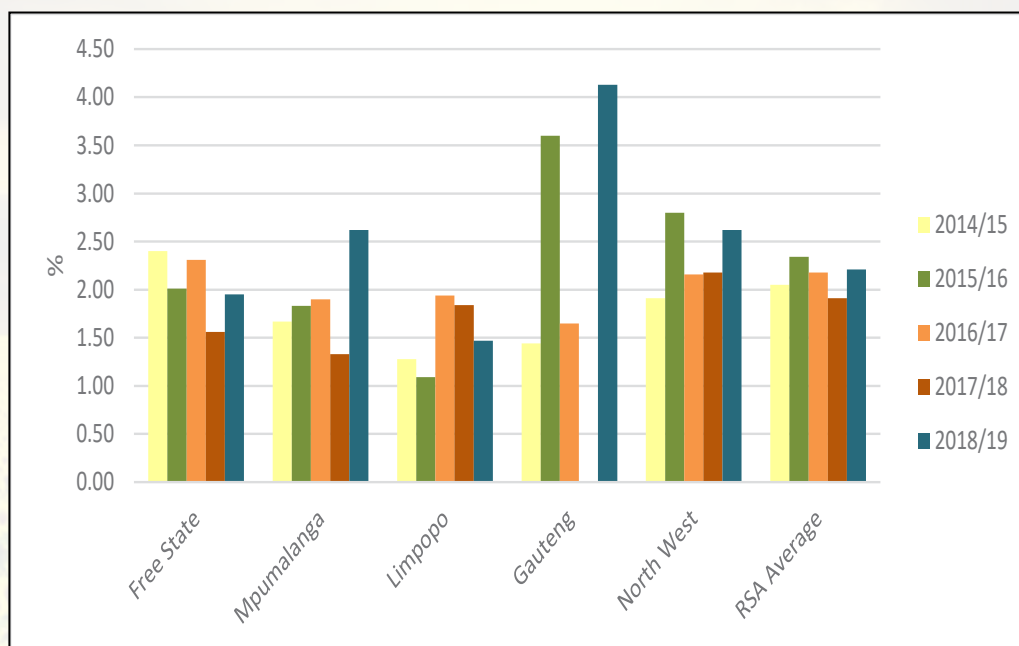
Sunflower Crop Quality 2018/19 – Summary of results

Seventy-six percent (133) of the 176 samples analysed for the purpose of this survey were graded as Grade FH1, with 43 of the samples downgraded to COSF (Class Other Sunflower Seed). The percentage of FH1 samples decreased compared to the 81% of the previous season. In the 2016/17 season, this percentage was 85%.

- Twenty-one 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.
- Four samples were downgraded as a result of both the presence of sclerotia produced by the fungus *Sclerotinia sclerotiorum* and the collective deviations exceeding the maximum permissible deviations, namely 4% and 6% respectively.
- Four samples were downgraded as a result of the presence of poisonous seeds (*Datura spp.*) exceeding the maximum permissible number, namely 1 per 1000 g.
- Three samples were downgraded due to the presence of a musty odour.
- The remaining eleven samples were downgraded as a result of a combination of one or more of the following deviations exceeding the maximum permissible deviation: percentage screenings, percentage foreign matter, percentage collective deviations as well as the presence of poisonous seeds (*Datura spp.*) or an undesired odour.

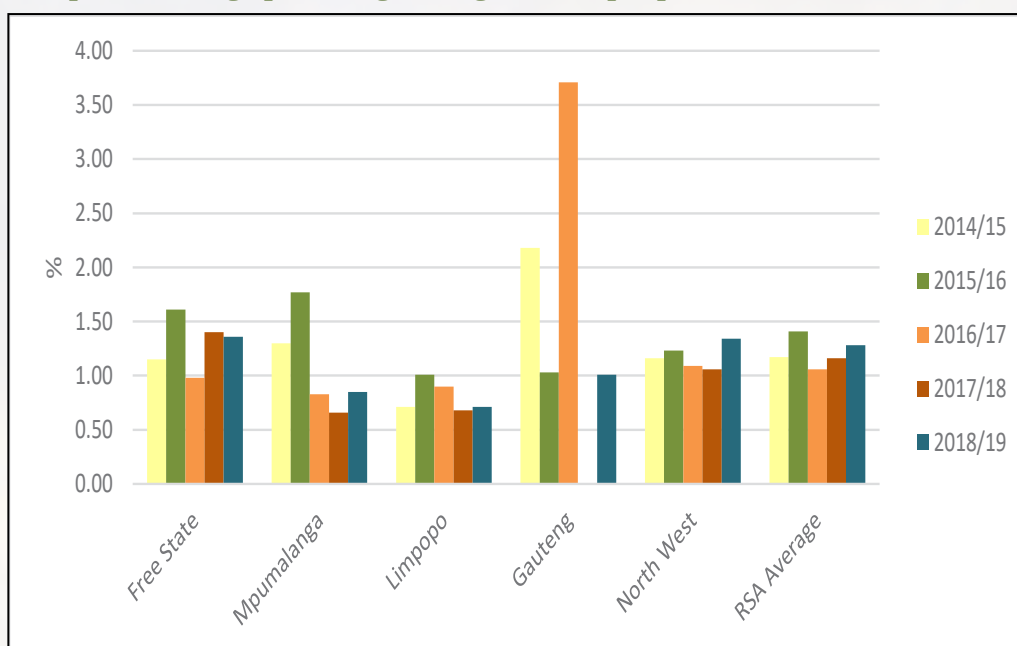
Gauteng province (3 samples) reported the highest weighted average percentage screenings namely 4.13%, followed by North West (N = 58) and Mpumalanga (N = 8) provinces both with 2.62%. Limpopo (12 samples) reported the lowest average percentage screenings of 1.47%. The weighted national average was 2.21% compared to the 1.91% of the previous season.

Graph 16: Average percentage screenings per province over five seasons



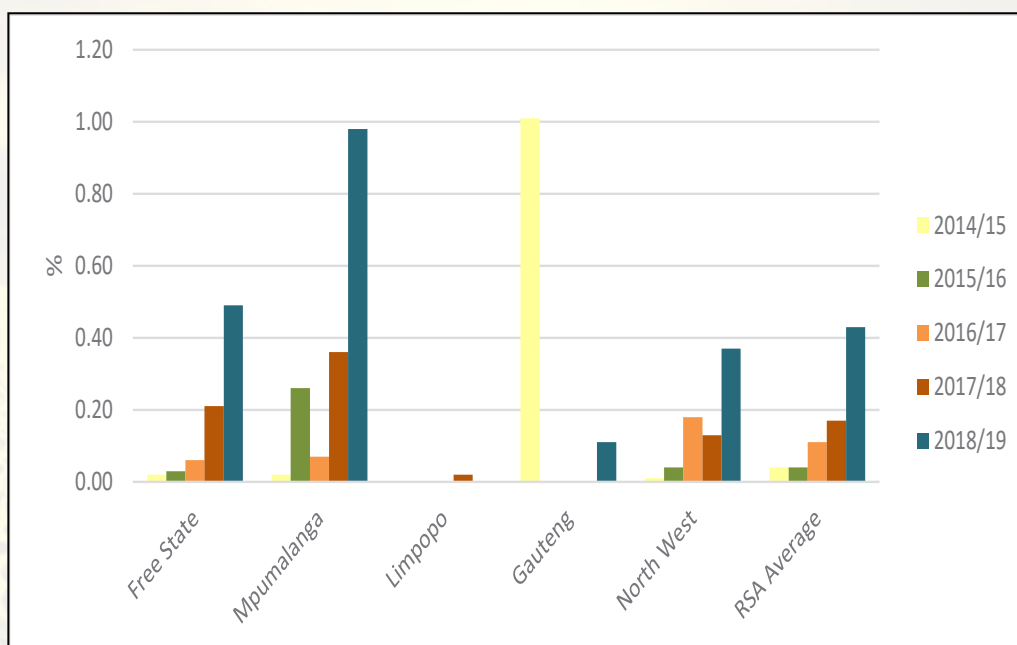
The highest weighted average percentage foreign matter (1.36%) was reported on the 95 samples from the Free State. North West followed closely with an average of 1.34%. The lowest percentages were found in Mpumalanga and Limpopo with 0.85% and 0.71% respectively. The South African average was 1.28% compared to the 1.16% and 1.06% of the previous two seasons. Please see Graph 17.

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 78 samples (44%) in the previous season, to 90 samples (51%) this season. Sixty-one of these samples originated in the Free State province, 25 in North West and two each in Mpumalanga and Gauteng. Four of these samples (one from North West, two from the Free State and one from Mpumalanga) exceeded the maximum permissible deviation of 4%. Weighted average levels ranged from 0% in Limpopo to 0.98% in Mpumalanga. The Free State's weighted average was 0.49%. The national average of 0.43%, is the second highest since the 0.53% of the 2013/2014 season. Last season's average was 0.17%.

Graph 18: Average percentage sclerotia per province over five seasons

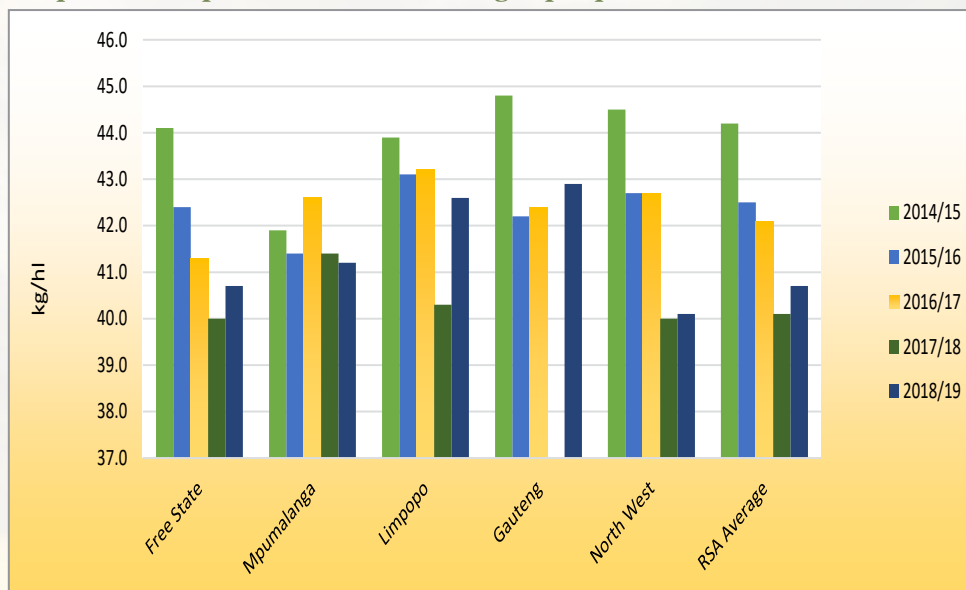


Test weight does not form part of the grading regulations for sunflower seed in South Africa. An approximation of the test weight of South African sunflower seed is provided in Table 3 for information purposes. The standard working procedure of the Kern 222 instrument, as described in ISO 7971-3:2009, was followed. The g/1 L filling mass of the sunflower seed samples was determined and divided by two. The test weight was then 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 also see 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								
	2018/19 Season			2017/18 Season			2016/17 Season		
	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples
Free State (Regions 21 - 28)	40.7	33.1 - 46.8	95	40.0	34.9 - 45.7	64	41.3	34.2 - 45.1	76
Mpumalanga (Regions 29 - 33)	41.2	39.8 - 42.8	8	41.4	35.0 - 42.2	8	42.6	35.0 - 42.2	10
Limpopo (Region 35)	42.6	37.8 - 45.4	12	40.3	38.5 - 43.1	5	43.2	40.4 - 45.5	11
Gauteng (Region 34)	42.9	42.5 - 43.6	3	-	-	-	42.4	41.2 - 43.7	3
North West (Region 12 - 20)	40.1	30.9 - 46.5	58	40.0	33.2 - 45.9	*98	42.7	39.1 - 45.1	76
RSA	40.7	30.9 - 46.8	176	40.1	33.2 - 45.9	175	42.1	34.2 - 45.5	176

*One sample with an outlier value was not taken into account for calculation purposes.

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



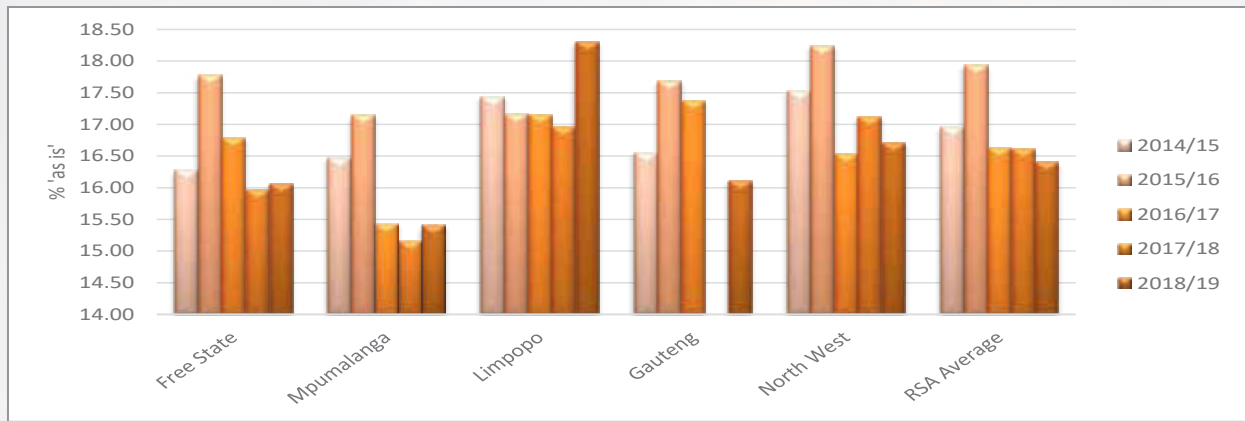
The nutritional component analyses, namely crude protein, -fat, -fibre and ash are reported as % (g/100 g) on an 'as received' or 'as is' basis.

The weighted average crude protein content this season was 16.40%, compared to the 16.61% of the previous season. Limpopo had the highest weighted average crude protein content of 18.30% and Mpumalanga the lowest with 15.41%. Mpumalanga has consistently reported the lowest average protein content since commencement of this survey in the 2012/13 season. North West's crude protein content averaged 16.71% and that of the Free State 16.06%. The weighted average crude fat percentage of 37.9% was almost one percent higher than last season's 37.0%, but still the second lowest of the last six seasons. Limpopo had the highest weighted average crude fat content of 39.0%, closely followed by Gauteng with 38.9%. The lowest average fat content was the 37.6% of the North West province. North West also reported the lowest average in the previous two seasons.

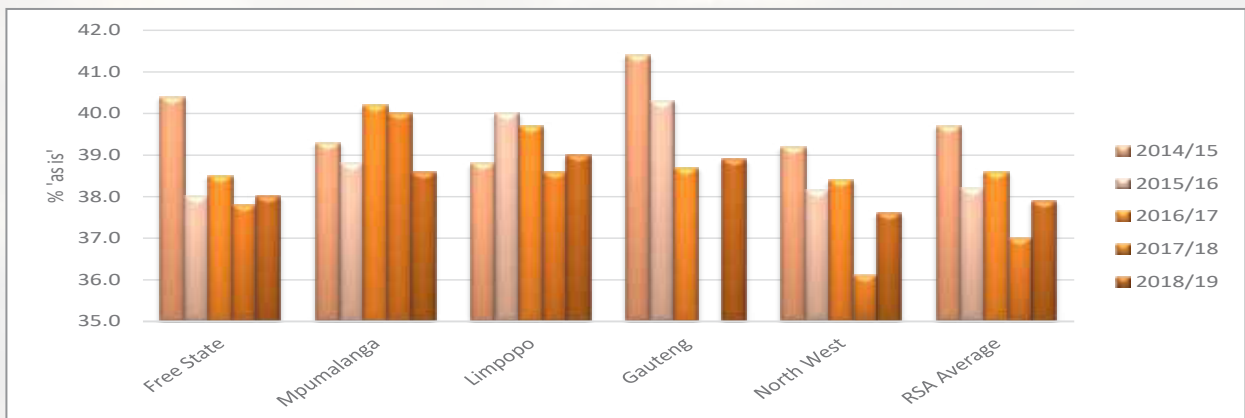
The weighted average percentage crude fibre was the highest of the last seven seasons at 22.4% (21.9% in 2017/18). Average values varied between 20.2% in Limpopo to 23.0% in North West. The weighted average ash content was 2.60%, slightly lower than the 2.69% of the previous season. The provincial averages ranged from 2.37% in Mpumalanga to 2.64% in the Free State.

Graphs 20 to 23 on page 21 provide comparisons between provinces and over seasons for the nutritional components discussed above.

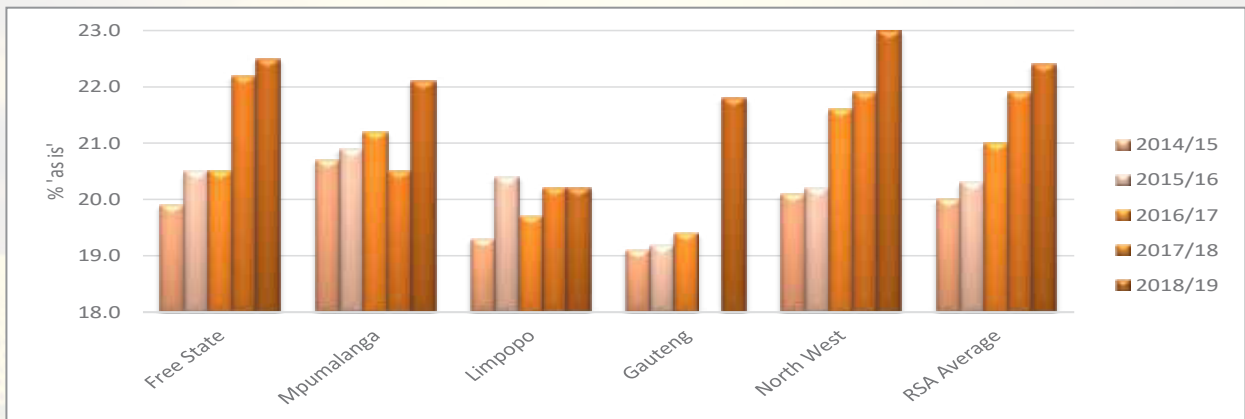
Graph 20: Average crude protein content per province over five seasons



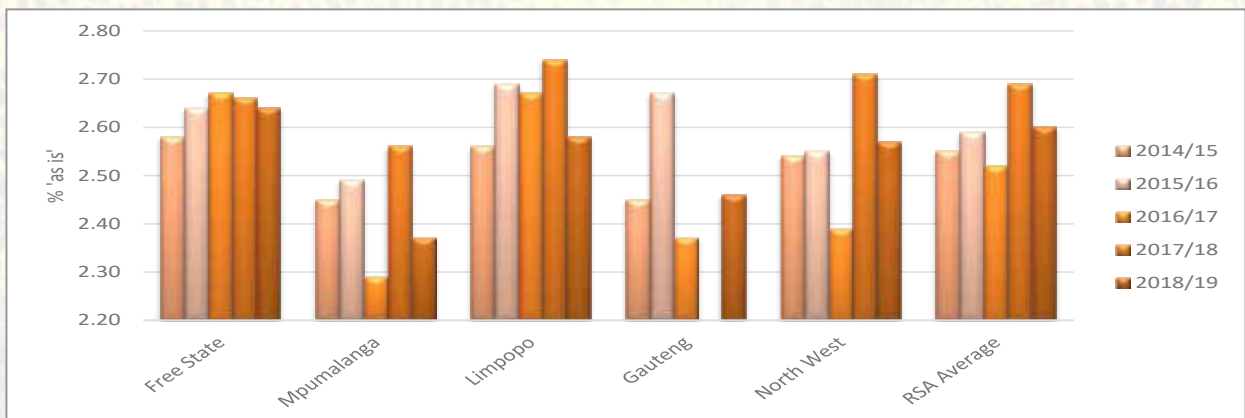
Graph 21: Average crude fat content per province over five seasons



Graph 22: Average crude fibre content per province over five seasons



Graph 23: Average ash content per province over five seasons



Please see a comparison of the moisture, crude protein and crude fat results between the crop survey and ARC Grain Crops sunflower cultivar trials' samples in Table 4.

Table 4: Comparison between the moisture, crude protein and crude fat results of the sunflower crop quality and ARC cultivar trial samples of the 2018/19 season			
Analysis	Moisture, % (17hr, 103°C)	Crude Protein, % (as is)	Crude Fat, % (as is)
Sunflower Crop Quality Survey results			
Average	4.7	16.40	37.9
Minimum	2.9	12.41	28.5
Maximum	7.7	20.02	45.2
Standard deviation	0.60	1.49	2.51
No. of samples	176	176	176
ARC Grains Crops Cultivar trial sample results			
Average	4.8	16.44	43.6
Minimum	3.0	10.10	34.4
Maximum	6.0	25.37	55.4
Standard deviation	0.63	3.65	4.49
No. of samples	144	144	144
% Difference between crop and cultivar samples	-0.1	0.0	-5.7

See Table 5 on page 23 for a summary of the RSA Sunflower Crop Quality averages of the 2018/19 season compared to those of the 2017/18 season.

Please also see pages 24 to 30 for the average sunflower quality per region.