

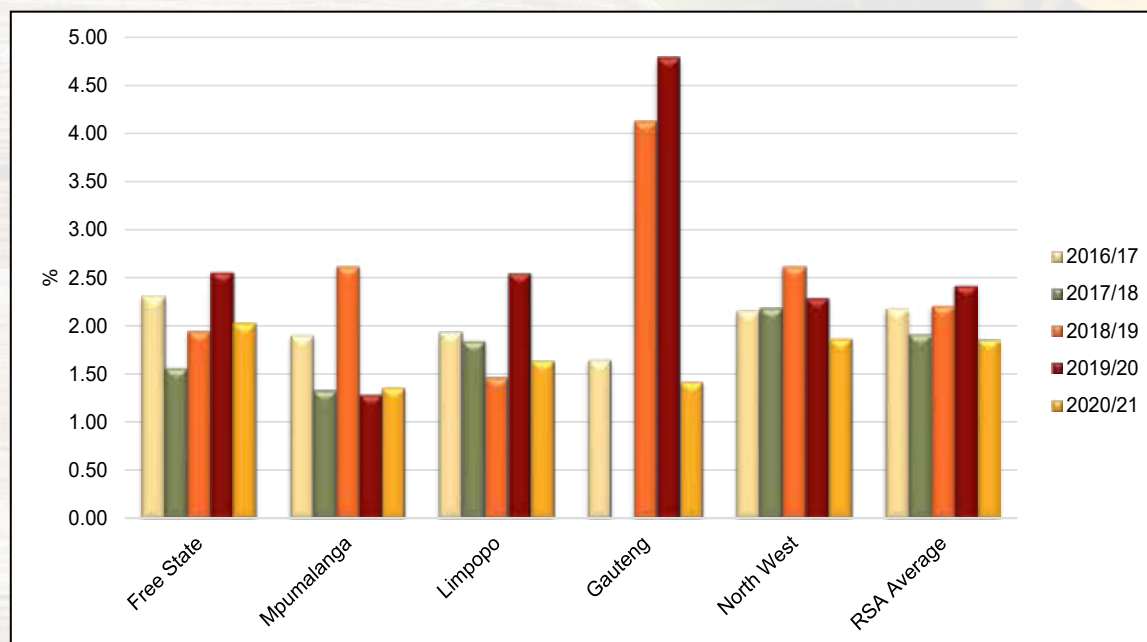
Sunflower Crop Quality 2020/21 - Summary of results

Eighty-three percent (131) of the 157 samples analysed for the purpose of this survey were graded as Grade FH1, with 26 (17%) of the samples downgraded to COSF (Class Other Sunflower Seed). The percentage FH1 samples is in line with earlier seasons (2017/18 and earlier). Samples received during the previous two seasons, had the highest percentages samples (37% and 24% respectively) downgraded to Class Other, since commencement of the sunflower crop surveys in 2012/13.

- Six (23%) of the samples downgraded this season was as a result of the percentage screenings exceeding the maximum permissible deviation of 4%.
- One sample (4%) was downgraded as a result of the percentage foreign matter exceeding the maximum permissible deviation of 4%.
- Two samples (8%) were downgraded as a result of the percentage collective deviations exceeding the maximum permissible deviation of 6%.
- Eight samples in total (31%) were downgraded as a result of the presence of poisonous seeds. Seven samples were downgraded due to the presence of *Datura sp.* exceeding the maximum permissible number, namely 1 per 1000 g. Another sample was downgraded due to *Ipomoea purpurea* Roth. (morning glory) seeds exceeding 7 per 1000 g.
- The remaining 34% of samples (9) were downgraded as a result of a combination of one or more of the following deviations exceeding the maximum permissible deviation: screenings, foreign matter and collective deviations.

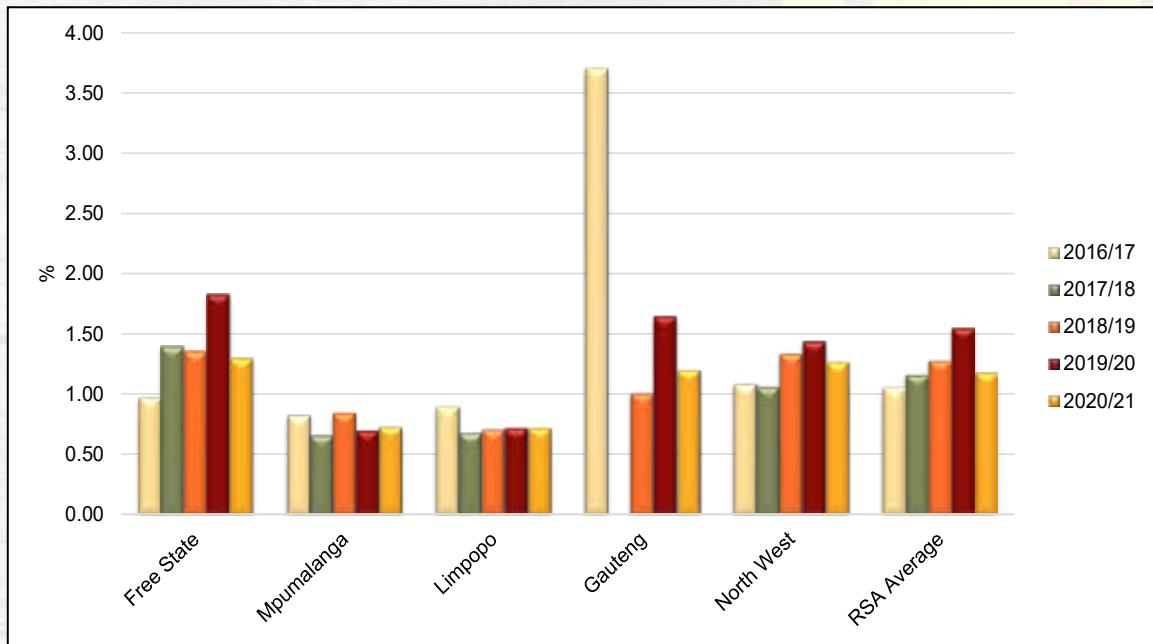
The samples from the Free State province (N = 45) reported the highest average percentage screenings namely 2.03%, followed by North West (N = 85) and Limpopo (N = 19) with 1.87% and 1.64% respectively. The single sample from Gauteng reported 1.42% and Mpumalanga's seven samples averaged the lowest percentage screenings of 1.36%. The weighted national average was 1.86% compared to the 2.42% of the previous season.

Graph 16: Average percentage screenings per province over five seasons



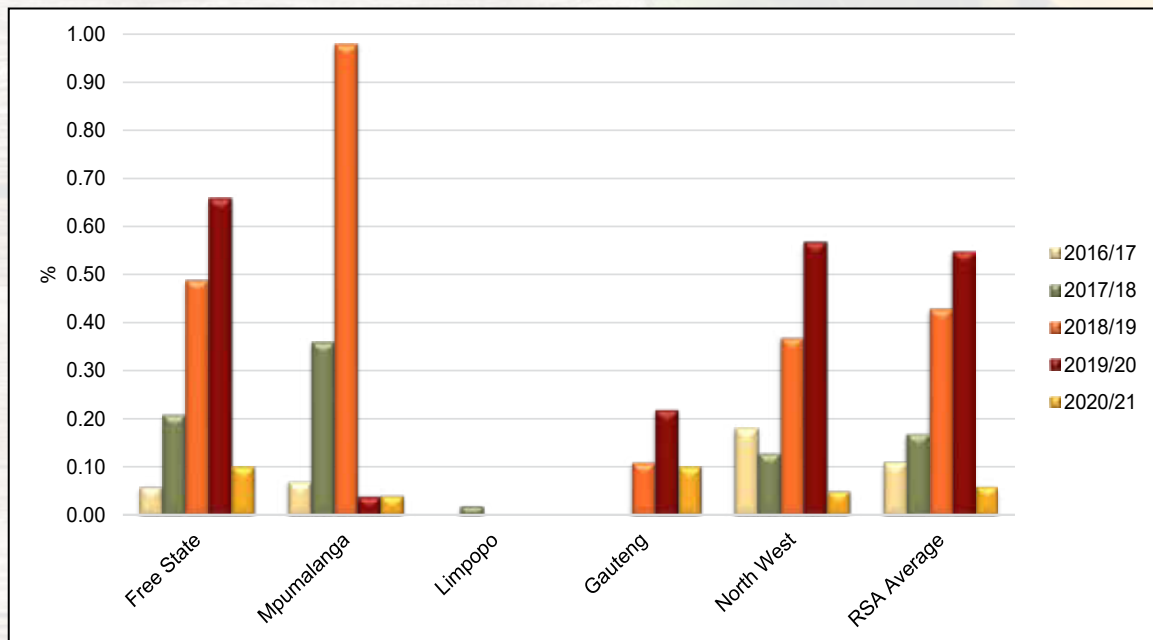
The highest weighted average percentage foreign matter (1.30%) was reported for the Free State province's regions. North West and Gauteng followed closely with 1.27% and 1.20% respectively. The lowest percentages were found in Mpumalanga (0.73%) and Limpopo (0.72%). The national average was 1.18% compared to the 1.55% and 1.28% of the previous two seasons. Please see Graph 17.

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



The percentage of samples received for this survey that contained sclerotia from the fungus *Sclerotinia sclerotiorum*, decreased from 71% and 51% in the previous two seasons respectively, to 22% this season. 46% of these samples originated in North West province, 43% in the Free State, 8% in Mpumalanga and the single sample from Gauteng also reported sclerotia. None of the samples received exceeded the maximum permissible deviation of 4%. The national average of 0.06% is the lowest since the 2015/16 season. Last season's average was 0.55%.

Graph 18: Average percentage sclerotia per province over five seasons

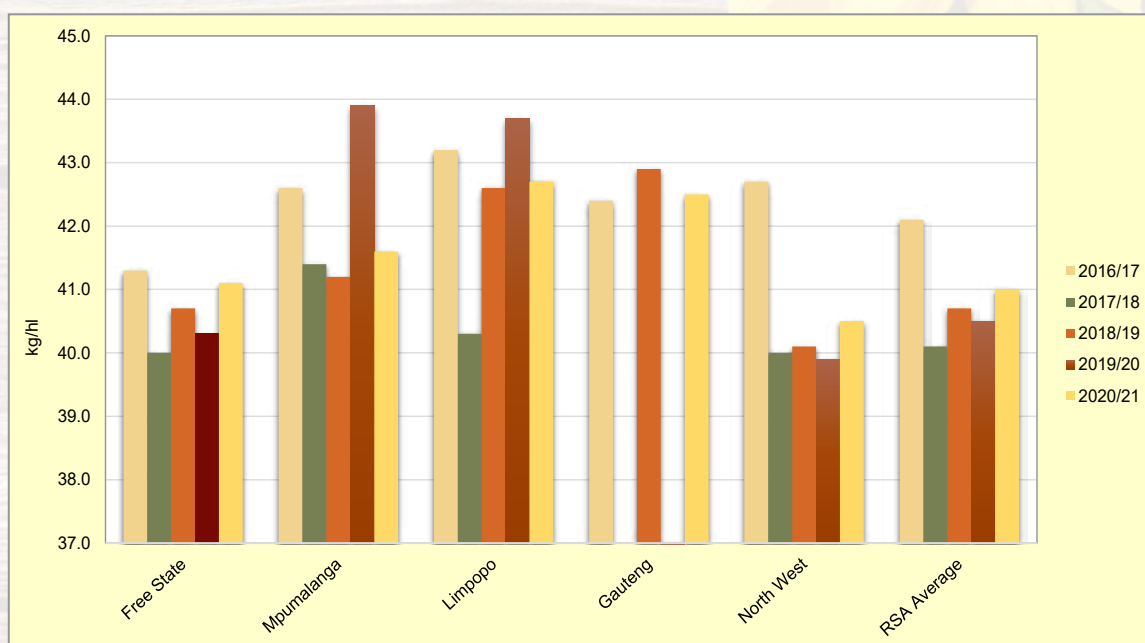


Test weight does not form part of the grading regulations for sunflower seed in South Africa. An approximation of the test weight of South African sunflower seed is provided in Table 3 for information purposes. The standard working procedure of the Kern 222 instrument, as described in ISO 7971-3:2019, 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								
	2020/21 Season			2019/20 Season			2018/19 Season		
	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples
Free State (Regions 21 - 28)	41.1	38.0 - 44.9	*44	40.3	27.3 - 47.3	84	40.7	33.1 - 46.8	95
Mpumalanga (Regions 29 - 33)	41.6	40.4 - 42.5	7	43.9	43.7 - 44.0	6	41.2	39.8 - 42.8	8
Limpopo (Region 35)	42.7	40.5 - 44.4	19	43.7	38.7 - 47.4	13	42.6	37.8 - 45.4	12
Gauteng (Region 34)	42.5	-	1	34.2	-	1	42.9	42.5 - 43.6	3
North West (Region 12 - 20)	40.5	30.4 - 43.7	85	39.9	30.9 - 48.4	72	40.1	30.9 - 46.5	58
RSA	41.0	30.4 - 44.9	156	40.5	27.3 - 48.4	176	40.7	30.9 - 46.8	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



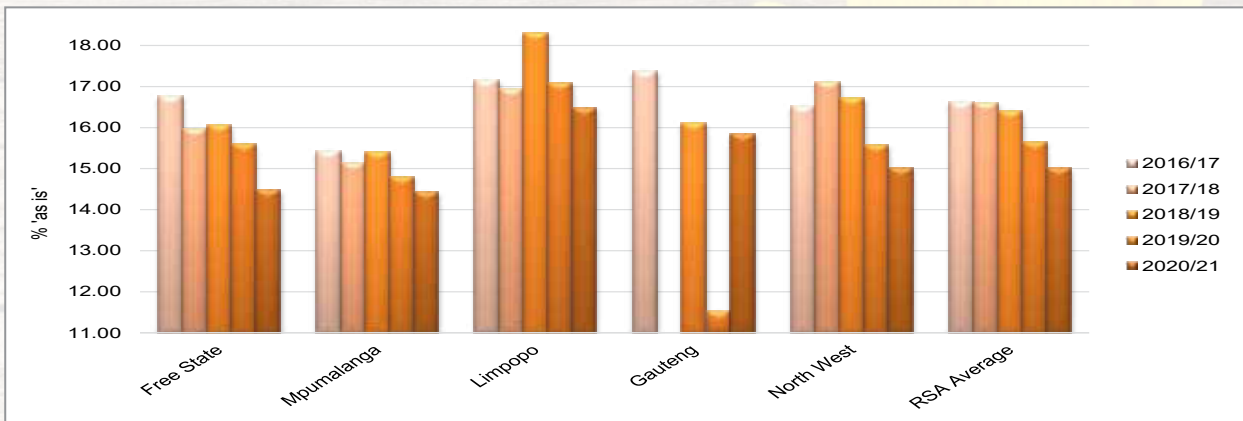
The nutritional component analyses, namely crude protein, -fat, -fibre and ash are reported as % (g/100 g) on an 'as received' or 'as is' basis.

The weighted average crude protein content this season was 15.02% and the lowest of the nine seasons for which crop survey results are available. The previous season's average was the second lowest at 15.66%. Limpopo had the highest weighted average crude protein content of 16.47%, followed by the sample from Gauteng with 15.84% and North West with an average of 15.02%. The Free State averaged 14.49% and Mpumalanga 14.42%. The weighted average crude fat percentage was 39.5%, the highest since the 2014/15 season and also the third highest average since the commencement of the survey. Last season averaged 38.7%. North West had the highest weighted average crude fat content of 39.7%, followed by the Free State with 39.5% and Mpumalanga 39.4%. Gauteng and Limpopo averaged 38.9% and 38.3% respectively.

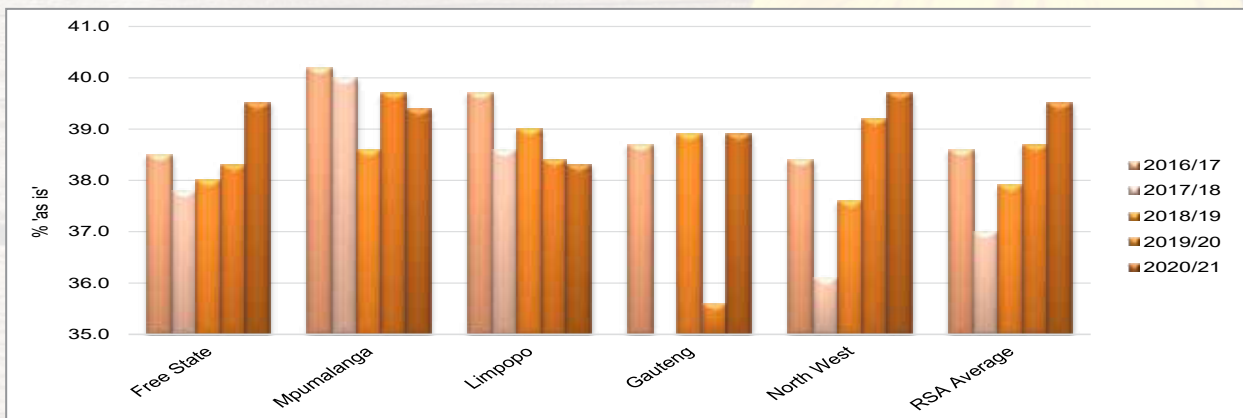
The weighted average percentage crude fibre was 21.8%, just slightly lower than the 21.9% of the previous season. Average values varied from a low of 21.4% in both North West and Limpopo to 22.3% in the Free State and 24.0% in Mpumalanga. The weighted average ash content was 2.53%, the second lowest of the last nine seasons. The 2019/20 season averaged 2.65%. The provincial averages ranged from 2.27% in Mpumalanga to 2.58% in the Free State.

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

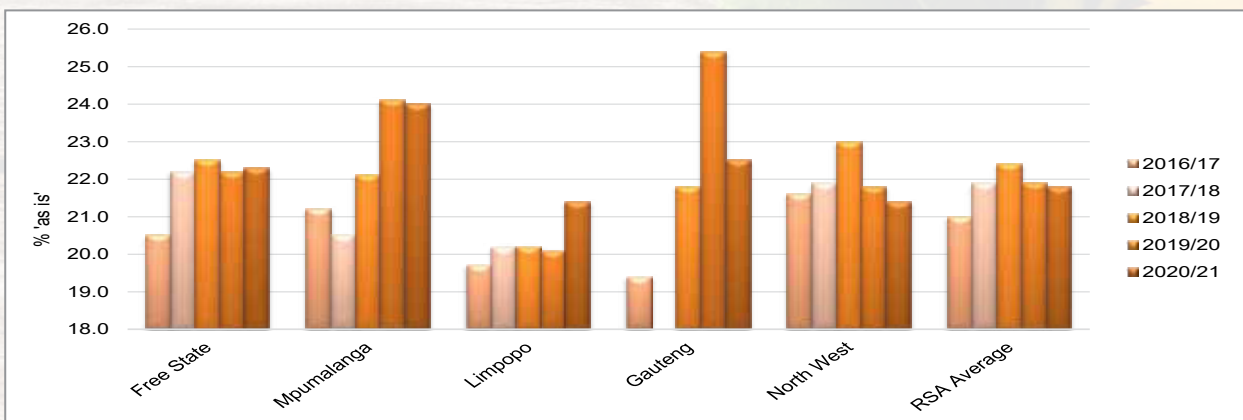
Graph 20: Average crude protein content per province over five seasons



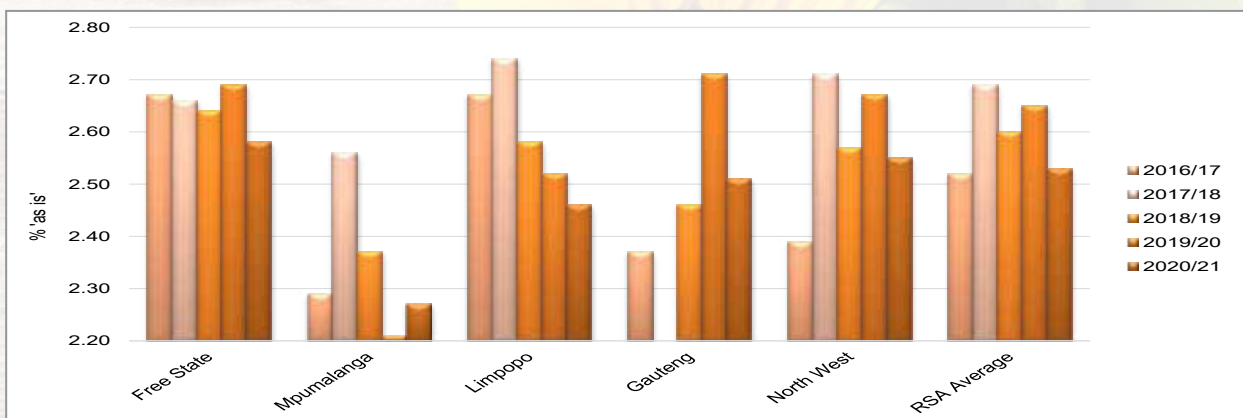
Graph 21: Average crude fat content per province over five seasons



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 2020/21 season			
Analysis	Moisture, % (5hr, 105°C)	Crude Protein, % (as is)	Crude Fat, % (as is)
Sunflower Crop Quality Survey results			
Average	5.0	15.02	39.5
Minimum	3.9	11.41	33.3
Maximum	6.9	18.04	46.1
Standard deviation	0.53	1.22	1.89
No. of samples	157	157	157
ARC Grains Crops Cultivar trial sample results			
Average	5.3	15.84	40.4
Minimum	3.2	11.44	25.6
Maximum	7.6	22.95	53.8
Standard deviation	0.88	2.42	7.22
No. of samples	104	104	104
% Difference between crop and cultivar samples	-0.3	-0.82	-0.9

See Table 5 on page 23 for a summary of the RSA Sunflower Crop Quality averages of the 2020/21 season compared to those of the 2019/20 season.

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

