

Soybean Crop Quality 2017/2018 – Summary of results

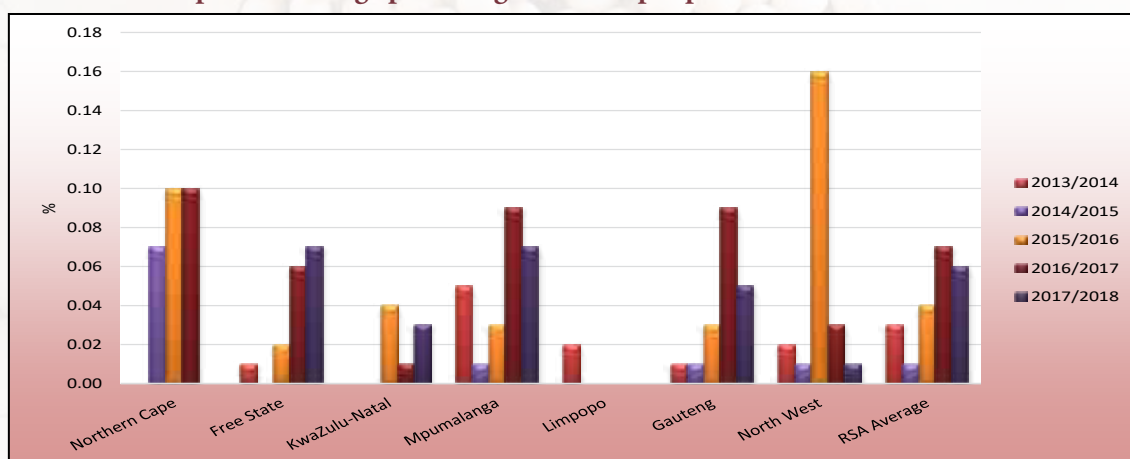
Eighty-seven percent (130) of the 150 samples analysed for the purpose of this survey were graded as Grade SB1, while 20 of the samples were downgraded to COSB (Class Other Soya Beans). During the previous two seasons, 12% (2016/2017) and 11% (2015/2016) of the samples were downgraded to COSB.

- Two of the 20 samples were downgraded as a result of the percentage foreign matter present in the sample exceeding the maximum permissible deviation of 5%.
- Six of the samples were downgraded as a result of the percentage other grain present in the sample exceeding the maximum permissible deviation of 0.5%.
- Two samples were downgraded as a result of the percentage soiled soybeans present in the sample exceeding the maximum permissible deviation of 10%.
- Six samples in total were downgraded as a result of the presence of poisonous seeds. Three samples were downgraded due to the number of *Datura sp.* seeds exceeding the maximum permissible number (1 per 1000 g) and the other three as a result of the number of *Convolvulus sp.* seeds exceeding 7 per 1000 g.
- The remaining four samples were downgraded as a result of a combination of one or more of the following deviations exceeding the maximum permissible deviation: foreign matter, other grain, soiled soybeans, collective deviations as well as the presence of an undesirable odour.

Wet pods were not present in any of the 150 samples received and graded.

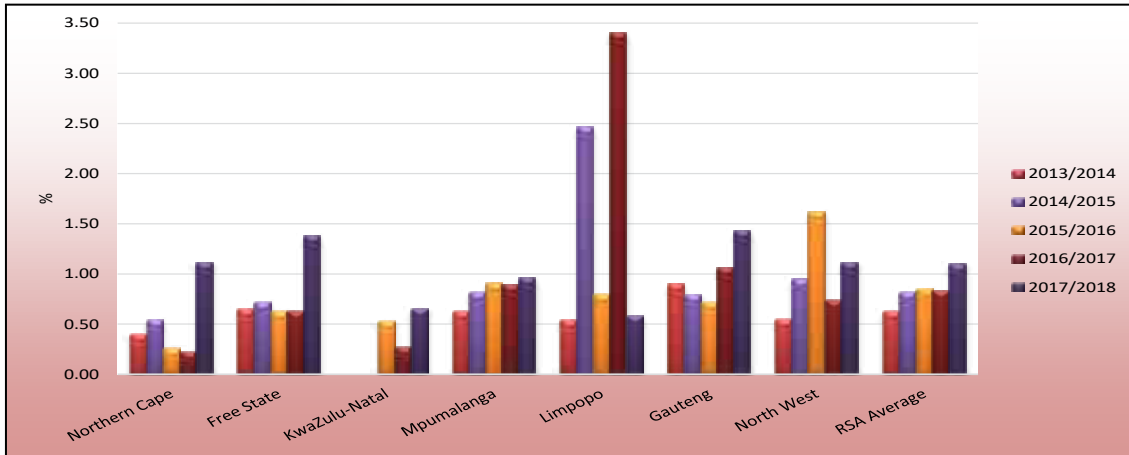
The number of samples containing sclerotia from the fungus *Sclerotinia sclerotiorum*, decreased by 16% compared to the previous season (88 vs 105 samples). The three highest percentages sclerotia observed (0.36%, 0.32% and 0.30%) were on samples from the Free State. These percentages are however still well below the maximum permissible level of 4%. The national weighted average percentage this season was 0.06% compared to the 0.07% of the previous season. See Graph 16.

Graph 16: Average percentage sclerotia per province over five seasons



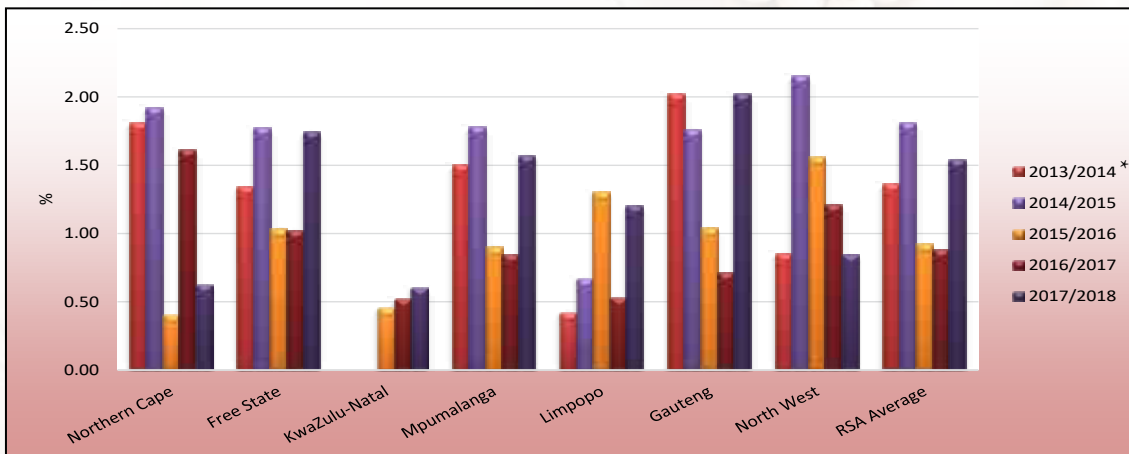
Gauteng province (11 samples) had the highest weighted average percentage foreign matter (1.43%). The percentage foreign matter in the rest of the samples ranged from 0.58 in Limpopo (four samples) to 1.38 in the Free State (45 samples). Please refer to Graph 17.

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



Gauteng reported the highest weighted average percentage soybeans and parts of soybeans above the 1.8 mm slotted sieve which pass through the 4.75 mm round hole sieve, namely 2.02% and the samples from KwaZulu-Natal (N=9) and the Northern Cape (N=2) the lowest with 0.60% and 0.62% respectively. Mpumalanga province (71 samples) averaged 1.57% and the Free State province 1.74%.

Graph 18: Average percentage soybeans and parts of soybeans above the 1.8 mm slotted sieve which pass through the 4.75 mm round hole sieve per province over five seasons



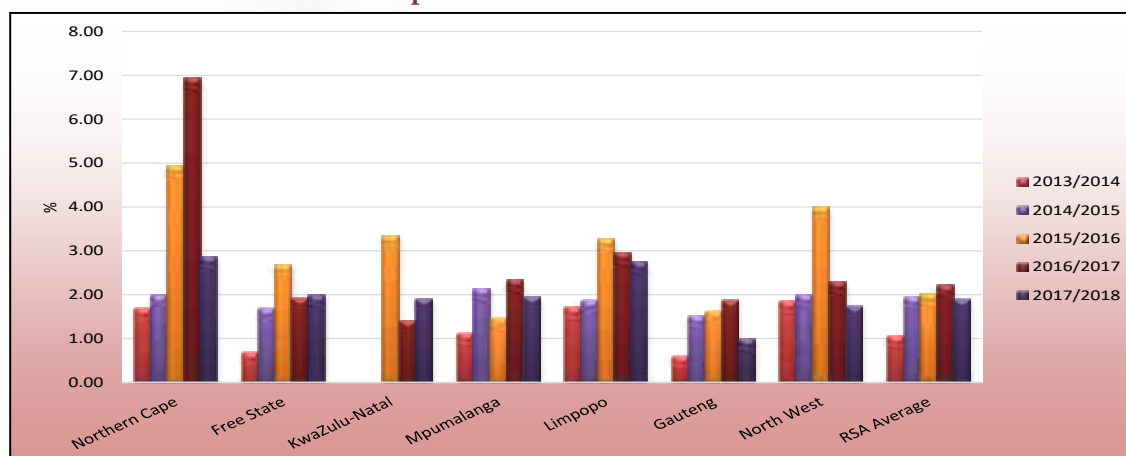
* Represent soybeans and parts of soybeans which pass through the 4.75 mm round hole sieve.

The national weighted average percentage increased from 0.88% the previous season to 1.54% this season. Please see Graph 18.

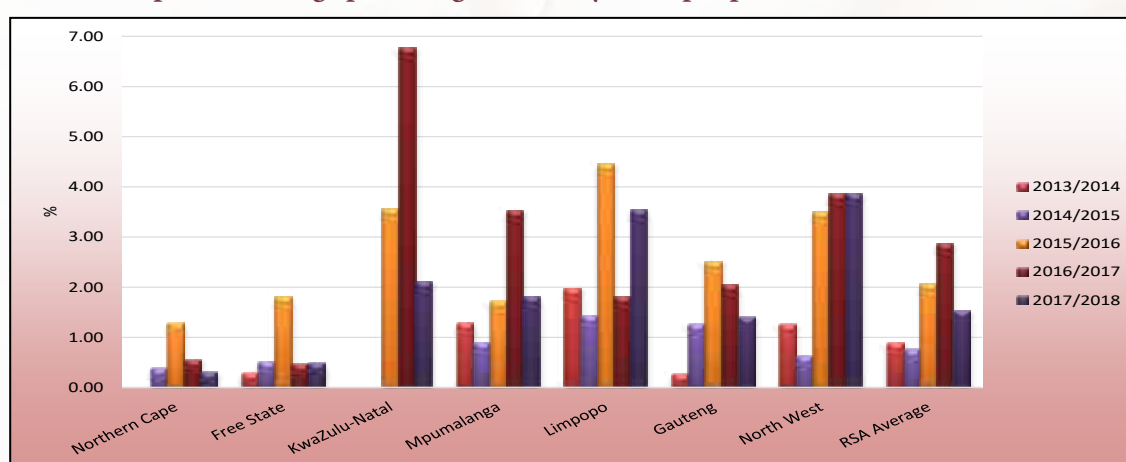
The lowest weighted average percentage defective soybeans on the 4.75 mm sieve was observed on the samples from Gauteng, namely 0.98%. The Northern Cape province reported the highest percentage namely 2.85%, followed by Limpopo with 2.74%. The national weighted average decreased from 2.22% last season to 1.91% this season. Please see Graph 19.

The national weighted average percentage soiled soybeans was 1.53%, compared to the 2.87% of the previous season. Average weighted percentages per province ranged from 0.30 in the Northern Cape to 3.86 in North West (8 samples). Please see Graph 20. Three samples exceeded the maximum permissible deviation of 10% according to the grading regulations. All three samples originated from Mpumalanga. Last season, 11 samples exceeded this grading limit.

Graph 19: Average percentage defective soybeans on the 4.75 mm round hole sieve per province over five seasons



Graph 20: Average percentage soiled soybeans per province over five seasons



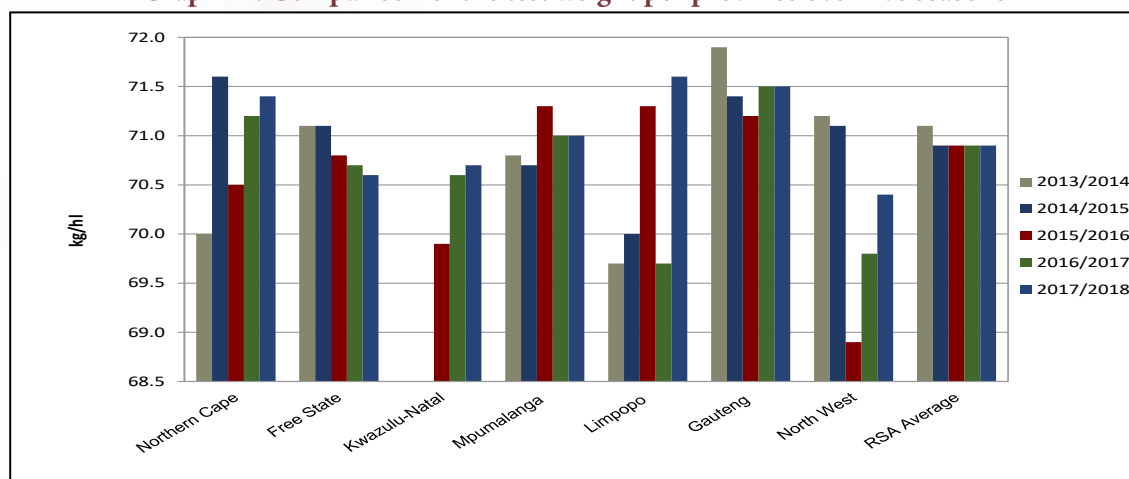
Test weight does not form part of the grading regulations for soybeans in South Africa. An approximation of the test weight of South African soybeans is provided in Table 2 for information purposes. The standard working procedure of the Kern 222 instrument, as described in ISO 7971-3:2009, was followed. The g/1 L filling mass of the soybean 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 Soybean of the Canadian Grain Commission: $y = 0.1898x + 2.2988$ (291 to 350 g/0.5 L) and $y = 0.1895x + 2.3964$ (351 to 410 g/0.5 L). Please see Graph 21 for a comparison of the test weight per province over the last five seasons.

Table 2: Approximation of test weight per province over three seasons

Province	Test weight, kg/hl								
	2017/2018 Season			2016/2017 Season			2015/2016 Season		
	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples	Weighted average	Range	No. of samples
Northern Cape (Regions 10 - 11)	71.4	70.2 - 72.5	2	71.2	71.1 - 71.2	2	70.5	-	1
Free State (Regions 21 - 28)	70.6	67.2 - 73.6	*44	70.7	65.8 - 72.1	33	70.8	68.5 - 73.0	23
KwaZulu-Natal (Regions 36)	70.7	70.0 - 71.6	9	70.6	69.2 - 71.5	8	69.9	67.7 - 71.6	14
Mpumalanga (Regions 29 - 33)	71.0	68.2 - 72.5	71	71.0	67.6 - 72.6	86	71.3	68.9 - 72.7	91
Limpopo (Region 35)	71.6	71.4 - 72.1	4	69.7	69.1 - 70.2	2	71.3	-	1
Gauteng (Region 34)	71.5	70.3 - 74.0	11	71.5	70.8 - 73.6	11	71.2	70.6 - 72.2	5
North West (Region 12 - 20)	70.4	69.0 - 72.5	8	69.8	67.7 - 70.9	8	68.9	64.9 - 70.5	8
RSA	70.9	67.2 - 74.0	149	70.9	65.8 - 73.6	150	70.9	64.9 - 73.0	143

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

Graph 21: Comparison of the test weight per province over five seasons



The nutritional component analyses, namely crude protein, - fat, - fibre and ash are reported on a dry/moisture-free basis (db) for the current as well as the previous surveys. For comparison purposes the national average 'as is' basis results are provided in Table 3. These 'as is' averages values were calculated by converting each individual value from dry basis to 'as is'.

Table 3: Comparison of weighted average nutritional component values on a dry and 'as is' basis over four seasons

Season	2017/2018		2016/2017		2015/2016		2014/2015	
Moisture, % (17hr, 103°C)	7.4		7.4		7.4		7.0	
Moisture basis	Dry basis	As is	Dry basis	As is	Dry basis	As is	Dry basis	As is
Crude protein, %	40.18	37.40	40.15	37.20	40.22	37.22	39.89	37.10
Crude fat, %	19.3	18.0	19.8	18.5	19.4	17.9	19.3	17.9
Crude fibre, %	5.9	5.5	5.9	5.4	7.3	6.8	6.4	5.9
Ash, %	4.59	4.27	4.58	4.24	4.61	4.27	4.64	4.31
No. of samples	150		150		143		150	

The weighted average crude protein content this season was 40.18%, slightly higher than the 40.15% of the previous season. As in the 2016/2017 season, Limpopo had the highest weighted average crude protein content (41.51%). Gauteng (39.82%) and the Free State (39.92%) reported the lowest averages. The weighted average crude fat percentage of 19.3% was half a percentage point lower than the 19.8% in the previous season, but similar to the average values reported in 2014/2015 and 2015/2016. The samples from Limpopo had the highest weighted average crude fat content, namely 21.4%. The lowest average fat content was observed in the Free State with 18.9%.

The weighted average percentage crude fibre varied from 5.3% in Limpopo to 6.1% in both Gauteng and North West. The RSA weighted average, 5.9%, was the same as the previous season and also the lowest value of the duration of the project. A small variation of only 0.08% is observed with regards to the national weighted average ash content over the seven seasons that this survey has been conducted. This season, the average ash content was 4.59%, the second lowest of the seven seasons and similar to the previous season. Samples from the Northern Cape and Limpopo tend to show higher ash contents over seasons compared to the other provinces.

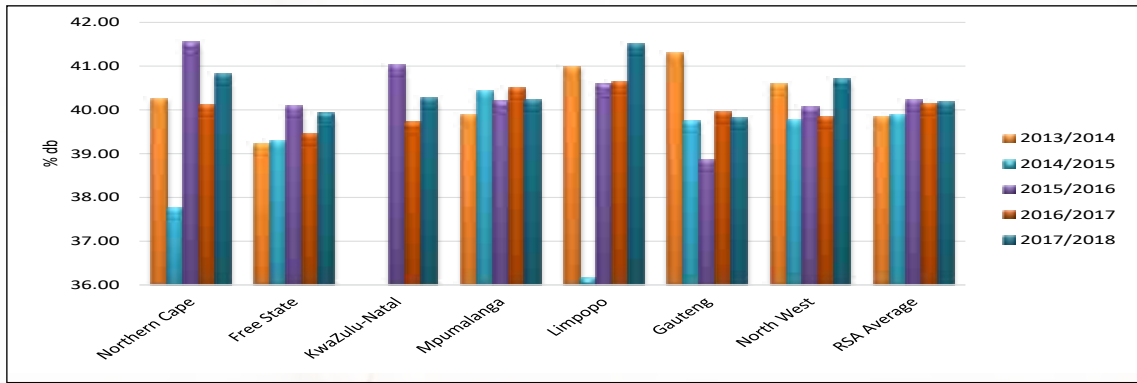
Graphs 22 to 25 on page 18 provide comparisons between provinces over seasons for the nutritional components mentioned above.

All fifteen samples tested for genetic modification (GM), tested positive for the presence of the CP4 EPSPS trait (Roundup Ready®). Please refer to the results in Table 4 on page 19 of this report.

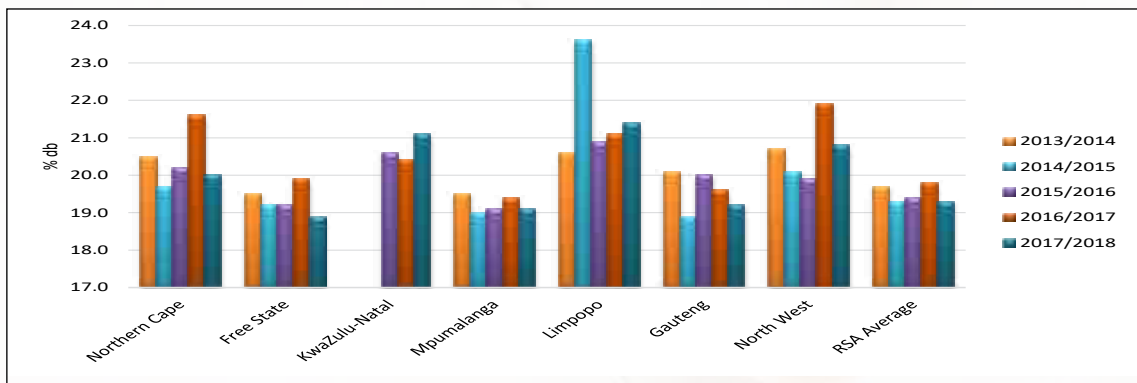
A summary of the RSA Soybean Crop Quality averages of the 2017/2018 season compared to those of the 2016/2017 season, is provided in Table 5 on page 20.

Please see pages 21 to 27 for the average soybean quality per region.

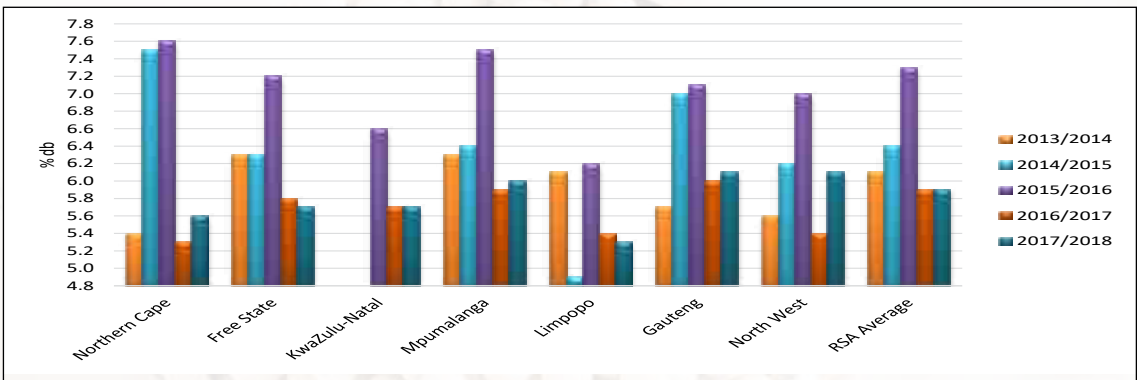
Graph 22: Average crude protein content per province over five seasons



Graph 23: Average crude fat content per province over five seasons



Graph 24: Average crude fibre content per province over four seasons



Graph 25: Average ash content per province over five seasons

