

## Soybean Crop Quality 2013/2014 – Summary of results

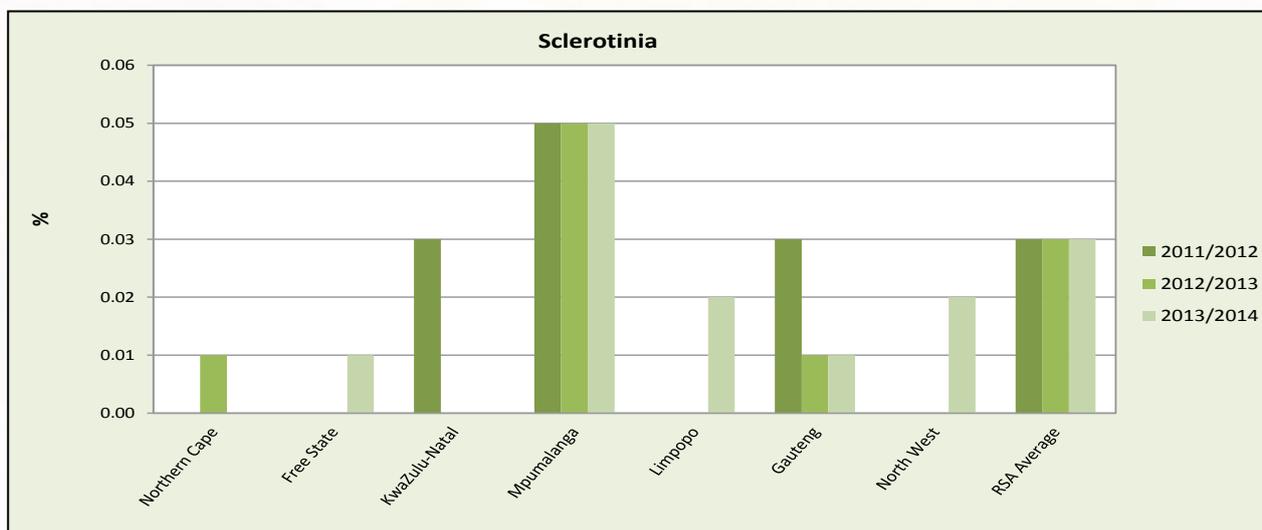
Eighty-eight percent (132) of the 150 samples analysed for the purpose of this survey were graded as Grade SB1 and 18 of the samples were downgraded to COSB (Class Other Soya Beans). During the previous two seasons, 5% (2012/2013) and 15% (2011/2012) of the samples were downgraded to COSB.

- Nine of the 18 samples were downgraded as a result of the percentage other grain present in the samples exceeding the maximum permissible deviation of 0.5%
- Four of the samples were downgraded as a result of the presence of poisonous seeds (*Crotalaria* sp., *Datura* sp., *Ricinis communis*) exceeding the maximum permissible number, namely 1 per 1000 g.
- The remaining five samples were downgraded as a result of a combination of one or more of the following deviations exceeding the maximum permissible deviation: percentage foreign matter, other grain, sunflower seed, defective soybeans on the 4.75 mm round hole screen, poisonous seeds and undesirable odour.

According to the South African soybean grading regulations, the determination of the percentage wet pods in a consignment shall be done on a working sample of at least 10 kg of soybeans from a representative sample of the consignment. Due to practical considerations the samples received at the SAGL from the grain storage companies is typically  $\pm$  5 kg. Pods were found in 33 of the 150 samples graded, all of these pods were dry on receipt at the SAGL. The percentage of these pods in the samples ranged from 0.02% to 1.67% based on a working sample size of at least 200 g. Fourteen samples contained pods, not identifiable as wet pods according to the definition, in percentages exceeding the wet pod maximum permissible deviation of 0.2%.

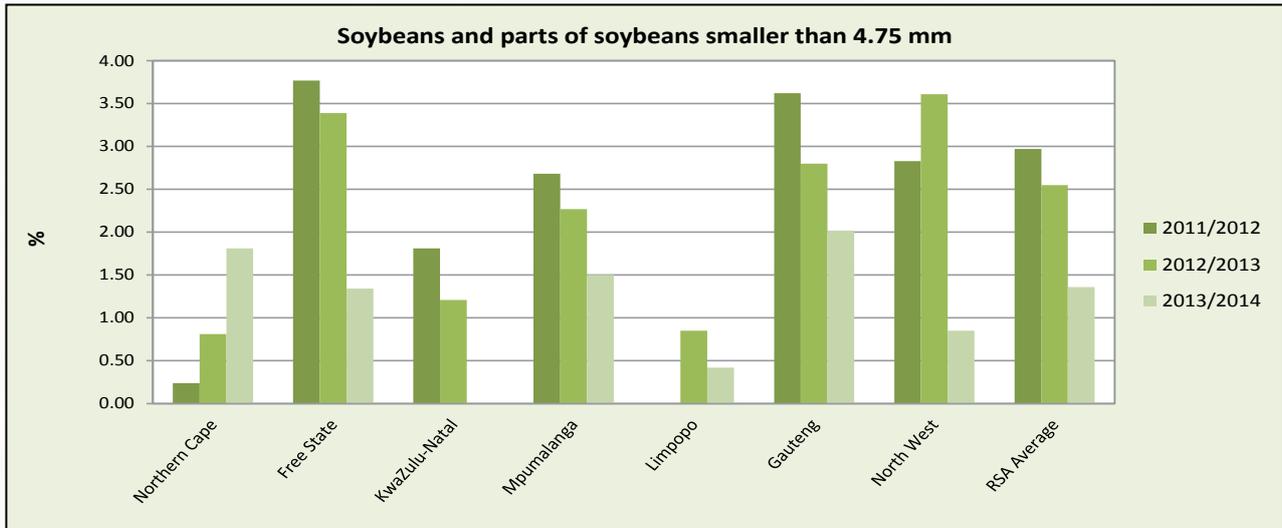
Based on the samples received for this crop survey, *Sclerotinia* did not pose any problems. The highest percentage of *Sclerotinia* observed (0.40%) was on a sample from Mpumalanga, which is well below the maximum permissible level of 4%. Over the last three seasons, Mpumalanga consistently had the highest weighted average percentage *Sclerotinia* compared to the other provinces. The national weighted average percentage over the last three seasons was 0.03%.

**Graph 16: Average percentage Sclerotinia soybeans per province over the last three seasons**



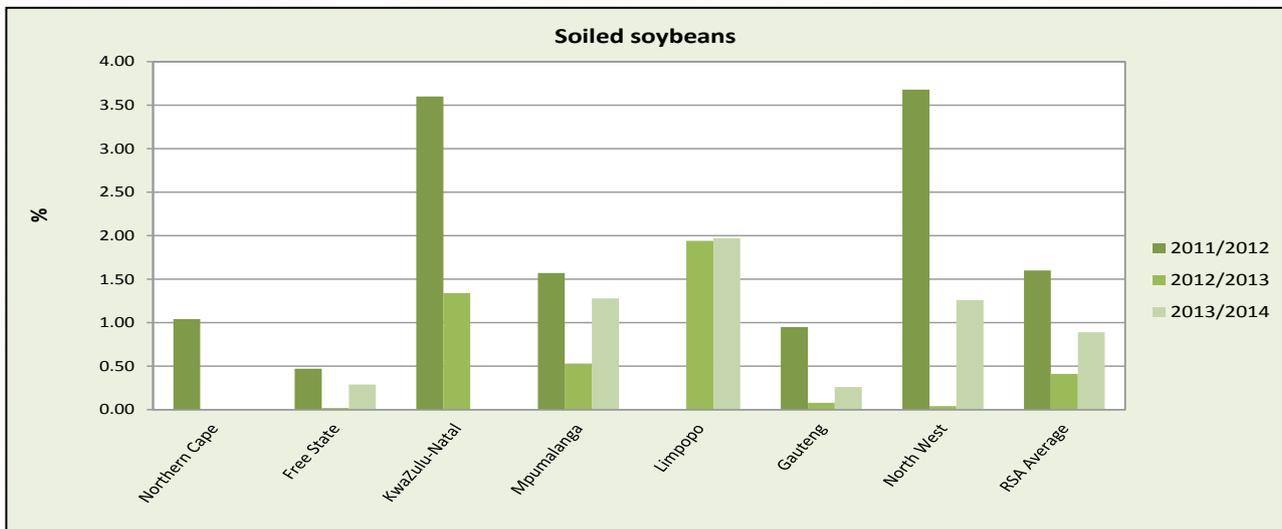
Gauteng province (seven samples) reported the highest weighted average percentage soybeans and parts of soybeans which pass through the 4.75 mm round hole screen namely 2.02% and Limpopo (three samples) the lowest at 0.42%. Mpumalanga province with the highest number of samples (67) reported an average of 1.50%. The Free State province averaged 1.34% (51 samples).

**Graph 17: Average percentage soybeans and parts of soybeans which pass through the 4.75 mm round hole screen per province over the last three seasons**



The national weighted average percentage over the last three seasons declined from 2.97% in the 2011/2012 season to 1.36% this season. No samples were received from KwaZulu-Natal for the 2013/2014 season. The weighted average percentage soiled soybeans of 0.89% is higher than the 0.41% of the previous season but well below the weighted average (1.60%) of the 2011/2012 season. This season only six samples in total had soiled soybean percentages exceeding 5%, none exceeded the maximum permissible deviation of 10%.

**Graph 18: Average percentage soiled soybeans per province over the last three seasons**



Hectolitre mass does not form part of the grading regulations for soybeans in South Africa. An approximation of the hectolitre mass of South African soybeans is provided in Table 2 for information purposes. The g/1 L filling weight of the 150 soybeans samples were determined by means of the Kern 222 apparatus. The hectolitre mass was 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).

**Table 2: Approximation of Hectolitre mass per province for the 2013/2014 season**

Province	Hectolitre mass, kg/hl		
	2013/2014 Season		
	Weighted average	Range	No. of samples
Free State (Regions 21 - 28)	71.1	66.6 - 73.6	51
*Mpumalanga (Regions 29 - 33)	70.8	68.3 - 74.7	66
Limpopo (Region 35)	69.7	68.5 - 70.5	3
Gauteng (Region 34)	71.9	71.5 - 73.1	7
North West (Region 12 - 20)	71.2	69.4 - 73.1	20
<b>RSA</b>	<b>71.1</b>	<b>66.6 - 74.7</b>	<b>149</b>

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

The protein, fat and ash components are reported as % (g/100g) on a dry/moisture free basis (db). The average crude protein content of the 2013/2014 season was 39.84%, 0.79% lower than the 40.63% of the previous season. Gauteng showed the highest weighted average crude protein content of 41.30% and the Free State the lowest of 39.22%, followed by Mpumalanga with 39.88%. The average crude fat percentage increased from 18.8% in 2012/2013, to 19.7% this season. The samples from North West had the highest weighted average crude fat content of 20.7%. The lowest average fat contents were observed in the Free State and Mpumalanga, both with 19.5%.

The national weighted average ash content did not vary significantly over the last three seasons, 4.66% this season compared to the 4.65% and 4.62% for the previous two seasons. Samples from the Northern Cape and Limpopo tend to show higher ash contents while those from Mpumalanga tend to be lower.

The weighted average percentage crude fibre varied from 5.4% in the Northern Cape to 6.3% in the Free State and Mpumalanga. The RSA weighted average was 6.1%.

Graphs 19 to 22 on page 13 provide comparisons between provinces for the above mentioned components.

A summary of the RSA Soybean Crop Quality averages of the 2013/2014 season compared to those of the 2012/2013 season, is provided in Table 3 on page 14.

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 on page 15 of this report.

Please see pages 16 to 24 for the average soybean quality per region.