Preliminary soya bean and sunflower crop quality survey results for the 2014/2015 season

The Crop Estimates Committee’s (CEC’s) final production estimate for the 2015 season confirmed the negative impact of the drought conditions experienced over large parts of the production areas. Although the area utilised for soya bean production has increased by 37% compared to the previous season, the crop increased by only 12% to 1 059 850 ton. Both sunflower production and area decreased by 20% and 4% respectively.

During the 2015 harvesting season, a representative sample of each delivery of soya bean and sunflower at the various silos throughout the production areas was taken according to the prescribed grading regulations. Composite samples per class and grade per bin were forwarded to the Southern African Grain Laboratory (SAGL) NPC for analysis. These samples represented the third and fourth annual crop quality surveys for sunflower and soya beans respectively.

Please note that all averages mentioned in this article are weighted.

Soya bean sample analysis

All 150 samples, according to the project proposal approved by the Oil and Protein Seed Development Trust (OPDT) and the Oils and Seeds Advisory Committee (OAC), have been received at the SAGL. To date, 81% (121) of these samples have been graded.

Of these, 17 samples were downgraded to class other soya beans (COSB) and 86% of the samples were graded as Grade SB1. Six of the 17 samples were downgraded as a result of the percentage other grain present in the samples, exceeding the maximum permissible deviation of 0,5%. Seven samples were downgraded as a result of the presence of poisonous seeds exceeding the maximum permissible number. One and two samples respectively were downgraded as a result of the percentage sunflower seed and foreign matter exceeding the maximum permissible deviation.

Grading was done according to the industry-wide dispensation (Ref no 20.4.14.1 Dispensations, dated 6 March 2015), granting permission for the use of the 1,8mm slotted sieve in conjunction with the prescribed 4,75mm round hole sieve. The maximum allowable percentage foreign matter was therefore increased from 4 to 5% and the combination of foreign matter and Sclerotinia was increased from 6 to 7%.

No wet pods were observed in any of these samples. Based on the samples analysed so far, Sclerotinia has not posed any problems. Sclerotinia was, however, observed in 11% of the samples, with the highest percentage in a sample being 0,2%, which is well below the maximum permissible level of 4%. The national average this season
is 0.01%, similar to the 0.03% over the previous three seasons.

The nutritional component analyses have been completed on 99 of the samples. The crude protein, fat, fibre and ash components have been reported as percentage (g/100g) on a dry/moisture-free basis (db) for the current as well as the three previous surveys. For comparison purposes the ‘as is’ basis results are provided in brackets. These ‘as is’ values were calculated using the weighted national average values.

The average crude protein content of the 2014/2015 season is 39.71% (37.0%) compared to the 39.84% (37.01%) of the previous season. The average crude fat percentage of 19.1% (17.8%) decreased from 19.7% (18.3%) in the 2013/2014 season. The average crude fibre content is 6.4% (6.0%) compared to 6.1% (5.7%) last season. The ash content is 4.61% (4.29%) and varied only 0.05% over the last four seasons.

**Sunflower sample analysis**

All 176 samples, according to the project proposal approved by the OPDT and OAC, have been received at the SAGL. To date, 97 (55%) of these samples have been graded.

The average crude protein content of the 2014/2015 season is 39.71% (37.0%) compared to the 39.84% (37.01%) of the previous season.

Of these samples, 84 (87%) were graded as Grade FH1, and 13 of the samples were downgraded to class other sunflower seed (COSF). In the previous season 82% of the samples were graded FH1. Nine of the samples were downgraded as a result of the percentage of either the screenings, the collective deviations or a combination of both exceeding the maximum permissible deviations of 4 and 6% respectively.

Each of the four remaining samples was downgraded as a result of one of the following: The percentage foreign matter and collective deviations, the percentage damaged sunflower seeds or the number of poisonous seeds exceeding the maximum permissible deviations or due to the presence of stones.

The average percentage screenings present was 1.82%, compared to the 1.69% of the 2013/2014 season. *Sclerotinia* was observed on only six of the 97 samples. The highest percentage present was 3%, which is still below the maximum allowable level of 4%.

The nutritional component results are reported on an ‘as received’ or ‘as is’ basis. These analyses have been completed on 58 of the samples. The average crude protein content of the current season is 16.92%, which is 0.77% higher, while the average crude fat content equals the 39.2% of the previous season. The average percentage crude fibre content is also similar to the 2013/2014 season (20.1% vs 20.2% previously). The ash content decreased slightly from 2.66 to 2.53%.
Value addition
The SAGL is continuously striving to improve the effectiveness of its services by developing improved operational procedures. One of these improvement projects relates to the shelling of sunflower seeds. According to the grading regulations, the determination of damaged sunflower seed is done on a 20g working sample, obtained from a screened sample free of foreign matter and Sclerotinia. This sample is then shelled to retain the nucleus portion of the seeds. Consequently, the grading of sunflower seed is a tedious and time-consuming process.

A 20g average sunflower sample consists of approximately 462 sunflower seeds as counted on a Numigral seed counter. Cutting each kernel in the sample lengthwise in half with a carpet knife blade to enable inspection of the nucleus, typically takes a grader more than 20 minutes.

As an alternative to hand shelling, the SAGL has investigated the effectiveness of a barley pearler to shell sunflower seeds. To shell a 20g sample using this device takes less than two minutes. Based on this positive outcome, the SAGL has purchased a barley pearler which will assist, among others, with more timeous publication of crop survey grading results to their website.

With gratitude to the OPDT for financial support of these annual surveys and to the members of Agbiz Grain for providing the crop samples.

Detailed results of these as well as the previous season’s surveys are available on the SAGL website at www.sagl.co.za. The annual crop quality reports in PDF format are also available for download.