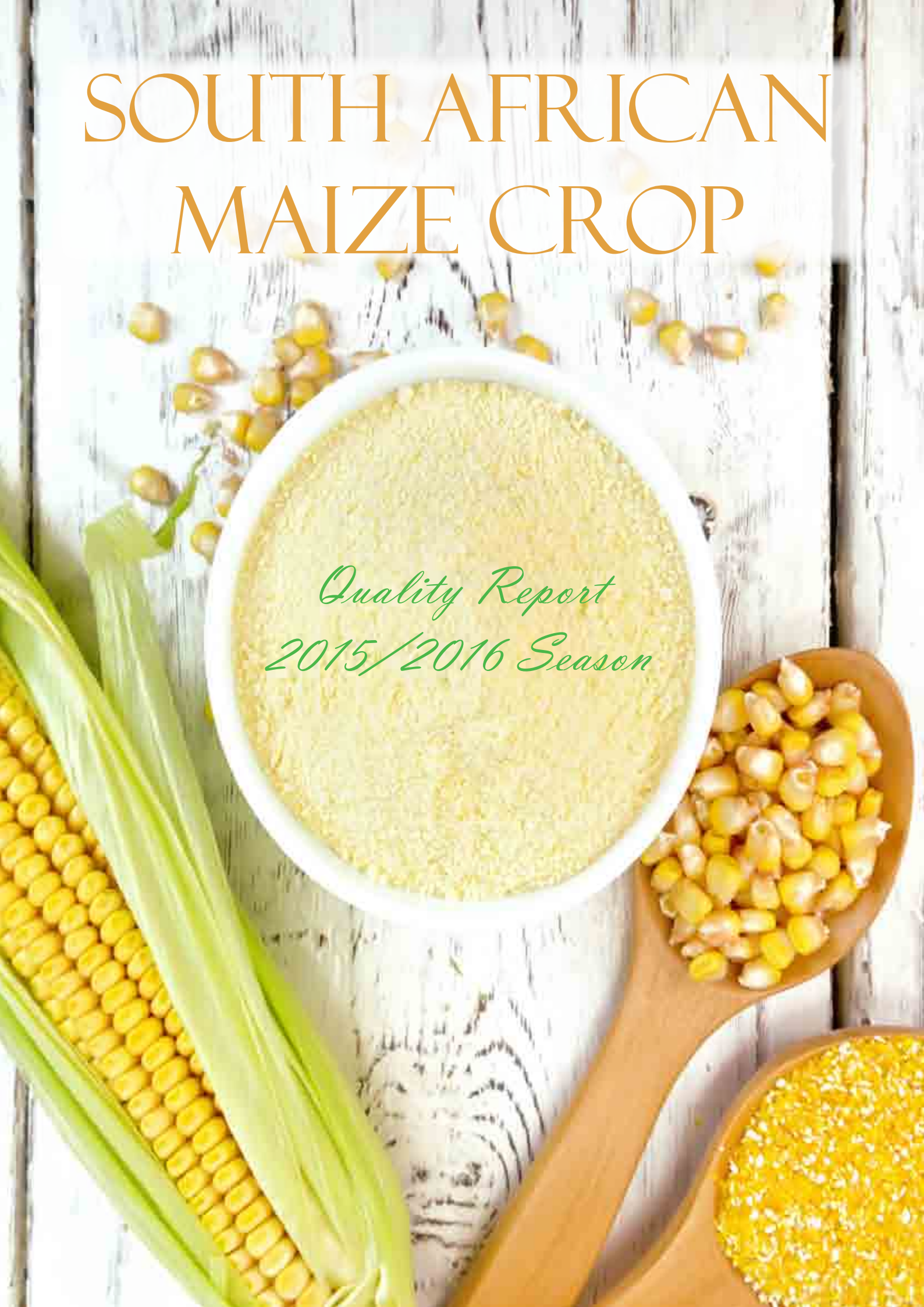
SOUTH AFRICAN MAIZE CROP



Quality Report
2015/2016 Season

Index

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South African
COMMERCIAL MAIZE QUALITY 2015/2016

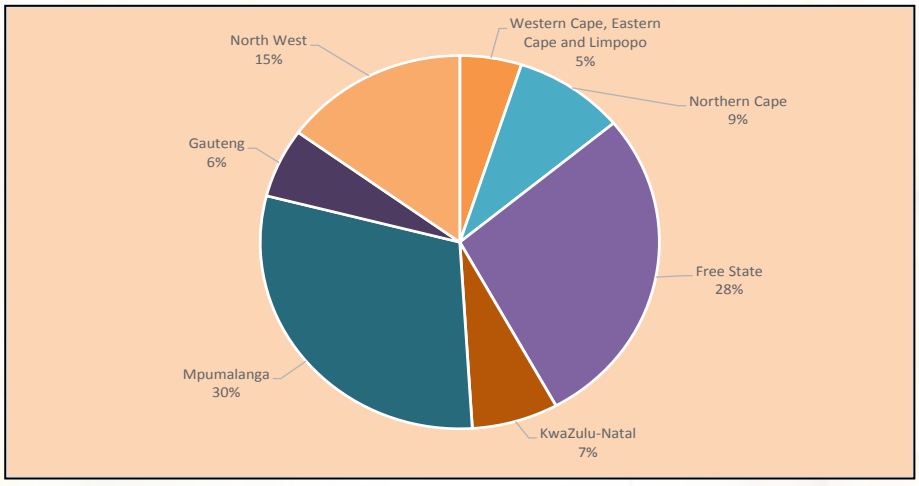
Acknowledgments
With gratitude to:

- *The Maize Trust for financial support in conducting this survey.*
- *Agbiz Grain and its members for providing the samples to make this survey possible.*
- *The Crop Estimates Committee (CEC) of the Department of Agriculture, Forestry and Fisheries for providing production related figures.*
- *South African Grain Information Service (SAGIS) for providing supply and demand figures relating to maize and maize products.*

Introduction

During the harvesting season (April to August 2016), a representative sample of each delivery of maize at the various silos was taken according to the prescribed grading regulations. The sampling procedure for the samples used in this survey is described on page 89. A total of 920 composite samples, representing white and yellow maize of each production region, were received and analysed for quality. The samples consisted of 415 white and 505 yellow maize samples.

Graph 1: Contribution of the nine provinces to the 2015/2016 maize crop production



Figures provided by the CEC.

The quality attributes which were tested for, include:

1. RSA grading: All samples were graded according to the following factors, as defined in the South African grading regulation: defective kernels above and below the 6.35 mm sieve, total defective kernels, foreign matter, other colour kernels, combined deviations and pinked kernels.
2. USA grading according to regulations on all samples to determine the following factors: Test weight per bushel (pounds), heat damaged kernels, total damaged kernels, broken corn and foreign matter (BCFM) and other colour.
3. Nutritional values (on all samples): Crude protein, crude fat and starch.
4. Physical Quality factors (on all samples): Test weight (kg/hl), 100 kernel mass, kernel size, breakage susceptibility, stress cracks and milling index.
5. All white maize samples were milled on the Roff laboratory mill and the whiteness index of the maize meal determined.

6. Mycotoxin analyses were performed on 350 samples representative of white and yellow maize produced per region.
7. Testing for the presence of Genetically Modified (GM) maize were performed on 100 samples representative of white and yellow maize produced per region.

Please refer to pages 89 - 93 for the methodologies followed.

The maize crop quality survey is performed annually by the Southern African Grain Laboratory NPC (SAGL). SAGL was established in 1997 on request of the Grain Industry. SAGL is an ISO 17025 accredited testing laboratory and participates in a number of proficiency testing schemes, both nationally and internationally, as part of our ongoing quality assurance procedures to demonstrate technical competency and international comparability.

The results of this, as well as previous surveys are available on the SAGL website (www.sagl.co.za). Hard copy reports are distributed to all stakeholders and interested parties. The report is also available for download in a PDF format from the website.

In addition to the quality information, production figures (obtained from the Crop Estimates Committee (CEC)) relating to hectares planted, tons produced and yields obtained on a national as well as provincial basis, over an eleven season period, are provided in this report. SAGIS (South African Grain Information Service) supply and demand figures over several years is provided in table and graph format, as is import and export data. Information on the manufacture, import and export of maize products is also included in this report. The national grading regulations as published in the Government Gazette of 8 May 2009, are included (pages 119 to 129).

The goal of this crop quality survey is to accumulate quality data on the commercial maize crop on a national level. This valuable data reveal general tendencies, highlight quality differences in the commercial maize produced in different local production regions and provide important information on the quality of commercial maize intended for export.

The Maize Trust investment in the annual Crop Quality Surveys, has created a unique and extremely useful database of crop quality measurements over several seasons and regions. Up to now, the data has only been presented in table and graph format, but has never been used for trend analyses or to assist in the development of prediction models such as the Milling Index Model.

In order to address this issue, SAGL undertook a data mining project, titled "Data Mining of past eleven years' Milling Index and Crop survey Results", funded by the Maize Trust. A complete statistical analysis of the maize quality data from the 2001/2002 to 2011/2012 seasons were performed for the following measurements: Protein (crude), starch, fat (crude), hectolitre mass, 100 kernel mass, total deviations (grading data), Roff Milling Index, Break 1 flour yield, Break 2 flour yield, Break 3 flour yield, Grits yield and Bran yield (all Roff milling data).

As part of the project, the possibility of developing a Geographic Information System (GIS) map system, where grain production regions (with the boundaries illustrated) are presented on a map of South Africa, was explored. SIQ (with additional data from Agbiz Grain on the regional boundary specifications) created a software package based on an open source GIS package (QGIS). These GIS maps show mean values for a trait for a specific region as an average for all seasons combined or as individual seasons on a year to year basis. The results of the crop quality traits are represented in a colour scale format – highest to lowest values are indicated by the darkest to the lightest colour. Mean values are showed as a legend. This GIS tool provides a good starting point but will however require further optimization in future.

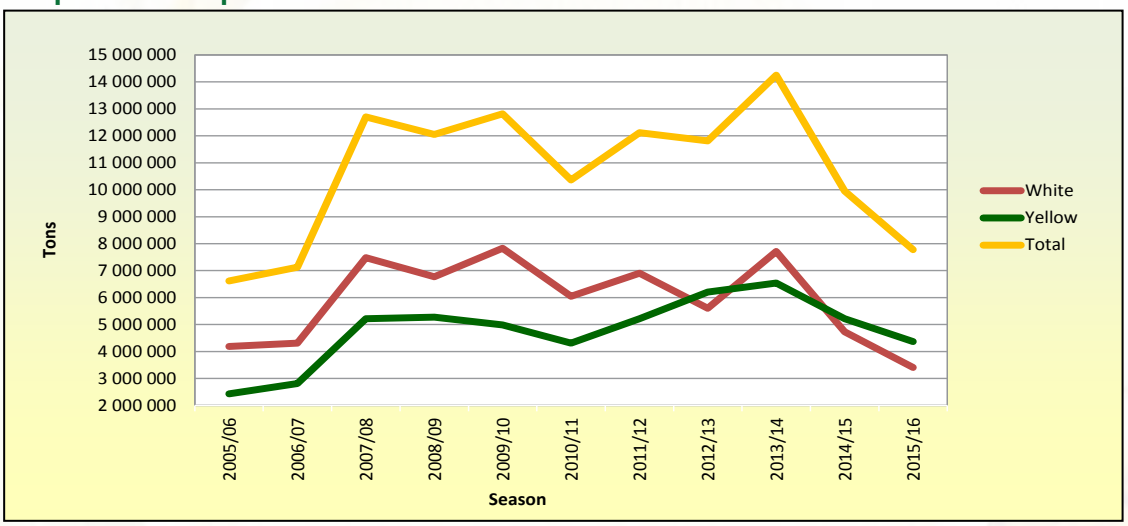
The project outcome provides a decision making tool to the maize industry stakeholders to assist in the identification of potential problem areas in maize quality and to focus future research activities.

Production

The finalized crop figure for commercial maize for the 2015/2016 season as overseen by the National Crop Estimates Liaison Committee (CELC) is 7 778 500 tons. This is the lowest South African maize crop since the 2006/2007 season when 7 125 000 tons of maize were produced and a 22% reduction compared to the previous harvest. White maize's contribution to the total production was 3 408 500 tons (43.8%) and that of yellow maize 4 370 000 tons (56.2%).

The national Crop Estimates Committee's (CEC) estimated total production figures was revised, using as basis for the calculations, the South African Grain Information Services' (SAGIS) published figures of actual deliveries. Figures to determine on-farm usage and retentions from the maize utilization survey, which was conducted by the Department of Agriculture, Forestry and Fisheries (DAFF) and the telephonic survey conducted by the National Crop Statistics Consortium (NCSC), were added to the SAGIS delivery figures to calculate the final crop production figures.

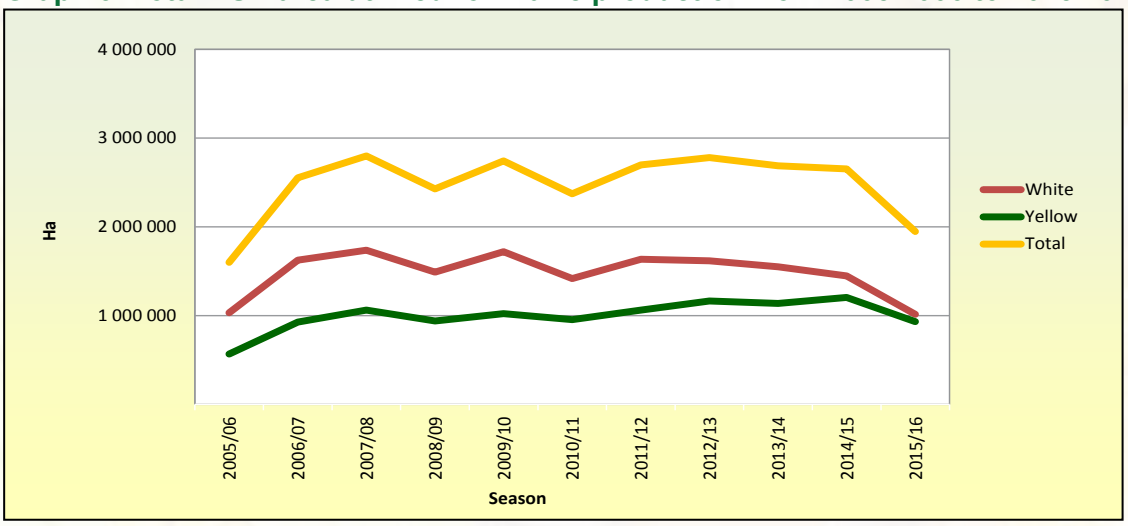
Graph 2: Maize production in RSA from 2005/2006 to 2015/2016



The impact of the extreme drought conditions experienced over large parts of the maize production regions, is evident in the 26.6% decrease in total area utilized for maize production compared to the previous season.

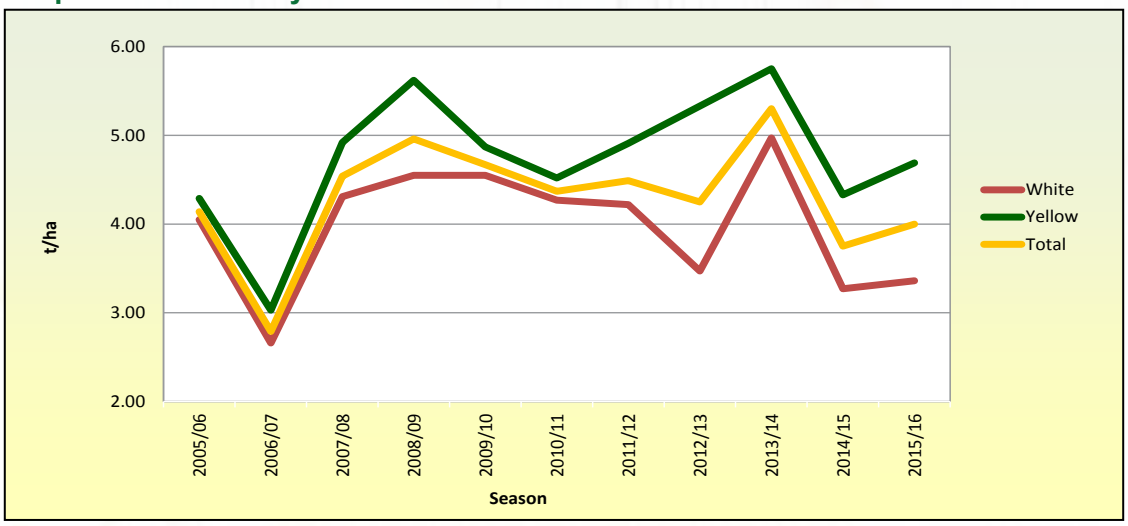
The area decreased from 2 652 850 hectares to 1 946 750 hectares. White maize was planted on 1 014 750 hectares and yellow maize on 932 000 hectares (1 448 050 and 1 204 800 hectares respectively in the 2014/2015 season).

Graph 3: Total RSA area utilized for maize production from 2005/2006 to 2015/2016



The maize yield increased slightly from 3.75 t/ha in the previous season to 4.00 t/ha this season. White maize yielded 3.36 t/ha and yellow maize 4.69 t/ha, representing increases of 2.8% and 8.3% respectively compared to the previous season.

Graph 4: RSA Maize yield from 2005/2006 to 2015/2016



As with commercial maize production, both the area planted as well as the crop size of maize planted in the non-commercial agricultural sector decreased compared to the previous season. Area planted decreased by approximately 33% and the crop size by 35%. Approximately 60% of non-commercial maize is produced in the Eastern Cape.

Table1: Maize production overview - 2015/2016 season

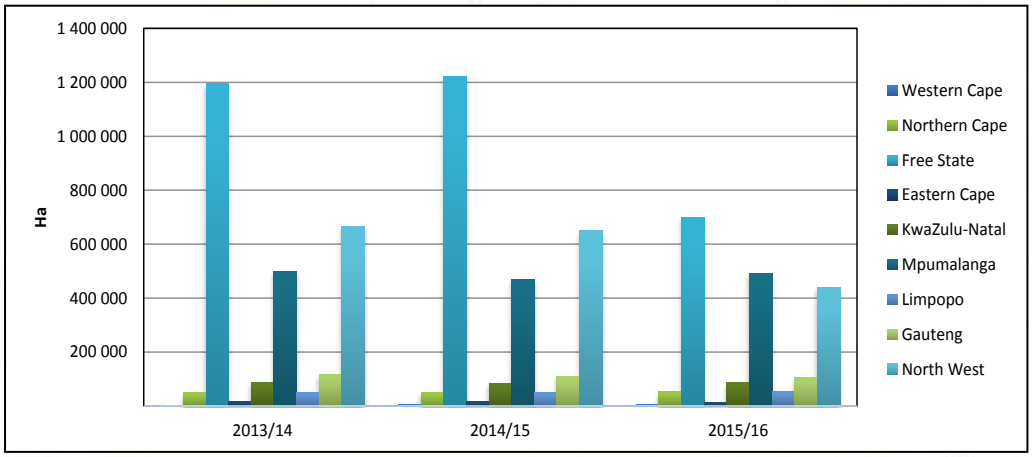
Province	Type of production	White			Yellow		
		Hectares planted, ha	Production, tons	Yield, t/ha	Hectares planted, ha	Production, tons	Yield, t/ha
Western Cape	Dryland	-	-	-	-	-	-
	Irrigation	500	5 000	10.00	4 000	40 000	10.00
	Total	500	5 000	10.00	4 000	40 000	10.00
Northern Cape	Dryland	-	-	-	-	-	-
	Irrigation	3 750	35 000	9.33	50 000	675 000	13.50
	Total	3 750	35 000	9.33	50 000	675 000	13.50
Free State	Dryland	368 000	957 000	2.60	285 000	755 500	2.65
	Irrigation	22 000	233 500	10.61	25 000	267 500	10.70
	Total	390 000	1 190 500	3.05	310 000	1 023 000	3.30
Eastern Cape	Dryland	1 400	3 500	2.50	7 000	17 500	2.50
	Irrigation	600	6 500	10.83	5 000	48 500	9.70
	Total	2 000	10 000	5.00	12 000	66 000	5.50
KwaZulu-Natal	Dryland	28 000	125 000	4.46	33 000	173 500	5.26
	Irrigation	10 000	90 000	9.00	15 000	133 500	8.90
	Total	38 000	215 000	5.66	48 000	307 000	6.40
Mpumalanga	Dryland	153 900	700 000	4.55	310 000	1 400 000	4.52
	Irrigation	6 100	52 000	8.52	20 000	167 000	8.35
	Total	160 000	752 000	4.70	330 000	1 567 000	4.75
Limpopo	Dryland	13 500	20 000	1.48	6 000	8 400	1.40
	Irrigation	18 000	158 000	8.78	16 000	123 600	7.73
	Total	31 500	178 000	5.65	22 000	132 000	6.00
Gauteng	Dryland	45 600	174 500	3.83	49 300	173 500	3.52
	Irrigation	3 400	32 500	9.56	6 700	61 500	9.18
	Total	49 000	207 000	4.22	56 000	235 000	4.20
North West	Dryland	320 325	641 000	2.00	78 000	140 000	1.79
	Irrigation	19 675	175 000	8.89	22 000	185 000	8.41
	Total	340 000	816 000	2.40	100 000	325 000	3.25
RSA	Dryland	930 725	2 621 000	2.82	768 300	2 668 400	3.47
	Irrigation	84 025	787 500	9.37	163 700	1 701 600	10.39
	Total	1 014 750	3 408 500	3.36	932 000	4 370 000	4.69

Figures provided by the CEC.

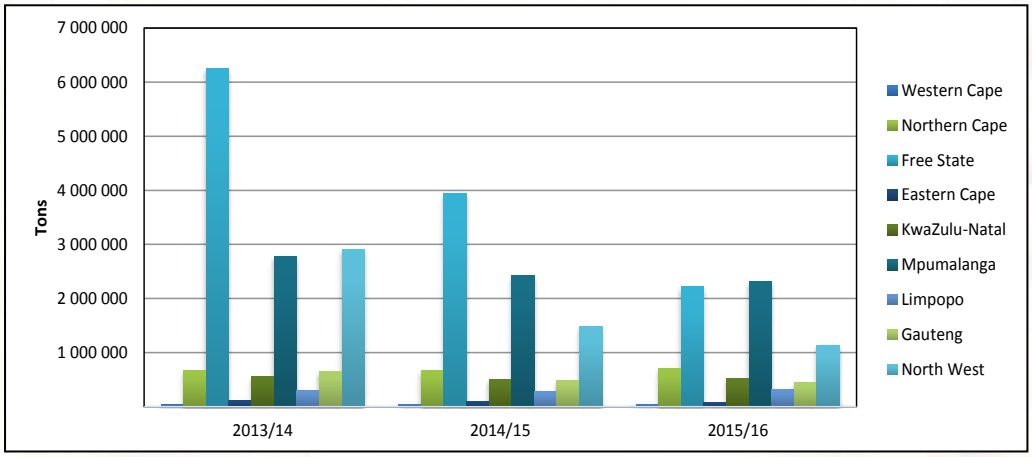
The major commercial maize-producing provinces are Mpumalanga, the Free State and North West, contributing 72% of the total maize production in the RSA. Mpumalanga produced 2 319 000 tons of maize on 490 000 hectares with a yield of 4.73 t/ha. The Free State produced 2 213 500 tons of maize on 700 000 hectares with a yield of 3.16 t/ha and North West harvested 1 141 000 tons of maize on 440 000 hectares yielding 2.59 t/ha. Yellow maize contributed 68% of the total maize production in Mpumalanga while the majority of maize produced in the North West (72%) and Free State (54%) is white.

Please see graphs 5 to 7 for provincial figures for area planted, production and yield over the last three seasons.

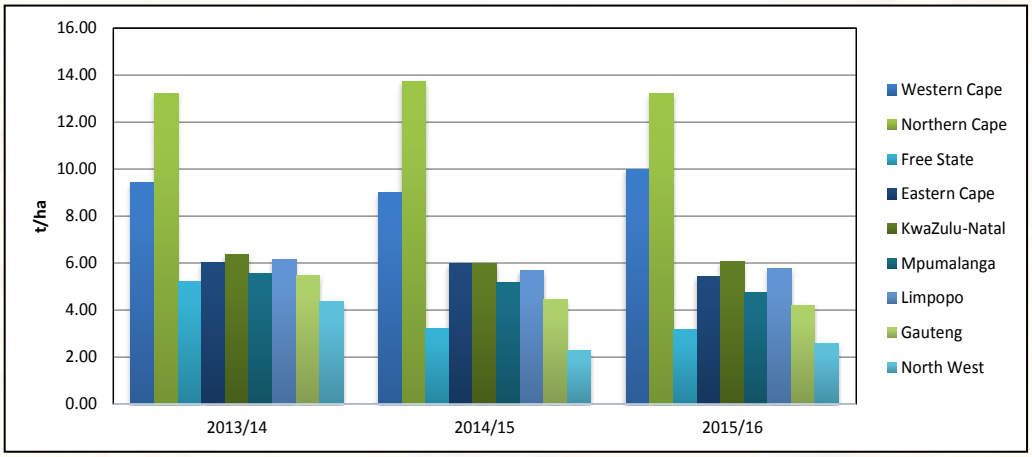
Graph 5: Area utilized for maize production per province over three seasons



Graph 6: Maize production per province over three seasons



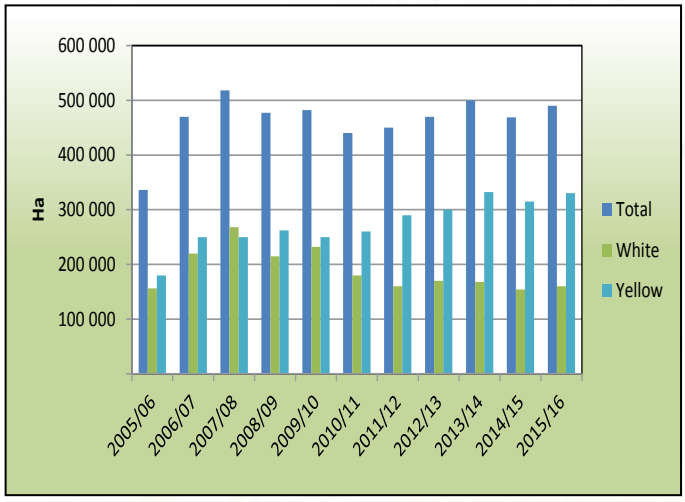
Graph 7: Maize yield per province over three seasons



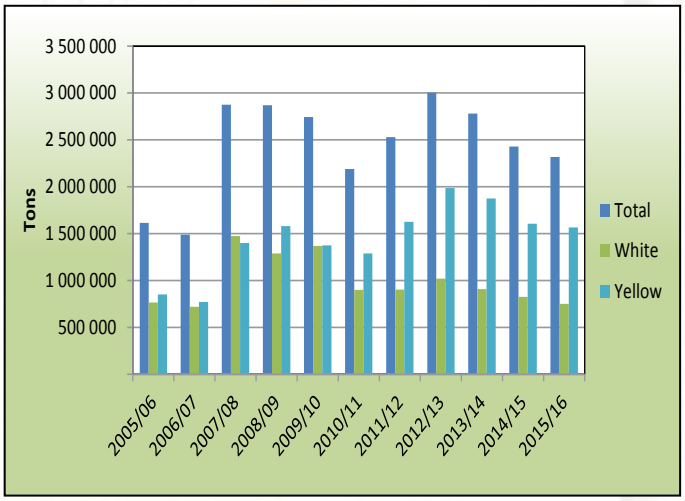
Figures provided by the CEC.

Graphs 8 to 13 provide an overview of the area planted and production figures for Mpumalanga, the Free State and North West from the 2005/2006 to 2015/2016 seasons.

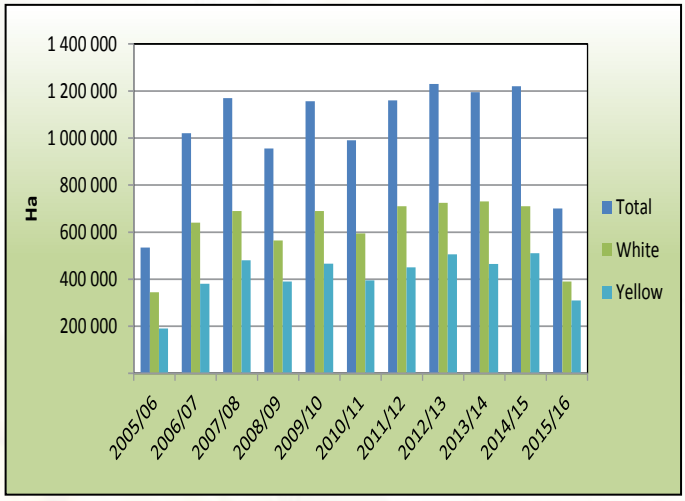
Graph 8: Area utilized for maize production in Mpumalanga since 2005/2006



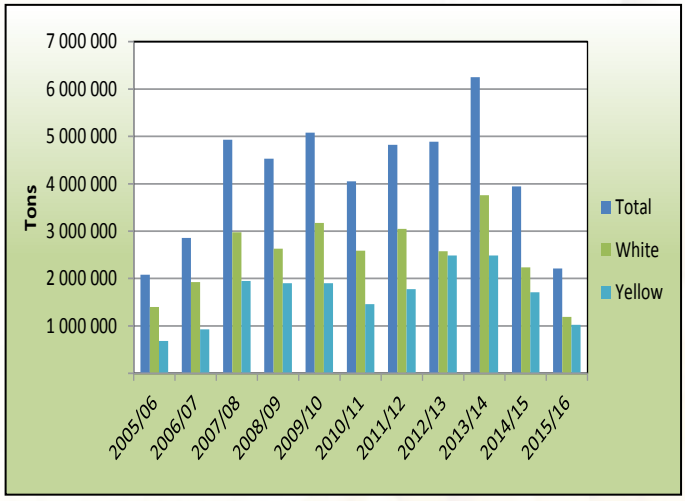
Graph 9: Maize production in Mpumalanga since 2005/2006



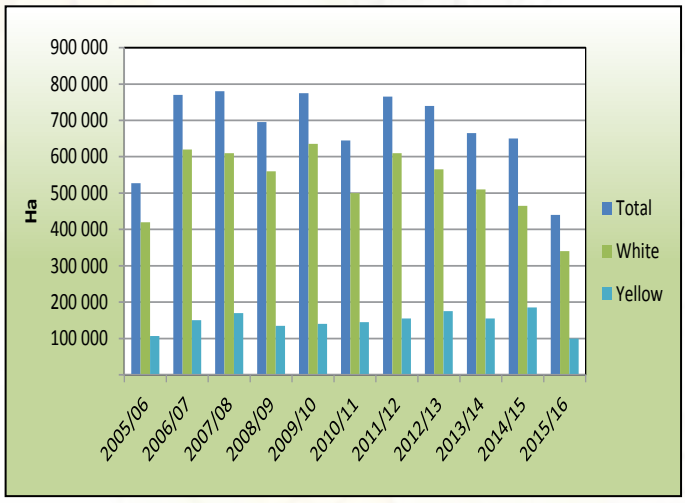
Graph 10: Area utilized for maize production in the Free State since 2005/2006



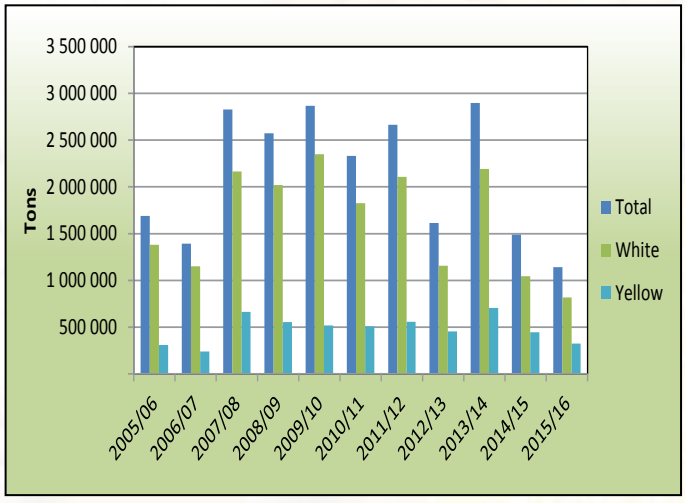
Graph 11: Maize production in the Free State since 2005/2006



Graph 12: Area utilized for maize production in North West since 2005/2006



Graph 13: Maize production in North West since 2005/2006



Figures provided by the CEC.

Supply and Demand

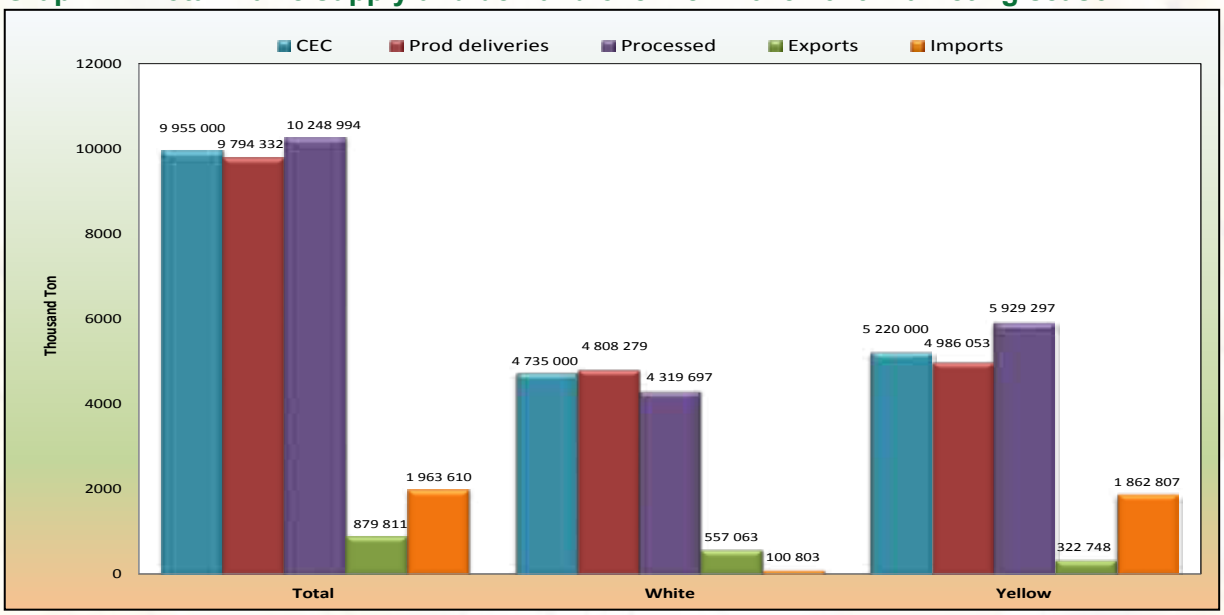
World maize production for the 2015/2016 season is estimated at 973.9 million tons according to the *International Grains Council Grain Market Report GMR 476 – 27 April 2017*, with the major maize producing countries being the USA, China and Brazil. The USA, Brazil, Argentina and Ukraine are the biggest exporters of maize. Maize usage figures are estimated at 110.3, 267.3 and 567.5 million tons respectively for food, industrial and feed purposes. World production for the 2016/2017 season is forecasted at 1 058.8 million tons.

According to the *BFAP Agricultural Outlook 2016 – 2025*, the area planted for commercial maize is projected to reach 2.37 million hectares by 2025 (2.78 million hectares, if the area planted by the informal sector is included). This represents a decline from the figures in 2015 (2.65 million hectares, 3.10 million hectares total). The major contributing factor to this decline is white maize, as producers continue to increase planting of yellow maize and oilseeds in response to rising demand for animal feed. Commercial white maize area is projected to decrease on average 1.5% per annum over the outlook period, while yellow maize area is projected to expand by 1.4% annually. As a result, the area planted to yellow maize is set to exceed that of white maize by 2025. The animal feed sector's maize consumption is projected to surpass 6.5 million tons by 2025, representing a 2% expansion per annum over the 2016 – 2025 period.

The South African weather service indicates that the 2015/2016 season represented the lowest annual rainfall in South Africa since 1904. White maize imports during May 2016 to February 2017 increased from 100 803 tons during 2015/2016 to 653 942 tons. The ten year average for white maize imports is 29 180 tons. Yellow maize imports decreased over the corresponding period from 1 862 807 tons to 1 340 202 tons. The ten year import average for yellow maize is 435 374 tons.

Please see local Supply and Demand figures provided by SAGIS in graphs and tables below and on pages 8 to 13.

Graph 14: Total maize supply and demand overview 2015/2016 marketing season



Information provided by SAGIS.

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

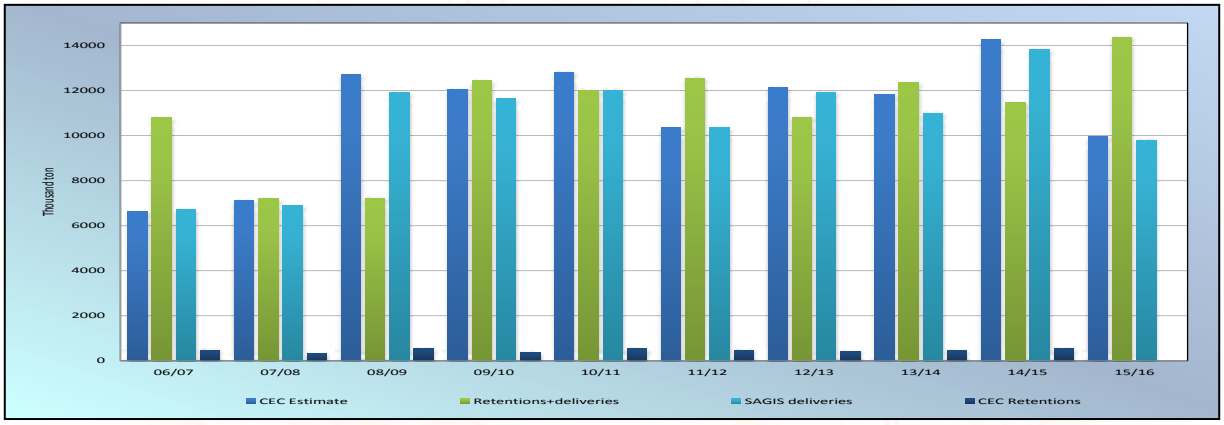
TOTAL MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2017-03-27

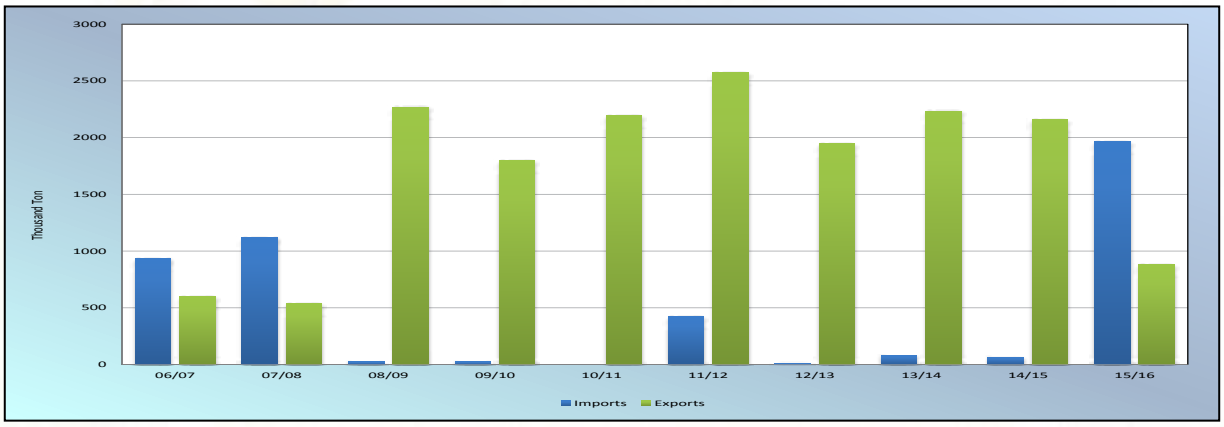
	Marketing Season (May - Apr)																		Current Season May - Feb	10 Year average
Season	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	2006/07-2015/16
																			***	
																			10	
CEC (Crop Estimate)	7,082,000	6,716,000	10,141,000	7,225,000	9,732,000	9,392,000	9,482,000	11,450,000	6,618,000	7,125,000	12,700,000	12,050,000	12,815,000	10,360,000	12,120,656	11,810,600	14,250,000	9,955,000	7,778,500	10,980,426
CEC (Retention)	469,000	502,000	614,000	414,000	462,000	366,000	410,000	754,000	480,000	337,000	554,000	389,000	527,000	474,000	433,000	457,810	550,000	0	0	420,181
SUPPLY																				
Opening stock (1 May)	1,949,000	847,000	983,000	2,115,000	1,202,000	2,710,000	2,624,000	3,148,000	3,169,000	2,070,000	1,049,000	1,581,000	2,131,000	2,336,000	994,000	1,417,393	589,028	2,073,635	2,471,067	1,741,006
Prod deliveries*	6,854,000	7,075,000	10,409,000	7,936,000	9,310,000	8,409,000	9,093,000	10,055,000	6,707,000	6,882,000	11,899,000	11,629,000	12,016,000	10,340,000	11,929,000	10,991,995	13,827,632	9,794,332	6,661,349	10,601,596
Imports	98,000	569,000	0	395,000	925,000	441,000	219,000	360,000	931,000	1,120,000	27,000	27,000	0	421,000	11,000	79,682	65,250	1,963,610	1,994,144	464,554
Surplus	0	0	0	0	0	40,000	0	0	32,000	29,000	30,000	68,000	77,000	54,000	42,000	122,608	26,153	52,930	42,120	53,369
Total Supply	**8,901,000**	**8,491,000**	**11,392,000**	**10,446,000**	**11,437,000**	**11,600,000**	**11,936,000**	**13,563,000**	**10,839,000**	**10,101,000**	**13,005,000**	**13,305,000**	**14,224,000**	**13,151,000**	**12,976,000**	**12,611,678**	**14,508,063**	**13,884,507**	**11,168,680**	**12,860,525**
DEMAND																				
Processed	6,341,000	6,362,000	6,852,000	7,151,000	6,983,000	7,243,000	7,283,000	7,462,000	7,660,000	8,029,000	8,613,000	8,658,000	8,857,000	8,941,000	8,935,000	9,348,670	9,926,519	10,248,994	8,202,587	8,921,718
-human	3,381,000	3,426,000	3,589,000	3,877,000	3,708,000	3,712,000	3,740,000	3,825,000	3,816,000	3,809,000	4,524,000	4,471,000	4,513,000	4,512,000	4,499,000	4,582,310	4,840,021	4,698,482	3,937,587	4,426,481
-animal/industrial	2,960,000	2,936,000	3,068,000	3,146,000	3,155,000	3,416,000	3,427,000	3,537,000	3,763,000	4,157,000	4,020,000	4,101,000	4,271,000	4,362,000	4,378,000	4,715,295	5,040,647	5,520,248	4,242,395	4,432,819
-gristing	n/a	n/a	195,000	128,000	120,000	115,000	116,000	100,000	81,000	63,000	69,000	86,000	73,000	67,000	58,000	51,065	45,851	30,264	22,605	62,418
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	0	0	500,000	325,000	301,000	299,000	255,000	315,000	241,000	217,000	273,000	291,000	267,000	142,000	138,000	148,909	124,508	76,888	79,626	191,931
Released to end-consumers	0	423,000	267,000	214,000	206,000	224,000	351,000	340,000	235,000	230,000	220,000	378,000	526,000	484,000	478,000	280,432	205,577	186,296	126,636	322,331
Net receipts(-)/disp(+)	0	0	2,000	63,000	35,000	25,000	18,000	28,000	36,000	42,000	49,000	51,000	44,000	15,000	62,000	12,043	22,100	21,451	16,583	35,459
Deficit	98,000	79,000	168,000	156,000	14,000	0	49,000	12,000	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	1,388,000	652,000	1,488,000	1,335,000	1,188,000	1,185,000	832,000	2,237,000	597,000	534,000	2,269,000	1,796,000	2,194,000	2,575,000	1,946,000	2,232,596	2,155,724	879,811	828,240	1,717,913
Products	**0**		**65,000**	**54,000**	**118,000**	**89,000**	**100,000**	**94,000**	**49,000**	**62,000**	**107,000**	**126,000**	**128,000**	**129,000**	**133,000**	**176,978**	**198,319**	**186,383**	**156,665**	**129,568**
African Countries			**28,000**	**38,000**	**61,000**	**34,000**	**48,000**	**56,000**	**28,000**	**35,000**	**67,000**	**87,000**	**84,000**	**86,000**	**95,000**	**123,040**	**137,742**	**132,900**	**120,995**	**87,568**
Other Countries			**37,000**	**16,000**	**57,000**	**55,000**	**52,000**	**38,000**	**21,000**	**27,000**	**40,000**	**39,000**	**44,000**	**43,000**	**38,000**	**53,938**	**60,577**	**53,483**	**35,670**	**42,000**
Whole maize	**0**		**1,423,000**	**1,281,000**	**1,070,000**	**1,096,000**	**732,000**	**2,143,000**	**548,000**	**472,000**	**2,162,000**	**1,670,000**	**2,066,000**	**2,446,000**	**1,813,000**	**2,055,618**	**1,957,405**	**693,428**	**671,575**	**1,588,345**
Border Posts			**352,000**	**752,000**	**1,033,000**	**950,000**	**591,000**	**1,311,000**	**488,000**	**472,000**	**1,332,000**	**703,000**	**629,000**	**584,000**	**613,000**	**921,454**	**691,659**	**684,834**	**665,394**	**711,895**
Harbours			**1,071,000**	**529,000**	**37,000**	**146,000**	**141,000**	**832,000**	**60,000**	**0**	**830,000**	**967,000**	**1,437,000**	**1,862,000**	**1,200,000**	**1,134,164**	**1,264,326**	**8,594**	**6,181**	**876,308**
Total Demand	**7,827,000**	**7,516,000**	**9,277,000**	**9,244,000**	**8,727,000**	**8,976,000**	**8,788,000**	**10,394,000**	**8,769,000**	**9,052,000**	**11,424,000**	**11,174,000**	**11,888,000**	**12,157,000**	**11,559,000**	**12,022,650**	**12,434,428**	**11,413,440**	**9,253,672**	**11,189,352**
Ending Stock (30 Apr)	**1,074,000**	**975,000**	**2,115,000**	**1,202,000**	**2,710,000**	**2,624,000**	**3,148,000**	**3,169,000**	**2,070,000**	**1,049,000**	**1,581,000**	**2,131,000**	**2,336,000**	**994,000**	**1,417,000**	**589,028**	**2,073,635**	**2,471,067**	**1,915,008**	**1,671,173**
- processed p/month	528,400	530,200	571,000	595,900	581,900	603,600	606,900	621,800	638,300	669,100	717,800	721,500	738,100	745,100	744,583	779,056	827,210	854,083	820,259	743,483
- months' stock	2.0	1.8	3.7	2.0	4.7	4.3	5.2	5.1	3.2	1.6	2.2	3.0	3.2	1.3	1.9	0.8	2.5	2.9	2.3	2

Note: *** Figures for current season up to date

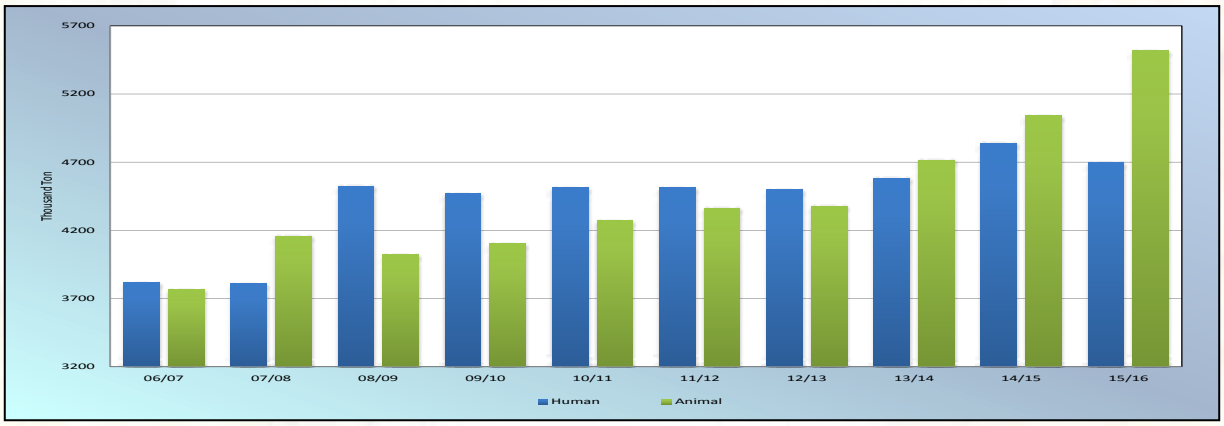
Graph 15: Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



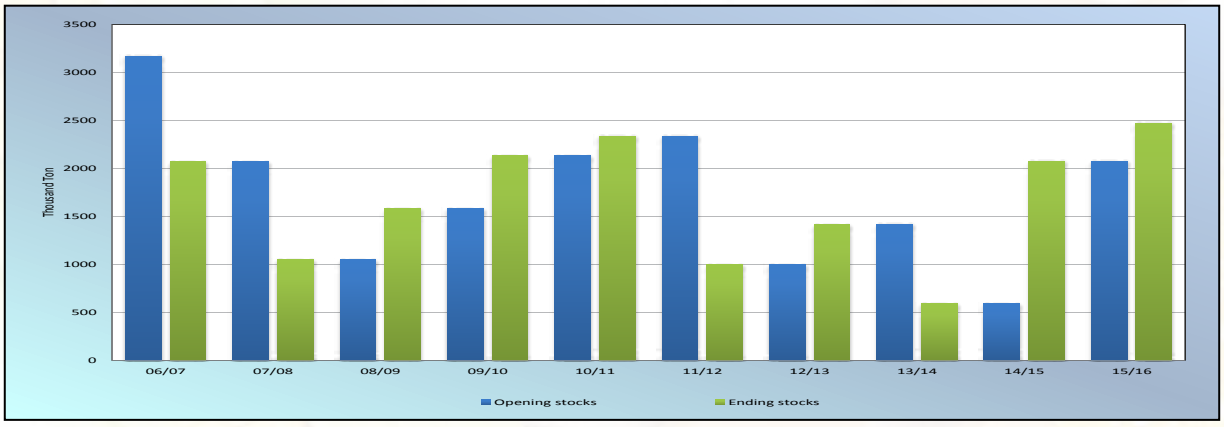
Graph 16: Maize: Imports and exports over 10 marketing seasons



Graph 17: Maize: RSA consumption over 10 marketing seasons



Graph 18: Maize: Opening and ending stocks over 10 marketing seasons



Information provided by SAGIS.

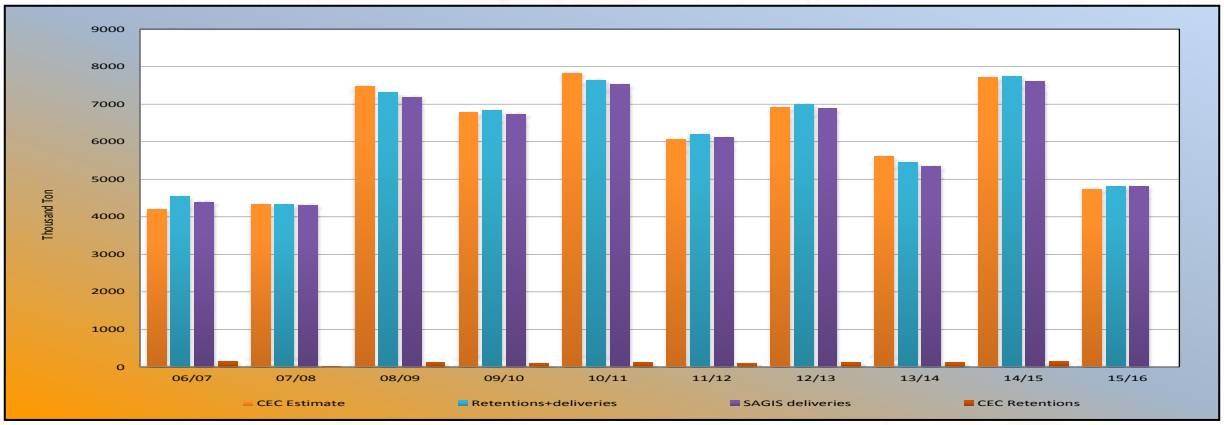
WHITE MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2017-03-27

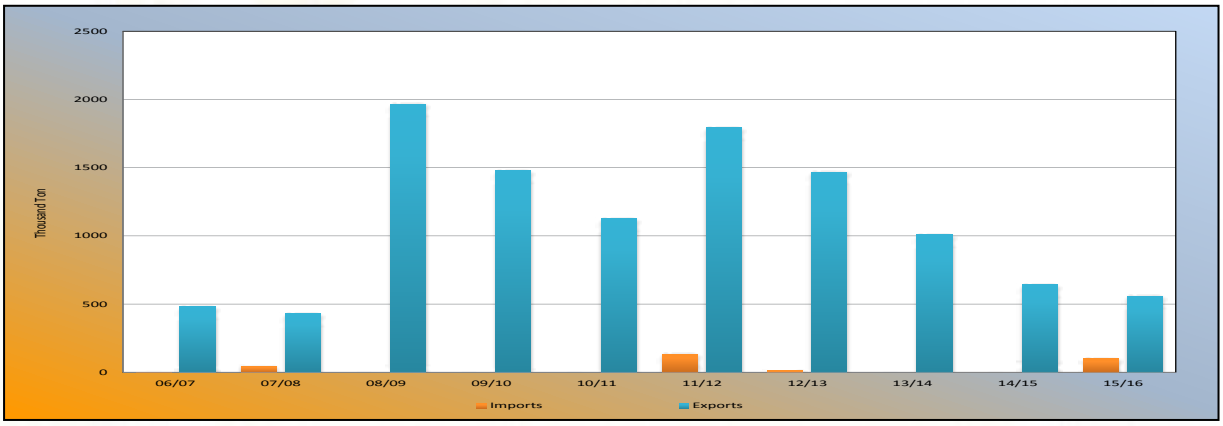
	Marketing Season (May - Apr)																		Current Season May - Feb	10 Year average
Season	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	2006/07-2015/16
																			***	
																			10	
CEC (Crop Estimate)	4,383,000	4,141,000	6,155,000	4,110,000	5,538,000	6,366,000	5,805,000	6,541,000	4,187,000	4,315,000	7,480,000	6,775,000	7,830,000	6,052,000	6,903,656	5,606,800	7,710,000	4,735,000	3,408,500	6,159,446
CEC (Retention)	119,000	124,000	189,000	105,000	139,000	116,000	113,000	184,000	144,000	11,000	120,000	83,000	119,000	100,000	114,000	110,910	150,000	0	0	95,191
SUPPLY																				
Opening stock (1 May)	947,000	513,000	609,000	1,273,000	559,000	1,718,000	2,123,000	2,402,000	2,301,000	1,630,000	618,000	762,000	1,362,000	1,609,000	518,000	757,214	274,318	1,282,581	1,307,867	1,111,411
Prod deliveries*	4,412,000	4,652,000	6,440,000	4,636,000	5,576,000	5,845,000	5,647,000	6,108,000	4,392,000	4,309,000	7,190,000	6,737,000	7,518,000	6,105,000	6,880,000	5,342,204	7,592,893	4,808,279	3,045,981	6,087,438
Imports	0	0	0	47,000	274,000	33,000	0	0	1,000	46,000	0	0	0	133,000	11,000	0	0	100,803	653,942	29,180
Surplus	17,000	0	0	0	0	40,000	0	4,000	20,000	19,000	25,000	48,000	45,000	18,000	22,000	69,859	8,808	17,474	33,905	29,314
Total Supply	**5,376,000**	**5,165,000**	**7,049,000**	**5,956,000**	**6,409,000**	**7,636,000**	**7,770,000**	**8,514,000**	**6,714,000**	**6,004,000**	**7,833,000**	**7,547,000**	**8,925,000**	**7,865,000**	**7,431,000**	**6,169,277**	**7,876,019**	**6,209,137**	**5,041,695**	**7,257,343**
DEMAND																				
Processed	3,586,000	3,687,000	4,342,000	4,202,000	3,679,000	4,212,000	4,313,000	4,186,000	4,385,000	4,751,000	4,922,000	4,555,000	5,871,000	5,374,000	5,047,000	4,808,674	5,862,438	4,319,697	3,520,021	4,989,581
-human	3,255,000	3,235,000	3,377,000	3,630,000	3,459,000	3,467,000	3,478,000	3,559,000	3,526,000	3,552,000	4,198,000	4,125,000	4,157,000	4,119,000	4,095,000	4,118,448	4,361,295	4,183,067	3,467,810	4,043,481
-animal/industrial	331,000	452,000	783,000	446,000	105,000	641,000	733,000	543,000	787,000	1,142,000	662,000	362,000	1,658,000	1,202,000	904,000	651,925	1,469,002	118,522	40,479	895,645
-gristing	n/a	n/a	182,000	126,000	115,000	104,000	102,000	84,000	72,000	57,000	62,000	68,000	56,000	53,000	48,000	38,301	32,141	18,108	11,732	50,455
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	0	0	349,000	164,000	144,000	144,000	107,000	101,000	112,000	107,000	111,000	81,000	108,000	46,000	36,000	32,409	36,940	13,385	11,175	68,373
Released to end-consumers	0	222,000	96,000	64,000	40,000	76,000	181,000	71,000	80,000	69,000	45,000	62,000	189,000	126,000	95,000	43,000	38,934	13,987	3,949	76,192
Net receipts(-)/disp(+)	0	0	7,000	43,000	11,000	12,000	17,000	11,000	27,000	28,000	27,000	10,000	22,000	7,000	28,000	1,953	14,319	-2,862	421	16,241
Deficit	0	58,000	121,000	112,000	0	0	38,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	1,108,000	594,000	861,000	812,000	817,000	1,069,000	712,000	1,844,000	480,000	431,000	1,966,000	1,477,000	1,126,000	1,794,000	1,468,000	1,008,923	640,807	557,063	468,150	1,094,879
Products	**0**	**0**	**54,000**	**52,000**	**73,000**	**65,000**	**44,000**	**58,000**	**20,000**	**31,000**	**69,000**	**69,000**	**77,000**	**60,000**	**68,000**	**82,877**	**93,307**	**83,636**	**54,543**	**65,382**
African Countries			**17,000**	**37,000**	**37,000**	**22,000**	**23,000**	**51,000**	**14,000**	**24,000**	**57,000**	**58,000**	**62,000**	**47,000**	**56,000**	**72,032**	**77,930**	**73,061**	**45,415**	**54,102**
Other Countries			**37,000**	**15,000**	**36,000**	**43,000**	**21,000**	**7,000**	**6,000**	**7,000**	**12,000**	**11,000**	**15,000**	**13,000**	**12,000**	**10,845**	**15,377**	**10,575**	**9,128**	**11,280**
Whole maize	**0**	**0**	**807,000**	**760,000**	**744,000**	**1,004,000**	**668,000**	**1,786,000**	**460,000**	**400,000**	**1,897,000**	**1,408,000**	**1,049,000**	**1,734,000**	**1,400,000**	**926,046**	**547,500**	**473,427**	**413,607**	**1,029,497**
Border Posts			**319,000**	**671,000**	**737,000**	**881,000**	**527,000**	**1,210,000**	**400,000**	**400,000**	**1,241,000**	**566,000**	**509,000**	**439,000**	**462,000**	**727,989**	**538,128**	**473,427**	**413,607**	**575,654**
Harbours			**488,000**	**89,000**	**7,000**	**123,000**	**141,000**	**576,000**	**60,000**	**0**	**656,000**	**842,000**	**540,000**	**1,295,000**	**938,000**	**198,057**	**9,372**	**0**	**0**	**453,843**
Total Demand	**4,694,000**	**4,561,000**	**5,776,000**	**5,397,000**	**4,691,000**	**5,513,000**	**5,368,000**	**6,213,000**	**5,084,000**	**5,386,000**	**7,071,000**	**6,185,000**	**7,316,000**	**7,347,000**	**6,674,000**	**5,894,959**	**6,593,438**	**4,901,270**	**4,003,716**	**6,245,267**
Ending Stock (30 Apr)	**682,000**	**604,000**	**1,273,000**	**559,000**	**1,718,000**	**2,123,000**	**2,402,000**	**2,301,000**	**1,630,000**	**618,000**	**762,000**	**1,362,000**	**1,609,000**	**518,000**	**757,000**	**274,318**	**1,282,581**	**1,307,867**	**1,037,979**	**1,012,077**
- processed p/month	298,800	307,300	361,800	350,200	306,600	351,000	359,400	348,800	365,400	395,900	410,200	379,600	489,300	447,800	420,583	400,723	488,537	359,975	352,002	415,802
- months' stock	2.3	2.0	3.5	1.6	5.6	6.0	6.7	6.6	4.5	1.6	1.9	3.6	3.3	1.2	1.8	0.7	2.6	3.6	2.9	3

Note: *** Figures for current season up to date

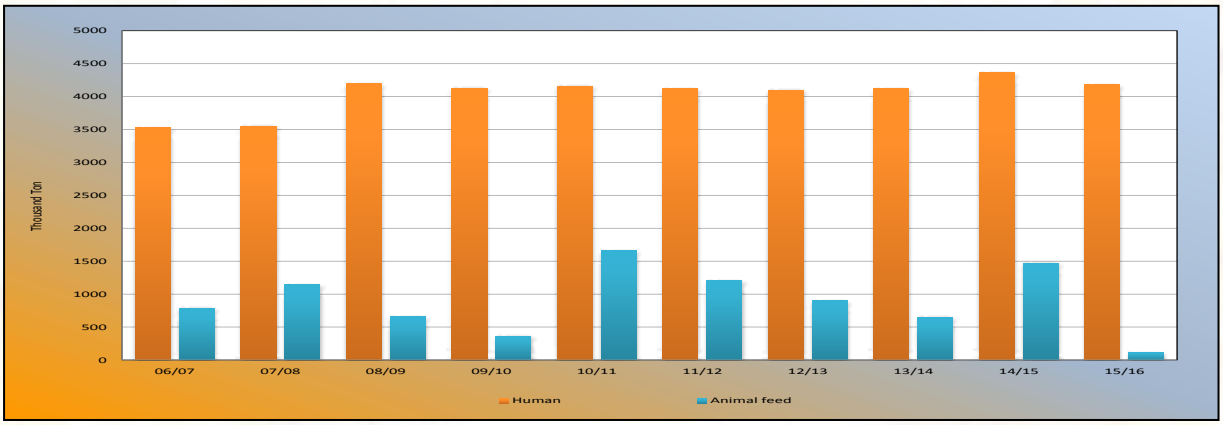
Graph 19: White Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



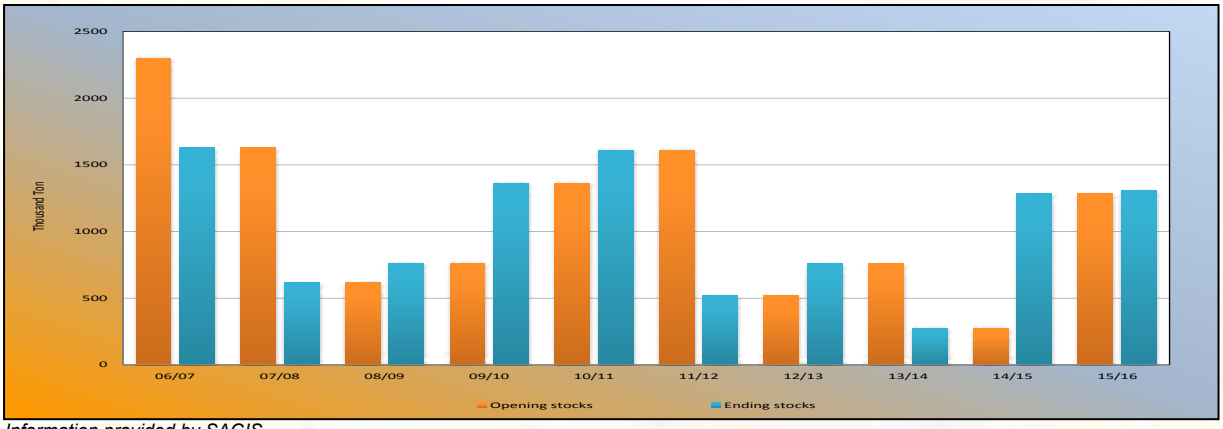
Graph 20: White Maize: Imports and exports over 10 marketing seasons



Graph 21: White Maize: RSA consumption over 10 marketing seasons



Graph 22: White Maize: Opening and ending stocks over 10 marketing seasons



Information provided by SAGIS.

SAGIS South African Grain Information Service NPC
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Reg no. 1997/019186/08

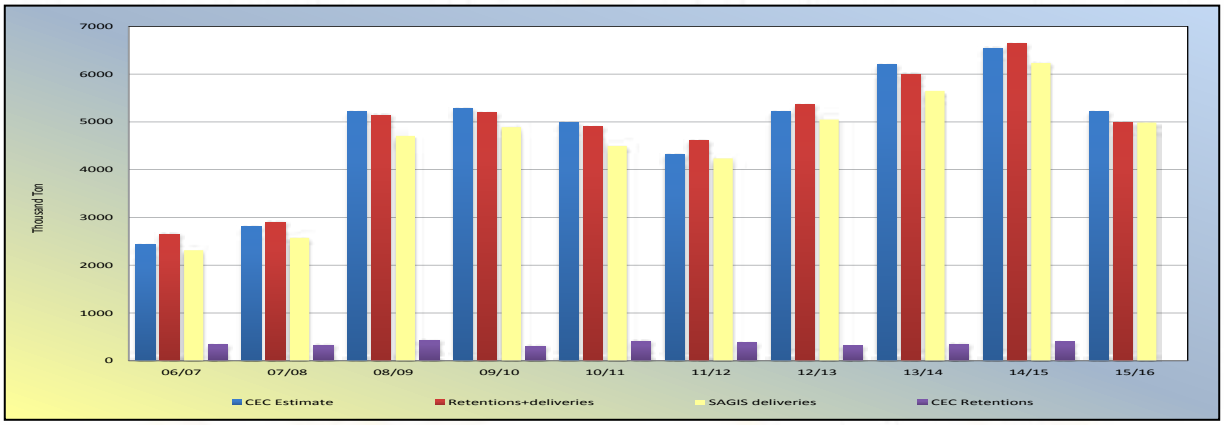
YELLOW MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2017-03-27

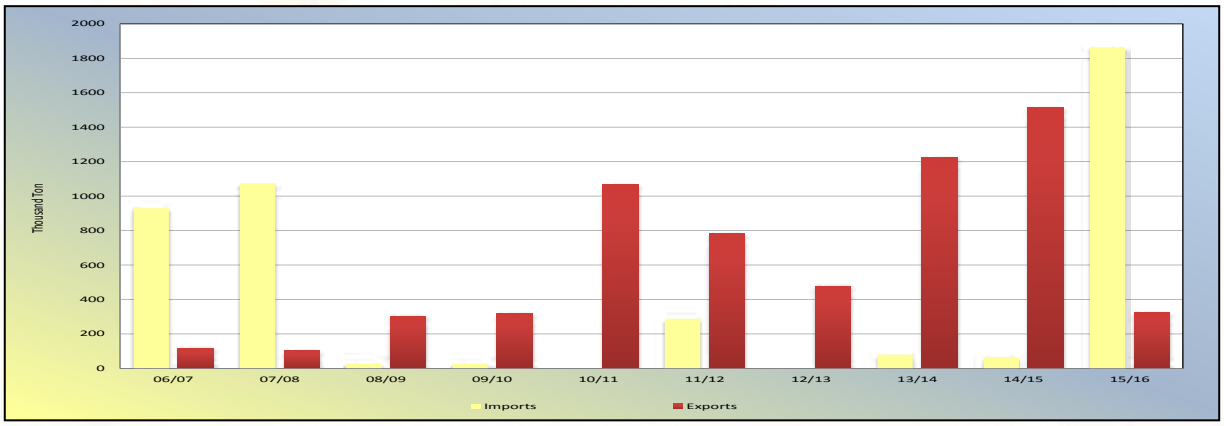
	Marketing Season (May - Apr)																		Current Season May-Feb	10 Year average
Season	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	2006/07-2015/16
																			***	
																			10	
CEC (Crop Estimate)	2,699,000	2,575,000	3,986,000	3,115,000	4,194,000	3,026,000	3,677,000	4,909,000	2,431,000	2,810,000	5,220,000	5,275,000	4,985,000	4,308,000	5,217,000	6,203,800	6,540,000	5,220,000	4,370,000	4,820,980
CEC (Retention)	350,000	378,000	425,000	309,000	323,000	250,000	297,000	570,000	336,000	326,000	434,000	306,000	408,000	374,000	319,000	346,900	400,000	0	0	324,990
SUPPLY																				
Opening stock (1 May)	1,002,000	334,000	374,000	842,000	643,000	992,000	501,000	746,000	868,000	440,000	431,000	819,000	769,000	727,000	476,000	660,179	314,710	791,054	1,163,200	629,594
Prod deliveries*	2,442,000	2,423,000	3,969,000	3,300,000	3,734,000	2,564,000	3,446,000	3,947,000	2,315,000	2,573,000	4,709,000	4,892,000	4,498,000	4,235,000	5,049,000	5,649,791	6,234,739	4,986,053	3,615,368	4,514,158
Imports	98,000	569,000	0	348,000	651,000	408,000	219,000	360,000	930,000	1,074,000	27,000	27,000	0	288,000	0	79,682	65,250	1,862,807	1,340,202	435,374
Surplus	0	0	0	0	0	0	0	0	12,000	10,000	5,000	20,000	32,000	36,000	20,000	52,749	17,345	35,456	8,215	24,055
Total Supply	**3,542,000**	**3,326,000**	**4,343,000**	**4,490,000**	**5,028,000**	**3,964,000**	**4,166,000**	**5,053,000**	**4,125,000**	**4,097,000**	**5,172,000**	**5,758,000**	**5,299,000**	**5,286,000**	**5,545,000**	**6,442,401**	**6,632,044**	**7,675,370**	**6,126,985**	**5,603,182**
DEMAND																				
Processed	2,755,000	2,675,000	2,510,000	2,949,000	3,304,000	3,031,000	2,970,000	3,276,000	3,275,000	3,278,000	3,691,000	4,103,000	2,986,000	3,567,000	3,888,000	4,539,996	4,064,081	5,929,297	4,682,566	3,932,137
-human	126,000	191,000	212,000	247,000	249,000	245,000	262,000	266,000	290,000	257,000	326,000	346,000	356,000	393,000	404,000	463,862	478,726	515,415	469,777	383,000
-animal/industrial	2,629,000	2,484,000	2,285,000	2,700,000	3,050,000	2,775,000	2,694,000	2,994,000	2,976,000	3,015,000	3,358,000	3,739,000	2,613,000	3,160,000	3,474,000	4,063,370	3,571,645	5,401,726	4,201,916	3,537,174
-gristing	n/a	n/a	13,000	2,000	5,000	11,000	14,000	16,000	9,000	6,000	7,000	18,000	17,000	14,000	10,000	12,764	13,710	12,156	10,873	11,963
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	0	0	151,000	161,000	157,000	155,000	148,000	214,000	129,000	110,000	162,000	210,000	159,000	96,000	102,000	116,500	87,568	63,503	68,451	123,557
Released to end-consumers	0	201,000	171,000	150,000	166,000	148,000	170,000	269,000	155,000	161,000	175,000	316,000	337,000	358,000	383,000	237,432	166,643	172,309	122,687	246,138
Net receipts(-)/disp(+)	0	0	-5,000	20,000	24,000	13,000	1,000	17,000	9,000	14,000	22,000	41,000	22,000	8,000	34,000	10,090	7,781	24,313	16,162	19,218
Deficit	115,000	21,000	47,000	44,000	14,000	0	11,000	16,000	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	280,000	58,000	627,000	523,000	371,000	116,000	120,000	393,000	117,000	103,000	303,000	319,000	1,068,000	781,000	478,000	1,223,673	1,514,917	322,748	360,090	623,034
Products	**0**	**0**	**11,000**	**2,000**	**45,000**	**24,000**	**56,000**	**36,000**	**29,000**	**31,000**	**38,000**	**57,000**	**51,000**	**69,000**	**65,000**	**94,101**	**105,012**	**102,747**	**102,122**	**64,186**
African Countries			**11,000**	**1,000**	**24,000**	**12,000**	**25,000**	**5,000**	**14,000**	**11,000**	**10,000**	**29,000**	**22,000**	**39,000**	**39,000**	**51,008**	**59,812**	**59,839**	**75,580**	**33,466**
Other Countries				1,000	**21,000**	**12,000**	**31,000**	**31,000**	**15,000**	**20,000**	**28,000**	**28,000**	**29,000**	**30,000**	**26,000**	**43,093**	**45,200**	**42,908**	**26,542**	**30,720**
Whole maize	**0**	**0**	**616,000**	**521,000**	**326,000**	**92,000**	**64,000**	**357,000**	**88,000**	**72,000**	**265,000**	**262,000**	**1,017,000**	**712,000**	**413,000**	**1,129,572**	**1,409,905**	**220,001**	**257,968**	**558,848**
Border Posts			**33,000**	**81,000**	**296,000**	**69,000**	**64,000**	**101,000**	**88,000**	**72,000**	**91,000**	**137,000**	**120,000**	**145,000**	**151,000**	**193,465**	**153,531**	**211,407**	**251,787**	**136,240**
Harbours			**583,000**	**440,000**	**30,000**	**23,000**	**0**	**256,000**	**0**	**0**	**174,000**	**125,000**	**897,000**	**567,000**	**262,000**	**936,107**	**1,254,954**	**8,594**	**6,181**	**422,466**
Total Demand	**3,150,000**	**2,955,000**	**3,501,000**	**3,847,000**	**4,036,000**	**3,463,000**	**3,420,000**	**4,185,000**	**3,685,000**	**3,666,000**	**4,353,000**	**4,989,000**	**4,572,000**	**4,810,000**	**4,885,000**	**6,127,691**	**5,840,990**	**6,512,170**	**5,249,956**	**4,944,085**
Ending Stock (30 Apr)	**392,000**	**371,000**	**842,000**	**643,000**	**992,000**	**501,000**	**746,000**	**868,000**	**440,000**	**431,000**	**819,000**	**769,000**	**727,000**	**476,000**	**660,000**	**314,710**	**791,054**	**1,163,200**	**877,029**	**659,096**
- processed p/month	229,600	222,900	209,200	245,800	275,300	252,600	247,500	273,000	272,900	273,200	307,600	341,900	248,800	297,300	324,000	378,333	338,673	494,108	468,257	327,682
- months' stock	1.7	1.7	4.0	2.6	3.6	2.0	3.0	3.2	1.6	1.6	2.7	2.2	2.9	1.6	2.0	0.8	2.3	2.4	1.9	2

Note: *** Figures for current season up to date

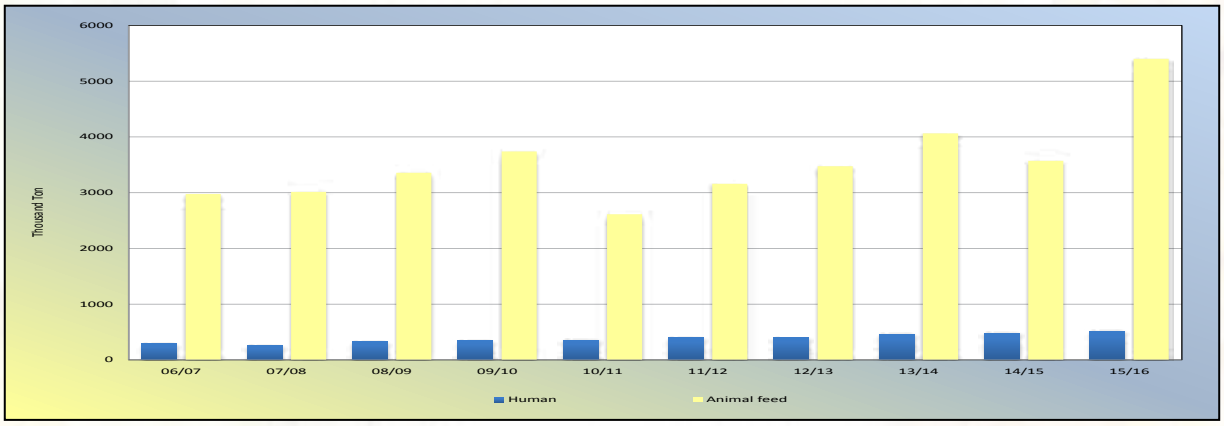
Graph 23: Yellow Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



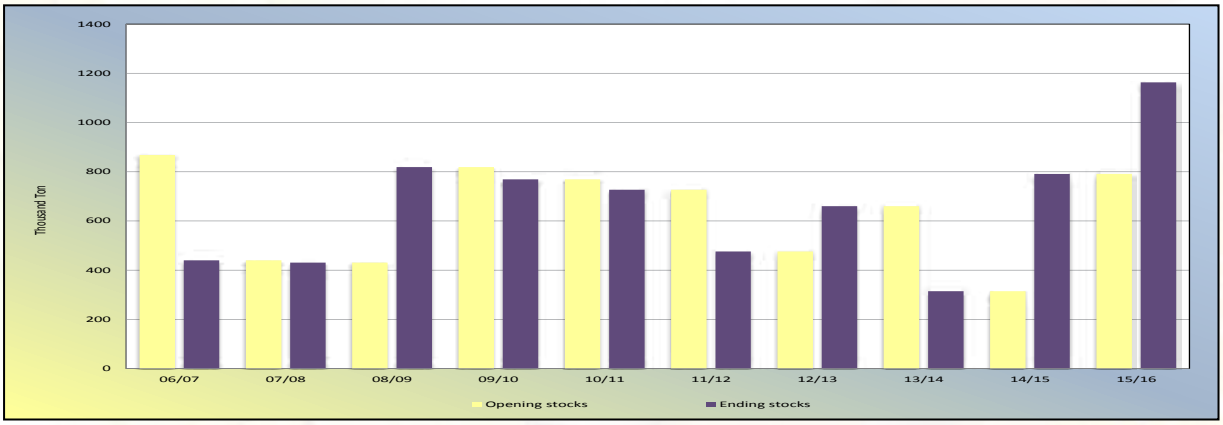
Graph 24: Yellow Maize: Imports and exports over 10 marketing seasons



Graph 25: Yellow Maize: RSA consumption over 10 marketing seasons



Graph 26: Yellow Maize: Opening and ending stocks over 10 marketing seasons



Information provided by SAGIS.

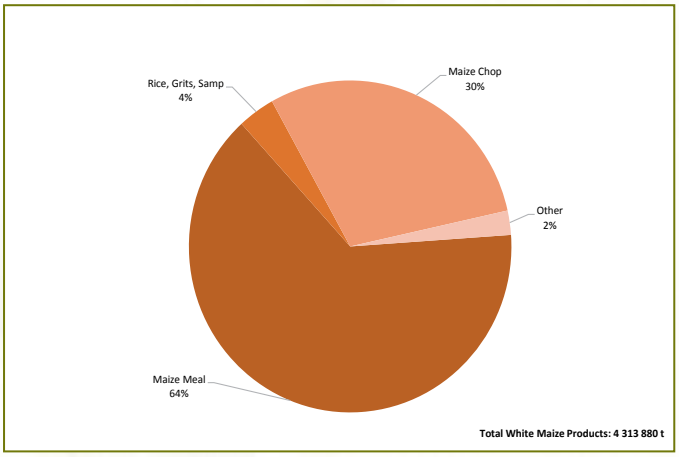
Maize Product Information

On 14 November 2014, the Minister of Agriculture, Forestry & Fisheries announced new statutory measures for the manufacturing of maize & wheaten products.

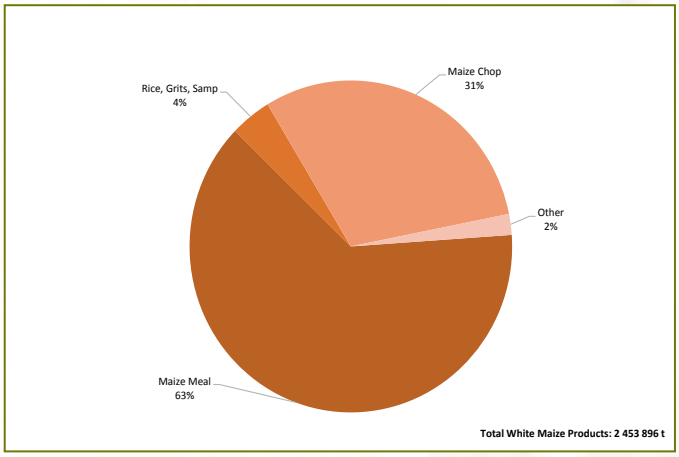
To comply with the abovementioned statutory measures, manufacturers of these products have to register with SAGIS and submit information with regards to the manufacture, import and export of maize products.

Please see graphs 27 to 34 below and on the next page, as well as the tables on pages 16 to 18 for maize product figures received by SAGIS for the periods July 2015 to June 2016 and July 2016 to January 2017.

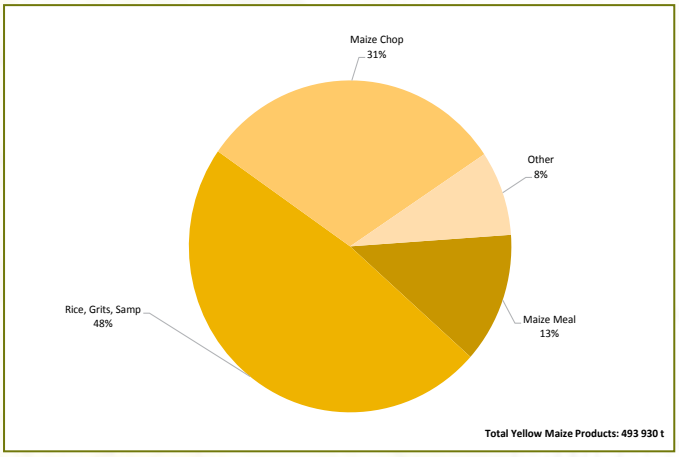
Graph 27: White maize products manufactured from July 2015 - June 2016



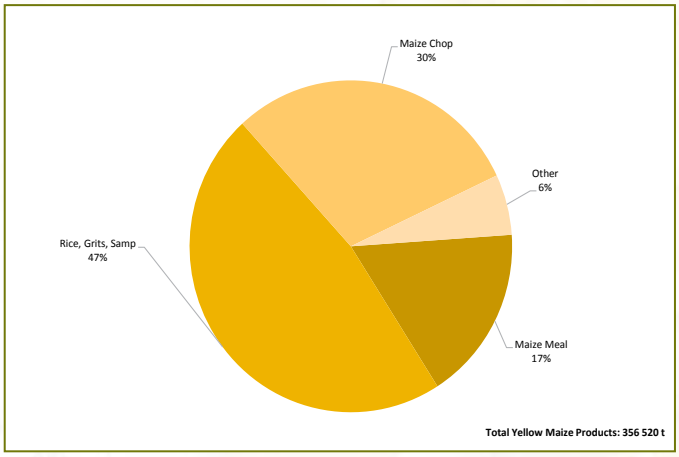
Graph 28: White maize products manufactured from July 2016 - January 2017



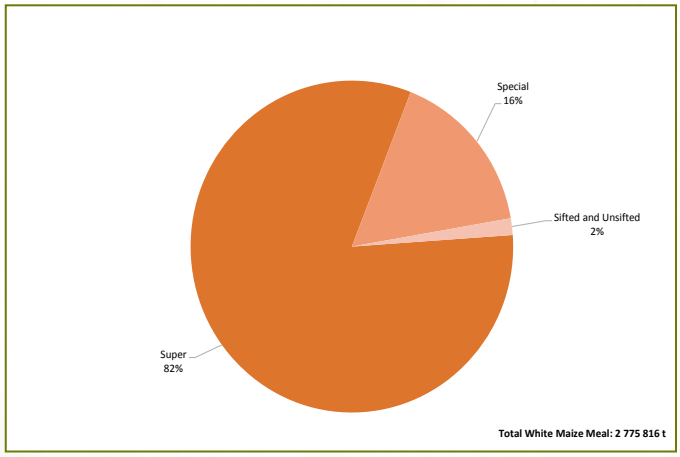
Graph 29: Yellow maize products manufactured from July 2015 - June 2016



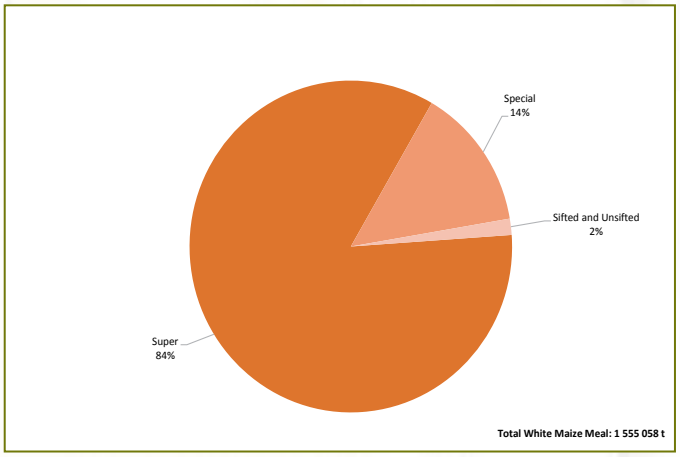
Graph 30: Yellow maize products manufactured from July 2016 - January 2017



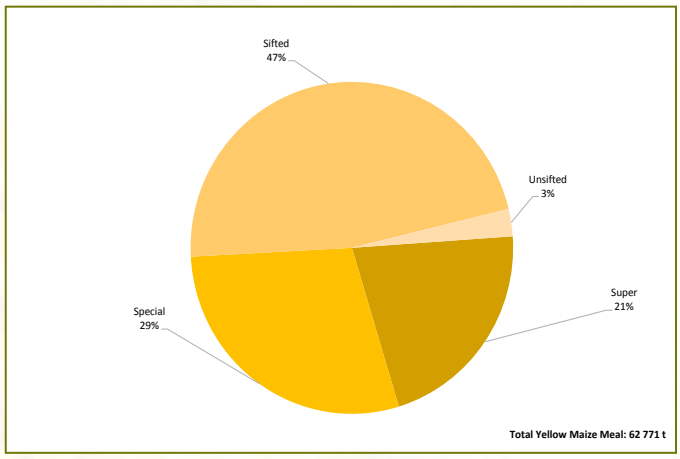
Graph 31: White maize meal manufactured from July 2015 - June 2016



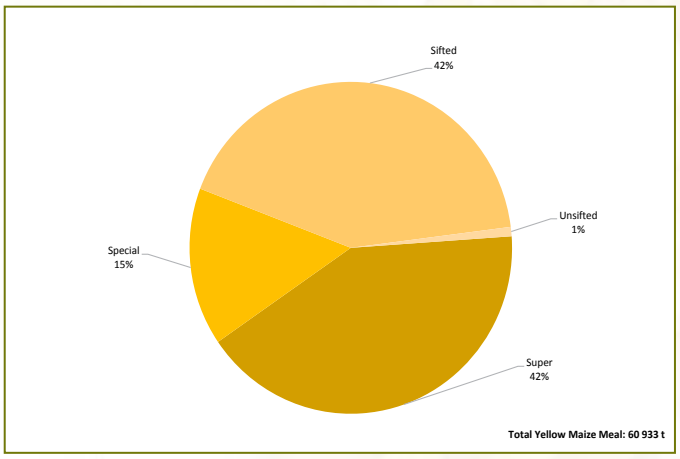
Graph 32: White maize meal manufactured from July 2016 - January 2017



Graph 33: Yellow maize meal manufactured from July 2015 - June 2016



Graph 34: Yellow maize meal manufactured from July 2016 - January 2017



SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

MAIZE PRODUCTS PER MONTH MANUFACTURED															
	Progressive: Jul 2015 - Jun 2016			Jul 2016			Aug 2016			Sep 2016			Oct 2016		
	Manufactured			Manufactured			Manufactured			Manufactured			Manufactured		
	Tons			Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	1 275 939	152 758	1 428 697	104 988	14 438	119 426	106 522	15 324	121 846	105 427	17 126	122 553	109 899	17 071	126 970
Maize Rice	8 247	7 012	15 259	800	66	866	665	134	799	633	34	667	893	417	1 310
Maize Grits	38 336	217 424	255 760	3 013	21 670	24 683	3 506	25 744	29 250	3 628	26 805	30 433	3 029	24 162	27 191
Samp	113 514	13 186	126 700	9 372	1 597	10 969	10 039	331	10 370	9 069	911	9 980	9 192	1 245	10 437
Sifted Maize Meal	**30 639**	**29 546**	**60 185**	**2 374**	**2 808**	**5 182**	**2 532**	**2 973**	**5 505**	**1 821**	**3 509**	**5 330**	**2 194**	**3 949**	**6 143**
Special Maize Meal	453 100	18 119	471 219	34 122	1 937	36 059	30 540	2 835	33 375	29 058	1 758	30 816	31 833	1 227	33 060
Super Maize Meal	2 277 646	13 434	2 291 080	187 519	2 387	189 906	190 355	2 601	192 956	186 461	3 942	190 403	198 837	3 975	202 812
Unsifted Maize Meal	14 431	1 672	16 103	1 084	329	1 413	889	132	1 021	1 216	80	1 296	1 117	5	1 122
Other maize products intended for Human consumption	102 028	40 779	142 807	7 095	2 575	9 670	8 805	3 648	12 453	7 092	2 765	9 857	5 453	3 779	9 232
Total	**4 313 880**	**493 930**	**4 807 810**	**350 367**	**47 807**	**398 174**	**353 853**	**53 722**	**407 575**	**344 405**	**56 930**	**401 335**	**362 447**	**55 830**	**418 277**

MAIZE PRODUCTS PER MONTH MANUFACTURED (continued)												
	Nov 2016			Dec 2016			Jan 2017			Progressive: Jul 2016 - Jan 2017		
	Manufactured			Manufactured			Manufactured			Manufactured		
	Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	120 306	15 842	136 148	100 703	11 797	112 500	100 331	14 394	114 725	748 176	105 992	854 168
Maize Rice	798	951	1 749	650	576	1 226	507	655	1 162	4 946	2 833	7 779
Maize Grits	9 426	23 318	32 744	3 188	15 880	19 068	3 459	21 147	24 606	29 249	158 726	187 975
Samp	11 457	971	12 428	8 500	889	9 389	8 902	1 021	9 923	66 531	6 965	73 496
Sifted Maize Meal	**2 960**	**4 497**	**7 457**	**2 623**	**3 803**	**6 426**	**3 079**	**4 162**	**7 241**	**17 583**	**25 701**	**43 284**
Special Maize Meal	33 881	853	34 734	28 785	436	29 221	28 537	338	28 875	216 756	9 384	226 140
Super Maize Meal	203 796	5 132	208 928	176 170	3 588	179 758	170 581	3 670	174 251	1 313 719	25 295	1 339 014
Unsifted Maize Meal	1 046	2	1 048	854	3	857	794	2	796	7 000	553	7 553
Other maize products intended for Human consumption	7 503	3 521	11 024	5 563	1 645	7 208	8 425	3 138	11 563	49 936	21 071	71 007
Total	**391 173**	**55 087**	**446 260**	**327 036**	**38 617**	**365 653**	**324 615**	**48 527**	**373 142**	**2 453 896**	**356 520**	**2 810 416**

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

MAIZE PRODUCTS PER MONTH IMPORTED															
	Progressive: Jul 2015 - Jun 2016			Jul 2016			Aug 2016			Sep 2016			Oct 2016		
	Imported			Imported			Imported			Imported			Imported		
	Tons			Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	3 424	0	3 424	169	0	169	186	0	186	149	0	149	57	0	57
Maize Rice	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maize Grits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Samp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sifted Maize Meal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Special Maize Meal	6 845	0	6 845	504	0	504	103	0	103	819	0	819	437	0	437
Super Maize Meal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unsifted Maize Meal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other maize products intended for Human consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**10 269**	**0**	**10 269**	**673**	**0**	**673**	**289**	**0**	**289**	**968**	**0**	**968**	**494**	**0**	**494**

MAIZE PRODUCTS PER MONTH IMPORTED (continued)												
	Nov 2016			Dec 2016			Jan 2017			Progressive: Jul 2016 - Jan 2017		
	Imported			Imported			Imported			Imported		
	Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	268	0	268	116	0	116	843	0	843	1 788	0	1 788
Maize Rice	0	0	0	0	0	0	0	0	0	0	0	0
Maize Grits	0	0	0	0	0	0	0	0	0	0	0	0
Samp	0	0	0	0	0	0	0	0	0	0	0	0
Sifted Maize Meal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Special Maize Meal	170	0	170	560	0	560	301	0	301	2 894	0	2 894
Super Maize Meal	0	0	0	0	0	0	0	0	0	0	0	0
Unsifted Maize Meal	0	0	0	0	0	0	0	0	0	0	0	0
Other maize products intended for Human consumption	0	0	0	0	0	0	0	0	0	0	0	0
Total	**438**	**0**	**438**	**676**	**0**	**676**	**1 144**	**0**	**1 144**	**4 682**	**0**	**4 682**

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

MAIZE PRODUCTS PER MONTH EXPORTED															
	Progressive: Jul 2015 - Jun 2016			Jul 2016			Aug 2016			Sep 2016			Oct 2016		
	Exported			Exported			Exported			Exported			Exported		
	Tons			Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	87	0	87	4	0	4	0	0	0	3	4	7	1	4	5
Maize Rice	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maize Grits	31	16 516	16 547	0	4 079	4 079	0	2 695	2 695	0	2 890	2 890	0	6 808	6 808
Samp	1 764	0	1 764	83	0	83	125	0	125	150	0	150	117	0	117
Sifted Maize Meal	**5 713**	**8 364**	**14 077**	**16**	**0**	**16**	**0**	**0**	**0**	**12**	**974**	**986**	**6**	**737**	**743**
Special Maize Meal	23 707	0	23 707	87	0	87	6	0	6	30	0	30	529	0	529
Super Maize Meal	11 415	2 191	13 606	4 904	125	5 029	1 183	439	1 622	923	639	1 562	894	643	1 537
Unsifted Maize Meal	0	1 326	1 326	0	288	288	0	0	0	0	0	0	0	0	0
Other maize products intended for Human consumption	77	4	81	4	0	4	8	0	8	5	0	5	2	0	2
Total	**42 794**	**28 401**	**71 195**	**5 098**	**4 492**	**9 590**	**1 322**	**3 134**	**4 456**	**1 123**	**4 507**	**5 630**	**1 549**	**8 192**	**9 741**

MAIZE PRODUCTS PER MONTH EXPORTED (continued)												
	Nov 2016			Dec 2016			Jan 2017			Progressive: Jul 2016 - Jan 2017		
	Exported			Exported			Exported			Exported		
	Tons			Tons			Tons			Tons		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	0	3	3	3	4	7	1	14	15	12	29	41
Maize Rice	0	0	0	0	0	0	0	0	0	0	0	0
Maize Grits	0	3 863	3 863	0	3 843	3 843	0	4 445	4 445	0	28 623	28 623
Samp	205	0	205	90	0	90	130	0	130	900	0	900
Sifted Maize Meal	**0**	**10**	**10**	**10**	**17**	**27**	**3 123**	**56**	**3 179**	**3 167**	**1 794**	**4 961**
Special Maize Meal	1 467	0	1 467	767	0	767	63	0	63	2 949	0	2 949
Super Maize Meal	897	531	1 428	1 033	724	1 757	829	548	1 377	10 663	3 649	14 312
Unsifted Maize Meal	0	0	0	0	0	0	0	0	0	0	288	288
Other maize products intended for Human consumption	13	0	13	3	0	3	1	0	1	36	0	36
Total	**2 582**	**4 407**	**6 989**	**1 906**	**4 588**	**6 494**	**4 147**	**5 063**	**9 210**	**17 727**	**34 383**	**52 110**

Maize Crop Quality 2015/2016 - summary of results

RSA Grading

The maize crop was of good quality, with 72% of white and 78% yellow maize, graded as maize grade one, compared to 83% and 76% of the 2014/2015 season. The percentage total defective kernels above and below the 6.35 mm sieve, 6.2% for white and 5.7% for yellow maize, was respectively 0.9% higher and 0.2% lower than the previous season. The percentage defective kernels above the sieve increased slightly (0.3%) compared to 2014/2015, the percentage defective kernels below the sieve stayed the same (2.5%). The percentages Diplodia as well as Fusarium infected kernels were 0.1% lower and 0.3% higher than the previous season's 0.7% and 0.9% respectively.

Foreign matter (0.2%) and other colour maize (0.3%) did not pose significant problems, with only two white and yellow maize samples each, downgraded to class other due to foreign matter exceeding 0.75%. No samples were downgraded as a result of the presence of other colour maize. The average percentage combined deviations of white maize was 6.7% compared to the 5.8% of the 2014/2015 season, that of yellow maize was slightly lower, 6.0% compared to 6.2%.

Please refer to Table 5 on page 35.

USA Grading

Of the 920 maize samples graded according to USA grading regulations, 58% were graded US1, 22% US2, 10% US3, 5% US4, 2% US5, while sample and mixed grades represented 2% and 1% respectively. The percentage samples graded as US1 varies substantially over seasons, namely 58%, 64%, 42% and 79% over the last four seasons. The percentage samples graded as US2 was similar to the 23% of the previous season. The main reason for downgrading the samples was the percentage total damaged kernels exceeding the maximum limit per grade, followed by broken corn and foreign material.

Physical Quality factors

Bushel weight/Test weight is applied as a grading factor in the USA grading regulations, but is also routinely done at most intake points locally. White maize had an average test weight of 78.1 kg/hl compared to the 76.7 kg/hl of yellow maize. The test weight in total varied from 59.8 kg/hl to 83.9 kg/hl and averaged 77.3 kg/hl, equal to the previous season and the ten year average. Only 23 samples reported values below the minimum requirement (56.0 lbs or 72.1 kg/hl) for USA grade 1 maize, eight of these samples were from North West, seven from Mpumalanga, six from the Free State and one each from Gauteng and KwaZulu-Natal.

The 100 kernel mass averaged 32.1 g which is 2.3 g higher than the previous season and equal to the ten year average. As in previous seasons, white maize (32.4 g) averaged higher than yellow maize (31.8 g). The kernel size of white maize was similar to the previous season while yellow maize kernels were larger than the previous season. The percentage yellow maize kernels above the 10 mm sieve were on average 3.4% lower than white kernels and the percentage kernels below the 8 mm sieve 3.4% higher than that of white maize. The kernel sizes observed this season were some of the smallest the past ten seasons.

Both white and yellow maize were less susceptible to breakage than during the previous season. The percentage stress cracks observed varied from 0 – 31%, averaged 5% and was a percent lower than in the previous season. White and yellow maize both averaged 5%.

Please refer to Table 15 on page 53.

The milling index varied from 21.7 to 120.1 and averaged 95.5, 2.1 lower than the previous season. The average milling index for white maize is higher (99.0) than that of yellow maize (92.6).

Roff milling and whiteness index (WI)

The average % extraction of total meal in white maize obtained with the Roff mill averaged 78.4% (0.3% lower than the previous season) and varied from 71.8% to 86.4%.

The whiteness index averaged 26.1 for unsifted and 17.5 for sifted maize meal. Sieving the sample eliminates differences in the readings as a result of particle size. The whiteness index of the previous season averaged 22.9 for unsifted maize meal. Sifted maize meal averaged 14.9.

The higher the WI value obtained, the whiter the meal sample. The main contributing factors causing differences in WI values are the presence of other colour maize like yellow maize, the presence of defective kernels, the type of cultivar as well as the soil composition. The three samples with the lowest sifted whiteness index of values of -14.61, -9.30 and -7.41 this season, also had the highest percentages other colour maize ranging between 8.0% and 7.7%. The sample with the fourth lowest sifted whiteness

index value had the highest percentage total defective kernels, namely 91.3%.

Nutritional Values

The fat, starch and protein nutritional components are reported as % (g/100 g) on a dry base.

In general, white maize tends to have a higher fat content than yellow maize, but a lower starch content (except this season). No clear trend can be observed with regards to the protein content.

The average fat content of the 2015/2016 crop samples was 4.1%, equal to the previous season and 0.2% higher than the weighted ten year average. The average protein content of 9.7% was the highest since the 1995/1996 season and 0.3% higher than last season. The ten year weighted average is 8.8%. The starch content this season decreased on average by 0.4% compared to the previous season and is 0.3% lower than the ten year weighted average of 72.7%.

The fat content of white maize was 0.1% lower than the previous season, but 0.1% higher than the average of yellow maize (4.0%). The protein content of yellow maize equaled that of white maize at 9.7%. Yellow maize's protein content increased with 0.2% and that of white maize by 0.3%, compared to the previous season. The ten year weighted average of white and yellow maize is 8.8% and 8.9% respectively. The starch content of white maize is equal to the previous season's 72.6%. Yellow maize's starch content is 0.6% lower than in 2014/2015.

Please refer to Table 20 on page 66.

Genetic Modification (GM)

The SAGL screened 100 of the crop samples to test for the presence of the Cry1Ab, Cry2Ab and/or CP4 EPSPS traits. Important to remember is that the crop quality samples received by the SAGL are composite samples per class and grade, made up of individual deliveries to grain silos.

SAGL used the EnviroLogix QuickComb kit for bulk grain to quantitatively determine the presence of genetically modified maize.

The detection range for the Cry1Ab trait is 0.4% to 5%. 94% of the samples tested positive for Cry1Ab with values larger than 0.4% (Limit of quantification (LOQ)).

The detection range for the Cry2Ab trait is 0.5% to 5%. 78% of the samples gave values larger than the LOQ of 0.5% (positive results).

The detection range for the CP4 EPSPS trait is 0.25% to 5%. 99% of the samples tested positive for CP4 EPSPS with values larger than 0.25% (LOQ).

Values higher than 5%, the highest value of the detection range for all three traits, are reported as > 5%. This methodology has a precision coefficient of variation of 20%.

Please see Table 21 on page 68 for the results obtained as well as page 93 for a summary of the Events and Trade names/Brands represented by these three traits.

Mycotoxins

None of the 350 samples tested positive for Aflatoxin, Ochratoxin A, HT-2 or T-2 toxin residues.

The average Fumonisin level (Sum of B_1, B_2 and B_3) on all 350 samples tested, was 325 µg/kg (ppb) and ranged from 0 (not detected (ND)) to 11 347 µg/kg. This average is higher than the previous season's 224 µg/kg. Of the 350 samples tested, 200 samples (57%) tested positive for fumonisin levels and the average of these positive results was 569 µg/kg. The previous season, 56% of the samples tested positive, with an average of 397 µg/kg.

The highest Deoxynivalenol (DON) level detected was 1 585 µg/kg, compared to the 9 736 µg/kg of last season. The average level of all samples tested this season was 56 µg/kg, 183 µg/kg the previous season. 41% of the samples tested positive for DON last season compared to 21% this season. The average of the positive results decreased from 447 µg/kg in 2014/2015 to 259 µg/kg in 2015/2016.

Two percent of the samples tested positive for 15-acetyl-deoxynivalenol (15-ADON) residues. The average of the positive results was 163 µg/kg compared to 251 µg/kg in the previous season.

Zearalenone residues were found in 5% of the samples and values ranged from 0 (ND) to 127 µg/kg. The average of the positive samples was 49 µg/kg compared to the 60 µg/kg of the previous season when 11% of the samples tested positive.

Mycotoxin levels lower than the limit of quantitation (< LOQ) as well as limit of detection (< LOD) were seen as having tested negative for calculation purposes. Please see mycotoxin results in Table 22 on pages 76 to 87.

TABLE2: SOUTH AFRICAN MAIZE CROP QUALITY 2015/2016 (Weighted Averages)

Class and grade of maize	WM1	WM2	WM3	WCOM	YM1	YM2	YM3	YCOM	Weighted Ave.
RSA Grading									
Defective kernels above 6.35 mm sieve, %	2.5	5.3	9.1	26.4	2.5	5.0	5.0	10.3	3.4
Defective kernels below 6.35 mm sieve, %	1.8	3.3	5.8	9.2	1.9	4.5	11.5	7.9	2.5
Total defective kernels, %	4.3	8.6	15.1	35.6	4.4	9.5	16.4	18.2	5.9
Other colour maize kernels, %	0.2	0.5	1.3	0.5	0.1	0.4	0.0	0.4	0.2
Foreign matter, %	0.1	0.2	0.2	0.9	0.1	0.2	0.3	1.1	0.1
Combined deviation, %	4.7	9.3	16.6	37.0	4.6	10.1	16.8	19.7	6.3
Pinked maize kernels, %	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors									
Test weight, kg/hl	78.4	77.4	77.3	74.2	76.9	76.0	74.8	71.3	77.3
100 Kernel mass, g	32.7	31.7	31.7	32.0	32.3	30.7	28.7	27.0	32.1
Stress cracks, %	4	6	7	3	5	6	6	5	5
Milling Index	98.9	99.3	100.4	91.8	92.9	92.4	89.5	65.0	95.5
Kernel Size									
% on top 10 mm	15.3	15.2	15.1	7.6	12.7	8.8	3.3	5.5	13.3
% on top 8 mm	67.3	64.7	66.0	62.7	67.6	64.4	51.7	56.7	66.6
% through 8 mm	17.4	20.1	18.9	29.7	19.6	26.8	45.0	37.8	20.0
Breakage susceptibility									
% Below 6.35 mm sieve	0.8	1.2	1.7	2.0	0.9	1.2	1.6	1.5	1.0
% Below 4.75 mm sieve	0.4	0.5	0.7	0.8	0.5	0.5	0.6	0.5	0.5
Nutritional Values									
Protein, % (db)	9.7	9.9	9.9	9.5	9.7	9.9	10.2	9.4	9.7
Fat, % (db)	4.1	4.2	4.2	3.9	4.0	3.9	3.8	3.8	4.1
Starch, % (db)	72.7	72.4	72.4	72.9	72.3	72.1	72.7	73.1	72.4
Number of samples	***300***	***84***	***27***	***4***	***395***	***97***	***10***	***3***	***920***
Mycotoxins									
Total Aflatoxin, µg/kg (ppb) [max. value]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Total Fumonisin, µg/kg (ppb) [max. value]	246 [6 865]	414 [2 746]	229 [864]	142 [428]	260 [3 858]	636 [11 347]	817 [1 993]	20 [60]	325 [11 347]
Deoxynivalenol, µg/kg (ppb) [max. value]	54 [598]	143 [1 585]	137 [728]	0 [0]	33 [354]	55 [640]	0 [<100]	0 [0]	56 [1 585]
15-ADON, µg/kg (ppb) [max. value]	1[110]	13 [310]	20 [184]	0 [0]	1 [122]	4 [184]	0 [0]	0 [0]	15 [310]
Ochratoxin A, µg/kg (ppb) [max. value]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Zearalenone, µg/kg (ppb) [max. value]	4[127]	5 [125]	6 [28]	0 [0]	1 [44]	2 [36]	0 [0]	0 [0]	3 [127]
HT-2 Toxin, µg/kg (ppb) [max.value]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
T - 2 Toxin, µg/kg (ppb) [max. value]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Number of samples	***106***	***33***	***14***	***3***	***139***	***46***	***6***	***3***	***350***
GMO									
Cry1Ab, % Samples positive (>LOQ of 0.4%)	97	88	100	100	93	93	100	-	94
Cry2Ab, % Samples positive (>LOQ of 0.5%)	70	75	100	0	83	87	0	-	78
CP4 EPSPS, % Samples positive (>LOQ of 0.25%)	100	88	100	100	100	100	100	-	99
Number of samples	***30***	***8***	***5***	***1***	***40***	***15***	***1***	***-***	***100***

Note: Not detected mycotoxin results are reported as 0, see LOQ in Table 22 page 76.

RSA Production Regions

The Republic of South Africa is divided into 9 provinces as illustrated in Figure 1.

Figure 1: RSA Provinces

Provincial map with gratitude to SiQ.

The 9 provinces are divided into 36 grain production regions.

The regions are distributed as follows:

Region 1: Namakwaland
Regions 2 and 3: Swartland
Regions 4 to 6: Rûens
Regions 7 and 8: Eastern Cape
Region 9: Karoo
Region 10: Griqualand West
Region 11: Vaalharts
Regions 12 to 20: North West
Regions 21 to 28: Free State
Regions 29 to 33: Mpumalanga
Region 34: Gauteng
Region 35: Limpopo
Region 36: KwaZulu-Natal

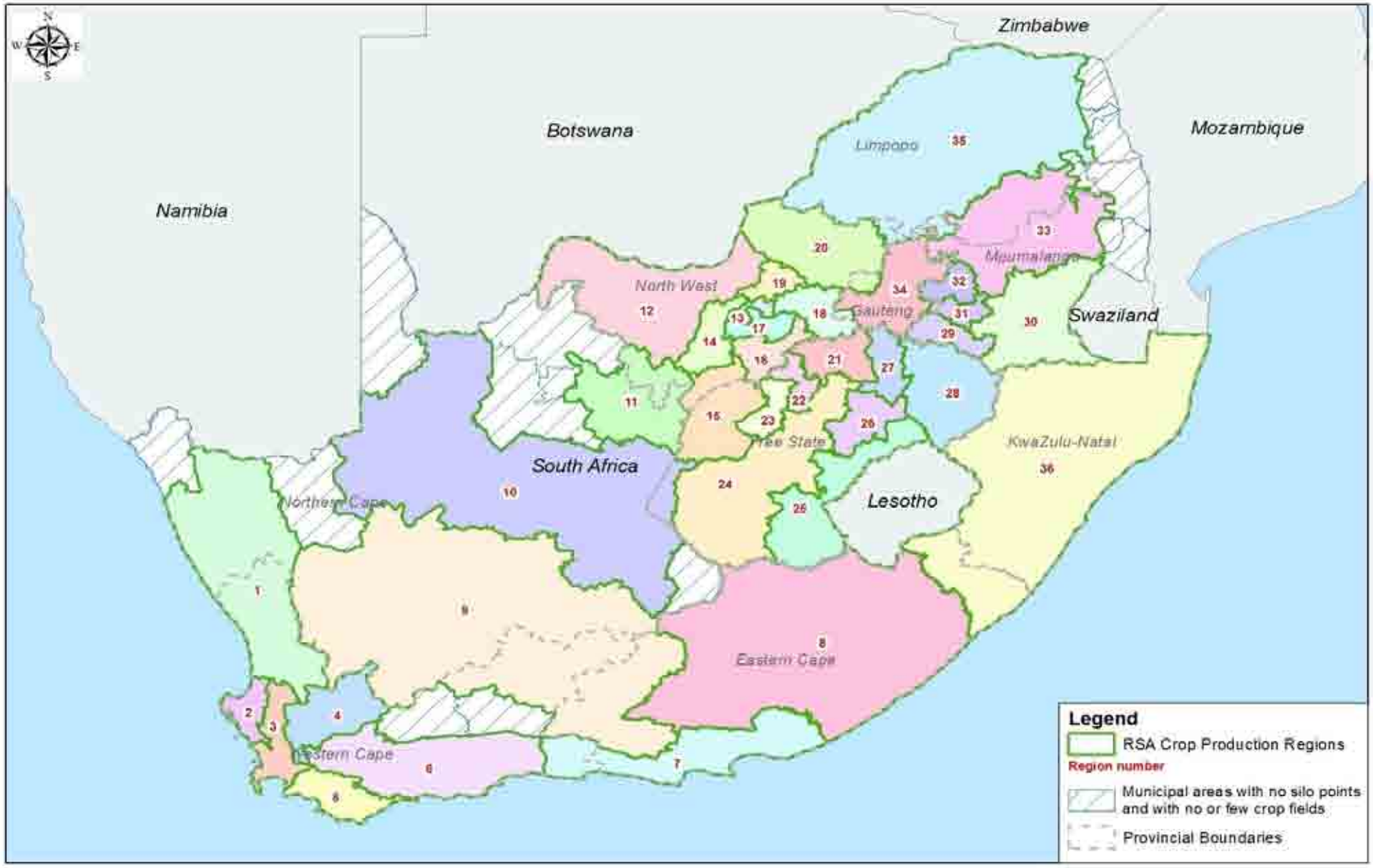
Please see the Crop Production Regions map on the next page.

The production regions from which maize samples have been received for the crop quality survey of the 2015/2016 production season, are named and described on pages 24 to 27. The silo/intake stands as well as the type of storage structure are provided.

The mostly rain-fed maize production area is divided into four major maize production regions according to climatological characteristics:

- The Warm Western Region (western parts of the Free State and most of the North West)
- The Temperate Eastern Region (Gauteng and the central parts of the Free State)
- The Cold Eastern Region (Mpumalanga Highveld and eastern Free State)
- The KwaZulu-Natal Region (the western/upland and central/midland parts of KZN)

Figure 2: RSA Crop Production Regions



Regional map with gratitude to Agbiz Grain and SiQ.

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

Region 3: Swartland Central Region			
KaapAgri	Eendekuil (Bins)	OverbergAgri	Koringberg (Bins)
KaapAgri	Klipheuwel (Bins)	OverbergAgri	Moorreesburg (Bins)
KaapAgri	Malmesbury (Bins)	OverbergAgri	Moravia (Bins)
KaapAgri	Piketberg (Bins)	Afgri	Eensgezind (Bunkers)
KaapAgri	Pools (Bins)	Afgri	Klipfontein (Bunkers)
KaapAgri	Ruststasie (Bins)	Afgri	Malandam (Bunkers)

Region 8: Eastern Cape Northern Region			
OVK	Cradock (Bins/Bunkers)	OVK	Mortimer (Bins/Bunkers)
OVK	Elliot (Bins)		

Region 10: Griqualand West Region			
GWK	Douglas (Bags/Bins)	GWK	Trans Oranje (Bags/Bins/Bunkers)
GWK	Luckhoff (Bins)	OVK	Havenga Brug (Bins)
GWK	Marydale (Bins)	OVK	Morgenzon (Bins)
GWK	Modderrivier (Bags/Bins/Bulk)	OVK	Oranjerivier (Bins/Bunkers)
GWK	Prieska (Bins/Dams)	OVK	Prieska (Bins/Bunkers)
GWK	Rietrivier (Bins)	OVK	Rietrivier (Bins)

Region 11: Vaalharts Region			
GWK	Barkly-Wes (Bins/Bulk)	Senwes	Jan Kempdorp (Bins)
GWK	Jan Kempdorp (Bags/Bunkers)	Senwes	Magogong (Bins)
Senwes	Hartswater (Bins)		

Region 12: North West Western Region			
NWK	Blaauwbank (Bins)	NWK	Mareetsane (Bins)
NWK	Bührmannsdrif (Bins)	Suidwes Landbou	Kameel (Bins)
NWK	Kameel (Bins)	Suidwes Landbou	Vryburg (Bins)

Region 13: North West Central Region (Sannieshof)			
NWK	Biesiesvlei (Bins)	NWK	Oppaslaagte (Bins)
NWK	Bossies (Bins)	NWK	Sannieshof (Bins)
NWK	Gerdau (Bins)		

Region 14: North West Southern Region			
NWK	Barberspan (Bins)	NWK	Taaibospan (Bins)
NWK	Delareyville (Bins)	Suidwes Landbou	Amalia (Bins)
NWK	Excelsior (Bins)	Suidwes Landbou	Hallatshope (Bins)
NWK	Geysdorp (Bins)	Suidwes Landbou	Migdol (Bins)
NWK	Migdol (Bins)	Suidwes Landbou	Schweizer-Reneke (Bins)
NWK	Nooitgedacht (Bins)		

Region 17: North West Central Northern Region (Ottosdal)			
NWK	Boschpoort (Bags/Bins/Bulk)	NWK	Vermaas (Bins)
NWK	Kleinharts (Bins)	Senwes	Hartbeesfontein (Bins)
NWK	Ottosdal (Bins)	Senwes	Melliodora (Bins)
NWK	Rostrataville (Bins)	Senwes	Werda (Bins)

Grain Production Regions (continue)

Silo/Intake stands per region indicating type of storage structure

Region 18: North West Central Region (Ventersdorp)			
NWK	Bodenstein (Bins)	Senwes	Makokskraal (Bins)
NWK	Coligny (Bins)	Senwes	Potchefstroom (Bins)
Senwes	Buckingham (Bins)	Senwes	Ventersdorp (Bins)
Senwes	Enselspruit (Bins)		

Region 19: North West Central Region (Lichtenburg)			
Afgri	Lichtenburg (Bunkers)	NWK	Lottie Halte (Bins)
NWK	Grootpan (Bins)	NWK	Lusthof (Bins)
NWK	Halfpad (Bins)	NWK	Lichtenburg Silo 3 (Bins)
NWK	Hibernia (Bins)	NWK	Lichtenburg Silo 5 (Bins)

Region 20: North West Eastern Region			
Afgri	Battery (Bins)	NWK	Koster (Bins)
Afgri	Brits (Bins)	NWK	Swartruggens (Bins)
NWK	Boons (Bins)	NWK	Syferbult (Bins)
NWK	Derby (Bins)		

Region 21: Free State North Western Region (Viljoenskroon)			
Senwes	Attie (Bins)	Senwes	Vierfontein (Bins)
Senwes	Groenebloem (Bins)	Senwes	Viljoenskroon (Bins)
Senwes	Heuningspruit (Bins)	Senwes	Vredefort (Bins)
Senwes	Koppies (Bins)	Senwes	Weiveld (Bins)
Senwes	Rooiwal (Bins)		

Region 22: Free State North Western Region (Bothaville)			
Senwes	Allanrigde (Bins)	Senwes	Schoonspruit (Bins)
Senwes	Bothaville (Bins)	Senwes	Schuttesdraai (Bins)
Senwes	Mirage (Bins)	Suidwes Landbou	Misgunst (Bunkers)
Senwes	Odendaalsrus (Bins)		

Region 23: Free state North Western Region (Bultfontein)			
Senwes	Bultfontein (Bins)	Senwes	Tierfontein (Bins)
Senwes	Losdoorns (Bins)	Senwes	Wesselsbron (Bins)
Senwes	Protespan (Bins)	Senwes	Willemsrus (Bins)

Region 24: Free State Central Region			
Senwes	Bloemfontein (Bins)	Senwes	Petrusburg (Bins)
Senwes	Brandfort (Bins)	Senwes	Theunissen (Bins)
Senwes	De Brug (Bins)	Senwes	Van Tonder (Bins)
Senwes	Geneva (Bins)	Senwes	Welgeleë (Bins)
Senwes	Hennenman (Bins)	Senwes	Winburg (Bins)
Senwes	Kroonstad (Bins)		

Grain Production Regions (continue)

Silo/Intake stands per region indicating type of storage structure

Region 25: Free State South Western Region			
Afgri	Bethlehem (Bins)	OVK	Marseilles (Bins)
Afgri	Slabberts (Bins)	OVK	Modderpoort (Bins)
OVK	Clocolan (Bins)	OVK	Tweespruit (Bins)
OVK	Ficksburg (Bins)	OVK	Westminster (Bins)
OVK	Fouriesburg (Bins)		

Region 26: Free State South Eastern Region			
Afgri	Kaallaagte (Bins)	Afgri	Monte Video (Bins)
Afgri	Libertas (Bins)	Afgri	Senekal (Bins)
Afgri	Marquard (Bins)	Senwes	Arlington (Bins)
Afgri	Meets (Bins)	Senwes	Steynsrus (Bins)

Region 27: Free State Northern Region			
Senwes	Gottenburg (Bins)	Senwes	Mooigeleë (Bins)
Senwes	Heilbron (Bins)	Senwes	Wolwehoek (Bins)
Senwes	Hoogte (Bins)	VKB	Petrus Steyn (Bins)

Region 28: Free State Eastern Region			
Afgri	Afrikaskop (Bins/Bunkers)	VKB	Jim Fouché (Bins)
Afgri	Eeram (Bins)	VKB	Memel (Bins)
Afgri	Harrismith (Bins)	VKB	Reitz (Bins)
Afgri	Kransfontein (Bins/Bunkers)	VKB	Tweeling (Bins)
VKB	Ascent (Bins)	VKB	Villiers (Bins/Bulk)
VKB	Cornelia (Bins)	VKB	Vrede (Bins)
VKB	Daniëlsrus (Bins)	VKB	Warden (Bins)
VKB	Frankfort (Bins)	VKB	Windfield (Bins)

Region 29: Mpumalanga Southern Region			
Afgri	Balfour (Bins)	Afgri	Leeuspruit (Bins)
Afgri	Greylingstad (Bins)	Afgri	Platrand (Bins)
Afgri	Grootvlei (Bins)	Afgri	Standerton (Bins)
Afgri	Harvard (Bins)	Afgri	Val (Bins)
Afgri	Holmdene (Bins)		

Region 30: Mpumalanga Eastern Region			
Afgri	Amersfoort (Bins)	Afgri	Lothair (Bins)
Afgri	Carolina (Bins)	Afgri	Maizefield (Bins)
Afgri	Davel (Bins)	Afgri	Morgenzon (Bins)
Afgri	Eerstelingsfontein (Bunkers)	Afgri	Overvaal (Bins)
Afgri	Ermelo (Bins)	Afgri	Sandspruit (Bunkers)
Afgri	Estancia (Bins)	TWK	Mkondo (Bins)
Afgri	Hendriksvallei (Bunkers)	TWK	Panbult (Bins)

Grain Production Regions (continue)

Silo/Intake stands per region indicating type of storage structure

Region 31: Mpumalanga Central Region			
Afgri	Bakenlaagte (Bunkers)	Afgri	Klipfontein (Bunkers)
Afgri	Bethal (Bins)	Afgri	Leslie (Bins)
Afgri	Brakfontein (Bunkers)	Afgri	Palmietfontein (Bunkers)
Afgri	Devon (Bins)	Afgri	Trichardt (Bins)
Afgri	Kinross (Bins/Bunkers)	Afgri	Vaalkrantz (Bunkers)

Region 32: Mpumalanga Western Region			
Afgri	Argent (Bins/Bunkers)	Afgri	Hawerklip (Bins)
Afgri	Dryden (Bins)	Afgri	Kendal (Bins)
Afgri	Eloff (Bins)	Afgri	Ogies (Bins)
Afgri	Endicott (Bins)		

Region 33: Mpumalanga Northern Region			
Afgri	Arnot (Bins)	Afgri	Middelburg (Bins)
Afgri	Driefontein (Bins)	Afgri	Pan (Bins)
Afgri	Lydenburg (Bins)	Afgri	Stoffberg (Bins)
Afgri	Marble Hall (Bins)	Afgri	Wonderfontein (Bins)

Region 34: Gauteng Region			
Afgri	Bloekomspruit (Bins)	Afgri	Nigel (Bins)
Afgri	Bronkhorstspruit (Bins)	Afgri	Pretoria Wes (Bins)
Afgri	Glenroy (Bins)	Afgri	Vogelvallei (Bunkers)
Afgri	Goeie Hoek (Bins)	Senwes	Middelvlei (Bins)
Afgri	Kaalfontein (Bins)	Senwes	Oberholzer (Bins)
Afgri	Kliprivier (Bunkers)	Senwes	Raathsvlei (Bins)
Afgri	Meyerton (Bunkers)		

Region 35: Limpopo Region			
Afgri	Northam (Bins)	NTK (VKB)	Nylstroom (Modimolle) (Bins)
NTK (VKB)	Alma (Bins)	NTK (VKB)	Potgietersrus (Mokopane) (Bins)
NTK (VKB)	Lehau (Bins)	NTK (VKB)	Roedtan (Bins)
NTK (VKB)	Naboomspruit (Mookgophong) (Bins)	NTK (VKB)	Settlers (Bins)
NTK (VKB)	Nutfield (Bins)	NTK (VKB)	Warmbad Bela-Bela (Bins)

Region 36: KwaZulu-Natal Region			
Afgri	Bergville (Bins/Bunkers)	Afgri	Paulpietersburg (Bins)
Afgri	Bloedrivier (Bins)	Afgri	Pietermaritzburg (Bins)
Afgri	Dannhauser (Bins)	Afgri	Vryheid (Bins)
Afgri	Dundee (Bins)	Afgri	Winterton Silo (Bins/Bunkers)
Afgri	Mizpah (Bins)		

Main maize producing provinces – comparison of results

The quality of the maize produced in the three main maize production provinces, namely Mpumalanga (regions 29 to 33), the Free State (regions 21 to 28) and North West (regions 12 to 20) are compared below, the figures provided are all weighted averages.

The average test weights expressed in kilogram per hectoliter, varied little between the three provinces. Mpumalanga averaged 72.4 kg/hl, followed by North West with 72.2 kg/hl and the Free State with 72.0 kg/hl. The 100 kernel mass values ranged from 31.5 g in Mpumalanga to 31.9 g in the Free State, North West averaged 31.6 g. In 2014/2015, the averages varied between 28.9 g and 30.9 g.

The kernel sizes, as indicated by the percentage of sample above a 10 mm sieve as well as the percentage below a 8 mm sieve, were smaller than the ten year average. Small kernel sizes, also observed on the previous crop, can be attributed to the drought conditions. Last season, the average kernel sizes above the 10 mm sieve ranged from 10.8 % to 13.5%. The largest kernel size with regards to percentage of kernels above the 10 mm sieve this season, was again found in the Free State (16.1%). Mpumalanga had the smallest kernel sizes namely 13.7%, North West averaged 14.7%.

Little variation was observed with regards to breakage susceptibility and stress cracks between the provinces. North West, with 1.1% had the highest percentage of maize passing through the 6.35 mm sieve, the Free State and North West both with 0.9%, followed closely. This indicates that the maize in the North West was slightly more susceptible to breakage. The percentage stress cracks varied from 4% in both Mpumalanga and North West, to 6% in the Free State. The maize kernels from North West and Mpumalanga both averaged 5% stress cracks and the Free State 6%. These percentages compared well with the previous season.

The percentage total defective kernels is the sum total of the defective kernels that remained above the 6.35 mm sieve and the defective kernels which passed through the 6.35 mm sieve. Defective kernels includes amongst others, mouldy, discoloured, insect damaged and small kernels that can pass through the 6.35 mm round hole sieve. Averages ranged from a low of 4.1% in Mpumalanga to a high of 8.0% in North West. The Free State averaged 6.2%. Please see page 89 for the definition of Defective maize kernels as quoted from the Grading Regulations.

The average milling index on both white and yellow maize was lower compared to the previous season. Mpumalanga averaged 93.1 (93.4), the Free State 96.3 (101.0) and North West 99.4 (102.6). The values in brackets are the averages for the 2014/2015 season. The same trend was observed with the percentage total extraction, with Mpumalanga averaging 78.2%, the Free State 78.5% and North West 78.7%. The total extraction was determined on the Roff laboratory mill.

The meal obtained from the white maize in Mpumalanga gave an average whiteness index of 27.3 (unsifted) and 17.7 (sifted). The Free State had an average of 26.1 (unsifted) and 17.8 (sifted) and North West 24.3 (unsifted) and 16.9 (sifted). All averages were higher than last season, indicating whiter meal this season. Factors that can influence meal whiteness such as the presence of defective kernels and other colour maize (yellow) were however comparable to the previous season.

The nutritional component analyses namely fat, protein and starch compared well between the three provinces. The Free State and North West averaged a slightly higher fat content (4.1%) than Mpumalanga with 4.0%. The lowest protein content was found in Mpumalanga (9.6%), the Free State averaged 10.1% and North West 10.2%. Mpumalanga had the highest average starch content of 72.4%, followed by the North West with 72.2% and the Free State with 72.0%. These values are all reported on a dry basis.

TABLE 3: RSA GRADING OF WHITE MAIZE (2015/2016)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1																														
2	Region 11	1.7	1.2	2.1	1.9	1.7	2.1	3.6	3.4	3.8	0.1	0.1	0.2	0.6	0.5	0.6	4.3	4.0	4.5	0.0	0.0	0.0	0.2	0.0	0.4	0.7	0.5	0.9	0.9	0.5	1.3
8	Region 12	2.5	1.8	4.4	1.7	0.6	2.8	4.3	2.8	6.1	0.1	0.1	0.1	0.1	0.0	0.8	4.4	2.9	6.2	0.1	0.0	0.4	0.3	0.2	0.7	0.6	0.4	1.1	1.0	0.6	1.8
12	Region 13	2.6	1.2	5.4	2.2	0.7	4.5	4.9	2.7	6.3	0.1	0.1	0.2	0.2	0.0	0.7	5.2	2.8	7.1	0.1	0.0	0.7	0.5	0.1	0.7	0.9	0.4	1.2	1.4	0.7	1.8
18	Region 14	2.7	2.0	3.2	2.0	0.3	3.6	4.7	3.0	6.7	0.1	0.1	0.2	0.1	0.0	0.6	5.0	3.2	7.0	0.4	0.0	1.2	0.5	0.4	0.8	1.1	0.4	1.7	1.6	0.9	2.1
16	Region 17	2.3	0.7	5.0	2.0	0.5	4.6	4.3	2.5	6.6	0.1	0.1	0.2	0.1	0.0	0.5	4.5	2.7	6.7	0.1	0.0	0.5	0.5	0.0	1.1	0.9	0.4	1.6	1.4	0.4	2.7
4	Region 18	3.4	1.8	6.4	2.1	0.6	3.6	5.5	3.2	7.0	0.1	0.1	0.1	0.4	0.0	1.0	6.0	3.3	7.9	0.2	0.0	1.0	0.8	0.4	1.9	1.4	1.0	2.2	2.2	1.5	4.1
5	Region 19	2.3	1.2	3.1	2.5	1.8	3.9	4.8	3.3	7.0	0.1	0.1	0.2	0.1	0.0	0.3	5.0	3.8	7.1	0.1	0.0	0.5	0.4	0.3	0.5	0.6	0.4	0.8	1.0	0.7	1.4
9	Region 20	3.2	1.7	5.5	2.3	1.3	3.2	5.5	3.9	6.8	0.1	0.1	0.2	0.1	0.0	0.5	5.6	4.0	7.5	0.1	0.0	0.7	0.6	0.2	1.2	1.2	0.7	2.2	1.8	1.1	3.1
4	Region 21	2.1	1.2	2.5	2.1	1.3	3.1	4.2	2.7	5.6	0.2	0.1	0.2	0.1	0.0	0.5	4.5	2.9	6.2	0.2	0.0	0.6	0.7	0.5	1.0	0.6	0.0	1.0	1.3	0.5	1.6
5	Region 22	3.4	2.0	4.7	1.7	1.5	2.1	5.1	3.5	6.4	0.2	0.1	0.2	0.0	0.0	0.0	5.3	3.7	6.6	0.1	0.0	0.3	0.8	0.6	1.3	1.4	0.5	2.8	2.2	1.5	3.5
4	Region 23	2.9	2.1	4.4	1.7	0.7	2.2	4.6	4.3	5.1	0.2	0.1	0.2	0.0	0.0	0.0	4.7	4.4	5.2	0.2	0.0	0.6	0.7	0.4	1.1	1.2	0.7	1.8	1.9	1.4	2.9
8	Region 24	3.3	1.9	5.1	2.0	0.5	3.3	5.3	3.5	7.0	0.1	0.1	0.2	0.0	0.0	0.2	5.5	3.7	7.0	0.0	0.0	0.0	0.7	0.4	1.3	1.2	0.5	1.9	1.9	0.9	3.2
4	Region 25	2.0	1.4	2.5	1.1	0.0	2.1	3.1	2.0	4.7	0.1	0.1	0.2	0.2	0.0	0.6	3.4	2.1	5.4	0.0	0.0	0.0	0.3	0.0	0.9	0.5	0.4	0.6	0.8	0.5	1.4
9	Region 26	3.2	2.6	3.6	1.6	1.0	2.9	4.8	4.4	6.6	0.2	0.1	0.3	0.1	0.0	0.5	5.1	4.6	6.6	0.0	0.0	0.0	0.7	0.4	1.4	1.5	0.6	2.7	2.3	1.1	3.1
1	Region 27	2.2	-	-	1.4	-	-	3.6	-	-	0.1	-	-	0.3	-	-	4.1	-	-	0.0	-	-	0.5	-	-	1.2	-	-	1.7	-	-
11	Region 28	2.0	1.0	4.6	1.3	0.6	2.1	3.3	2.1	6.0	0.1	0.0	0.2	0.3	0.0	0.8	3.7	2.1	6.6	0.0	0.0	0.0	0.7	0.0	2.0	0.6	0.0	1.1	1.3	0.0	3.1
16	Region 29	1.9	1.0	3.5	1.4	0.6	2.5	3.3	2.2	6.0	0.1	0.1	0.3	0.2	0.0	0.9	3.6	2.5	6.1	0.0	0.0	0.5	0.3	0.0	0.8	0.5	0.0	1.2	0.8	0.0	2.0
28	Region 30	2.7	1.3	4.2	2.0	0.6	3.7	4.7	2.0	5.9	0.1	0.1	0.2	0.3	0.0	1.9	5.2	2.7	8.0	0.1	0.0	1.2	0.5	0.0	1.0	1.1	0.0	1.7	1.6	0.0	2.7
9	Region 31	2.2	0.9	3.1	1.8	0.6	2.9	4.0	1.6	5.2	0.2	0.1	0.3	0.3	0.0	1.0	4.5	2.0	6.6	0.2	0.0	1.0	0.5	0.0	1.0	0.8	0.0	1.2	1.3	0.0	2.3
28	Region 32	2.5	1.1	4.9	1.5	0.1	2.8	3.9	2.3	5.2	0.1	0.0	0.2	0.2	0.0	0.6	4.2	2.3	5.6	0.1	0.0	1.0	0.5	0.0	1.0	1.1	0.4	2.9	1.6	0.5	3.9
29	Region 33	2.4	1.3	6.1	1.9	0.4	5.4	4.2	2.1	7.0	0.1	0.0	0.3	0.4	0.0	1.6	4.8	2.1	7.8	0.0	0.0	0.6	0.5	0.0	1.6	0.8	0.0	1.1	1.3	0.0	2.6
29	Region 34	2.8	1.5	4.8	1.4	0.2	2.9	4.2	2.3	6.3	0.2	0.1	0.3	0.3	0.0	2.3	4.7	2.5	7.5	0.0	0.0	0.5	0.6	0.3	1.3	1.0	0.5	2.0	1.7	0.8	3.3
19	Region 35	2.1	1.1	2.9	1.9	0.8	4.0	3.9	1.9	6.0	0.1	0.0	0.2	0.2	0.0	0.8	4.3	1.9	6.2	0.0	0.0	0.0	0.3	0.0	1.3	0.0	0.0	0.0	0.3	0.0	1.3
22	Region 36	2.5	0.8	5.1	1.9	0.8	3.3	4.5	1.7	6.2	0.1	0.1	0.2	0.4	0.0	0.9	5.0	2.4	6.8	0.0	0.0	0.0	0.5	0.0	1.2	1.4	0.5	2.8	1.9	0.5	3.7
300	**Ave. WM1**	**2.5**			**1.8**			**4.3**			**0.1**			**0.2**			**4.7**			**0.1**			**0.5**			**0.9**			**1.4**		
	Min. WM1		**0.7**			**0.0**			**1.6**			**0.0**			**0.0**			**1.9**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM1			**6.4**			**5.4**			**7.0**			**0.3**			**2.3**			**8.0**			**1.2**			**2.0**			**2.9**			**4.1**

TABLE 3: RSA GRADING OF WHITE MAIZE (2015/2016) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2																														
3	Region 12	5.2	2.4	7.6	4.8	2.3	9.1	10.0	7.8	11.5	0.2	0.1	0.3	0.0	0.0	0.0	10.2	7.9	11.6	0.1	0.0	0.4	0.7	0.3	1.5	1.7	0.4	4.2	2.4	0.8	5.6
10	Region 13	5.6	3.4	9.0	3.4	1.3	5.6	9.1	7.2	10.7	0.2	0.1	0.3	0.2	0.0	0.9	9.4	7.3	11.7	0.0	0.0	0.0	0.9	0.6	1.3	1.4	1.0	1.9	2.3	1.6	3.2
3	Region 14	5.1	3.8	7.1	2.4	1.6	2.8	7.5	5.4	9.8	0.3	0.2	0.5	0.3	0.0	0.5	8.0	6.2	10.5	0.0	0.0	0.0	1.0	0.8	1.3	2.0	1.7	2.5	3.0	2.5	3.8
2	Region 17	3.8	2.6	5.0	6.0	5.5	6.5	9.8	9.1	10.5	0.2	0.1	0.2	0.3	0.0	0.5	10.2	9.3	11.1	0.3	0.0	0.7	0.8	0.6	1.1	1.6	1.1	2.1	2.4	1.7	3.2
3	Region 18	4.5	4.3	4.7	4.0	3.2	4.6	8.5	7.5	9.0	0.1	0.1	0.1	0.1	0.0	0.2	8.6	7.6	9.2	0.2	0.0	0.2	0.9	0.7	1.0	1.1	1.1	1.2	2.0	1.9	2.2
12	Region 19	4.4	2.0	7.5	4.7	0.8	7.8	9.1	4.6	12.6	0.2	0.1	0.4	0.2	0.0	0.5	9.5	4.9	13.2	0.1	0.0	0.4	0.9	0.4	1.6	1.6	0.6	4.1	2.5	1.0	5.4
8	Region 20	4.5	2.0	7.9	4.4	0.0	8.7	8.9	7.1	12.2	0.2	0.1	0.2	0.5	0.0	1.7	9.6	7.7	12.8	0.0	0.0	0.4	0.7	0.2	1.0	1.1	0.6	2.1	1.7	0.9	2.8
1	Region 21	6.7	-	-	4.4	-	-	11.0	-	-	0.1	-	-	0.0	-	-	11.2	-	-	0.0	-	-	1.5	-	-	2.6	-	-	4.0	-	-
3	Region 22	5.8	4.2	6.9	3.6	2.9	4.5	9.4	7.7	10.6	0.1	0.1	0.2	0.0	0.0	0.0	9.5	7.8	10.7	0.0	0.0	0.0	0.8	0.4	1.2	2.7	0.9	5.4	3.4	1.7	5.7
1	Region 23	9.3	-	-	1.2	-	-	10.6	-	-	0.1	-	-	0.0	-	-	10.7	-	-	1.0	-	-	3.1	-	-	4.5	-	-	7.6	-	-
2	Region 24	6.1	6.1	6.2	1.8	1.2	2.3	7.9	7.3	8.5	0.1	0.1	0.1	0.0	0.0	0.0	8.0	7.4	8.6	0.0	0.0	0.0	1.0	0.5	1.5	2.3	2.2	2.4	3.3	2.7	3.8
1	Region 25	2.0	-	-	5.3	-	-	7.3	-	-	0.1	-	-	0.5	-	-	7.9	-	-	0.0	-	-	0.5	-	-	0.8	-	-	1.3	-	-
6	Region 26	5.2	1.9	6.8	2.6	1.5	4.6	7.7	4.0	9.7	0.2	0.1	0.4	0.9	0.0	2.3	8.8	4.3	10.8	0.0	0.0	0.0	0.5	0.4	0.7	3.3	1.1	5.2	3.9	1.5	5.9
2	Region 27	4.2	2.2	6.2	3.4	1.2	5.6	7.6	7.4	7.7	0.2	0.2	0.2	0.2	0.0	0.4	7.9	7.6	8.3	0.0	0.0	0.0	1.3	0.6	1.9	1.5	1.3	1.7	2.8	1.9	3.7
3	Region 28	3.0	1.8	4.7	3.2	1.3	5.7	6.2	3.9	7.5	0.2	0.1	0.3	1.9	0.0	4.8	8.3	7.6	8.8	0.0	0.0	0.0	1.0	0.0	2.2	0.9	0.4	1.4	1.9	0.4	3.5
2	Region 30	7.3	4.8	9.8	1.6	1.4	1.7	8.9	6.5	11.3	0.2	0.2	0.3	2.4	1.0	3.8	11.5	10.5	12.5	0.3	0.0	0.6	1.5	1.0	2.0	2.8	2.0	3.6	4.3	3.1	5.6
3	Region 31	2.2	1.4	3.3	3.1	2.0	4.9	5.3	4.2	6.3	0.3	0.2	0.3	3.9	2.5	5.3	9.5	8.1	10.5	0.0	0.0	0.0	0.4	0.3	0.7	0.9	0.5	1.6	1.4	0.9	2.2
5	Region 33	7.3	5.4	9.5	1.5	0.7	2.4	8.8	7.3	10.7	0.1	0.0	0.1	0.5	0.0	1.3	9.4	7.3	11.3	0.2	0.0	1.0	2.1	1.0	4.0	1.6	1.0	2.4	3.7	2.0	6.3
1	Region 34	5.7	-	-	1.9	-	-	7.6	-	-	0.2	-	-	0.3	-	-	8.1	-	-	0.0	-	-	1.3	-	-	2.1	-	-	3.4	-	-
5	Region 35	7.4	5.0	9.7	1.8	1.1	2.8	9.1	7.3	11.4	0.2	0.1	0.3	0.2	0.0	0.5	9.5	7.4	12.1	0.0	0.0	0.0	1.9	0.0	4.7	2.4	0.0	4.6	4.3	0.0	9.3
8	Region 36	6.7	1.9	9.8	2.1	0.7	5.3	8.8	7.2	11.9	0.2	0.2	0.3	0.5	0.0	1.1	9.5	7.6	12.3	0.0	0.0	0.0	1.8	0.5	3.8	3.9	1.0	5.3	5.7	1.5	8.4
84	**Ave. WM2**	**5.3**			**3.3**			**8.6**			**0.2**			**0.5**			**9.3**			**0.1**			**1.1**			**2.0**			**3.1**		
	Min. WM2		**1.4**			**0.0**			**3.9**			**0.0**			**0.0**			**4.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM2			**9.8**			**9.1**			**12.6**			**0.5**			**5.3**			**13.2**			**1.0**			**4.7**			**5.4**			**9.3**

TABLE 3: RSA GRADING OF WHITE MAIZE (2015/2016) (continue)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3																															
4	Region 13	13.3	8.8	23.7	4.6	1.8	6.3	17.9	14.2	25.5	0.2	0.2	0.4	0.1	0.0	0.5	18.2	14.3	25.9	0.0	0.0	0.0	1.1	0.4	2.2	2.2	0.5	5.1	3.3	0.9	7.3
2	Region 18	8.8	6.6	10.9	6.0	2.4	9.6	14.8	13.3	16.3	0.1	0.1	0.1	0.4	0.3	0.5	15.3	14.0	16.7	0.0	0.0	0.0	0.9	0.5	1.4	1.7	0.9	2.5	2.6	1.4	3.8
4	Region 19	7.3	1.9	18.0	9.0	2.5	11.5	16.3	13.4	20.6	0.1	0.1	0.2	0.2	0.0	0.7	16.6	14.2	20.7	0.1	0.0	0.3	0.5	0.3	0.8	1.0	0.6	1.8	1.5	0.9	2.4
3	Region 20	5.2	1.2	11.0	3.8	1.5	6.4	9.1	4.9	14.6	0.4	0.2	0.6	2.7	0.0	8.0	12.1	8.2	15.0	0.1	0.0	0.2	1.2	0.4	2.6	2.2	0.8	5.0	3.4	1.2	7.5
1	Region 21	10.5	-	-	4.4	-	-	14.8	-	-	0.1	-	-	0.5	-	-	15.4	-	-	0.0	-	-	4.9	-	-	2.0	-	-	6.9	-	-
4	Region 22	12.2	10.3	13.3	5.3	3.0	8.1	17.4	14.4	21.3	0.2	0.1	0.2	0.0	0.0	0.0	17.6	14.5	21.5	0.0	0.0	0.0	2.3	0.7	3.6	3.4	1.1	5.0	5.7	1.8	8.6
1	Region 28	8.8	-	-	2.9	-	-	13.5	-	-	0.2	-	-	0.0	-	-	13.7	-	-	0.0	-	-	2.5	-	-	4.4	-	-	6.9	-	-
1	Region 30	7.8	-	-	5.5	-	-	13.3	-	-	0.3	-	-	0.5	-	-	14.2	-	-	1.6	-	-	1.0	-	-	4.9	-	-	5.8	-	-
2	Region 31	2.2	1.8	2.6	2.2	1.0	3.3	4.4	2.9	5.9	0.2	0.1	0.3	7.8	7.7	7.9	12.5	10.7	14.2	0.0	0.0	0.0	0.5	0.3	0.7	0.9	0.5	1.3	1.4	0.8	2.0
1	Region 33	6.6	-	-	9.0	-	-	15.5	-	-	0.2	-	-	4.2	-	-	20.0	-	-	0.0	-	-	2.2	-	-	2.6	-	-	4.8	-	-
2	Region 35	11.8	11.8	11.8	9.4	4.3	14.5	21.2	16.1	26.3	0.3	0.3	0.4	0.0	0.0	0.0	21.6	16.5	26.6	0.0	0.0	0.0	0.8	0.5	1.0	1.8	0.6	2.9	2.5	1.1	3.9
2	Region 36	10.4	3.7	17.2	7.0	4.7	9.2	17.4	12.9	21.9	0.3	0.3	0.3	1.8	0.0	3.5	19.4	16.7	22.2	0.0	0.0	0.0	3.1	0.6	5.5	6.5	2.0	11.0	9.5	2.6	16.5
27	**Ave. WM3**	**9.1**			**5.8**			**15.1**			**0.2**			**1.3**			**16.6**			**0.1**			**1.5**			**2.5**			**4.0**		
	Min. WM3		**1.2**			**1.0**			**2.9**			**0.1**			**0.0**			**8.2**			**0.0**			**0.3**			**0.5**			**0.8**	
	Max. WM3			**23.7**			**14.5**			**26.3**			**0.6**			**8.0**			**26.6**			**1.6**			**5.5**			**11.0**			**16.5**
CLASS: COM																															
1	Region 19	3.5	-	-	12.4	-	-	15.9	-	-	0.9	-	-	0.0	-	-	16.7	-	-	0.0	-	-	0.6	-	-	0.9	-	-	1.5	-	-
1	Region 20	19.2	-	-	12.7	-	-	31.9	-	-	0.3	-	-	1.2	-	-	33.3	-	-	0.0	-	-	3.0	-	-	8.1	-	-	11.1	-	-
1	Region 31	3.1	-	-	0.3	-	-	3.4	-	-	2.2	-	-	1.0	-	-	6.6	-	-	0.0	-	-	0.6	-	-	1.5	-	-	2.1	-	-
1	Region 35	79.9	-	-	11.3	-	-	91.3	-	-	0.2	-	-	0.0	-	-	91.5	-	-	0.0	-	-	0.4	-	-	0.5	-	-	0.9	-	-
4	**Ave. COM**	**26.4**			**9.2**			**35.6**			**0.9**			**0.5**			**37.0**			**0.0**			**1.1**			**2.7**			**3.9**		
	Min. COM		**3.1**			**0.3**			**3.4**			**0.2**			**0.0**			**6.6**			**0.0**			**0.4**			**0.5**			**0.9**	
	Max. COM			**79.9**			**12.7**			**91.3**			**2.2**			**1.2**			**91.5**			**0.0**			**3.0**			**8.1**			**11.1**
415	**Ave. white maize**	**3.8**			**2.4**			**6.2**			**0.2**			**0.4**			**6.7**			**0.1**			**0.7**			**1.3**			**2.0**		
	Min. white maize		**0.7**			**0.0**			**1.6**			**0.0**			**0.0**			**1.9**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. white maize			**79.9**			**14.5**			**91.3**			**2.2**			**8.0**			**91.5**			**1.6**			**5.5**			**11.0**			**16.5**
920	**Ave. maize**	**3.4**			**2.5**			**5.9**			**0.2**			**0.3**			**6.3**			**0.0**			**0.6**			**1.2**			**1.9**		
	Min. maize		**0.5**			**0.0**			**0.6**			**0.0**			**0.0**			**0.6**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. maize			**79.9**			**18.1**			**91.3**			**2.2**			**8.0**			**91.5**			**1.6**			**5.5**			**11.0**			**16.5**

TABLE 4: RSA GRADING OF YELLOW MAIZE (2015/2016)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM1																														
1	Region 3	1.5	1.5	1.5	3.0	3.0	3.0	4.4	4.4	4.4	0.1	0.1	0.1	0.0	0.0	0.0	4.6	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
6	Region 8	3.9	2.4	5.3	2.6	1.3	3.6	6.5	4.2	8.9	0.1	0.1	0.2	0.0	0.0	0.0	6.6	4.4	9.0	0.0	0.0	0.0	0.8	0.4	1.3	1.1	0.6	2.0	1.9	1.0	3.2
23	Region 10	1.5	0.6	3.7	1.5	0.0	3.8	3.0	0.6	6.9	0.1	0.0	0.2	0.0	0.0	0.0	3.1	0.6	7.0	0.0	0.0	0.0	0.2	0.0	1.1	0.4	0.0	1.6	0.6	0.0	2.7
19	Region 11	2.9	1.4	6.3	1.9	1.0	3.8	4.8	2.6	8.0	0.1	0.1	0.3	0.0	0.0	0.0	5.0	2.8	8.2	0.0	0.0	0.0	0.4	0.0	0.8	0.8	0.0	1.7	1.2	0.0	2.4
3	Region 12	1.5	0.9	2.3	2.6	2.0	2.9	4.1	2.9	5.2	0.1	0.1	0.1	0.2	0.0	0.3	4.3	3.3	5.3	0.0	0.0	0.0	0.2	0.0	0.4	0.5	0.2	0.6	0.7	0.2	1.0
1	Region 13	2.8	-	-	0.9	-	-	3.7	-	-	0.1	-	-	0.2	-	-	4.1	-	-	0.0	-	-	0.6	-	-	0.7	-	-	1.4	-	
3	Region 14	1.9	1.6	2.1	2.5	1.8	3.4	4.4	3.9	5.6	0.1	0.1	0.2	0.2	0.0	0.6	4.8	4.0	6.3	0.0	0.0	0.0	0.4	0.3	0.6	0.6	0.4	0.9	1.0	0.7	1.5
3	Region 17	4.1	3.7	4.5	2.3	1.8	2.7	6.3	5.8	7.2	0.1	0.1	0.1	0.1	0.0	0.2	6.5	6.0	7.3	0.0	0.0	0.0	0.7	0.5	0.8	1.5	1.1	2.1	2.2	1.9	2.6
4	Region 18	3.6	1.7	5.5	2.0	0.8	3.8	5.6	2.6	8.0	0.1	0.1	0.2	0.5	0.0	1.3	6.3	4.0	8.5	0.0	0.0	0.0	0.8	0.5	1.2	1.6	1.0	2.1	2.4	1.5	3.3
4	Region 19	2.5	1.5	3.3	2.4	1.2	3.6	4.9	3.7	6.9	0.2	0.1	0.3	0.2	0.0	0.4	5.3	4.2	7.4	0.0	0.0	0.0	0.6	0.4	0.8	0.9	0.5	1.3	1.5	0.9	2.0
7	Region 20	4.8	1.7	6.4	2.2	1.3	3.8	7.1	4.3	8.4	0.1	0.1	0.2	0.1	0.0	0.4	7.2	4.5	8.5	0.0	0.0	0.0	0.6	0.2	0.9	1.3	0.5	4.0	1.9	0.7	4.7
2	Region 21	2.1	2.1	2.1	2.1	1.5	2.7	4.2	3.6	4.7	0.1	0.1	0.2	0.6	0.4	0.8	4.9	4.1	5.7	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.0	1.1	1.5	1.5	1.6
2	Region 22	3.4	3.4	3.4	3.2	2.8	3.5	6.6	6.3	6.9	0.2	0.2	0.2	0.3	0.0	0.6	7.1	6.5	7.7	0.0	0.0	0.0	0.6	0.5	0.7	1.2	1.0	1.5	1.9	1.7	2.0
3	Region 23	2.3	2.0	2.6	2.4	1.5	2.9	4.6	3.7	5.4	0.2	0.1	0.2	0.0	0.0	0.0	4.8	3.9	5.5	0.0	0.0	0.0	0.4	0.4	0.4	1.1	0.6	1.4	1.4	0.9	1.8
1	Region 24	2.5	-	-	3.9	-	-	6.4	-	-	0.2	-	-	1.0	-	-	7.6	-	-	0.0	-	-	0.6	-	-	1.1	-	-	1.7	-	-
10	Region 25	2.2	1.6	3.2	2.5	0.1	4.0	4.6	2.3	5.9	0.1	0.1	0.2	0.1	0.0	0.6	4.8	2.4	6.2	0.0	0.0	0.0	0.5	0.0	1.2	0.5	0.2	0.9	1.0	0.5	1.6
11	Region 26	2.8	1.4	5.6	1.7	0.4	2.8	4.4	2.0	6.0	0.1	0.1	0.2	0.2	0.0	0.7	4.8	2.0	6.8	0.0	0.0	0.0	0.5	0.0	0.8	1.3	0.5	2.2	1.8	1.0	3.0
2	Region 27	2.3	2.3	2.3	1.3	1.1	1.5	3.6	3.4	3.7	0.2	0.2	0.3	0.0	0.0	0.0	3.8	3.7	3.9	0.0	0.0	0.0	0.6	0.5	0.6	1.1	0.7	1.5	1.7	1.4	2.1
27	Region 28	2.5	1.1	5.5	1.7	0.0	3.7	4.2	1.3	7.4	0.1	0.0	0.3	0.1	0.0	0.5	4.4	1.3	7.7	0.0	0.0	0.0	0.5	0.0	1.1	1.1	0.0	3.1	1.6	0.0	3.9
42	Region 29	1.7	0.6	2.9	1.6	0.7	3.7	3.3	1.6	5.5	0.1	0.0	0.3	0.0	0.0	0.5	3.4	1.7	5.9	0.0	0.0	0.0	0.3	0.0	1.2	0.7	0.0	1.5	0.9	0.0	2.3
53	Region 30	2.3	1.3	4.0	2.0	0.7	3.6	4.2	2.1	6.6	0.1	0.0	0.3	0.0	0.0	0.5	4.4	2.1	6.9	0.0	0.0	0.0	0.4	0.0	1.2	0.9	0.0	1.9	1.3	0.0	2.6
31	Region 31	2.7	0.9	4.9	1.7	0.3	2.9	4.4	1.7	7.4	0.1	0.0	0.3	0.0	0.0	0.5	4.6	1.9	7.6	0.0	0.0	0.0	0.6	0.0	2.1	1.1	0.4	2.0	1.7	0.4	3.1
37	Region 32	2.6	1.3	4.6	1.8	0.6	2.8	4.4	1.9	6.7	0.1	0.0	0.3	0.2	0.0	1.8	4.8	1.9	6.9	0.0	0.0	0.0	0.5	0.0	1.1	1.1	0.4	2.0	1.6	0.6	2.9
28	Region 33	2.6	1.3	4.4	2.2	0.4	3.8	4.7	1.8	6.6	0.1	0.0	0.2	0.2	0.0	1.9	5.1	1.8	7.5	0.0	0.0	0.0	0.5	0.0	1.1	0.9	0.0	2.0	1.5	0.0	3.0
29	Region 34	2.8	1.1	4.9	1.7	0.0	3.5	4.5	2.5	7.8	0.2	0.0	0.3	0.1	0.0	0.5	4.7	2.7	8.0	0.0	0.0	0.0	0.6	0.0	1.5	1.2	0.5	1.9	1.8	0.5	3.2
13	Region 35	3.0	1.6	6.3	2.4	1.2	3.4	5.5	4.0	8.4	0.1	0.1	0.3	0.1	0.0	0.7	5.7	4.0	8.6	0.0	0.0	0.0	0.5	0.0	1.8	0.8	0.0	3.8	1.3	0.0	5.5
30	Region 36	2.6	0.7	5.3	2.1	0.4	3.9	4.8	2.8	7.4	0.2	0.1	0.3	0.3	0.0	1.3	5.3	2.9	8.3	0.0	0.0	0.0	0.6	0.0	1.4	1.4	0.5	3.3	2.0	0.5	4.0
395	**Ave. YM1**	**2.5**			**1.9**			**4.4**			**0.1**			**0.1**			**4.6**			**0.0**			**0.5**			**1.0**			**1.4**		
	Min. YM1		**0.6**			**0.0**			**0.6**			**0.0**			**0.0**			**0.6**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. YM1			**6.4**			**4.0**			**8.9**			**0.3**			**1.9**			**9.0**			**0.0**			**2.1**			**4.0**			**5.5**

TABLE 4: RSA GRADING OF YELLOW MAIZE (2015/2016) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2																														
4	Region 08	5.2	3.6	6.8	5.3	4.3	7.3	10.5	9.5	11.4	0.1	0.1	0.2	0.0	0.0	0.0	10.6	9.7	11.5	0.0	0.0	0.0	1.0	0.8	1.3	1.2	0.9	1.8	2.2	1.7	3.0
3	Region 10	0.8	0.5	1.1	4.2	1.7	6.2	5.0	2.8	6.6	0.2	0.1	0.5	0.0	0.0	0.0	5.2	3.2	6.7	0.0	0.0	0.0	0.3	0.2	0.4	0.3	0.2	0.4	0.6	0.5	0.8
4	Region 11	7.0	6.2	7.6	3.2	2.3	3.9	10.2	9.2	11.1	0.2	0.1	0.2	0.1	0.0	0.4	10.5	9.3	11.4	0.0	0.0	0.0	0.8	0.5	1.4	1.7	1.0	2.9	2.5	1.5	4.3
2	Region 12	7.6	1.4	13.7	5.6	4.7	6.5	13.1	7.9	18.4	0.1	0.1	0.1	0.0	0.0	0.0	13.3	8.0	18.5	0.0	0.0	0.0	0.9	0.6	1.2	4.2	0.8	7.6	5.1	1.4	8.8
7	Region 13	3.4	1.4	9.7	4.5	1.2	7.9	7.9	2.6	11.6	0.2	0.1	0.2	1.0	0.0	4.5	9.0	6.6	12.1	0.0	0.0	0.0	0.5	0.0	1.2	1.2	0.4	4.1	1.7	0.4	5.3
2	Region 17	2.3	2.3	2.4	5.0	4.5	5.5	7.3	6.9	7.8	0.2	0.2	0.3	0.0	0.0	0.0	7.5	7.1	8.0	0.0	0.0	0.0	0.3	0.3	0.4	0.6	0.6	0.7	1.0	1.0	1.0
3	Region 18	2.9	2.1	4.1	4.3	3.2	5.7	7.2	5.3	9.9	0.1	0.1	0.2	1.2	0.0	3.7	8.6	6.7	9.9	0.0	0.0	0.0	0.6	0.4	1.0	0.9	0.7	1.1	1.5	1.1	2.1
7	Region 19	7.1	3.6	12.8	4.8	3.1	6.7	11.9	8.6	17.7	0.2	0.1	0.3	0.1	0.0	0.4	12.1	8.8	18.0	0.0	0.0	0.0	1.1	0.5	2.4	1.7	0.8	3.6	2.8	1.3	6.0
12	Region 20	6.1	2.1	10.1	4.6	2.5	7.4	10.7	7.6	14.1	0.1	0.1	0.3	0.4	0.0	1.4	11.2	8.4	15.4	0.0	0.0	0.0	0.9	0.4	1.8	2.4	0.9	7.9	3.3	1.5	9.1
3	Region 21	6.9	6.8	7.0	4.6	2.6	5.8	11.4	9.4	12.6	0.2	0.1	0.2	0.4	0.0	0.6	12.0	10.2	13.3	0.0	0.0	0.0	1.8	0.8	2.9	2.9	1.6	4.5	4.7	4.4	5.3
2	Region 22	3.9	2.3	5.5	5.2	3.2	7.2	9.1	5.5	12.6	0.2	0.2	0.3	1.3	0.2	2.3	10.5	8.0	13.1	0.0	0.0	0.0	0.9	0.4	1.4	1.6	1.5	1.6	2.5	1.9	3.0
1	Region 23	10.7	-	-	0.0	-	-	10.7	-	-	0.2	-	-	0.5	-	-	11.4	-	-	0.0	-	-	1.7	-	-	2.4	-	-	4.1	-	-
4	Region 24	8.3	2.9	16.9	4.2	1.1	5.7	12.6	8.4	18.0	0.2	0.1	0.2	0.5	0.0	1.5	13.2	10.0	18.7	0.0	0.0	0.2	1.0	0.6	1.3	2.6	0.8	5.8	3.7	1.4	7.0
3	Region 25	2.1	1.5	2.8	4.7	4.1	5.8	6.9	5.7	7.9	0.2	0.1	0.2	0.2	0.0	0.5	7.2	5.9	8.1	0.0	0.0	0.0	0.3	0.0	0.5	0.7	0.0	1.6	0.9	0.4	2.0
3	Region 26	7.3	3.7	10.9	3.2	0.7	7.4	10.5	8.7	11.6	0.2	0.1	0.2	0.2	0.0	0.5	10.8	9.4	11.7	0.0	0.0	0.0	1.2	0.9	1.5	3.4	2.1	5.9	4.6	3.0	7.1
2	Region 27	8.5	5.0	12.0	5.1	4.1	6.1	13.6	9.1	18.1	0.2	0.2	0.3	0.2	0.0	0.4	14.0	9.3	18.8	0.0	0.0	0.0	1.5	0.7	2.3	5.4	4.0	6.8	6.9	4.7	9.1
5	Region 28	4.6	1.7	7.1	5.0	2.3	7.9	9.6	5.4	13.4	0.2	0.1	0.4	0.0	0.0	0.0	9.8	5.8	13.6	0.0	0.0	0.0	1.1	0.3	1.8	2.0	1.0	3.2	3.1	1.2	5.0
1	Region 29	1.5	-	-	4.4	-	-	6.0	-	-	0.2	-	-	0.0	-	-	6.2	-	-	0.0	-	-	0.0	-	-	0.8	-	-	0.8	-	-
5	Region 30	2.7	1.9	5.5	4.8	3.4	6.1	7.5	6.3	8.9	0.2	0.1	0.3	0.8	0.0	3.6	8.5	6.6	12.8	0.0	0.0	0.0	0.5	0.3	1.0	1.3	0.9	2.7	1.8	1.2	3.8
5	Region 31	4.4	1.3	7.5	4.7	2.6	8.7	9.1	5.6	12.6	0.2	0.2	0.3	0.0	0.0	0.0	9.4	5.8	12.8	0.0	0.0	0.0	0.9	0.4	1.6	2.0	0.6	3.6	2.9	0.9	5.2
6	Region 32	4.8	3.1	6.7	4.8	2.9	6.9	9.6	7.1	12.3	0.2	0.2	0.3	0.5	0.0	2.4	10.3	9.2	12.6	0.0	0.0	0.0	1.3	0.8	1.9	1.9	1.1	2.6	3.1	1.9	4.2
3	Region 33	4.4	1.4	7.3	5.0	2.5	7.7	9.4	9.1	9.8	0.1	0.1	0.2	0.5	0.0	1.0	10.0	9.3	10.5	0.0	0.0	0.0	1.1	0.4	1.8	1.9	0.0	3.7	2.9	0.4	5.5
2	Region 34	4.0	3.6	4.4	6.1	5.0	7.2	10.1	8.6	11.6	0.4	0.4	0.4	0.8	0.6	1.0	11.3	9.6	13.0	0.0	0.0	0.0	1.0	1.0	1.0	1.8	1.5	2.0	2.8	2.6	3.0
2	Region 35	3.5	1.5	5.5	4.3	4.2	4.4	7.8	5.9	9.7	0.2	0.1	0.3	0.4	0.4	0.5	8.4	6.4	10.4	0.0	0.0	0.0	0.7	0.4	1.0	1.8	0.7	2.9	2.5	1.1	3.9
6	Region 36	4.0	1.8	7.3	3.5	0.6	9.4	7.5	3.0	12.0	0.2	0.1	0.5	0.6	0.0	2.7	8.4	3.5	12.2	0.0	0.0	0.0	0.5	0.4	0.7	2.7	0.6	5.8	3.2	1.0	6.3
97	**Ave. YM2**	**5.0**			**4.5**			**9.5**			**0.2**			**0.4**			**10.1**			**0.0**			**0.9**			**1.9**			**2.8**		
	Min. YM2		**0.5**			**0.0**			**2.6**			**0.1**			**0.0**			**3.2**			**0.0**			**0.0**			**0.0**			**0.4**	
	Max. YM2			**16.9**			**9.4**			**18.4**			**0.5**			**4.5**			**18.8**			**0.2**			**2.9**			**7.9**			**9.1**

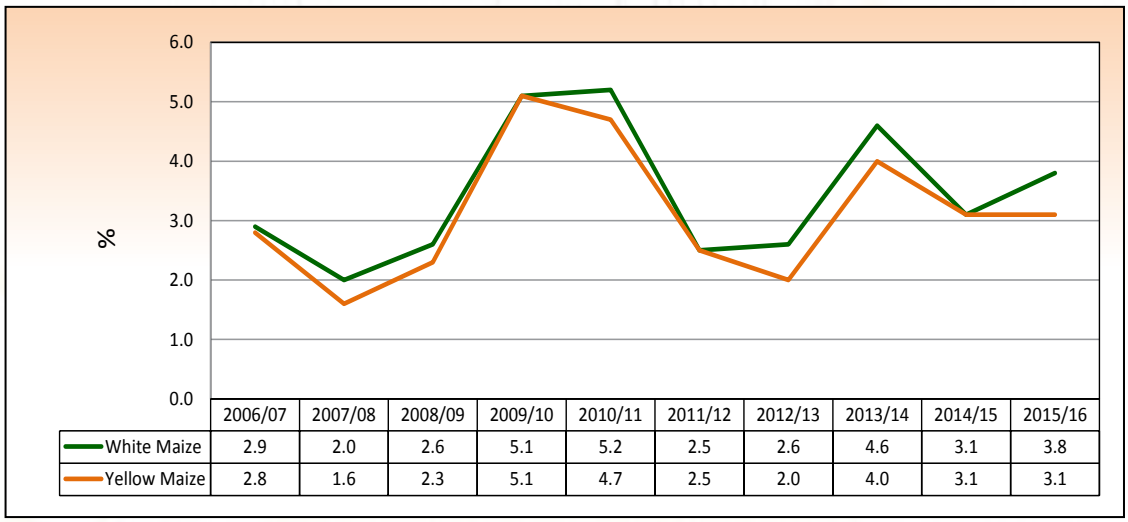
TABLE 4: RSA GRADING OF YELLOW MAIZE (2015/2016) (continue)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3																																
1	Region 11	4.4	-	-	5.9	-	-	10.3	-	-	0.6	-	-	0.4	-	-	11.2	-	-	0.0	-	-	0.7	-	-	0.9	-	-	1.7	-	-
1	Region 17	6.0	-	-	14.7	-	-	20.7	-	-	0.1	-	-	0.0	-	-	20.8	-	-	0.0	-	-	0.8	-	-	1.2	-	-	2.0	-	-
2	Region 18	6.6	4.9	8.3	15.4	14.9	15.8	22.0	20.7	23.2	0.2	0.1	0.2	0.0	0.0	0.0	22.1	20.8	23.4	0.0	0.0	0.0	0.8	0.7	0.9	3.1	1.2	4.9	3.8	1.9	5.8
1	Region 19	4.2	-	-	14.5	-	-	18.7	-	-	0.2	-	-	0.0	-	-	18.9	-	-	0.0	-	-	1.5	-	-	4.0	-	-	5.5	-	-
1	Region 31	4.0	-	-	13.3	-	-	17.3	-	-	0.3	-	-	0.0	-	-	17.5	-	-	0.0	-	-	0.8	-	-	2.1	-	-	2.9	-	-
1	Region 32	4.2	-	-	18.1	-	-	22.3	-	-	0.4	-	-	0.0	-	-	22.7	-	-	0.0	-	-	1.0	-	-	1.5	-	-	2.5	-	-
1	Region 35	7.1	-	-	11.6	-	-	18.8	-	-	0.3	-	-	0.0	-	-	19.1	-	-	0.0	-	-	1.2	-	-	3.6	-	-	4.7	-	-
2	Region 36	3.2	1.7	4.7	2.9	2.3	3.5	6.1	4.0	8.3	0.6	0.6	0.7	0.0	0.0	0.0	6.8	4.6	9.0	0.0	0.0	0.0	0.5	0.4	0.6	2.1	1.0	3.2	2.6	1.4	3.8
10	**Ave. YM3**	**5.0**			**11.5**			**16.4**			**0.3**			**0.0**			**16.8**			**0.0**			**0.9**			**2.4**			**3.2**		
	Min. YM3		**1.7**			**2.3**			**4.0**			**0.1**			**0.0**			**4.6**			**0.0**			**0.4**			**0.9**			**1.4**	
	Max .YM3			**8.3**			**18.1**			**23.2**			**0.7**			**0.4**			**23.4**			**0.0**			**1.5**			**4.9**			**5.8**
CLASS: COM																																
1	Region 20	24.4			7.5			31.9			0.3			0.3			32.4			0			2.7			6.4			9.1		
1	Region 30	4.3			13.0			17.3			1.3			0.0			18.6			0.0			0.6			2.6			3.1		
1	Region 36	2.2			3.3			5.4			1.7			1.0			8.1			0.0			0.5			1.0			1.5		
3	**Ave. COM**	**10.3**			**7.9**			**18.2**			**1.1**			**0.4**			**19.7**			**0.0**			**1.3**			**3.3**			**4.6**		
	Min. COM		**2.2**			**3.3**			**5.4**			**0.3**			**0.0**			**8.1**			**0.0**			**0.5**			**1.0**			**1.5**	
	Max. COM			**24.4**			**13.0**			**31.9**			**1.7**			**1.0**			**32.4**			**0.0**			**2.7**			**6.4**			**9.1**
505	**Ave. yellow maize**	**3.1**			**2.6**			**5.7**			**0.2**			**0.2**			**6.0**			**0.0**			**0.6**			**1.2**			**1.8**		
	Min. yellow maize		**0.5**			**0.0**			**0.6**			**0.0**			**0.0**			**0.6**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. yellow maize			**24.4**			**18.1**			**31.9**			**1.7**			**4.5**			**32.4**			**0.2**			**2.9**			**7.9**			**9.1**
920	**Ave. maize**	**3.4**			**2.5**			**5.9**			**0.2**			**0.3**			**6.3**			**0.0**			**0.6**			**1.2**			**1.9**		
	Min. maize		**0.5**			**0.0**			**0.6**			**0.0**			**0.0**			**0.6**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. maize			**79.9**			**18.1**			**91.3**			**2.2**			**8.0**			**91.5**			**1.6**			**5.5**			**11.0**			**16.5**

TABLE 5: GRADING QUALITY OF SOUTH AFRICAN WHITE AND YELLOW MAIZE 2006/2007 - 2015/2016

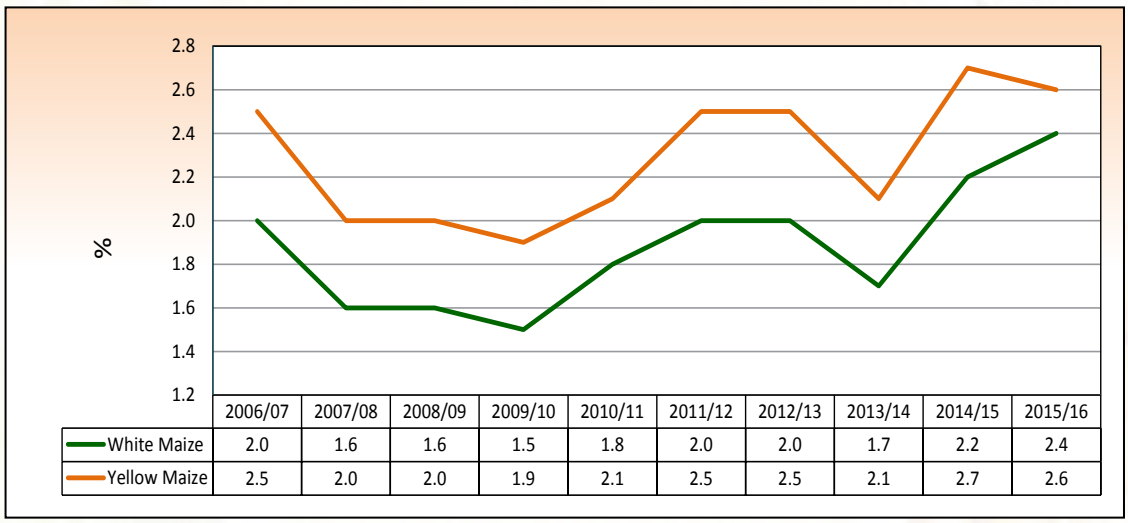
Season	Number of samples	% Defective kernels above 6.35 mm sieve			% Defective kernels below 6.35 mm sieve			% Foreign matter			% Other colour			% Combined deviations		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize																
2006/07	563	2.9	0.1	34.9	2.0	0.1	11.6	0.1	0.0	0.7	0.2	0.0	13.5	5.3	0.4	38.8
2007/08	483	2.0	0.3	13.6	1.6	0.0	10.3	0.2	0.0	0.7	0.2	0.0	5.2	3.9	0.5	18.5
2008/09	483	2.6	0.4	16.9	1.6	0.0	5.5	0.2	0.0	4.0	0.2	0.0	5.0	4.5	1.0	20.2
2009/10	458	5.1	1.0	40.1	1.5	0.2	14.0	0.1	0.0	0.4	0.2	0.0	6.5	6.9	1.4	41.4
2010/11	413	5.2	0.5	67.1	1.8	0.1	13.3	0.2	0.0	0.8	0.4	0.0	23.2	7.5	0.9	95.1
2011/12	577	2.5	0.3	21.6	2.0	0.0	8.1	0.1	0.0	1.1	0.3	0.0	43.7	5.0	0.7	51.2
2012/13	508	2.6	0.0	20.8	2.0	0.2	11.4	0.1	0.0	1.5	0.3	0.0	6.5	4.9	1.0	22.4
2013/14	451	4.6	0.6	24.7	1.7	0.1	9.8	0.1	0.0	4.5	0.4	0.0	9.2	6.8	1.9	29.2
2014/15	485	3.1	0.0	30.0	2.2	0.0	25.5	0.1	0.0	1.2	0.4	0.0	9.6	5.8	0.0	35.3
2015/16	415	3.8	0.7	79.9	2.4	0.0	14.5	0.2	0.0	2.2	0.4	0.0	8.0	6.7	1.9	91.5
Weighted Average		**3.4**			**1.9**			**0.1**			**0.3**			**5.7**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.0**	
Maximum				**79.9**			**25.5**			**4.5**			**43.7**			**95.1**
Yellow Maize																
2006/07	337	2.8	0.0	67.7	2.5	0.2	17.3	0.2	0.0	1.9	0.2	0.0	4.6	5.7	0.9	70.0
2007/08	417	1.6	0.3	8.4	2.0	0.2	7.3	0.1	0.0	0.4	0.1	0.0	4.3	3.9	0.6	11.0
2008/09	327	2.3	0.5	15.1	2.0	0.0	10.6	0.2	0.0	3.1	0.2	0.0	13.3	4.7	0.9	29.6
2009/10	342	5.1	0.3	23.8	1.9	0.1	12.9	0.2	0.0	4.1	0.1	0.0	4.2	7.2	0.6	25.0
2010/11	280	4.7	0.8	30.9	2.1	0.1	9.6	0.2	0.0	0.4	0.2	0.0	6.2	7.2	1.3	36.9
2011/12	423	2.5	0.4	66.3	2.5	0.2	22.9	0.1	0.0	3.6	0.2	0.0	5.6	5.2	1.0	90.4
2012/13	492	2.0	0.2	23.1	2.5	0.1	14.0	0.1	0.0	1.8	0.2	0.0	8.4	4.8	0.8	25.0
2013/14	479	4.0	0.5	32.3	2.1	0.1	10.5	0.1	0.0	1.9	0.2	0.0	7.8	6.4	1.7	33.7
2014/15	515	3.1	0.6	23.0	2.7	0.0	19.0	0.1	0.0	2.5	0.3	0.0	13.6	6.2	0.6	34.4
2015/16	505	3.1	0.5	24.4	2.6	0.0	18.1	0.2	0.0	1.7	0.2	0.0	4.5	6.0	0.6	32.4
Weighted Average		**3.0**			**2.3**			**0.1**			**0.2**			**5.7**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.6**	
Maximum				**67.7**			**22.9**			**4.1**			**13.6**			**90.4**
White and Yellow Maize																
2006/07	900	2.9	0.0	67.7	2.2	0.1	17.3	0.2	0.0	1.9	0.2	0.0	13.5	5.4	0.4	70.0
2007/08	900	1.8	0.3	13.6	1.8	0.0	10.3	0.1	0.0	0.7	0.1	0.0	5.2	3.9	0.5	18.5
2008/09	810	2.5	0.4	16.9	1.8	0.0	10.6	0.2	0.0	4.0	0.2	0.0	13.3	4.6	0.9	29.6
2009/10	800	5.1	0.3	40.1	1.7	0.1	14.0	0.1	0.0	4.1	0.2	0.0	6.5	7.1	0.6	41.4
2010/11	693	5.0	0.5	67.1	1.9	0.1	13.3	0.2	0.0	0.8	0.3	0.0	23.2	7.4	0.9	95.1
2011/12	1000	2.5	0.3	66.3	2.2	0.0	22.9	0.1	0.0	3.6	0.3	0.0	43.7	5.1	0.7	90.4
2012/13	1000	2.0	0.0	23.1	2.3	0.1	14.0	0.1	0.0	1.8	0.3	0.0	8.4	4.9	0.8	25.0
2013/14	930	4.3	0.5	32.3	1.9	0.1	10.5	0.1	0.0	4.5	0.3	0.0	9.2	6.6	1.7	33.7
2014/15	1000	3.1	0.0	30.0	2.5	0.0	25.5	0.1	0.0	2.5	0.3	0.0	13.6	6.0	0.0	35.3
2015/16	920	3.4	0.5	79.9	2.5	0.0	18.1	0.2	0.0	2.2	0.3	0.0	8.0	6.3	0.6	91.5
Weighted Average		**3.2**			**2.1**			**0.1**			**0.3**			**5.7**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.0**	
Maximum				**79.9**			**25.5**			**4.5**			**43.7**			**95.1**

Graph 35: Percentage Defective Kernels above the 6.35 mm sieve over 10 seasons



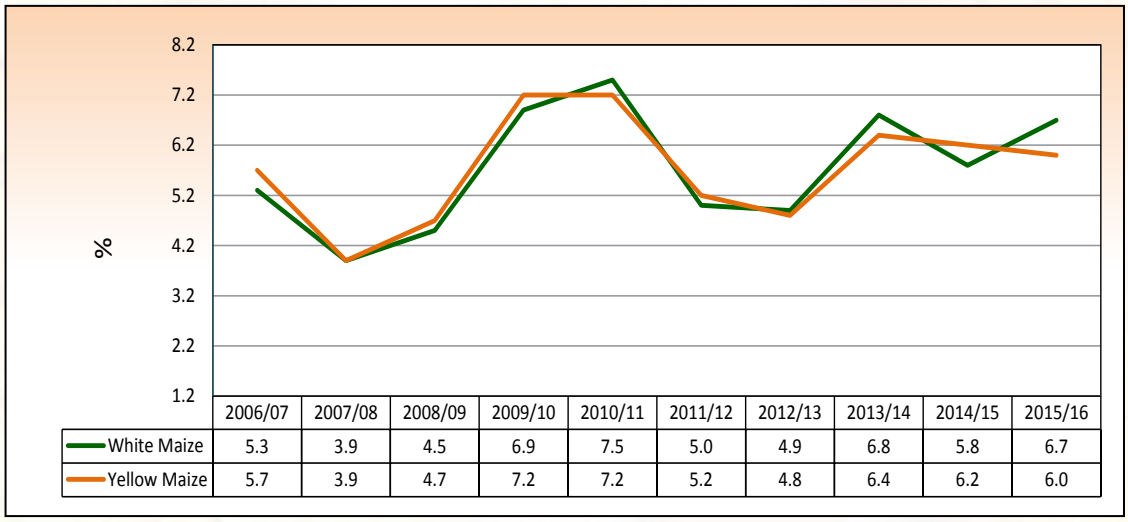
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	2.9	2.0	2.6	5.1	5.2	2.5	2.6	4.6	3.1	3.8
Yellow Maize	2.8	1.6	2.3	5.1	4.7	2.5	2.0	4.0	3.1	3.1

Graph 36: Percentage Defective Kernels below the 6.35 mm sieve over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	2.0	1.6	1.6	1.5	1.8	2.0	2.0	1.7	2.2	2.4
Yellow Maize	2.5	2.0	2.0	1.9	2.1	2.5	2.5	2.1	2.7	2.6

Graph 37: Percentage Combined deviations over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	5.3	3.9	4.5	6.9	7.5	5.0	4.9	6.8	5.8	6.7
Yellow Maize	5.7	3.9	4.7	7.2	7.2	5.2	4.8	6.4	6.2	6.0

TABLE 6: USA GRADING OF WHITE MAIZE (2015/2016)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.1																
2	Region 11	0.0	0.0	0.0	1.7	1.2	2.2	0.5	0.5	0.6	61.9	61.5	62.3	0.6	0.5	0.6
7	Region 12	0.0	0.0	0.0	2.3	1.8	2.9	0.5	0.1	1.6	61.1	58.7	62.4	0.1	0.0	0.8
7	Region 13	0.0	0.0	0.0	2.2	1.3	2.8	0.8	0.2	1.8	61.0	59.6	63.1	0.2	0.0	0.5
13	Region 14	0.0	0.0	0.0	2.7	2.1	3.0	0.7	0.0	1.5	61.4	60.5	62.0	0.1	0.0	0.6
13	Region 17	0.0	0.0	0.0	2.1	0.7	3.0	0.6	0.0	1.8	61.2	56.4	63.0	0.1	0.0	0.5
1	Region 18	0.0	-	-	1.9	-	-	0.4	-	-	62.2	-	-	0.0	-	-
4	Region 19	0.0	0.0	0.0	2.1	1.3	2.9	0.8	0.3	1.6	61.1	60.0	62.7	0.2	0.0	0.3
6	Region 20	0.0	0.0	0.0	2.3	1.8	3.0	1.0	0.3	1.7	61.1	59.8	63.1	0.1	0.0	0.8
4	Region 21	0.0	0.0	0.0	2.2	1.2	2.6	0.6	0.3	0.9	62.7	62.7	62.8	0.1	0.0	0.5
3	Region 23	0.0	0.0	0.0	2.4	2.2	2.8	0.5	0.5	0.6	60.7	59.8	62.3	0.0	0.0	0.0
3	Region 24	0.0	0.0	0.0	2.4	1.9	2.8	0.5	0.4	0.8	61.9	61.7	62.1	0.1	0.0	0.2
4	Region 25	0.0	0.0	0.0	2.1	1.4	2.5	0.3	0.0	0.9	60.2	56.7	62.0	0.2	0.0	0.6
3	Region 26	0.0	0.0	0.0	2.5	2.1	2.9	0.5	0.5	0.6	59.7	56.5	61.3	0.0	0.0	0.0
1	Region 27	0.0	-	-	2.3	-	-	0.5	-	-	63.6	-	-	0.3	-	-
10	Region 28	0.0	0.0	0.0	1.5	1.1	2.0	0.4	0.0	1.6	62.0	59.6	62.9	0.3	0.0	0.8
14	Region 29	0.0	0.0	0.0	1.8	1.0	2.7	0.5	0.2	1.2	62.2	60.1	65.2	0.2	0.0	0.9
18	Region 30	0.0	0.0	0.0	2.5	1.6	3.0	0.7	0.2	1.3	60.9	57.6	63.0	0.4	0.0	1.9
7	Region 31	0.0	0.0	0.0	2.1	0.9	2.9	0.6	0.1	1.0	59.8	58.4	61.5	0.3	0.0	1.0
23	Region 32	0.0	0.0	0.0	2.3	1.3	2.9	0.5	0.0	0.8	60.8	58.8	63.8	0.2	0.0	0.6
26	Region 33	0.0	0.0	0.0	2.2	1.3	2.9	0.6	0.0	1.9	60.1	56.1	63.0	0.4	0.0	1.6
15	Region 34	0.0	0.0	0.0	2.3	1.6	3.0	0.4	0.0	1.3	60.8	56.7	62.9	0.3	0.0	1.0
19	Region 35	0.0	0.0	0.0	2.2	1.1	3.0	0.6	0.2	1.2	61.0	57.2	63.1	0.2	0.0	0.8
17	Region 36	0.0	0.0	0.0	2.2	0.8	3.0	0.5	0.1	1.1	59.9	57.2	61.3	0.3	0.0	0.7
220	**Ave. US No.1**	**0.0**			**2.2**			**0.6**			**60.9**			**0.2**		
	Min. US No.1		**0.0**			**0.7**			**0.0**			**56.1**			**0.0**	
	Max. US No.1			**0.0**			**3.0**			**1.9**			**65.2**			**1.9**
GRADE: US No.2																
2	Region 12	0.0	0.0	0.0	3.9	3.1	4.6	0.8	0.2	1.4	61.3	59.6	62.9	0.0	0.0	0.0
5	Region 13	0.0	0.0	0.0	3.6	3.3	4.2	1.2	0.5	2.4	60.6	58.8	63.2	0.1	0.0	0.3
7	Region 14	0.0	0.0	0.0	3.6	3.2	4.6	0.8	0.4	1.2	61.9	61.3	63.0	0.0	0.0	0.3
4	Region 17	0.0	0.0	0.0	3.6	2.7	5.0	0.9	0.1	2.5	61.9	60.9	62.7	0.1	0.0	0.4
4	Region 18	0.0	0.0	0.0	4.5	3.7	5.0	1.2	0.5	1.6	61.1	60.9	61.3	0.0	0.0	0.2
5	Region 19	0.0	0.0	0.0	3.7	3.3	4.2	1.2	0.2	2.4	61.0	59.6	62.7	0.1	0.0	0.3
6	Region 20	0.0	0.0	0.0	4.0	3.4	5.0	0.9	0.6	1.3	60.6	59.2	61.8	0.1	0.0	0.4
5	Region 22	0.0	0.0	0.0	4.0	3.1	4.9	0.8	0.3	1.9	60.8	59.1	61.8	0.0	0.0	0.0
1	Region 23	0.0	-	-	4.6	-	-	0.5	-	-	63.1	-	-	0.0	-	-
4	Region 24	0.0	0.0	0.0	3.7	3.5	4.1	0.6	0.3	0.8	62.1	61.0	63.6	0.0	0.0	0.0
7	Region 26	0.0	0.0	0.0	3.6	3.4	3.9	0.5	0.2	1.4	61.1	59.4	62.5	0.1	0.0	0.5
3	Region 28	0.0	0.0	0.0	4.7	4.5	5.0	0.3	0.1	0.5	60.4	59.6	61.3	0.6	0.3	1.0
2	Region 29	0.0	0.0	0.0	3.5	3.3	3.7	1.0	0.2	1.8	62.8	62.5	63.1	0.0	0.0	0.0
10	Region 30	0.0	0.0	0.0	3.4	1.3	4.2	0.5	0.1	0.8	60.8	55.7	62.3	0.2	0.0	0.5
3	Region 31	0.0	0.0	0.0	3.2	3.1	3.3	1.0	0.3	2.2	58.9	57.9	59.4	0.6	0.4	1.0
5	Region 32	0.0	0.0	0.0	3.7	3.1	4.9	0.4	0.0	0.8	60.7	59.4	61.9	0.1	0.0	0.6
1	Region 33	0.0	-	-	4.0	-	-	0.8	-	-	57.3	-	-	1.0	-	-
13	Region 34	0.0	0.0	0.2	3.6	1.8	5.0	0.6	0.0	1.8	60.8	55.3	63.1	0.3	0.0	1.4
5	Region 36	0.0	0.0	0.0	3.6	2.2	4.6	0.7	0.1	2.3	59.5	58.2	61.0	0.5	0.3	0.9
92	**Ave. US No.1**	**0.0**			**3.7**			**0.8**			**60.9**			**0.2**		
	Min. US No.1		**0.0**			**1.3**			**0.0**			**55.3**			**0.0**	
	Max. US No.1			**0.2**			**5.0**			**2.5**			**63.6**			**1.4**

TABLE 6: USA GRADING OF WHITE MAIZE (2015/2016) (continue)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.3																
1	Region 12	0.0	-	-	5.6	-	-	0.4	-	-	59.6	-	-	0.0	-	-
7	Region 13	0.0	0.0	0.0	5.0	2.3	5.8	1.3	0.2	3.1	60.5	57.7	61.8	0.3	0.0	0.9
1	Region 17	0.0	-	-	5.1	-	-	1.9	-	-	62.5	-	-	0.5	-	-
2	Region 18	0.0	0.0	0.0	6.7	6.4	6.9	2.1	0.2	4.0	59.8	58.7	60.8	0.5	0.3	0.7
5	Region 19	0.0	0.0	0.0	5.2	2.1	7.0	1.3	0.5	3.1	60.5	58.7	61.3	0.3	0.0	0.5
3	Region 20	0.0	0.0	0.0	4.3	1.4	5.8	1.4	0.4	3.1	60.2	59.5	60.6	0.2	0.0	0.5
1	Region 21	0.0	-	-	6.8	-	-	1.2	-	-	62.2	-	-	0.0	-	-
2	Region 22	0.3	0.0	0.5	4.0	1.7	6.3	1.1	0.2	1.9	61.3	60.6	62.0	0.0	0.0	0.0
3	Region 24	0.0	0.0	0.0	5.9	5.1	6.4	0.5	0.2	0.7	62.1	61.8	62.5	0.0	0.0	0.0
1	Region 25	0.0	-	-	2.5	-	-	3.7	-	-	57.9	-	-	0.5	-	-
4	Region 26	0.0	0.0	0.0	5.9	5.5	6.3	0.9	0.6	1.4	55.0	54.3	55.5	0.8	0.3	1.1
2	Region 27	0.0	0.0	0.0	4.4	2.3	6.4	1.7	0.1	3.4	60.3	59.6	61.0	0.2	0.0	0.4
2	Region 33	0.0	0.0	0.0	6.0	5.5	6.4	0.4	0.2	0.6	59.1	57.1	61.1	0.3	0.0	0.6
1	Region 34	0.0	-	-	6.0	-	-	0.9	-	-	61.6	-	-	0.3	-	-
4	Region 35	0.0	0.0	0.0	5.7	4.7	6.6	1.2	0.3	3.1	59.5	58.2	62.0	0.1	0.0	0.5
5	Region 36	0.0	0.0	0.0	6.2	5.2	6.7	0.4	0.1	1.0	60.0	59.1	60.9	0.6	0.0	1.1
44	**Ave. US No.3**	**0.0**			**5.4**			**1.2**			**59.9**			**0.3**		
	Min. US No.3		**0.0**			**1.4**			**0.1**			**54.3**			**0.0**	
	Max. US No.3			**0.5**			**7.0**			**4.0**			**62.5**			**1.1**
GRADE: US No.4																
1	Region 12	0.0	-	-	8.0	-	-	0.4	-	-	62.0	-	-	0.0	-	-
4	Region 13	0.0	0.0	0.0	8.4	7.3	9.3	1.0	0.4	1.8	60.1	58.9	61.3	0.1	0.0	0.2
1	Region 14	0.0	-	-	7.4	-	-	0.8	-	-	63.2	-	-	0.5	-	-
4	Region 19	0.0	0.0	0.0	4.4	3.7	5.1	4.4	4.1	4.6	58.8	53.3	62.0	0.1	0.0	0.3
2	Region 20	0.0	0.0	0.0	7.5	7.1	7.9	0.8	0.0	1.6	61.2	60.5	61.9	0.9	0.0	1.7
1	Region 22	0.0	-	-	7.1	-	-	0.6	-	-	62.3	-	-	0.0	-	-
1	Region 23	0.0	-	-	9.5	-	-	0.2	-	-	62.0	-	-	0.0	-	-
1	Region 28	0.0	-	-	9.0	-	-	1.7	-	-	61.8	-	-	0.0	-	-
2	Region 30	0.0	0.0	0.0	9.1	8.1	10.0	1.4	0.6	2.1	60.3	59.7	60.8	0.8	0.5	1.0
4	Region 33	0.2	0.0	1.0	7.1	3.4	9.5	0.4	0.3	0.6	59.9	56.6	61.3	0.4	0.0	1.3
2	Region 35	0.4	0.0	0.8	9.8	9.8	9.8	0.3	0.2	0.5	60.4	59.5	61.2	0.2	0.0	0.4
3	Region 36	0.2	0.0	0.7	9.0	8.2	9.9	0.3	0.2	0.5	60.3	59.8	60.7	0.3	0.2	0.5
26	**Ave. US No.4**	**0.1**			**7.7**			**1.3**			**60.4**			**0.3**		
	Min. US No.4		**0.0**			**3.4**			**0.0**			**53.3**			**0.0**	
	Max. US No.4			**1.0**			**10.0**			**4.6**			**63.2**			**1.7**
GRADE: US No.5																
1	Region 18	1.4	-	-	4.2	-	-	1.5	-	-	59.7	-	-	1.0	-	-
2	Region 19	0.9	0.0	1.8	2.5	2.5	2.6	3.3	0.5	6.1	60.6	60.0	61.1	0.3	0.0	0.7
2	Region 20	0.0	0.0	0.0	7.6	3.6	11.6	3.8	2.3	5.4	59.9	59.1	60.6	0.3	0.0	0.5
1	Region 21	0.0	-	-	10.6	-	-	1.2	-	-	62.0	-	-	0.5	-	-
4	Region 22	0.0	0.0	0.0	12.5	10.4	13.5	2.5	1.0	4.2	61.7	61.0	62.1	0.0	0.0	0.0
1	Region 33	2.0	-	-	6.1	-	-	0.1	-	-	61.8	-	-	0.0	-	-
11	**Ave. US No.5**	**0.5**			**8.3**			**2.4**			**61.0**			**0.2**		
	Min. US No.5		**0.0**			**2.5**			**0.1**			**59.1**			**0.0**	
	Max.US No.5			**2.0**			**13.5**			**6.1**			**62.1**			**1.0**

TABLE 6: USA GRADING OF WHITE MAIZE (2015/2016) (continue)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: Sample Grade																
3	Region 13	11.5	5.7	23.1	15.1	9.9	24.3	2.2	0.5	3.5	59.4	58.4	60.4	0.2	0.0	0.5
1	Region 18	9.1	-	-	11.2	-	-	0.8	-	-	59.6	-	-	0.5	-	-
2	Region 19	7.4	0.0	14.8	11.9	5.7	18.2	5.2	1.5	8.9	61.0	60.8	61.1	0.0	0.0	0.0
1	Region 20	6.5	-	-	20.3	-	-	5.5	-	-	58.9	-	-	1.2	-	-
2	Region 35	41.9	3.9	79.9	46.2	12.5	79.9	5.3	5.1	5.5	59.2	58.8	59.6	0.0	0.0	0.0
1	Region 36	0.0	-	-	17.4	-	-	0.3	-	-	58.4	-	-	0.0	-	-
10	**Ave. Sample Grade**	14.9			21.1			3.4			59.6			0.2		
	Min. Sample Grade		0.0			5.7			0.3			58.4			0.0	
	Max. Sample Grade			79.9			79.9			8.9			61.1			1.2
GRADE: Mixed Grade																
1	Region 20	0.0	-	-	3.5	-	-	0.7	-	-	62.0	-	-	8.0	-	-
1	Region 26	0.0	-	-	6.9	-	-	0.2	-	-	59.9	-	-	2.3	-	-
1	Region 28	0.0	-	-	2.8	-	-	0.5	-	-	60.3	-	-	4.8	-	-
1	Region 30	0.0	-	-	4.9	-	-	0.6	-	-	60.4	-	-	3.8	-	-
5	Region 31	0.0	0.0	0.0	2.4	1.6	3.6	1.0	0.3	1.9	56.9	53.2	59.8	5.5	2.5	7.9
1	Region 33	0.0	-	-	7.1	-	-	3.0	-	-	59.6	-	-	4.2	-	-
1	Region 34	0.3	-	-	4.4	-	-	0.2	-	-	61.0	-	-	2.3	-	-
1	Region 36	0.0	-	-	4.0	-	-	3.7	-	-	60.9	-	-	3.5	-	-
12	**Ave. Mixed Grade**	**0.0**			**3.8**			**1.2**			**59.1**			**4.7**		
	Min. Mixed Grade		**0.0**			**1.6**			**0.2**			**53.2**			**2.3**	
	Max. Mixed Grade			**0.3**			**7.1**			**3.7**			**62.0**			**8.0**
415	**Ave. white maize**	**0.4**			**3.9**			**0.9**			**60.7**			**0.4**		
	Min. white maize		**0.0**			**0.7**			**0.0**			**53.2**			**0.0**	
	Max. white maize			**79.9**			**79.9**			**8.9**			**65.2**			**8.0**
920	**Ave. maize**	**0.2**			**3.5**			**0.9**			**60.1**			**0.3**		
	Min. maize		**0.0**			**0.0**			**0.0**			**46.4**			**0.0**	
	Max. maize			**79.9**			**79.9**			**9.6**			**65.2**			**8.0**

TABLE 7: USA GRADING OF YELLOW MAIZE (2015/2016)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.1																
1	Region 3	0.0	-	-	1.6	-	-	0.9	-	-	61.2	-	-	0.0	-	-
2	Region 8	0.0	0.0	0.0	2.6	2.5	2.7	0.6	0.5	0.7	59.9	59.5	60.3	0.0	0.0	0.0
21	Region 10	0.0	0.0	0.0	1.5	0.6	3.0	0.5	0.0	1.8	61.7	59.4	63.4	0.0	0.0	0.0
12	Region 11	0.0	0.0	0.0	2.3	1.5	3.0	0.5	0.2	0.8	62.0	58.9	63.2	0.0	0.0	0.0
4	Region 12	0.0	0.0	0.0	1.6	1.0	2.4	0.8	0.4	1.4	59.8	58.9	60.7	0.2	0.0	0.3
4	Region 13	0.0	0.0	0.0	2.1	1.5	2.8	0.8	0.0	1.6	60.3	58.2	62.0	1.3	0.0	4.5
3	Region 14	0.0	0.0	0.0	2.1	1.7	2.4	0.9	0.7	1.1	60.3	59.8	60.8	0.2	0.0	0.6
1	Region 17	0.0	-	-	2.5	-	-	0.8	-	-	60.8	-	-	0.0	-	-
4	Region 18	0.0	0.0	0.0	2.3	1.7	2.6	0.8	0.3	1.1	61.0	60.4	61.5	1.2	0.0	3.7
3	Region 19	0.0	0.0	0.0	2.4	1.6	2.8	0.7	0.4	1.4	61.1	60.8	61.3	0.2	0.0	0.3
1	Region 20	0.0	-	-	2.7	-	-	0.5	-	-	59.4	-	-	0.0	-	-
2	Region 21	0.0	0.0	0.0	2.2	2.2	2.2	0.6	0.4	0.9	60.5	60.3	60.7	0.6	0.4	0.8
1	Region 22	0.0	-	-	2.5	-	-	1.6	-	-	60.6	-	-	2.3	-	-
3	Region 23	0.0	0.0	0.0	2.4	2.1	2.8	0.8	0.8	0.9	61.0	59.9	61.8	0.0	0.0	0.0
1	Region 24	0.0	-	-	2.8	-	-	1.8	-	-	61.5	-	-	1.0	-	-
10	Region 25	0.0	0.0	0.0	1.9	0.0	2.8	0.9	0.0	1.8	60.2	58.2	61.4	0.0	0.0	0.0
7	Region 26	0.0	0.0	0.0	2.0	1.4	2.6	0.5	0.0	1.1	60.4	57.2	62.9	0.2	0.0	0.5
2	Region 27	0.0	0.0	0.0	2.5	2.4	2.5	0.4	0.2	0.6	60.6	60.1	61.1	0.0	0.0	0.0
20	Region 28	0.0	0.0	0.0	2.0	1.1	2.6	0.5	0.0	1.2	59.0	56.5	61.0	0.1	0.0	0.5
40	Region 29	0.0	0.0	0.0	1.7	0.6	2.8	0.5	0.1	1.4	60.3	58.6	63.1	0.0	0.0	0.4
49	Region 30	0.0	0.0	0.0	2.2	1.2	3.0	0.6	0.0	1.9	59.0	56.5	61.2	0.0	0.0	0.5
24	Region 31	0.0	0.0	0.0	2.4	0.9	3.0	0.6	0.0	1.6	59.1	56.0	62.0	0.0	0.0	0.0
26	Region 32	0.0	0.0	0.0	2.2	1.3	3.0	0.6	0.0	0.8	58.4	56.0	61.5	0.3	0.0	1.8
18	Region 33	0.0	0.0	0.0	2.0	1.3	2.6	0.6	0.0	1.2	59.7	58.3	62.6	0.3	0.0	1.9
18	Region 34	0.0	0.0	0.0	2.2	1.1	3.0	0.4	0.1	1.0	59.7	58.2	62.0	0.1	0.0	0.5
9	Region 35	0.0	0.0	0.0	2.2	1.6	2.9	0.7	0.0	1.1	58.6	56.6	60.8	0.1	0.0	0.5
23	Region 36	0.0	0.0	0.0	2.1	0.1	2.9	0.4	0.1	1.2	60.6	58.9	62.3	0.4	0.0	2.7
309	**Ave. US No.1**	**0.0**			**2.1**			**0.6**			**59.8**			**0.1**		
	Min. US No.1		**0.0**			**0.0**			**0.0**			**56.0**			**0.0**	
	Max. US No.1			**0.0**			**3.0**			**1.9**			**63.4**			**4.5**
GRADE: US No.2																
2	Region 8	0.0	0.0	0.0	4.1	3.7	4.5	0.5	0.0	1.0	60.9	59.9	61.8	0.0	0.0	0.0
3	Region 10	0.0	0.0	0.0	2.8	1.3	4.0	1.4	0.5	2.1	62.0	60.4	63.0	0.0	0.0	0.0
7	Region 11	0.0	0.0	0.0	4.1	3.2	5.0	0.8	0.0	2.6	61.0	58.8	62.8	0.1	0.0	0.4
1	Region 13	0.0	-	-	4.3	-	-	1.8	-	-	58.0	-	-	0.5	-	-
3	Region 17	0.0	0.0	0.0	3.9	3.1	4.8	0.8	0.6	1.0	61.1	59.6	61.8	0.1	0.0	0.2
1	Region 18	0.0	-	-	4.3	-	-	1.5	-	-	60.4	-	-	0.0	-	-
4	Region 19	0.0	0.0	0.0	4.0	3.4	4.9	1.9	1.2	2.6	58.5	55.5	60.4	0.1	0.0	0.4
2	Region 20	0.0	0.0	0.0	3.1	2.2	3.9	1.9	1.4	2.5	59.0	58.8	59.1	0.5	0.3	0.7
2	Region 22	0.0	0.0	0.0	3.7	3.5	3.8	0.7	0.7	0.7	59.3	58.7	59.8	0.3	0.0	0.6
1	Region 24	0.0	-	-	3.0	-	-	2.6	-	-	61.3	-	-	1.5	-	-
3	Region 25	0.0	0.0	0.0	2.9	2.2	3.4	2.4	1.9	3.0	60.2	59.4	61.6	0.4	0.0	0.6
4	Region 26	0.0	0.0	0.0	3.5	3.1	3.9	0.6	0.4	0.7	59.2	57.0	61.5	0.3	0.0	0.7
6	Region 28	0.0	0.0	0.0	3.4	1.9	3.9	0.9	0.0	2.4	58.4	57.0	60.3	0.1	0.0	0.3
3	Region 29	0.0	0.0	0.0	3.2	3.1	3.4	0.8	0.6	0.9	57.1	55.3	59.8	0.2	0.0	0.5
8	Region 30	0.0	0.0	0.0	3.3	2.0	4.0	0.9	0.2	2.2	59.2	57.3	61.1	0.0	0.0	0.4
10	Region 31	0.0	0.0	0.0	3.8	3.1	4.9	0.6	0.0	2.8	58.7	56.7	60.4	0.1	0.0	0.5
14	Region 32	0.0	0.0	0.0	3.8	2.2	4.7	0.8	0.5	1.9	58.8	55.6	61.3	0.3	0.0	2.4
12	Region 33	0.0	0.0	0.0	3.7	1.8	4.6	0.8	0.4	2.1	58.9	57.5	60.3	0.1	0.0	1.0
11	Region 34	0.0	0.0	0.0	4.0	3.1	4.8	0.7	0.0	2.4	59.5	56.8	61.1	0.1	0.0	1.0
3	Region 35	0.0	0.0	0.0	4.2	3.6	4.7	0.6	0.3	0.9	59.5	58.3	60.2	0.2	0.0	0.7
12	Region 36	0.0	0.0	0.0	3.6	2.2	4.8	1.2	0.1	2.8	60.2	58.8	61.3	0.3	0.0	1.0

TABLE 7: USA GRADING OF YELLOW MAIZE (2015/2016) (continue)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.2																
112	**Ave. US No.2**	**0.0**			**3.7**			**1.0**			**59.4**			**0.2**		
	Min. US No.2		**0.0**			**1.3**			**0.0**			**55.3**			**0.0**	
	Max. US No.2			**0.0**			**5.0**			**3.0**			**63.0**			**2.4**
GRADE: US No.3																
4	Region 8	0.0	0.0	0.0	5.5	5.3	5.7	1.6	0.9	2.1	59.4	58.6	59.9	0.0	0.0	0.0
2	Region 10	0.0	0.0	0.0	0.7	0.6	0.8	3.2	3.2	3.3	62.2	62.1	62.3	0.0	0.0	0.0
2	Region 11	0.0	0.0	0.0	6.4	6.3	6.6	0.7	0.2	1.2	62.2	61.8	62.5	0.0	0.0	0.0
2	Region 13	0.0	0.0	0.0	3.4	1.6	5.1	2.2	0.9	3.6	59.4	58.1	60.6	0.4	0.4	0.5
1	Region 18	0.0	-	-	5.3	-	-	0.4	-	-	57.2	-	-	0.5	-	-
1	Region 19	0.0	-	-	5.7	-	-	1.7	-	-	61.4	-	-	0.4	-	-
12	Region 20	0.0	0.0	0.0	5.6	1.9	6.8	1.5	0.3	3.7	59.5	52.8	61.1	0.2	0.0	0.8
2	Region 21	0.0	0.0	0.0	6.9	6.9	6.9	1.2	0.8	1.6	59.5	58.4	60.6	0.6	0.5	0.6
1	Region 24	0.0	-	-	7.0	-	-	2.8	-	-	58.6	-	-	0.0	-	-
2	Region 26	0.0	0.0	0.0	4.9	4.0	5.8	1.9	0.0	3.7	57.7	56.3	59.0	0.0	0.0	0.0
1	Region 27	0.0	-	-	5.2	-	-	1.5	-	-	59.8	-	-	0.0	-	-
4	Region 28	0.1	0.0	0.5	5.5	4.1	6.7	1.1	0.3	2.5	57.4	53.2	59.3	0.0	0.0	0.0
1	Region 30	0.0	-	-	5.7	-	-	1.3	-	-	56.3	-	-	3.6	-	-
1	Region 31	0.0	-	-	6.7	-	-	1.3	-	-	58.6	-	-	0.0	-	-
3	Region 32	0.0	0.0	0.0	6.3	5.3	6.9	1.6	1.3	1.9	56.7	55.4	58.1	0.2	0.0	0.5
2	Region 34	0.3	0.0	0.5	4.5	3.9	5.1	1.4	0.9	1.9	59.3	56.5	62.0	0.3	0.0	0.6
3	Region 35	0.0	0.0	0.0	6.0	5.7	6.5	0.9	0.3	1.9	59.2	58.9	59.6	0.3	0.0	0.6
2	Region 36	0.0	0.0	0.0	4.1	2.8	5.4	1.9	0.1	3.7	58.6	57.8	59.4	0.3	0.0	0.6
46	**Ave. US No.3**	**0.0**			**5.4**			**1.5**			**59.1**			**0.3**		
	Min. US No.3		**0.0**			**0.6**			**0.0**			**52.8**			**0.0**	
	Max. US No.3			**0.5**			**7.0**			**3.7**			**62.5**			**3.6**
GRADE: US No.4																
1	Region 8	0.0	-	-	7.2	-	-	2.3	-	-	59.8	-	-	0.0	-	-
3	Region 11	0.0	0.0	0.0	7.7	7.3	8.0	1.5	1.0	1.7	60.7	60.1	61.1	0.1	0.0	0.4
2	Region 17	0.0	0.0	0.0	4.3	2.4	6.2	3.2	2.1	4.3	55.5	51.4	59.6	0.0	0.0	0.0
2	Region 18	0.0	0.0	0.0	7.0	5.1	8.9	4.2	4.0	4.5	56.8	55.8	57.8	0.0	0.0	0.0
2	Region 19	0.0	0.0	0.0	7.0	6.5	7.5	2.6	1.2	4.1	57.4	55.1	59.7	0.0	0.0	0.0
2	Region 20	0.0	0.0	0.0	7.4	7.3	7.4	2.3	0.8	3.8	57.9	56.2	59.6	0.7	0.0	1.4
1	Region 21	0.0	-	-	7.1	-	-	1.5	-	-	59.0	-	-	0.0	-	-
1	Region 22	0.0	-	-	7.5	-	-	2.2	-	-	59.8	-	-	0.2	-	-
1	Region 24	0.0	-	-	7.1	-	-	2.6	-	-	58.6	-	-	0.0	-	-
1	Region 28	0.0	-	-	7.2	-	-	0.7	-	-	57.5	-	-	0.0	-	-
1	Region 30	0.0	-	-	4.5	-	-	4.6	-	-	58.5	-	-	0.0	-	-
1	Region 31	0.0	-	-	7.6	-	-	0.9	-	-	57.2	-	-	0.0	-	-
1	Region 33	0.0	-	-	7.4	-	-	0.8	-	-	61.3	-	-	0.5	-	-
1	Region 35	0.0	-	-	7.4	-	-	4.2	-	-	58.9	-	-	0.0	-	-
2	Region 36	0.0	0.0	0.0	7.3	7.3	7.4	0.5	0.3	0.8	55.8	53.5	58.1	0.6	0.0	1.2
22	**Ave. US No.4**	**0.0**			**6.9**			**2.3**			**58.2**			**0.2**		
	Min. US No.4		**0.0**			**2.4**			**0.3**			**51.4**			**0.0**	
	Max. US No.4			**0.0**			**8.9**			**4.6**			**61.3**			**1.4**
GRADE: US No.5																
1	Region 8	0.0	-	-	4.0	-	-	5.8	-	-	58.6	-	-	0.0	-	-
1	Region 12	0.0	-	-	13.9	-	-	1.6	-	-	61.2	-	-	0.0	-	-
1	Region 13	0.0	-	-	10.1	-	-	0.8	-	-	59.2	-	-	0.4	-	-
1	Region 18	0.0	-	-	10.7	-	-	1.5	-	-	59.1	-	-	0.4	-	-
2	Region 19	0.0	0.0	0.0	12.4	11.7	13.2	2.3	1.6	3.0	58.7	56.7	60.6	0.0	0.0	0.0
2	Region 20	0.0	0.0	0.0	10.5	10.3	10.8	1.3	1.1	1.5	54.7	50.8	58.5	0.0	0.0	0.0

TABLE 7: USA GRADING OF YELLOW MAIZE (2015/2016) (continue)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.5																
1	Region 23	0.0	-	-	11.1	-	-	0.5	-	-	59.3	-	-	0.5	-	-
1	Region 26	0.0	-	-	10.9	-	-	0.0	-	-	61.3	-	-	0.0	-	-
1	Region 28	0.0	-	-	4.6	-	-	6.0	-	-	54.5	-	-	0.0	-	-
11	**Ave. US No.5**	**0.0**			**10.1**			**2.1**			**58.2**			**0.1**		
	Min. US No.5		**0.0**			**4.0**			**0.0**			**50.8**			**0.0**	
	Max. US No.5			**0.0**			**13.9**			**6.0**			**61.3**			**0.5**
GRADE: Sample Grade																
1	Region 20	0.0	-	-	25.9	-	-	2.2	-	-	46.4	-	-	0.3	-	-
1	Region 24	0.0	-	-	16.9	-	-	0.5	-	-	62.2	-	-	0.0	-	-
1	Region 27	3.4	-	-	14.5	-	-	2.9	-	-	60.5	-	-	0.4	-	-
1	Region 31	0.0	-	-	4.2	-	-	8.8	-	-	53.9	-	-	0.0	-	-
1	Region 32	0.0	-	-	4.3	-	-	9.6	-	-	60.6	-	-	0.0	-	-
5	**Ave. Sample Grade**	**0.7**			**13.2**			**4.8**			**56.7**			**0.1**		
	Min. Sample Grade		**0.0**			**4.2**			**0.5**			**46.4**			**0.0**	
	Max. Sample Grade			**3.4**			**25.9**			**9.6**			**62.2**			**0.4**
505	**Ave. yellow maize**	**0.0**			**3.2**			**0.9**			**59.5**			**0.2**		
	Min. yellow maize		**0.0**			**0.0**			**0.0**			**46.4**			**0.0**	
	Max. yellow maize			**3.4**			**25.9**			**9.6**			**63.4**			**4.5**
920	**Ave. maize**	**0.2**			**3.5**			**0.9**			**60.1**			**0.3**		
	Min. maize		**0.0**			**0.0**			**0.0**			**46.4**			**0.0**	
	Max. maize			**79.9**			**79.9**			**9.6**			**65.2**			**8.0**

TABLE 8: STANDARDS FOR GRADES OF CLASS WHITE MAIZE AND CLASS YELLOW MAIZE

Deviation		Maximum permissible deviation					
		White maize			Yellow maize		
		WM1	WM2	WM3	YM1	YM2	YM3
1	Foreign matter	0.3%	0.5%	0.75%	0.3%	0.5%	0.75%
2	Defective maize kernels, above and below the 6.35 mm round-hole sieve	7%	13%	30%	*	*	*
3	Defective maize kernels that can pass through the 6.35 mm round-hole sieve	*	*	*	4%	10%	30%
4	Defective maize kernels that can not pass through the 6.35 mm round-hole sieve	*	*	*	9%	20%	30%
5	Other colour maize kernels	3%	6%	10%	2%	5%	5%
6	Deviations referred to in items 1, 2, 3, 4 and 5 collectively: Provided that the deviations are individually within the specified limits	8%	16%	30%	9%	20%	30%
7	Pinked maize kernels	12%	12%	12%	*	*	*

A consignment of maize shall be classified as Class Other Maize if the consignment does not comply with the standards for Class White Maize or Class Yellow Maize.
* Not spesified
Regulations relating to the Grading, Packing and Marking of Maize intended for sale in the Republic of South Africa as published in the Government Gazette No. 32190, Regulation No. R. 473 of 8 May 2009.

TABLE 9: GRADES AND GRADE REQUIREMENTS FOR MAIZE ACCORDING TO USA GRADING REGULATIONS

			Maximum limits of -		
			Damaged kernels		
Grades	Minimum test weight per bushel (pounds)		Heat damaged kernels (percent)	Total (percent)	Broken corn and foreign meaterial (percent)
U.S. No. 1	56.0	72.1 kg/hl	0.1	3.0	2.0
U.S. No. 2	54.0	69.5 kg/hl	0.2	5.0	3.0
U.S. No. 3	52.0	66.9 kg/hl	0.5	7.0	4.0
U.S. No. 4	49.0	63.1 kg/hl	1.0	10.0	5.0
U.S. No. 5	46.0	59.2 kg/hl	3.0	15.0	7.0
U.S. Sample Grade	< 46.0	<59.2 kg/hl	>3.0	>15.0	>7.0
U.S. Mix Grade	When % other colour in yellow maize samples >5 % and white maize samples >2 %				

U.S. Sample grade is corn that:

a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4 or 5; or
b) Contains stones which have an aggregate weight in excess of 0.1 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (Crotalaria spp.), 2 or more castor beans (Ricinus communis L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cockleburs (Xanthium spp.) or similar seeds singly or in combination, or animal filth in excess of 0.20 percent in 1,000 grams; or
c) Has a musty, sour, or commercially objectionable foreign odor; or
d) Is heating or otherwise of distinctly low quality.

Source: Offical United States Standard of Grain (excluding metric conversions).

TABLE 10: PHYSICAL QUALITY FACTORS OF WHITE MAIZE ACCORDING TO GRADE (2015/2016)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1																												
2	Region 11	79.7	79.2	80.2	34.5	32.3	36.7	5.9	5.7	6.1	71.5	67.9	75.1	22.6	19.2	26.0	1.3	0.8	1.8	0.5	0.3	0.6	13	7	18	106.5	100.6	112.3
8	Region 12	79.1	76.8	81.0	34.5	30.6	37.2	25.5	10.1	99.4	61.5	0.1	72.3	13.0	0.5	19.5	1.1	0.4	1.6	0.5	0.1	1.2	4	3	7	103.7	100.9	109.6
12	Region 13	78.2	75.7	81.3	31.3	26.2	35.9	14.4	6.6	23.0	65.3	53.4	74.0	20.3	11.2	38.8	1.3	0.5	2.9	0.4	0.1	1.2	2	0	4	100.6	85.5	111.0
18	Region 14	79.1	77.9	79.9	33.4	27.8	36.8	23.1	10.7	28.9	64.3	57.8	69.9	12.7	7.7	19.4	0.5	0.1	0.9	0.2	0.0	0.4	4	0	10	104.2	94.7	108.5
16	Region 17	79.1	72.6	81.1	32.6	29.6	35.9	21.3	7.1	99.0	62.9	0.2	71.9	15.7	0.8	23.6	0.8	0.0	1.6	0.3	0.0	0.7	4	2	9	102.4	80.0	110.6
4	Region 18	78.4	76.9	80.0	33.1	31.9	34.9	10.0	2.5	19.4	65.3	53.6	73.9	24.7	15.3	43.9	1.1	0.2	2.2	0.6	0.2	1.5	4	2	8	105.8	102.7	109.9
5	Region 19	79.2	77.9	80.8	32.7	29.3	34.8	17.5	5.0	32.2	67.4	56.3	73.8	15.1	10.0	24.8	1.1	0.3	1.9	0.3	0.0	0.7	3	0	9	99.6	90.2	110.6
9	Region 20	78.6	76.2	81.2	32.8	30.4	39.9	15.6	2.3	32.5	72.0	61.8	89.5	12.4	0.0	23.2	0.9	0.2	1.5	0.2	0.0	0.6	4	1	9	98.1	83.9	109.1
4	Region 21	80.8	80.7	80.9	31.8	29.8	35.7	22.1	11.8	30.9	64.1	62.2	68.6	13.8	6.8	21.9	0.7	0.3	1.1	0.4	0.2	0.7	5	1	11	111.4	108.9	114.0
5	Region 22	78.7	76.1	79.8	31.1	30.7	31.4	24.9	10.9	33.9	64.6	59.8	71.7	10.5	6.3	17.4	0.8	0.3	1.7	0.2	0.0	0.5	4	0	10	98.5	93.2	102.5
4	Region 23	78.9	77.0	81.2	31.0	28.6	33.3	19.7	10.1	26.4	71.6	64.8	83.7	8.7	5.6	17.1	0.9	0.6	1.1	0.7	0.5	0.9	5	4	5	102.2	93.9	107.6
8	Region 24	79.9	78.6	81.9	31.1	26.2	35.2	19.3	11.3	28.3	68.6	63.1	76.4	12.1	8.2	16.1	0.6	0.3	1.3	0.3	0.0	0.6	9	1	25	105.4	97.9	110.9
4	Region 25	77.5	72.9	79.9	32.8	28.7	38.6	17.2	12.1	23.5	70.2	66.8	77.3	12.6	8.1	21.1	0.9	0.6	1.2	0.2	0.0	0.4	6	2	9	86.4	74.2	99.9
9	Region 26	78.1	72.8	80.5	33.6	28.4	38.3	22.0	3.2	42.8	65.5	54.4	74.8	12.5	2.8	33.3	0.9	0.2	1.9	0.2	0.0	0.6	6	1	21	96.4	89.9	103.2
1	Region 27	81.9	-	-	28.9	-	-	7.1	-	-	70.9	-	-	22.0	-	-	0.6	-	-	0.3	-	-	1	-		114.0	-	-
11	Region 28	79.8	77.6	81.0	32.7	28.6	36.6	19.4	8.2	28.9	67.6	58.5	73.5	13.0	9.3	21.2	0.5	0.1	1.2	0.3	0.0	0.7	6	1	16	101.1	95.3	110.5
16	Region 29	80.1	77.4	83.9	34.5	30.2	38.5	19.1	5.6	41.7	69.4	53.0	76.6	11.5	4.0	20.3	0.4	0.0	0.7	0.2	0.0	0.6	3	0	9	103.9	87.8	120.1
28	Region 30	78.4	71.7	81.1	31.6	25.5	39.6	10.9	2.2	38.0	67.2	55.0	78.8	22.0	6.8	39.9	0.5	0.0	1.2	0.3	0.0	0.8	4	0	10	96.8	84.7	108.5
9	Region 31	76.7	74.5	79.1	32.5	29.9	36.4	11.9	3.3	28.6	68.8	55.7	79.5	19.2	4.1	34.1	1.2	0.1	3.2	0.8	0.0	2.7	3	1	9	91.6	84.3	101.5
28	Region 32	78.3	75.7	81.8	33.9	28.2	40.8	12.6	1.8	32.4	69.7	56.6	79.5	17.7	4.2	33.3	0.8	0.0	3.6	0.4	0.0	2.1	2	0	8	94.9	72.6	109.1
29	Region 33	77.3	72.2	81.1	30.2	21.9	35.3	10.9	3.0	24.3	65.8	53.8	72.6	23.3	8.1	38.9	0.9	0.1	3.6	0.6	0.0	2.7	6	0	22	95.0	80.1	106.5
29	Region 34	78.3	71.1	81.2	33.2	26.5	40.5	14.7	0.4	36.8	66.8	45.2	80.9	18.5	4.9	54.4	0.6	0.1	2.2	0.3	0.0	0.8	4	0	13	98.2	85.4	109.6
19	Region 35	78.5	73.6	81.2	33.0	24.4	36.2	9.4	2.9	32.0	69.9	61.3	78.5	20.7	3.8	33.6	1.3	0.7	2.3	1.1	0.6	1.8	6	0	18	96.4	75.9	106.8
22	Region 36	76.8	72.2	78.9	34.3	28.4	39.7	11.2	4.5	20.8	69.8	62.2	80.3	19.0	6.9	31.5	0.6	0.2	1.8	0.2	0.0	0.7	5	0	11	99.5	92.3	105.6
300	**Ave. WM1**	**78.4**			**32.7**			**15.3**			**67.3**			**17.4**			**0.8**			**0.4**			**4**			**98.9**		
	Min. WM1		**71.1**			**21.9**			**0.4**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**72.6**	
	Max. WM1			**83.9**			**40.8**			**99.4**			**89.5**			**54.4**			**3.6**			**2.7**			**25**			**120.1**

TABLE 10: PHYSICAL QUALITY FACTORS OF WHITE MAIZE ACCORDING TO GRADE (2015/2016)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2																												
3	Region 12	77.4	75.6	79.8	27.3	21.9	30.5	7.5	0.8	14.8	58.8	43.2	67.2	33.7	18.0	56.0	1.3	0.7	1.7	0.6	0.2	1.4	4	2	7	102.1	94.6	108.9
10	Region 13	77.9	74.3	80.2	31.7	27.0	35.1	13.6	5.7	22.3	65.5	58.6	72.6	20.9	11.3	29.3	1.1	0.2	1.7	0.4	0.0	0.9	4	1	6	102.9	87.6	114.1
3	Region 14	80.9	80.3	81.3	32.0	31.0	33.4	17.7	13.9	22.4	67.8	65.1	71.3	14.5	10.6	21.0	0.8	0.4	1.4	0.3	0.1	0.7	4	2	8	109.9	106.7	111.6
2	Region 17	79.4	78.4	80.4	28.0	27.0	28.9	12.2	11.0	13.3	62.3	53.5	71.1	25.6	15.6	35.5	0.5	0.5	0.6	0.4	0.2	0.5	3	2	3	101.8	95.3	108.2
3	Region 18	78.7	78.5	78.9	31.0	30.1	32.3	14.0	12.4	16.4	70.6	69.3	71.5	15.4	14.3	16.1	0.8	0.5	1.0	0.2	0.1	0.4	3	2	4	98.8	95.6	103.2
12	Region 19	78.1	75.6	80.8	32.7	23.9	37.6	18.6	8.1	42.1	61.4	41.4	69.7	20.1	1.9	50.5	0.9	0.3	1.5	0.3	0.0	0.9	4	1	11	104.9	97.2	116.3
8	Region 20	77.8	76.6	79.7	31.7	28.3	34.8	15.8	8.1	30.5	65.1	61.8	67.6	19.2	7.7	27.5	1.1	0.6	1.6	0.4	0.1	0.7	5	2	10	95.3	83.1	104.2
1	Region 21	80.0	-	-	30.1	-	-	10.0	-	-	66.9	-	-	23.1	-	-	1.5	-	-	1.0	-	-	13	-	-	113.4	-	-
3	Region 22	78.6	77.6	80.2	31.5	30.8	32.0	21.9	10.7	28.6	65.1	61.9	67.7	13.0	7.9	21.6	1.2	0.9	1.4	0.4	0.1	0.6	6	3	8	106.4	98.8	110.4
1	Region 23	79.9	-	-	33.3	-	-	24.1	-	-	66.7	-	-	9.2	-	-	1.7	-	-	1.3	-	-	18	-	-	111.2	-	-
2	Region 24	80.0	79.6	80.4	29.5	28.8	30.1	17.6	17.0	18.2	69.8	69.2	70.3	12.7	12.6	12.7	1.3	1.0	1.6	0.6	0.1	1.1	9	8	9	108.2	105.2	111.2
1	Region 25	74.5	-	-	33.5	-	-	15.3	-	-	75.6	-	-	9.1	-	-	0.2	-	-	0.0	-	-	3	-	-	85.6	-	-
6	Region 26	73.2	69.9	78.8	29.7	24.8	34.5	11.0	3.2	26.8	64.4	52.7	74.9	24.7	8.4	43.4	1.0	0.7	1.3	0.3	0.1	0.6	5	3	6	81.7	66.6	106.8
2	Region 27	77.7	76.8	78.6	36.0	35.6	36.4	12.8	10.8	14.7	74.3	72.5	76.1	13.0	12.8	13.1	1.8	1.5	2.0	0.5	0.2	0.8	4	3	5	89.7	86.0	93.4
3	Region 28	77.0	76.7	77.7	30.7	24.3	38.0	12.9	0.3	31.1	63.5	50.6	78.9	23.6	8.0	49.1	1.5	0.9	2.4	0.6	0.3	1.1	10	5	17	97.4	96.6	98.3
2	Region 30	78.0	77.8	78.2	35.7	34.6	36.7	24.0	13.5	34.5	65.7	58.8	72.6	10.3	6.7	13.9	0.7	0.3	1.1	0.4	0.1	0.8	10	5	15	99.8	97.4	102.2
3	Region 31	73.1	68.5	76.9	27.6	20.8	39.6	11.5	0.8	27.8	52.1	35.4	64.7	36.4	7.5	63.8	1.4	0.2	2.2	0.5	0.0	0.8	5	3	6	90.4	82.9	98.4
5	Region 33	76.4	72.9	78.9	32.0	29.8	35.1	19.6	14.6	22.7	65.2	62.9	70.0	15.3	11.0	22.4	2.2	0.8	4.2	1.5	0.7	2.8	12	5	23	96.5	89.7	101.8
1	Region 34	79.3	-	-	30.1	-	-	10.0	-	-	76.6	-	-	13.4	-	-	0.3	-	-	0.2	-	-	8	-	-	100.4	-	-
5	Region 35	77.4	74.9	79.8	31.5	25.9	35.9	8.7	3.3	27.7	62.4	52.8	72.9	28.9	10.8	43.0	2.7	1.0	7.2	1.3	0.2	4.3	9	1	19	97.6	92.1	99.9
8	Region 36	77.1	74.9	78.4	34.9	29.8	38.1	16.6	2.5	23.6	67.2	59.9	73.7	16.1	9.5	24.1	0.5	0.2	1.5	0.2	0.0	0.6	6	2	11	100.6	97.3	106.1
84	**Ave. WM2**	**77.4**			**31.7**			**15.2**			**64.7**			**20.1**			**1.2**			**0.5**			**6**			**99.3**		
	Min. WM2		**68.5**			**20.8**			**0.3**			**35.4**			**1.9**			**0.2**			**0.0**			**1**			**66.6**	
	Max. WM2			**81.3**			**39.6**			**42.1**			**78.9**			**63.8**			**7.2**			**4.3**			**23**			**116.3**

TABLE 10: PHYSICAL QUALITY FACTORS OF WHITE MAIZE ACCORDING TO GRADE (2015/2016)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3																												
4	Region 13	76.6	75.2	77.8	30.8	25.6	36.7	14.3	5.9	22.6	68.9	61.3	79.3	16.9	14.8	19.5	2.6	1.3	4.8	1.1	0.2	2.9	4	1	5	96.9	90.0	107.1
2	Region 18	76.2	75.6	76.8	32.6	30.6	34.5	9.6	7.5	11.6	68.1	66.7	69.4	22.4	21.7	23.1	1.6	1.5	1.6	0.8	0.7	0.8	4	3.0	4.0	95.5	95.5	95.5
4	Region 19	77.8	76.9	78.7	29.6	25.6	32.4	11.4	6.4	16.7	63.2	59.3	66.2	25.5	17.1	29.1	1.3	0.8	1.7	0.5	0.2	0.7	4	2.0	6.0	101.9	88.9	108.1
3	Region 20	77.9	76.0	79.8	34.3	30.5	37.4	29.5	15.6	40.1	64.9	56.9	77.8	5.6	3.0	7.3	1.3	0.9	2.0	0.6	0.3	0.8	4	3	5	90.6	79.0	97.9
1	Region 21	79.8	-	-	32.6	-	-	9.3	-	-	67.7	-	-	23.0	-	-	2.4	-	-	1.2	-	-	30	-	-	117.0	-	-
4	Region 22	79.4	78.6	79.9	32.2	29.2	33.8	15.5	14.0	19.2	68.1	64.9	72.8	16.5	13.2	19.9	1.6	0.7	2.7	0.5	0.2	1.0	11	6	15	110.2	108.3	111.3
1	Region 28	79.5	-	-	35.4	-	-	28.0	-	-	59.0	-	-	13.0	-	-	1.0	-	-	0.1	-	-	14	-	-	97.1	-	-
1	Region 30	76.9	-	-	32.7	-	-	7.6	-	-	73.1	-	-	19.3	-	-	1.6	-	-	0.4	-	-	7	-	-	87.6	-	-
2	Region 31	73.5	72.5	74.5	27.8	26.2	29.3	8.9	4.3	13.4	67.2	65.4	69.0	24.0	17.6	30.3	1.6	1.2	1.9	1.2	0.7	1.7	7	4	9	102.8	100.6	105.0
1	Region 33	76.7	-	-	28.1	-	-	20.3	-	-	60.7	-	-	19.0	-	-	1.1	-	-	0.7	-	-	12	-	-	103.1	-	-
2	Region 35	75.9	74.9	76.8	34.0	32.7	35.3	20.3	6.3	34.2	60.1	56.2	63.9	19.7	9.6	29.8	2.4	2.0	2.7	0.5	0.0	0.9	6	2	10	104.1	101.0	107.1
2	Region 36	76.8	75.2	78.4	32.5	30.4	34.5	6.6	5.2	8.0	67.8	67.7	67.8	25.7	24.3	27.0	2.1	0.5	3.6	0.9	0.2	1.5	4	2	5	97.4	90.7	104.1
27	**Ave. WM3**	**77.3**			**31.7**			**15.1**			**66.0**			**18.9**			**1.7**			**0.7**			**7**			**100.4**		
	Min. WM3		**72.5**			**25.6**			**4.3**			**56.2**			**3.0**			**0.5**			**0.0**			**1**			**79.0**	
	Max. WM3			**79.9**			**37.4**			**40.1**			**79.3**			**30.3**			**4.8**			**2.9**			**30**			**117.0**
CLASS: COM																												
1	Region 19	68.6	-	-	22.8	-	-	5.1	-	-	41.4	-	-	53.5	-	-	0.8	-	-	0.4	-	-	2	-	-	88.6	-	-
1	Region 20	75.9	-	-	34.3	-	-	14.6	-	-	65.1	-	-	20.3	-	-	4.2	-	-	1.3	-	-	3	-	-	99.1	-	-
1	Region 31	76.5	-	-	33.6	-	-	5.2	-	-	71.4	-	-	23.4	-	-	0.8	-	-	0.3	-	-	4	-	-	89.0	-	-
1	Region 35	75.7	-	-	37.2	-	-	5.6	-	-	73	-	-	21.4	-	-	2.3	-	-	1.1	-	-	3	-	-	90.5	-	-
4	**Ave. COM**	**74.2**			**32.0**			**7.6**			**62.7**			**29.7**			**2.0**			**0.8**			**3**			**91.8**		
	Min. COM		**68.6**			**22.8**			**5.1**			**41.4**			**20.3**			**0.8**			**0.3**			**2**			**88.6**	
	Max. COM			**76.5**			**37.2**			**14.6**			**73.0**			**53.5**			**4.2**			**1.3**			**4**			**99.1**
415	**Ave. white maize**	**78.1**			**32.4**			**15.2**			**66.7**			**18.2**			**0.9**			**0.4**			**5**			**99.0**		
	Min. white maize		**68.5**			**20.8**			**0.3**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**66.6**	
	Max. white maize			**83.9**			**40.8**			**99.4**			**89.5**			**63.8**			**7.2**			**4.3**			**30**			**120.1**
920	**Ave. maize**	**77.3**			**32.1**			**13.3**			**66.7**			**20.0**			**1.0**			**0.5**			**5**			**95.5**		
	Min. maize		**59.8**			**17.1**			**0.3**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**21.7**	
	Max. maize			**83.9**			**43.1**			**99.4**			**93.6**			**77.9**			**7.2**			**4.3**			**31**			**120.1**

TABLE 11: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM1																												
1	Region 3	78.8	-	-	33.8	-	-	6.9	-	-	73.8	-	-	19.3	-	-	2.4	-	-	1.8	-	-	5	-	-	94.0	-	-
6	Region 8	77.5	76.6	79.6	35.2	32.1	37.5	14.2	4.2	21.2	63.8	57.2	69.3	22.0	11.0	31.2	0.6	0.2	1.0	0.1	0.1	0.3	11	3	24	93.6	88.3	98.9
23	Region 10	79.5	76.4	81.7	36.7	32.8	43.1	4.8	1.4	14.2	71.5	64.8	82.9	23.7	8.0	32.5	0.6	0.1	1.4	0.3	0.0	1.2	4	1	9	93.8	74.8	110.3
19	Region 11	79.5	75.7	81.4	36.0	32.5	39.4	7.2	1.8	15.7	71.9	64.4	88.6	20.9	9.6	32.8	0.8	0.4	1.5	0.5	0.2	1.1	7	0	17	100.0	74.8	110.5
3	Region 12	77.3	76.7	78.1	29.4	26.7	32.3	6.1	2.7	9.0	63.1	54.5	70.0	30.7	21.0	42.8	0.9	0.9	0.9	0.3	0.2	0.4	5	2	9	99.7	96.6	101.2
1	Region 13	79.9	-	-	28.6	-	-	6.4	-	-	66.7	-	-	26.9	-	-	0.5	-	-	0.1	-	-	2	-	-	109.6	-	-
3	Region 14	77.9	77.6	78.3	30.8	29.5	31.6	12.2	8.3	15.8	72.2	68.3	75.2	15.6	14.5	16.5	1.0	0.5	1.8	0.3	0.0	0.8	3	1	7	99.4	97.5	100.7
3	Region 17	78.6	76.7	79.6	32.0	29.1	35.3	9.2	6.5	12.9	67.7	61.2	71.6	23.1	16.7	30.6	0.6	0.4	0.8	0.2	0.0	0.4	3	2	4	100.8	93.5	108.6
4	Region 18	77.0	73.7	79.1	32.4	28.9	34.6	13.0	10.5	18.3	68.2	58.4	73.4	18.8	15.5	23.3	1.0	0.7	1.3	0.6	0.3	0.8	6	2	13	98.3	91.0	101.2
4	Region 19	78.5	77.8	78.9	30.6	25.0	35.9	10.2	5.9	14.5	73.8	63.0	93.6	16.0	0.5	28.0	0.9	0.7	1.0	0.3	0.1	0.6	5	2	10	99.5	93.4	107.9
7	Region 20	76.2	68.0	78.2	31.7	30.6	32.4	11.3	0.4	23.1	66.1	59.8	69.4	22.6	9.6	39.8	1.0	0.2	1.2	0.2	0.0	0.4	5	2	12	89.0	78.1	97.1
2	Region 21	77.9	77.7	78.1	30.8	29.9	31.7	8.4	5.9	10.9	60.8	55.9	65.7	30.8	23.4	38.2	1.6	1.0	2.1	1.1	0.8	1.4	9	5	13	94.2	88.8	99.5
2	Region 22	76.3	75.6	76.9	27.9	26.9	28.9	7.5	3.7	11.2	76.4	72.0	80.8	16.2	8.0	24.3	1.3	0.8	1.7	0.4	0.3	0.5	9	7	10	99.1	98.3	99.8
3	Region 23	78.5	77.1	79.6	33.5	28.0	41.9	12.5	2.5	24.8	73.2	61.6	86.0	14.3	3.1	35.9	0.4	0.3	0.6	0.1	0.0	0.2	3	3	4	95.4	89.8	98.8
1	Region 24	79.1	-	-	32.7	-	-	4.1	-	-	64.9	-	-	31.0	-	-	0.6	-	-	0.0	-	-	4	-	-	92.5	-	-
10	Region 25	77.3	74.9	79.0	33.2	29.8	36.6	15.7	6.5	26.8	61.8	15.6	74.3	22.5	10.5	77.9	0.7	0.2	1.6	0.2	0.1	0.5	4	2	8	91.8	79.8	104.0
11	Region 26	77.2	73.3	80.9	34.1	31.2	37.5	19.4	4.5	31.7	69.5	58.9	76.8	11.1	1.9	25.8	1.0	0.4	2.0	0.3	0.0	0.8	3	0	5	96.4	83.1	119.5
2	Region 27	78.0	77.3	78.7	35.5	32.8	38.1	21.7	18.7	24.6	68.7	63.6	73.7	9.7	7.6	11.8	1.6	1.3	1.8	1.0	0.9	1.1	5	5	5	99.1	89.8	108.3
27	Region 28	75.5	68.5	78.6	31.9	25.9	36.5	16.7	2.2	28.9	67.5	60.8	73.4	15.7	7.6	33.9	1.0	0.2	2.0	0.4	0.1	0.9	6	1	18	90.3	75.4	112.3
42	Region 29	77.3	71.2	81.2	32.3	25.7	36.3	17.6	6.0	28.3	68.6	61.5	82.5	13.9	6.9	22.6	1.0	0.2	3.0	0.7	0.1	1.3	5	0	31	97.5	80.0	107.4
53	Region 30	76.0	72.7	78.9	32.0	23.5	38.9	15.4	5.1	31.1	68.9	50.3	75.6	15.7	4.6	43.5	0.8	0.1	2.7	0.5	0.0	1.9	4	0	19	91.8	68.5	106.9
31	Region 31	76.2	72.0	79.8	32.3	27.9	36.9	15.2	6.5	31.5	68.1	59.7	74.4	16.7	7.2	28.3	1.1	0.2	2.9	0.6	0.0	2.3	3	0	12	93.0	80.6	107.0
37	Region 32	75.4	71.6	79.2	31.4	22.1	37.2	15.4	3.7	34.1	68.0	53.2	77.7	16.7	0.2	43.1	1.2	0.2	4.5	0.7	0.0	4.1	3	0	21	85.8	72.5	98.9
28	Region 33	76.5	74.0	80.6	28.7	24.1	34.0	8.3	1.7	14.7	64.3	50.9	72.6	27.4	15.1	42.5	0.9	0.1	1.9	0.6	0.0	1.2	4	1	10	91.1	79.8	102.1
29	Region 34	76.8	73.1	79.9	31.5	27.7	38.9	12.0	1.3	26.6	66.9	45.3	72.6	21.2	11.2	53.4	0.8	0.1	1.9	0.4	0.0	1.2	4	0	9	93.6	83.1	106.9
13	Region 35	75.8	72.9	78.3	31.1	24.6	36.1	6.0	0.4	14.4	65.7	60.1	74.4	28.3	12.7	38.9	1.7	0.8	3.9	0.9	0.0	2.4	6	1	27	79.1	52.7	96.6
30	Region 36	77.9	74.4	81.2	32.0	26.6	38.1	8.1	0.4	29.4	62.9	46.4	78.6	29.0	4.8	52.1	0.7	0.0	1.7	0.3	0.0	0.8	6	0	18	95.8	78.8	110.7
395	**Ave. YM1**	**76.9**			**32.3**			**12.7**			**67.6**			**19.6**			**0.9**			**0.5**			**5**			**92.9**		
	Min. YM1		**68.0**			**22.1**			**0.4**			**15.6**			**0.2**			**0.0**			**0.0**			**0**			**52.7**	
	Max. YM1			**81.7**			**43.1**			**34.1**			**93.6**			**77.9**			**4.5**			**4.1**			**31**			**119.5**

TABLE 11: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2																												
4	Region 8	76.1	75.4	76.9	34.9	33.7	36.4	20.1	17.5	22.4	64.5	60.3	67.5	15.5	13.5	18.2	1.2	0.7	2.6	0.5	0.1	1.2	17	11	21	88.8	84.8	94.7
3	Region 10	79.3	77.9	80.2	34.3	29.4	38.6	2.4	1.8	2.7	69.5	67.8	70.8	28.1	27.4	29.5	0.7	0.4	1.3	0.1	0.0	0.3	7	2	13	90.4	79.8	96.0
4	Region 11	78.6	77.3	79.6	35.1	33.5	36.5	6.1	5.2	7.8	73.5	71.6	76.0	20.4	16.2	22.8	1.3	0.9	1.9	0.4	0.1	0.7	14	9	19	102.1	95.4	109.2
2	Region 12	77.4	75.9	78.8	27.7	26.4	28.9	3.9	2.2	5.5	59.5	58.6	60.3	36.7	35.9	37.5	0.9	0.3	1.5	0.6	0.0	1.2	3	3	3	104.7	103.2	106.2
7	Region 13	76.3	74.7	79.1	30.4	26.2	33.3	6.7	2.8	11.9	62.7	51.0	73.5	30.6	14.9	46.2	1.4	0.7	1.9	0.6	0.3	0.8	2	0	4	102.0	90.3	108.9
2	Region 17	76.1	73.9	78.2	28.3	27.2	29.4	4.0	3.5	4.5	65.8	61.9	69.7	30.2	26.8	33.6	1.5	1.1	1.9	0.4	0.3	0.4	3	2	3	104.0	103.0	105.0
3	Region 18	77.9	77.8	78.2	29.6	27.4	32.7	9.8	6.7	14.5	66.3	64.8	67.6	23.9	17.9	27.0	1.4	1.2	1.7	0.6	0.2	0.8	5	2	8	102.1	98.1	104.4
7	Region 19	75.7	70.9	79.0	30.9	26.1	36.7	9.2	4.5	18.5	67.1	58.1	73.5	23.7	18.0	36.0	1.2	0.1	2.7	0.3	0.0	0.8	2	1	4	97.5	91.2	104.8
12	Region 20	75.3	65.4	78.7	31.7	25.8	35.7	10.5	2.3	16.2	65.0	47.7	74.8	24.6	9.1	50.0	1.4	0.5	2.6	0.5	0.2	1.2	5	2	9	89.2	71.7	101.7
3	Region 21	76.3	75.2	77.9	29.7	27.9	31.7	10.2	8.1	12.7	64.8	59.5	75.2	25.0	12.1	32.4	1.3	0.7	1.7	1.0	0.6	1.3	11	2	27	102.1	97.7	107.2
2	Region 22	77.2	76.9	77.4	28.4	24.8	31.9	7.2	3.2	11.2	61.7	55.6	67.8	31.1	21.0	41.2	1.1	1.0	1.2	0.6	0.5	0.6	7	1	12	103.4	102.9	103.9
1	Region 23	76.3	-	-	30.1	-	-	14.5	-	-	70.7	-	-	14.8	-	-	0.5	-	-	0.1	-	-	9	-	-	99.4	-	-
4	Region 24	77.5	75.4	80.1	32.4	30.2	35.6	6.5	2.5	10.8	68.9	62.9	74.2	24.7	19.0	31.3	1.2	0.6	2.0	0.3	0.0	0.6	4	2	6	94.8	79.1	110.8
3	Region 25	78.2	76.5	79.3	33.1	28.9	35.9	11.1	8.0	14.2	71.4	70.9	72.4	17.5	14.8	21.1	0.6	0.1	1.3	0.3	0.0	0.6	8	3	11	93.9	86.1	101.3
3	Region 26	75.6	72.5	78.9	29.7	27.0	31.7	4.6	3.4	5.2	66.2	62.7	72.8	29.2	22.0	33.5	1.5	1.2	1.8	0.3	0.0	0.6	3	1	5	84.3	63.0	96.4
2	Region 27	77.5	77.0	77.9	27.9	27.3	28.5	6.4	5.9	6.9	65.3	61.6	68.9	28.4	24.2	32.5	0.5	0.2	0.7	0.2	0.1	0.2	3	2	3	98.2	87.9	108.4
5	Region 28	74.2	70.1	76.3	27.6	26.5	28.8	9.7	4.2	18.0	64.2	59.5	68.6	26.1	22.1	36.3	1.4	0.9	1.8	0.7	0.2	1.2	4	2	7	88.7	75.0	97.6
1	Region 29	76.9	-	-	33.2	-	-	27.4	-	-	58.1	-	-	14.5	-	-	1.2	-	-	1.0	-	-	8	-	-	90.8	-	-
5	Region 30	75.1	72.5	76.7	30.7	23.6	36.6	8.5	1.1	15.7	63.5	47.1	71.7	28.0	14.3	51.8	0.9	0.4	1.4	0.4	0.0	1.1	5	3	7	91.6	88.7	94.8
5	Region 31	73.4	72.1	75.4	27.8	25.5	30.5	7.6	4.2	11.2	62.6	57.6	68.4	29.8	20.4	35.2	1.0	0.5	1.6	0.4	0.1	0.9	3	0	7	78.3	70.2	86.4
6	Region 32	74.2	71.3	75.6	28.6	24.8	31.3	7.6	1.9	13.3	59.6	46.2	71.7	32.8	16.6	50.1	1.5	0.7	2.2	0.5	0.2	1.1	4	2	6	82.5	74.6	95.7
3	Region 33	76.7	74.7	78.9	25.5	22.1	27.5	4.0	0.6	7.5	46.7	28.2	60.7	49.3	31.8	71.2	1.7	1.5	1.8	1.0	0.8	1.2	8	5	11	93.5	87.7	99.3
2	Region 34	74.8	72.7	76.9	29.3	28.4	30.2	9.0	7.7	10.3	61.7	53.0	70.3	29.4	19.4	39.3	1.6	1.5	1.6	1.3	1.1	1.4	14	6	21	94.2	91.5	96.8
2	Region 35	76.3	76.1	76.4	30.4	30.3	30.4	3.6	2.2	5.0	56.4	55.2	57.6	40.0	37.4	42.6	1.5	1.2	1.7	0.3	0.3	0.3	10	6	14	78.9	75.4	82.3
6	Region 36	75.5	68.9	78.5	33.2	27.3	40.2	12.5	4.0	26.7	67.0	54.9	78.5	20.5	6.5	41.1	1.1	0.5	2.0	0.3	0.1	0.7	5	0	20	85.0	52.4	96.3
97	**Ave. YM2**	**76.0**			**30.7**			**8.8**			**64.4**			**26.8**			**1.2**			**0.5**			**6**			**92.4**		
	Min. YM2		**65.4**			**22.1**			**0.6**			**28.2**			**6.5**			**0.1**			**0.0**			**0**			**52.4**	
	Max. YM2			**80.2**			**40.2**			**27.4**			**78.5**			**71.2**			**2.7**			**1.4**			**27**			**110.8**

TABLE 11: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3																												
1	Region 11	77.0	-	-	32.5	-	-	2.1	-	-	69.5	-	-	28.3	-	-	2.2	-	-	0.7	-	-	23	-	-	98.2	-	-
1	Region 17	76.8	-	-	24.5	-	-	2.5	-	-	37.8	-	-	59.7	-	-	0.9	-	-	0.4	-	-	1	-	-	101.0	-	-
2	Region 18	73.1	71.8	74.4	29.3	29.1	29.5	3.7	1.8	5.6	47.9	35.2	60.6	48.4	33.8	63.0	1.6	1.5	1.6	0.5	0.4	0.6	3	2	4	85.1	82.0	88.1
1	Region 19	71.4	-	-	17.1	-	-	0.9	-	-	24.2	-	-	74.9	-	-	1.1	-	-	0.6	-	-	3	-	-	88.8	-	-
1	Region 31	69.4	-	-	28.9	-	-	4.3	-	-	55.6	-	-	40.1	-	-	2.1	-	-	1.8	-	-	6	-	-	83.2	-	-
1	Region 32	77.9	-	-	29.4	-	-	1.5	-	-	50.7	-	-	47.8	-	-	1.5	-	-	1.2	-	-	3	-	-	79.5	-	-
1	Region 35	75.9	-	-	35.6	-	-	0.3	-	-	66.6	-	-	33.1	-	-	4.4	-	-	0.6	-	-	6	-	-	88.2	-	-
2	Region 36	76.7	75.9	77.5	30.0	29.7	30.3	7.1	5.0	9.1	58.4	55.9	60.9	34.6	34.1	35.0	0.3	0.1	0.5	0.1	0.0	0.1	5	2	7	92.8	91.1	94.4
10	**Ave. YM3**	**74.8**			**28.7**			**3.3**			**51.7**			**45.0**			**1.6**			**0.6**			**6**			**89.5**		
	Min. YM3		**69.4**			**17.1**			**0.3**			**24.2**			**28.3**			**0.1**			**0.0**			**1**			**79.5**	
	Max. YM3			**77.9**			**35.6**			**9.1**			**69.6**			**74.9**			**4.4**			**1.8**			**23**			**101.0**
CLASS: COM																												
1	Region 20	59.8	-	-	21.7	-	-	1.3	-	-	34.4	-	-	64.3	-	-	3.3	-	-	0.9	-	-	0	-	-	21.7	-	-
1	Region 30	75.3	-	-	24.7	-	-	10.4	-	-	60.4	-	-	29.2	-	-	1.0	-	-	0.4	-	-	5	-	-	76.6	-	-
1	Region 36	78.8	-	-	34.5	-	-	4.7	-	-	75.4	-	-	19.9	-	-	0.2	-	-	0.1	-	--	10	-	-	96.7	-	-
3	**Ave. COM**	**71.3**			**27.0**			**5.5**			**56.7**			**37.8**			**1.5**			**0.5**			**5**			**65.0**		
	Min. COM		**59.8**			**21.7**			**1.3**			**34.4**			**19.9**			**0.2**			**0.0**			**0**			**21.7**	
	Max. COM			**78.8**			**34.5**			**10.4**			**75.4**			**64.3**			**3.3**			**0.9**			**10**			**96.7**
505	**Ave. yellow maize**	**76.7**			**31.8**			**11.8**			**66.6**			**21.6**			**1.0**			**0.5**			**5**			**92.6**		
	Min. yellow maize		**59.8**			**17.1**			**0.3**			**15.6**			**0.2**			**0.0**			**0.0**			**0**			**21.7**	
	Max. yellow maize			**81.7**			**43.1**			**34.1**			**93.6**			**77.9**			**4.5**			**4.1**			**31**			**119.5**
920	**Ave. maize**	**77.3**			**32.1**			**13.3**			**66.7**			**20.0**			**1.0**			**0.5**			**5**			**95.5**		
	Min. maize		**59.8**			**17.1**			**0.3**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**21.7**	
	Max. maize			**83.9**			**43.1**			**99.4**			**93.6**			**77.9**			**7.2**			**4.3**			**31**			**120.1**

TABLE 12: PHYSICAL QUALITY FACTORS OF WHITE MAIZE (2015/2016)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
	WHITE																											
2	Region 11	79.7	79.2	80.2	34.5	32.3	36.7	5.9	5.7	6.1	71.5	67.9	75.1	22.6	19.2	26.0	1.3	0.8	1.8	0.5	0.3	0.6	13	7	18	106.5	100.6	112.3
11	Region 12	78.6	75.6	81.0	32.6	21.9	37.2	20.6	0.8	99.4	60.7	0.1	72.3	18.7	0.5	56.0	1.1	0.4	1.7	0.5	0.1	1.4	4	2	7	103.2	94.6	109.6
26	Region 13	77.8	74.3	81.3	31.4	25.6	36.7	14.1	5.7	23.0	65.9	53.4	79.3	20.0	11.2	38.8	1.4	0.2	4.8	0.5	0.0	2.9	3	0	6	100.9	85.5	114.1
21	Region 14	79.4	77.9	81.3	33.2	27.8	36.8	22.3	10.7	28.9	64.8	57.8	71.3	12.9	7.7	21.0	0.6	0.1	1.4	0.2	0.0	0.7	4	0	10	105.0	94.7	111.6
18	Region 17	79.1	72.6	81.1	32.1	27.0	35.9	20.3	7.1	99.0	62.9	0.2	71.9	16.8	0.8	35.5	0.8	0.0	1.6	0.3	0.0	0.7	3	2	9	102.3	80.0	110.6
9	Region 18	78.0	75.6	80.0	32.3	30.1	34.9	11.3	2.5	19.4	67.7	53.6	73.9	21.1	14.3	43.9	1.1	0.2	2.2	0.5	0.1	1.5	3	2	8	101.2	95.5	109.9
22	Region 19	77.8	68.6	80.8	31.7	22.8	37.6	16.4	5.0	42.1	62.2	41.4	73.8	21.4	1.9	53.5	1.0	0.3	1.9	0.4	0.0	0.9	4	0	11	102.4	88.6	116.3
21	Region 20	78.1	75.9	81.2	32.7	28.3	39.9	17.6	2.3	40.1	68.0	56.9	89.5	14.4	0.0	27.5	1.2	0.2	4.2	0.4	0.0	1.3	4	1	10	96.0	79.0	109.1
6	Region 21	80.5	79.8	80.9	31.6	29.8	35.7	17.9	9.3	30.9	65.2	62.2	68.6	16.9	6.8	23.1	1.1	0.3	2.4	0.7	0.2	1.2	11	1	30	112.6	108.9	117.0
12	Region 22	78.9	76.1	80.2	31.6	29.2	33.8	21.0	10.7	33.9	65.9	59.8	72.8	13.1	6.3	21.6	1.2	0.3	2.7	0.3	0.0	1.0	7	0	15	104.4	93.2	111.3
5	Region 23	79.1	77.0	81.2	31.4	28.6	33.3	20.6	10.1	26.4	70.6	64.8	83.7	8.8	5.6	17.1	1.1	0.6	1.7	0.8	0.5	1.3	7	4	18	104.0	93.9	111.2
10	Region 24	79.9	78.6	81.9	30.8	26.2	35.2	19.0	11.3	28.3	68.8	63.1	76.4	12.2	8.2	16.1	0.7	0.3	1.6	0.3	0.0	1.1	9	1	25	106.0	97.9	111.2
5	Region 25	76.9	72.9	79.9	32.9	28.7	38.6	16.8	12.1	23.5	71.3	66.8	77.3	11.9	8.1	21.1	0.8	0.2	1.2	0.2	0.0	0.4	5	2	9	86.2	74.2	99.9
15	Region 26	76.1	69.9	80.5	32.1	24.8	38.3	17.6	3.2	42.8	65.1	52.7	74.9	17.3	2.8	43.4	0.9	0.2	1.9	0.3	0.0	0.6	6	1	21	90.5	66.6	106.8
3	Region 27	79.1	76.8	81.9	33.6	28.9	36.4	10.9	7.1	14.7	73.2	70.9	76.1	16.0	12.8	22.0	1.4	0.6	2.0	0.4	0.2	0.8	3	1	5	97.8	86.0	114.0
15	Region 28	79.2	76.7	81.0	32.5	24.3	38.0	18.7	0.3	31.1	66.2	50.6	78.9	15.1	8.0	49.1	0.7	0.1	2.4	0.3	0.0	1.1	7	1	17	100.1	95.3	110.5
16	Region 29	80.1	77.4	83.9	34.5	30.2	38.5	19.1	5.6	41.7	69.4	53.0	76.6	11.5	4.0	20.3	0.4	0.0	0.7	0.2	0.0	0.6	3	0	9	103.9	87.8	120.1
31	Region 30	78.3	71.7	81.1	31.9	25.5	39.6	11.6	2.2	38.0	67.2	55.0	78.8	21.1	6.7	39.9	0.6	0.0	1.6	0.3	0.0	0.8	4	0	15	96.7	84.7	108.5
15	Region 31	75.5	68.5	79.1	30.9	20.8	39.6	11.0	0.8	28.6	65.4	35.4	79.5	23.6	4.1	63.8	1.2	0.1	3.2	0.8	0.0	2.7	4	1	9	92.6	82.9	105.0
28	Region 32	78.3	75.7	81.8	33.9	28.2	40.8	12.6	1.8	32.4	69.7	56.6	79.5	17.7	4.2	33.3	0.8	0.0	3.6	0.4	0.0	2.1	2	0	8	94.9	72.6	109.1
35	Region 33	77.2	72.2	81.1	30.4	21.9	35.3	12.4	3.0	24.3	65.6	53.8	72.6	22.0	8.1	38.9	1.1	0.1	4.2	0.7	0.0	2.8	7	0	23	95.4	80.1	106.5
30	Region 34	78.4	71.1	81.2	33.1	26.5	40.5	14.6	0.4	36.8	67.1	45.2	80.9	18.3	4.9	54.4	0.6	0.1	2.2	0.3	0.0	0.8	5	0	13	98.3	85.4	109.6
27	Region 35	78.0	73.6	81.2	33.0	24.4	37.2	9.9	2.9	34.2	67.9	52.8	78.5	22.2	3.8	43.0	1.7	0.7	7.2	1.1	0.0	4.3	6	0	19	97.0	75.9	107.1
32	Region 36	76.9	72.2	78.9	34.3	28.4	39.7	12.3	2.5	23.6	69.0	59.9	80.3	18.7	6.9	31.5	0.7	0.2	3.6	0.3	0.0	1.5	5	0	11	99.6	90.7	106.1
415	**Ave. white**	**78.1**			**32.4**			**15.2**			**66.7**			**18.2**			**0.9**			**0.4**			**5**			**99.0**		
	Min. white		**68.5**			**20.8**			**0.3**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**66.6**	
	Max. white			**83.9**			**40.8**			**99.4**			**89.5**			**63.8**			**7.2**			**4.3**			**30**			**120.1**

TABLE 13: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE (2015/2016)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
YELLOW																												
1	Region 3	78.8	-	-	33.8	-	-	6.9	-	-	73.8	-	-	19.3	-	-	2.4	-	-	1.8	-	-	5	-	-	94.0	-	-
10	Region 8	76.9	75.4	79.6	35.1	32.1	37.5	16.6	4.2	22.4	64.1	57.2	69.3	19.4	11.0	31.2	0.9	0.2	2.6	0.3	0.1	1.2	14	3	24	91.7	84.8	98.9
26	Region 10	79.5	76.4	81.7	36.4	29.4	43.1	4.5	1.4	14.2	71.3	64.8	82.9	24.2	8.0	32.5	0.6	0.1	1.4	0.3	0.0	1.2	5	1	13	93.5	74.8	110.3
24	Region 11	79.3	75.7	81.4	35.7	32.5	39.4	6.8	1.8	15.7	72.1	64.4	88.6	21.1	9.6	32.8	1.0	0.4	2.2	0.5	0.1	1.1	9	0	23	100.3	74.8	110.5
5	Region 12	77.3	75.9	78.8	28.7	26.4	32.3	5.2	2.2	9.0	61.7	54.5	70.0	33.1	21.0	42.8	0.9	0.3	1.5	0.4	0.0	1.2	4	2	9	101.7	96.6	106.2
8	Region 13	76.7	74.7	79.9	30.2	26.2	33.3	6.7	2.8	11.9	63.2	51.0	73.5	30.1	14.9	46.2	1.3	0.5	1.9	0.5	0.1	0.8	2	0	4	102.9	90.3	109.6
3	Region 14	77.9	77.6	78.3	30.8	29.5	31.6	12.2	8.3	15.8	72.2	68.3	75.2	15.6	14.5	16.5	1.0	0.5	1.8	0.3	0.0	0.8	3	1	7	99.4	97.5	100.7
6	Region 17	77.5	73.9	79.6	29.5	24.5	35.3	6.4	2.5	12.9	62.1	37.8	71.6	31.6	16.7	59.7	1.0	0.4	1.9	0.3	0.0	0.4	2	1	4	101.9	93.5	108.6
9	Region 18	76.4	71.8	79.1	30.8	27.4	34.6	9.9	1.8	18.3	63.1	35.2	73.4	27.1	15.5	63.0	1.2	0.7	1.7	0.6	0.2	0.8	5	2	13	96.6	82.0	104.4
12	Region 19	76.2	70.9	79.0	29.6	17.1	36.7	8.9	0.9	18.5	65.8	24.2	93.6	25.4	0.5	74.9	1.1	0.1	2.7	0.4	0.0	0.8	3	1	10	97.5	88.8	107.9
20	Region 20	74.8	59.8	78.7	31.2	21.7	35.7	10.3	0.4	23.1	63.8	34.4	74.8	25.9	9.1	64.3	1.4	0.2	3.3	0.4	0.0	1.2	5	0	12	85.7	21.7	101.7
5	Region 21	77.0	75.2	78.1	30.2	27.9	31.7	9.5	5.9	12.7	63.2	55.9	75.2	27.3	12.1	38.2	1.4	0.7	2.1	1.1	0.6	1.4	10	2	27	98.9	88.8	107.2
4	Region 22	76.7	75.6	77.4	28.1	24.8	31.9	7.3	3.2	11.2	69.1	55.6	80.8	23.6	8.0	41.2	1.2	0.8	1.7	0.5	0.3	0.6	8	1	12	101.2	98.3	103.9
4	Region 23	78.0	76.3	79.6	32.7	28.0	41.9	13.0	2.5	24.8	72.6	61.6	86.0	14.4	3.1	35.9	0.4	0.3	0.6	0.1	0.0	0.2	5	3	9	96.4	89.8	99.4
5	Region 24	77.8	75.4	80.1	32.5	30.2	35.6	6.0	2.5	10.8	68.1	62.9	74.2	25.9	19.0	31.3	1.1	0.6	2.0	0.3	0.0	0.6	4	2	6	94.3	79.1	110.8
13	Region 25	77.5	74.9	79.3	33.1	28.9	36.6	14.6	6.5	26.8	64.0	15.6	74.3	21.3	10.5	77.9	0.7	0.1	1.6	0.2	0.0	0.6	5	2	11	92.3	79.8	104.0
14	Region 26	76.9	72.5	80.9	33.2	27.0	37.5	16.2	3.4	31.7	68.8	58.9	76.8	15.0	1.9	33.5	1.1	0.4	2.0	0.3	0.0	0.8	3	0	5	93.8	63.0	119.5
4	Region 27	77.7	77.0	78.7	31.7	27.3	38.1	14.0	5.9	24.6	67.0	61.6	73.7	19.0	7.6	32.5	1.0	0.2	1.8	0.6	0.1	1.1	4	2	5	98.6	87.9	108.4
32	Region 28	75.3	68.5	78.6	31.3	25.9	36.5	15.7	2.2	28.9	67.0	59.5	73.4	17.4	7.6	36.3	1.0	0.2	2.0	0.5	0.1	1.2	6	1	18	90.1	75.0	112.3
43	Region 29	77.3	71.2	81.2	32.3	25.7	36.3	17.8	6.0	28.3	68.3	58.1	82.5	13.9	6.9	22.6	1.0	0.2	3.0	0.7	0.1	1.3	5	0	31	97.4	80.0	107.4
59	Region 30	75.9	72.5	78.9	31.8	23.5	38.9	14.7	1.1	31.1	68.3	47.1	75.6	17.0	4.6	51.8	0.9	0.1	2.7	0.5	0.0	1.9	4	0	19	91.6	68.5	106.9
37	Region 31	75.7	69.4	79.8	31.6	25.5	36.9	13.8	4.2	31.5	67.0	55.6	74.4	19.1	7.2	40.1	1.1	0.2	2.9	0.6	0.0	2.3	3	0	12	90.8	70.2	107.0
44	Region 32	75.3	71.3	79.2	31.0	22.1	37.2	14.0	1.5	34.1	66.5	46.2	77.7	19.6	0.2	50.1	1.2	0.2	4.5	0.7	0.0	4.1	3	0	21	85.2	72.5	98.9
31	Region 33	76.6	74.0	80.6	28.4	22.1	34.0	7.9	0.6	14.7	62.6	28.2	72.6	29.5	15.1	71.2	1.0	0.1	1.9	0.6	0.0	1.2	5	1	11	91.3	79.8	102.1
31	Region 34	76.7	72.7	79.9	31.4	27.7	38.9	11.8	1.3	26.6	66.5	45.3	72.6	21.7	11.2	53.4	0.8	0.1	1.9	0.5	0.0	1.4	4	0	21	93.7	83.1	106.9
16	Region 35	75.8	72.9	78.3	31.3	24.6	36.1	5.4	0.3	14.4	64.6	55.2	74.4	30.0	12.7	42.6	1.9	0.8	4.4	0.8	0.0	2.4	7	1	27	79.7	52.7	96.6
39	Region 36	77.5	68.9	81.2	32.2	26.6	40.2	8.6	0.4	29.4	63.7	46.4	78.6	27.7	4.8	52.1	0.7	0.0	2.0	0.3	0.0	0.8	6	0	20	94.0	52.4	110.7
505	**Ave. yellow**	**76.7**			**31.8**			**11.8**			**66.6**			**21.6**			**1.0**			**0.5**			**5**			**92.6**		
	Min. yellow		**59.8**			**17.1**			**0.3**			**15.6**			**0.2**			**0.0**			**0.0**			**0**			**21.7**	
	Max. yellow			**81.7**			**43.1**			**34.1**			**93.6**			**77.9**			**4.5**			**4.1**			**31**			**119.5**

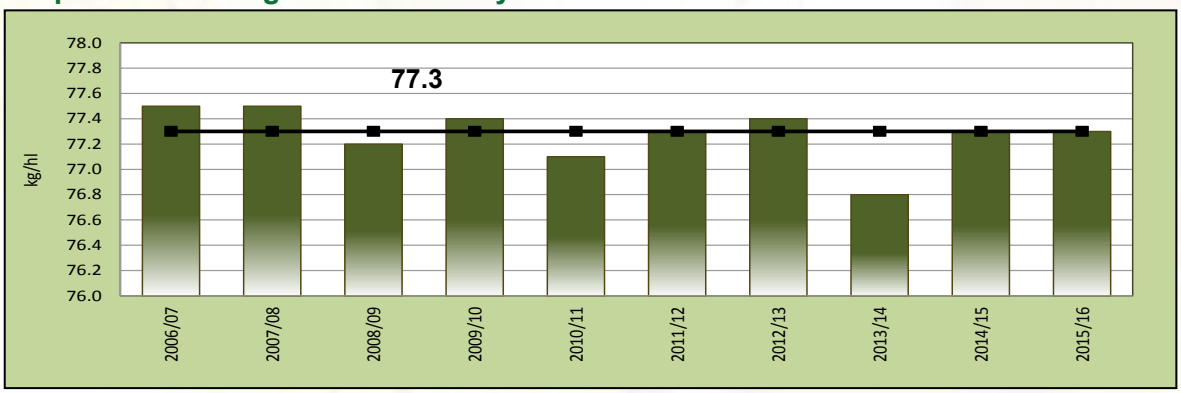
TABLE 14: PHYSICAL QUALITY FACTORS OF WHITE AND YELLOW MAIZE (2015/2016)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			Milling index		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
WHITE AND YELLOW																												
1	Region 3	78.8	-	-	33.8	-	-	6.9	-	-	73.8	-	-	19.3	-	-	2.4	-	-	1.8	-	-	5	-	-	94.0	-	-
10	Region 8	76.9	75.4	79.6	35.1	32.1	37.5	16.6	4.2	22.4	64.1	57.2	69.3	19.4	11.0	31.2	0.9	0.2	2.6	0.3	0.1	1.2	14	3	24	91.7	84.8	98.9
26	Region 10	79.5	76.4	81.7	36.4	29.4	43.1	4.5	1.4	14.2	71.3	64.8	82.9	24.2	8.0	32.5	0.6	0.1	1.4	0.3	0.0	1.2	5	1	13	93.5	74.8	110.3
26	Region 11	79.3	75.7	81.4	35.6	32.3	39.4	6.7	1.8	15.7	72.1	64.4	88.6	21.2	9.6	32.8	1.0	0.4	2.2	0.5	0.1	1.1	9	0	23	100.8	74.8	112.3
16	Region 12	78.2	75.6	81.0	31.4	21.9	37.2	15.8	0.8	99.4	61.0	0.1	72.3	23.2	0.5	56.0	1.1	0.3	1.7	0.5	0.0	1.4	4	2	9	102.8	94.6	109.6
34	Region 13	77.6	74.3	81.3	31.1	25.6	36.7	12.3	2.8	23.0	65.3	51.0	79.3	22.4	11.2	46.2	1.4	0.2	4.8	0.5	0.0	2.9	3	0	6	101.4	85.5	114.1
24	Region 14	79.2	77.6	81.3	32.9	27.8	36.8	21.0	8.3	28.9	65.7	57.8	75.2	13.3	7.7	21.0	0.6	0.1	1.8	0.2	0.0	0.8	4	0	10	104.3	94.7	111.6
24	Region 17	78.7	72.6	81.1	31.4	24.5	35.9	16.8	2.5	99.0	62.7	0.2	71.9	20.5	0.8	59.7	0.8	0.0	1.9	0.3	0.0	0.7	3	1	9	102.2	80.0	110.6
18	Region 18	77.2	71.8	80.0	31.5	27.4	34.9	10.6	1.8	19.4	65.4	35.2	73.9	24.1	14.3	63.0	1.2	0.2	2.2	0.5	0.1	1.5	4	2	13	98.9	82.0	109.9
34	Region 19	77.3	68.6	80.8	31.0	17.1	37.6	13.7	0.9	42.1	63.4	24.2	93.6	22.8	0.5	74.9	1.0	0.1	2.7	0.4	0.0	0.9	4	0	11	100.7	88.6	116.3
41	Region 20	76.5	59.8	81.2	32.0	21.7	39.9	14.0	0.4	40.1	66.0	34.4	89.5	20.0	0.0	64.3	1.3	0.2	4.2	0.4	0.0	1.3	4	0	12	91.0	21.7	109.1
11	Region 21	78.9	75.2	80.9	31.0	27.9	35.7	14.1	5.9	30.9	64.3	55.9	75.2	21.6	6.8	38.2	1.2	0.3	2.4	0.8	0.2	1.4	11	1	30	106.4	88.8	117.0
16	Region 22	78.3	75.6	80.2	30.7	24.8	33.8	17.6	3.2	33.9	66.7	55.6	80.8	15.8	6.3	41.2	1.2	0.3	2.7	0.4	0.0	1.0	7	0	15	103.6	93.2	111.3
9	Region 23	78.6	76.3	81.2	32.0	28.0	41.9	17.2	2.5	26.4	71.5	61.6	86.0	11.3	3.1	35.9	0.8	0.3	1.7	0.5	0.0	1.3	6	3	18	100.6	89.8	111.2
15	Region 24	79.2	75.4	81.9	31.3	26.2	35.6	14.6	2.5	28.3	68.6	62.9	76.4	16.8	8.2	31.3	0.8	0.3	2.0	0.3	0.0	1.1	7	1	25	102.1	79.1	111.2
18	Region 25	77.3	72.9	79.9	33.1	28.7	38.6	15.2	6.5	26.8	66.1	15.6	77.3	18.7	8.1	77.9	0.7	0.1	1.6	0.2	0.0	0.6	5	2	11	90.6	74.2	104.0
29	Region 26	76.5	69.9	80.9	32.6	24.8	38.3	16.9	3.2	42.8	66.9	52.7	76.8	16.2	1.9	43.4	1.0	0.2	2.0	0.3	0.0	0.8	4	0	21	92.1	63.0	119.5
7	Region 27	78.3	76.8	81.9	32.5	27.3	38.1	12.7	5.9	24.6	69.6	61.6	76.1	17.7	7.6	32.5	1.2	0.2	2.0	0.5	0.1	1.1	3	1	5	98.3	86.0	114.0
47	Region 28	76.5	68.5	81.0	31.6	24.3	38.0	16.6	0.3	31.1	66.7	50.6	78.9	16.6	7.6	49.1	0.9	0.1	2.4	0.4	0.0	1.2	6	1	18	93.3	75.0	112.3
59	Region 29	78.1	71.2	83.9	32.9	25.7	38.5	18.2	5.6	41.7	68.6	53.0	82.5	13.2	4.0	22.6	0.8	0.0	3.0	0.5	0.0	1.3	5	0	31	99.1	80.0	120.1
90	Region 30	76.8	71.7	81.1	31.8	23.5	39.6	13.7	1.1	38.0	67.9	47.1	78.8	18.4	4.6	51.8	0.8	0.0	2.7	0.4	0.0	1.9	4	0	19	93.3	68.5	108.5
52	Region 31	75.6	68.5	79.8	31.4	20.8	39.6	13.0	0.8	31.5	66.6	35.4	79.5	20.4	4.1	63.8	1.2	0.1	3.2	0.6	0.0	2.7	4	0	12	91.3	70.2	107.0
72	Region 32	76.4	71.3	81.8	32.1	22.1	40.8	13.4	1.5	34.1	67.7	46.2	79.5	18.8	0.2	50.1	1.0	0.0	4.5	0.6	0.0	4.1	3	0	21	89.0	72.5	109.1
66	Region 33	76.9	72.2	81.1	29.5	21.9	35.3	10.3	0.6	24.3	64.2	28.2	72.6	25.6	8.1	71.2	1.0	0.1	4.2	0.7	0.0	2.8	6	0	23	93.5	79.8	106.5
61	Region 34	77.5	71.1	81.2	32.2	26.5	40.5	13.1	0.4	36.8	66.8	45.2	80.9	20.0	4.9	54.4	0.7	0.1	2.2	0.4	0.0	1.4	4	0	21	95.9	83.1	109.6
43	Region 35	77.2	72.9	81.2	32.3	24.4	37.2	8.2	0.3	34.2	66.7	52.8	78.5	25.1	3.8	43.0	1.7	0.7	7.2	1.0	0.0	4.3	6	0	27	90.5	52.7	107.1
71	Region 36	77.2	68.9	81.2	33.2	26.6	40.2	10.3	0.4	29.4	66.1	46.4	80.3	23.7	4.8	52.1	0.7	0.0	3.6	0.3	0.0	1.5	6	0	20	96.5	52.4	110.7
920	**Ave. w & y**	**77.3**			**32.1**			**13.3**			**66.7**			**20.0**			**1.0**			**0.5**			**5**			**95.5**		
	Min. w & y		**59.8**			**17.1**			**0.3**			**0.1**			**0.0**			**0.0**			**0.0**			**0**			**21.7**	
	Max. w & y			**83.9**			**43.1**			**99.4**			**93.6**			**77.9**			**7.2**			**4.3**			**31**			**120.1**

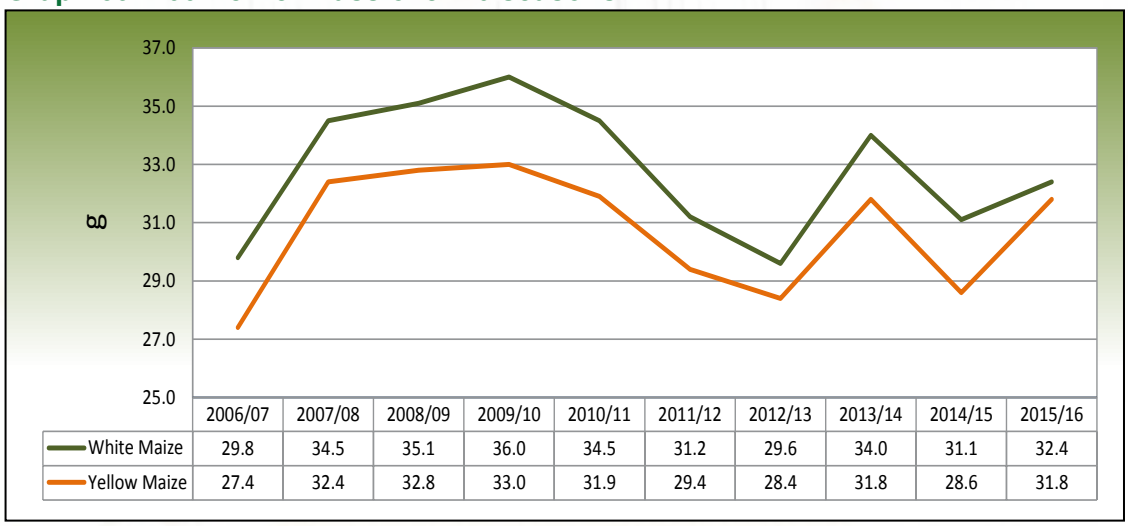
TABLE 15: PHYSICAL QUALITY FACTORS OF WHITE AND YELLOW MAIZE 2006/2007 - 2015/2016

Season	Number of samples	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve					
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize																									
2006/07	563	78.1	68.1	82.8	29.8	19.4	40.1	17.1	0.2	51.7	63.3	16.7	78.2	19.6	0.8	81.6	1.5	0.0	12.1	1.0	0.0	11.5	3	0	27
2007/08	483	78.2	65.3	81.6	34.5	17.0	45.6	24.5	0.4	69.7	63.8	23.3	84.2	11.7	1.0	76.2	1.2	0.1	9.7	0.9	0.0	7.3	4	0	44
2008/09	483	77.6	61.6	82.8	35.1	27.1	44.0	26.2	0.5	46.4	63.3	43.1	84.0	10.5	2.1	51.0	1.5	0.2	11.7	1.1	0.1	8.7	5	0	50
2009/10	458	77.9	60.2	84.4	36.0	24.1	59.1	26.3	1.2	90.7	62.6	9.2	82.0	11.2	0.1	53.5	1.5	0.2	24.3	1.2	0.1	23.1	4	0	36
2010/11	413	77.7	71.3	81.8	34.5	25.0	44.0	24.9	1.4	55.8	63.5	33.5	83.9	11.6	1.7	65.1	1.6	0.0	8.4	1.2	0.0	5.9	5	0	31
2011/12	577	78.2	71.8	82.0	31.2	17.4	44.4	18.8	0.8	63.3	64.9	26.2	79.7	16.3	2.8	72.4	0.8	0.0	8.6	0.6	0.0	4.9	5	0	25
2012/13	508	78.2	69.7	82.9	29.6	17.7	46.0	15.1	0.0	59.9	65.0	16.2	80.5	20.0	3.1	83.5	1.0	0.0	6.6	0.7	0.0	4.6	4	0	37
2013/14	451	77.6	68.7	81.9	34.0	26.0	46.5	24.7	0.7	71.3	64.7	23.4	82.7	10.6	1.1	37.7	1.3	0.0	7.2	1.0	0.0	4.2	7	0	37
2014/15	485	78.3	70.2	83.1	31.1	20.3	48.3	15.4	0.3	86.7	66.1	13.1	81.8	18.4	0.0	51.5	1.1	0.0	12.1	0.8	0.0	5.6	6	0	61
2015/16	415	78.1	68.5	83.9	32.4	20.8	40.8	15.2	0.3	99.4	66.7	0.1	89.5	18.2	0.0	63.8	0.9	0.0	7.2	0.4	0.0	4.3	5	0	30
Weighted Average		**78.0**			**33.1**			**21.1**			**64.5**			**14.4**			**1.2**			**0.9**			**5**		
Minimum			**60.2**			**17.0**			**0.0**			**0.1**			**0.0**			**0.0**			**0.0**			**0**	
Maximum				**84.4**			**59.1**			**99.4**			**89.5**			**83.5**			**24.3**			**23.1**			**61**
Yellow Maize																									
2006/07	337	76.4	70.2	81.2	27.4	16.6	38.6	8.5	0.0	34.2	61.7	17.1	79.5	29.8	6.4	82.9	2.1	0.2	10.9	1.3	0.0	6.0	4	0	24
2007/08	417	76.7	69.3	79.9	32.4	24.4	42.9	15.2	0.3	50.9	66.0	39.6	78.6	18.8	2.8	60.1	1.9	0.3	15.2	1.3	0.1	8.3	5	0	58
2008/09	327	76.6	69.9	81.2	32.8	24.2	45.4	15.7	1.3	52.8	66.5	44.3	79.9	17.8	1.6	44.6	1.8	0.1	10.3	1.3	0.0	9.9	6	0	32
2009/10	342	76.6	69.0	81.6	33.0	23.3	42.5	14.3	0.0	41.7	68.5	50.9	79.9	17.2	4.0	47.7	2.1	0.4	10.3	1.6	0.3	8.4	5	0	27
2010/11	280	76.2	69.0	81.5	31.9	22.0	40.4	14.4	1.1	43.7	68.6	39.5	79.6	16.9	1.9	58.7	2.1	0.5	8.1	1.6	0.0	5.0	5	0	24
2011/12	423	76.1	68.1	81.0	29.4	14.5	40.9	11.3	0.0	38.3	63.9	13.7	79.4	24.8	6.5	86.3	1.3	0.2	15.6	1.0	0.0	8.3	6	0	27
2012/13	492	76.6	67.8	81.6	28.4	15.2	41.3	9.8	0.0	42.6	61.7	10.1	80.9	28.5	3.4	89.9	1.7	0.1	8.2	1.1	0.0	5.4	5	0	31
2013/14	479	76.0	56.6	80.9	31.8	18.6	43.1	14.9	0.3	52.7	67.1	21.4	79.7	18.0	2.6	64.8	1.9	0.1	14.5	1.4	0.0	9.9	7	0	53
2014/15	515	76.3	67.3	83.1	28.6	17.8	38.2	8.8	0.0	30.2	63.4	9.2	78.9	27.8	4.2	90.4	1.3	0.1	6.8	0.9	0.0	4.8	5	0	56
2015/16	505	76.7	59.8	81.7	31.8	17.1	43.1	11.8	0.3	34.1	66.6	15.6	93.6	21.6	0.2	77.9	1.0	0.0	4.5	0.5	0.0	4.1	5	0	31
Weighted Average		**76.4**			**30.9**			**12.6**			**65.5**			**21.9**			**1.6**			**1.1**			**5.5**		
Minimum			**56.6**			**14.5**			**0.0**			**9.2**			**0.2**			**0.0**			**0.0**			**0**	
Maximum				**83.1**			**45.4**			**52.8**			**93.6**			**90.4**			**15.6**			**9.9**			**58**
White & Yellow Maize																									
2006/07	900	77.5	68.1	82.8	28.9	16.6	40.1	13.9	0.0	51.7	62.7	16.7	79.5	23.4	0.8	82.9	1.7	0.0	12.1	1.1	0.0	11.5	3	0	27
2007/08	900	77.5	65.3	81.6	33.5	17.0	45.6	20.2	0.3	69.7	64.8	23.3	84.2	15.0	1.0	76.2	1.5	0.1	15.2	1.1	0.0	8.3	4	0	58
2008/09	810	77.2	61.6	82.8	34.2	24.2	45.4	21.9	0.5	52.8	64.6	43.1	84.0	13.4	1.6	51.0	1.6	0.1	11.7	1.2	0.0	9.9	5	0	50
2009/10	800	77.4	60.2	84.4	34.7	23.3	59.1	21.1	0.0	90.7	65.1	9.2	82.0	13.7	0.1	53.5	1.8	0.2	24.3	1.4	0.1	23.1	4	0	36
2010/11	693	77.1	69.0	81.8	33.5	22.0	44.0	20.7	1.1	55.8	65.6	33.5	83.9	13.8	1.7	65.1	1.8	0.0	8.4	1.3	0.0	5.9	5	0	31
2011/12	1000	77.3	68.1	82.0	30.4	14.5	44.4	15.6	0.0	63.3	64.5	13.7	79.7	19.9	2.8	86.3	1.0	0.0	15.6	0.7	0.0	8.3	6	0	27
2012/13	1000	77.4	67.8	82.9	29.0	15.2	46.0	12.5	0.0	59.9	63.4	10.1	80.9	24.2	3.1	89.9	1.4	0.0	8.2	0.9	0.0	5.4	5	0	37
2013/14	930	76.8	56.6	81.9	32.9	18.6	46.5	19.6	0.3	71.3	65.9	23.4	82.7	14.4	1.1	64.8	1.6	0.0	14.5	1.2	0.0	9.9	7	0	53
2014/15	1000	77.3	67.3	83.1	29.8	17.8	48.3	12.0	0.0	86.7	64.7	9.2	81.8	23.2	0.0	90.4	1.2	0.0	12.1	0.8	0.0	5.6	6	0	61
2015/16	920	77.3	59.8	83.9	32.1	17.1	43.1	13.3	0.3	99.4	66.7	0.1	93.6	20.0	0.0	77.9	1.0	0.0	7.2	0.5	0.0	4.3	5	0	31
Weighted Average		**77.3**			**32.1**			**17.1**			**65.0**			**17.9**			**1.4**			**1.0**			**5**		
Minimum			**56.6**			**14.5**			**0.0**			**0.1**			**0.0**			**0.0**			**0.0**			**0**	
Maximum				**84.4**			**59.1**			**99.4**			**93.6**			**90.4**			**24.3**			**23.1**			**61**

Graph 38: Test weight of white and yellow maize over 10 seasons

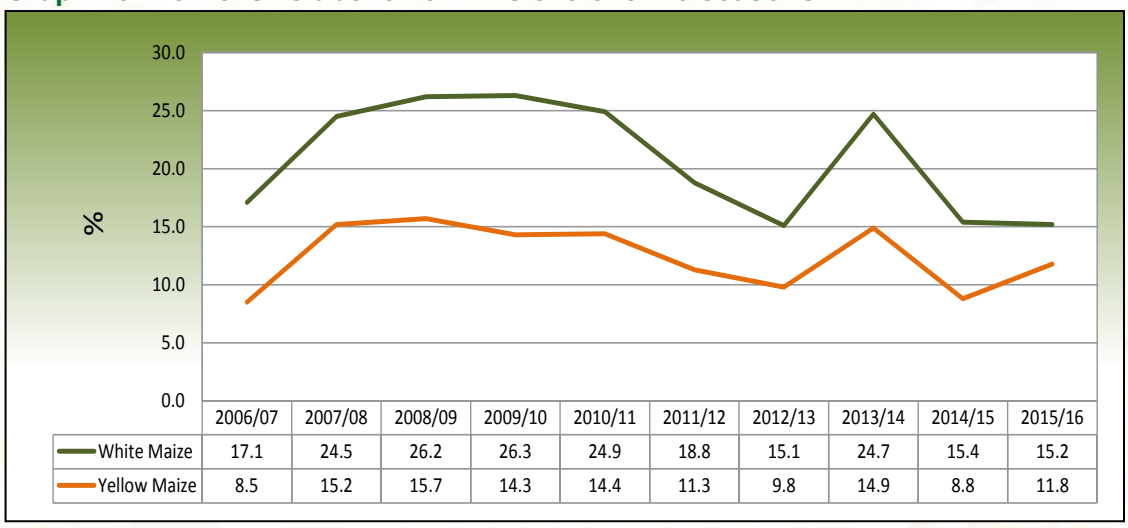


Graph 39: 100 Kernel mass over 10 seasons



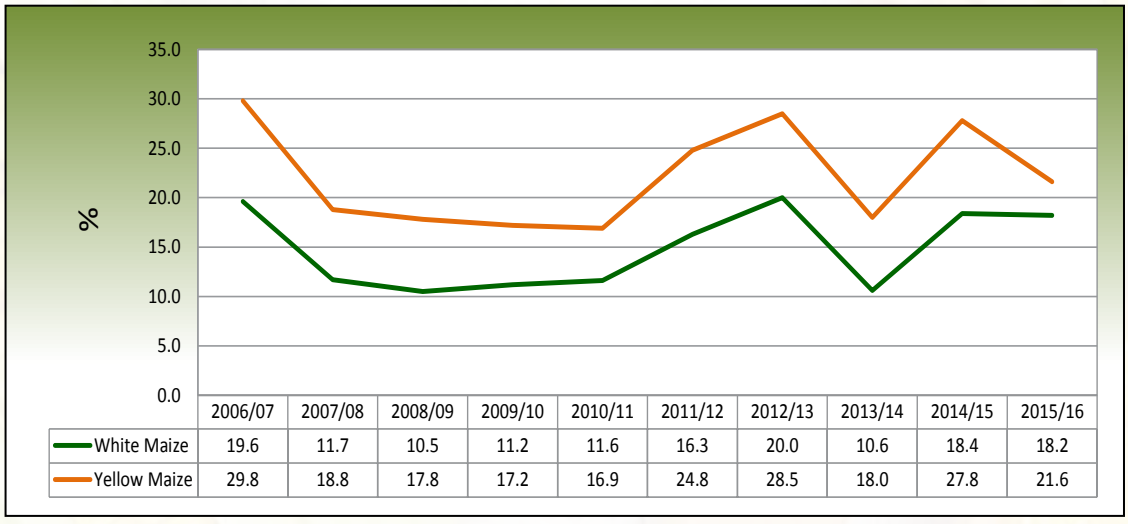
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	29.8	34.5	35.1	36.0	34.5	31.2	29.6	34.0	31.1	32.4
Yellow Maize	27.4	32.4	32.8	33.0	31.9	29.4	28.4	31.8	28.6	31.8

Graph 40: Kernel size above 10 mm sieve over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	17.1	24.5	26.2	26.3	24.9	18.8	15.1	24.7	15.4	15.2
Yellow Maize	8.5	15.2	15.7	14.3	14.4	11.3	9.8	14.9	8.8	11.8

Graph 41: Kernel size below 8 mm sieve over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	19.6	11.7	10.5	11.2	11.6	16.3	20.0	10.6	18.4	18.2
Yellow Maize	29.8	18.8	17.8	17.2	16.9	24.8	28.5	18.0	27.8	21.6

TABLE 16: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2015/2016)

Number of samples	Region	Roff Milling																		Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran and Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1																									
2	Region 11	12.8	11.5	14.2	11.1	10.4	11.8	21.9	20.9	23.0	32.9	30.8	35.0	21.3	20.3	22.2	78.7	77.8	79.7	26.9	25.8	28.1	17.2	15.1	19.3
8	Region 12	11.4	9.9	13.9	10.7	10.3	11.2	21.0	20.3	21.6	36.1	33.1	38.5	20.8	19.7	22.0	79.2	78.0	80.3	22.4	18.4	27.8	15.5	9.5	21.4
12	Region 13	12.0	8.5	15.7	10.8	9.9	11.6	20.8	19.4	22.2	34.8	29.6	38.6	21.6	19.4	23.7	78.4	76.3	80.6	24.7	17.4	31.4	16.7	12.8	20.9
18	Region 14	11.1	10.0	13.7	10.5	6.8	11.4	21.4	20.1	22.9	36.3	33.5	38.3	20.7	18.7	22.9	79.3	77.1	81.3	23.3	19.5	27.8	16.4	13.1	21.7
16	Region 17	11.2	9.2	14.7	10.5	9.9	11.1	21.1	19.4	22.6	36.1	29.8	38.5	21.0	17.6	25.0	79.0	75.0	82.4	23.8	15.7	29.9	16.6	7.9	22.7
4	Region 18	11.1	9.7	12.5	10.4	10.0	10.6	21.3	20.1	22.5	35.1	33.3	36.7	22.1	21.0	23.1	77.9	76.9	79.0	23.0	17.3	26.7	14.3	9.4	18.2
5	Region 19	12.1	10.1	14.3	10.6	9.3	11.4	20.9	19.7	21.9	34.8	32.1	38.4	21.6	19.8	23.3	78.4	76.7	80.2	28.2	24.0	29.8	21.2	16.0	24.5
9	Region 20	12.6	10.7	14.5	11.1	10.5	12.2	21.6	20.9	22.7	33.6	31.0	37.1	21.1	18.9	22.5	78.9	77.5	81.1	27.0	22.2	30.6	19.1	16.5	23.3
4	Region 21	10.5	9.8	10.8	10.2	9.9	10.5	23.1	22.7	23.4	37.0	36.8	37.2	19.2	18.8	20.4	80.8	79.6	81.2	24.5	21.5	25.7	17.5	14.1	20.2
5	Region 22	13.0	12.0	14.1	11.1	10.7	11.6	21.6	20.9	22.0	33.2	31.8	34.1	21.0	19.4	21.8	79.0	78.2	80.6	27.6	24.4	29.5	18.9	14.0	20.4
4	Region 23	12.3	11.3	13.2	10.7	9.8	11.3	22.3	21.2	23.3	33.8	31.7	35.9	21.0	18.9	22.6	79.0	77.4	81.1	26.9	25.7	28.5	18.7	16.3	22.6
8	Region 24	11.1	10.1	12.5	10.5	10.2	10.8	22.0	19.8	23.1	35.3	34.2	38.4	21.1	19.4	23.0	78.9	77.0	80.6	26.7	21.7	28.9	19.9	16.4	22.7
4	Region 25	12.4	12.0	13.4	10.8	10.6	11.1	21.3	20.3	21.9	32.2	27.9	34.7	23.3	20.8	27.7	76.7	72.3	79.2	28.5	26.2	32.3	19.7	16.8	21.5
9	Region 26	12.0	10.8	14.5	10.8	10.1	11.5	21.2	20.1	22.2	34.6	30.1	36.5	21.4	19.2	23.9	78.6	76.1	80.8	26.1	24.0	28.8	17.6	14.6	19.5
1	Region 27	10.2	-	-	10.5	-	-	22.8	-	-	36.8	-	-	19.7	-	-	80.3	-	-	28.3	-	-	20.9	-	-
11	Region 28	11.9	9.6	13.9	10.6	10.2	11.2	22.6	21.6	24.1	33.9	30.7	37.5	21.0	19.7	22.8	79.0	77.2	80.3	27.0	24.5	28.7	18.0	14.5	21.4
16	Region 29	11.6	9.0	14.2	10.6	9.8	11.5	22.3	20.6	23.3	34.7	31.1	37.6	20.9	17.8	23.2	79.1	76.8	82.2	26.1	22.0	29.8	16.0	11.5	21.4
28	Region 30	12.9	10.9	15.2	10.9	10.1	11.6	22.3	21.5	23.3	31.9	28.9	35.0	22.0	19.2	24.0	78.0	76.0	80.8	27.8	20.2	34.4	17.9	10.6	23.0
9	Region 31	12.9	11.5	15.0	11.2	10.4	11.8	22.1	20.7	24.0	31.7	30.4	33.8	22.1	20.0	23.0	77.9	77.0	80.0	28.4	26.7	29.7	18.6	16.6	21.3
28	Region 32	12.4	10.2	14.5	10.9	10.0	12.2	22.6	21.8	24.0	32.7	29.5	36.5	21.5	17.8	23.2	78.5	76.8	82.2	27.6	20.1	33.4	19.2	14.3	23.4
29	Region 33	13.3	11.0	15.2	10.9	10.1	12.0	22.0	20.6	23.4	31.8	29.5	35.7	22.0	19.5	23.8	78.0	76.2	80.5	30.0	24.6	36.1	20.3	12.6	28.6
29	Region 34	12.0	8.9	14.2	10.9	9.7	12.2	21.0	19.6	23.7	33.9	30.3	36.4	22.2	19.8	24.4	77.8	75.6	80.2	29.1	20.4	38.2	19.8	15.3	25.8
19	Region 35	14.3	11.5	17.0	11.0	10.4	11.5	22.4	20.8	23.7	31.7	28.5	34.2	20.6	19.1	23.3	79.4	76.7	80.9	29.7	25.0	33.5	19.9	15.2	23.4
22	Region 36	11.5	10.9	12.5	10.3	8.8	10.9	21.5	20.3	22.6	34.4	32.6	36.2	22.3	19.1	24.0	77.7	76.0	80.9	25.1	20.6	28.6	16.5	10.9	20.9
300	**Ave. WM1**	**12.2**			**10.8**			**21.8**			**33.7**			**21.5**			**78.5**			**27.0**			**18.3**		
	Min. WM1		**8.5**			**6.8**			**19.4**			**27.9**			**17.6**			**72.3**			**15.7**			**7.9**	
	Max. WM1			**17.0**			**12.2**			**24.1**			**38.6**			**27.7**			**82.4**			**38.2**			**28.6**

TABLE 16: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Roff Milling																	Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran and Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2																									
3	Region 12	10.9	9.4	13.0	10.3	10.1	10.7	20.6	20.0	21.0	36.5	34.2	37.9	21.6	21.1	22.1	78.4	77.9	78.9	26.1	20.3	30.5	19.0	15.5	21.6
10	Region 13	11.6	9.1	15.1	10.7	9.9	11.5	20.6	19.8	22.0	35.3	30.9	39.1	21.8	20.0	24.0	78.2	76.0	80.0	22.4	17.1	27.6	15.2	9.4	19.6
3	Region 14	9.7	9.0	10.3	10.1	9.5	10.4	20.9	19.3	21.8	38.0	37.1	38.5	21.3	19.9	23.7	78.7	76.3	80.1	21.0	18.8	22.7	15.3	14.1	16.8
2	Region 17	10.8	9.8	11.8	10.4	10.2	10.6	21.8	21.4	22.2	35.5	34.6	36.5	21.5	20.8	22.2	78.5	77.8	79.2	22.7	22.2	23.1	17.0	15.1	18.9
3	Region 18	11.8	11.3	12.3	11.0	10.7	11.4	21.2	20.4	22.2	35.0	33.9	35.8	21.0	20.2	21.4	79.0	78.6	79.8	23.7	21.6	25.8	20.5	19.0	23.2
12	Region 19	10.9	8.8	12.7	10.6	9.7	11.5	21.1	20.4	22.8	36.1	33.3	39.0	21.3	20.1	22.7	78.7	77.3	79.9	26.5	22.6	32.8	18.4	15.5	23.7
8	Region 20	12.2	10.5	13.9	11.0	10.0	11.9	21.5	20.5	22.4	34.4	31.2	37.7	21.0	19.5	22.5	79.0	77.5	80.5	26.7	21.7	31.7	19.5	11.6	27.2
1	Region 21	9.8	-	-	9.8	-	-	2.2	-	-	37.7	-	-	20.5	-	-	79.5	-	-	21.9	-	-	14.2	-	-
3	Region 22	11.4	10.8	12.1	10.6	10.4	10.9	20.6	19.8	22.3	35.6	33.6	36.9	21.7	19.7	23.6	78.3	76.4	80.3	26.6	22.6	30.2	19.4	16.5	21.1
1	Region 23	10.1	-	-	10.3	-	-	22.3	-	-	36.6	-	-	20.7	-	-	79.3	-	-	22.5	-	-	18.4	-	-
2	Region 24	10.6	10.5	10.8	10.3	10.1	10.5	22.4	21.4	23.3	35.7	35.5	35.8	21.1	19.9	22.3	78.9	77.7	80.1	25.1	22.4	27.7	18.0	17.1	19.0
1	Region 25	12.9	-	-	10.6	-	-	21.7	-	-	30.6	-	-	24.2	-	-	75.8	-	-	29.1	-	-	17.2	-	-
6	Region 26	13.7	8.3	17.0	11.0	9.5	12.2	20.4	18.6	22.1	30.9	27.3	38.2	24.1	20.8	28.2	75.9	71.8	79.2	24.5	19.6	28.6	14.7	11.5	18.7
2	Region 27	12.7	12.4	12.9	11.3	11.3	11.4	21.9	21.8	22.0	32.3	31.9	32.6	21.9	21.5	22.3	78.1	77.7	78.5	25.9	24.8	27.1	15.5	15.0	15.9
3	Region 28	12.8	10.0	14.8	10.9	10.3	11.4	22.4	22.0	23.1	32.1	30.3	34.7	21.7	19.8	23.0	78.3	77.0	80.2	27.8	20.1	34.1	17.6	10.5	22.0
2	Region 30	12.6	11.2	14.1	11.1	10.9	11.4	22.9	22.4	23.5	32.0	31.0	33.1	21.3	21.2	21.4	78.7	78.6	78.8	20.4	14.6	26.1	10.6	2.0	19.1
3	Region 31	12.3	10.2	13.6	11.0	10.5	11.9	22.0	21.1	22.6	31.7	29.6	34.5	23.0	21.2	25.6	77.0	74.4	78.8	18.2	14.7	20.7	5.6	2.5	7.9
5	Region 33	13.8	12.8	15.6	11.1	10.8	11.4	21.9	21.1	22.4	30.7	28.6	32.2	22.5	21.1	23.8	77.5	76.2	78.9	28.1	24.9	31.7	19.8	19.3	20.3
1	Region 34	12.2	-	-	11.4	-	-	21.1	-	-	35.2	-	-	20.0	-	-	80.0	-	-	27.6	-	-	17.7	-	-
5	Region 35	14.3	11.5	19.3	11.2	10.4	12.1	23.1	21.7	26.5	32.0	28.8	34.9	19.4	13.6	23.0	80.6	77.0	86.4	23.8	16.5	28.7	14.0	7.3	19.8
8	Region 36	11.8	11.0	12.6	10.6	10.2	10.9	21.4	20.9	21.9	33.8	32.9	34.7	22.4	21.8	23.5	77.6	76.5	78.2	24.8	20.7	31.2	17.5	14.0	24.7
84	**Ave. WM2**	**12.0**			**10.8**			**21.4**			**34.1**			**21.7**			**78.3**			**24.8**			**16.8**		
	Min. WM2		**8.3**			**9.5**			**18.6**			**27.3**			**13.6**			**71.8**			**14.6**			**2.0**	
	Max. WM2			**19.3**			**12.2**			**26.5**			**39.1**			**28.2**			**86.4**			**34.1**			**27.2**

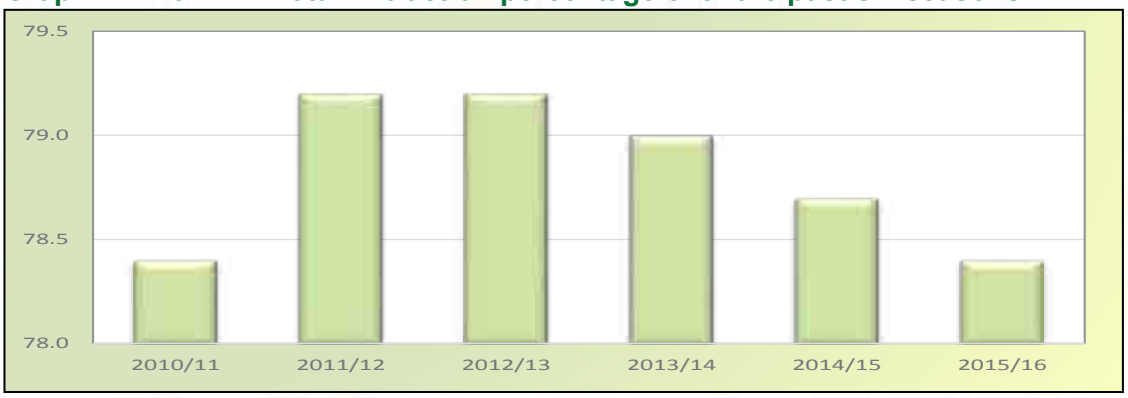
TABLE 16: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Roff Milling																	Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran and Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3																									
4	Region 13	11.6	8.9	15.4	10.8	9.8	11.8	20.6	19.9	21.2	34.3	29.4	37.7	22.8	21.4	23.5	77.2	76.5	78.6	20.7	14.7	28.2	11.2	4.9	17.9
2	Region 18	12.8	12.5	13.1	10.6	10.3	10.8	21.4	20.7	22.2	32.9	32.8	33.0	22.3	21.1	23.5	77.7	76.5	78.9	24.3	22.8	25.7	18.0	17.2	18.8
4	Region 19	12.2	10.4	14.2	10.9	10.5	11.7	21.4	20.5	22.4	34.6	33.0	35.9	20.8	19.4	22.6	79.2	77.4	80.6	26.2	19.4	32.7	17.5	12.2	22.5
3	Region 20	13.3	11.5	14.7	11.5	11.0	12.3	21.4	21.0	21.8	32.7	30.7	35.4	21.0	20.4	22.3	79.0	77.7	79.6	17.8	-1.5	27.6	7.8	-14.6	19.8
1	Region 21	9.6	-	-	10.1	-	-	22.6	-	-	37.9	-	-	19.8	-	-	80.2	-	-	22.0	-	--	13.0	-	-
4	Region 22	9.5	9.1	9.8	10.2	9.5	10.7	20.2	19.6	20.6	38.2	37.8	38.7	21.8	20.5	22.9	78.2	77.1	79.5	23.1	22.3	23.8	16.8	13.7	19.5
1	Region 28	13.1	-	-	11.0	-	-	24.2	-	-	32.1	-	-	19.5	-	-	80.5	-	-	23.9	-	-	15.0	-	-
1	Region 30	15.2	-	-	12.1	-	-	21.8	-	-	29.6	-	-	21.3	-	-	78.7	-	-	27.3	-	-	16.4	-	-
2	Region 31	10.2	10.2	10.3	10.7	10.5	11.0	21.7	21.3	22.2	35.3	34.7	35.9	21.9	21.6	22.3	78.1	77.7	78.4	4.0	2.4	5.6	-8.4	-9.3	-7.4
1	Region 33	11.0	-	-	10.0	-	-	22.0	-	-	35.9	-	-	21.2	-	-	78.8	-	-	12.7	-	-	-0.8	-	-
2	Region 35	11.6	10.7	12.5	10.5	9.7	11.4	19.9	19.4	20.3	34.8	33.8	35.8	23.3	23.0	23.5	76.7	76.5	77.0	21.6	16.8	26.5	13.0	8.0	18.1
2	Region 36	11.6	11.5	11.7	11.1	10.4	11.8	21.4	21.0	21.7	33.0	32.1	34.0	22.9	21.0	24.8	77.1	75.2	79.0	20.7	20.0	21.4	10.2	6.9	13.6
27	**Ave. WM3**	**11.6**			**10.8**			**21.2**			**34.6**			**21.8**			**78.2**			**20.8**			**11.6**		
	Min. WM3		**8.9**			**9.5**			**19.4**			**29.4**			**19.4**			**75.2**			**-1.5**			**-14.6**	
	Max. WM3			**15.4**			**12.3**			**24.2**			**38.7**			**24.8**			**80.6**			**32.7**			**22.5**
CLASS: COM																									
1	Region 19	13.6	-	-	11.2	-	-	21.6	-	-	32.2	-	-	21.4	-	-	78.6	-	-	33.9	-	-	25.2	-	-
1	Region 20	12.6	-	-	11.5	-	-	20.7	-	-	33.7	-	-	21.5	-	-	78.5	-	-	18.3	-	-	12.0	-	-
1	Region 31	11.7	-	-	10.7	-	-	22.1	-	-	32.6	-	-	22.8	-	-	77.2	-	-	30.6	-	-	22.2	-	-
1	Region 35	11.6	-	-	11.2	-	-	21.3	-	-	32.4	-	-	23.4	-	-	76.6	-	-	8.7	-	-	-4.0	-	-
4	**Ave. COM**	**12.4**			**11.2**			**21.4**			**32.8**			**22.3**			**77.7**			**22.9**			**13.8**		
	Min. COM		**11.6**			**10.7**			**20.7**			**32.2**			**21.4**			**76.6**			**8.7**			**-4.0**	
	Max. COM			**13.6**			**11.5**			**22.1**			**33.7**			**23.4**			**78.6**			**33.9**			**25.2**
415	**Ave. white maize**	**12.1**			**10.8**			**21.7**			**33.9**			**21.6**			**78.4**			**26.1**			**17.5**		
	Min. white maize		**8.3**			**6.8**			**18.6**			**27.3**			**13.6**			**71.8**			**-1.5**			**-14.6**	
	Max. white maize			**19.3**			**12.3**			**26.5**			**39.1**			**28.2**			**86.4**			**38.2**			**28.6**

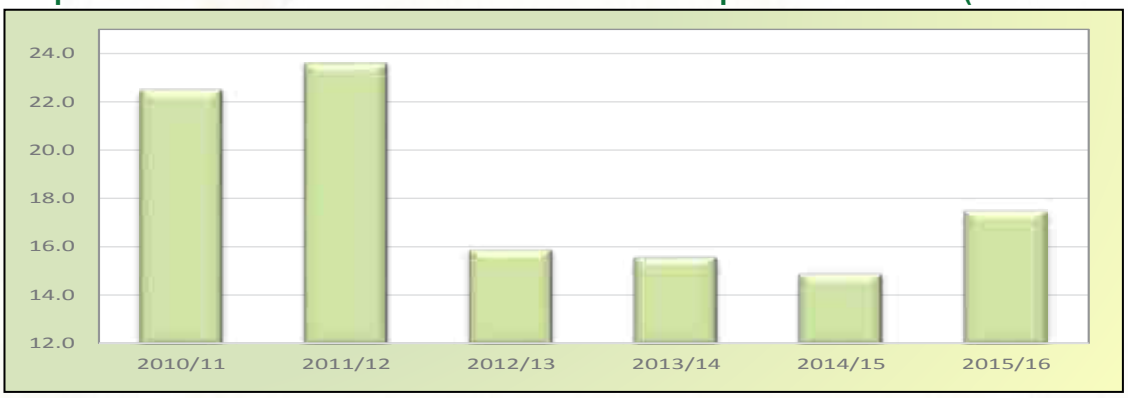
TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE (2015/2016)

Number of samples	Region	Roff Milling																		Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran and Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
WHITE																									
2	Region 11	12.8	11.5	14.2	11.1	10.4	11.8	21.9	20.9	23.0	32.9	30.8	35.0	21.3	20.3	22.2	78.7	77.8	79.7	26.9	25.8	28.1	17.2	15.1	19.3
11	Region 12	11.3	9.4	13.9	10.6	10.1	11.2	20.9	20.0	21.6	36.2	33.1	38.5	21.0	19.7	22.1	79.0	77.9	80.3	23.4	18.4	30.5	16.5	9.5	21.6
26	Region 13	11.8	8.5	15.7	10.7	9.8	11.8	20.7	19.4	22.2	34.9	29.4	39.1	21.9	19.4	24.0	78.1	76.0	80.6	23.2	14.7	31.4	15.3	4.9	20.9
21	Region 14	10.9	9.0	13.7	10.4	6.8	11.4	21.3	19.3	22.9	36.6	33.5	38.5	20.8	18.7	23.7	79.2	76.3	81.3	23.0	18.8	27.8	16.2	13.1	21.7
18	Region 17	11.2	9.2	14.7	10.5	9.9	11.1	21.2	19.4	22.6	36.0	29.8	38.5	21.1	17.6	25.0	78.9	75.0	82.4	23.7	15.7	29.9	16.6	7.9	22.7
9	Region 18	11.7	9.7	13.1	10.6	10.0	11.4	21.3	20.1	22.5	34.6	32.8	36.7	21.8	20.2	23.5	78.2	76.5	79.8	23.5	17.3	26.7	17.2	9.4	23.2
22	Region 19	11.5	8.8	14.3	10.7	9.3	11.7	21.1	19.7	22.8	35.4	32.1	39.0	21.3	19.4	23.3	78.7	76.7	80.6	27.2	19.4	33.9	19.2	12.2	25.2
21	Region 20	12.5	10.5	14.7	11.1	10.0	12.3	21.5	20.5	22.7	33.8	30.7	37.7	21.0	18.9	22.5	79.0	77.5	81.1	25.2	-1.5	31.7	17.3	-14.6	27.2
6	Region 21	10.2	9.6	10.8	10.1	9.8	10.5	22.9	22.2	23.4	37.3	36.8	37.9	19.5	18.8	20.5	80.5	79.5	81.2	23.6	21.5	25.7	16.2	13.0	20.2
12	Region 22	11.5	9.1	14.1	10.7	9.5	11.6	20.9	19.6	22.3	35.5	31.8	38.7	21.5	19.4	23.6	78.5	76.4	80.6	25.9	22.3	30.2	18.3	13.7	21.1
5	Region 23	11.9	10.1	13.2	10.6	9.8	11.3	22.3	21.2	23.3	34.3	31.7	36.6	20.9	18.9	22.6	79.1	77.4	81.1	26.0	22.5	28.5	18.7	16.3	22.6
10	Region 24	11.0	10.1	12.5	10.5	10.1	10.8	22.1	19.8	23.3	35.4	34.2	38.4	21.1	19.4	23.0	78.9	77.0	80.6	26.3	21.7	28.9	19.6	16.4	22.7
5	Region 25	12.5	12.0	13.4	10.8	10.6	11.1	21.4	20.3	21.9	31.9	27.9	34.7	23.5	20.8	27.7	76.5	72.3	79.2	28.6	26.2	32.3	19.2	16.8	21.5
15	Region 26	12.7	8.3	17.0	10.9	9.5	12.2	20.9	18.6	22.2	33.1	27.3	38.2	22.5	19.2	28.2	77.5	71.8	80.8	25.5	19.6	28.8	16.4	11.5	19.5
3	Region 27	11.8	10.2	12.9	11.0	10.5	11.4	22.2	21.8	22.8	33.8	31.9	36.8	21.2	19.7	22.3	78.8	77.7	80.3	26.7	24.8	28.3	17.3	15.0	20.9
15	Region 28	12.2	9.6	14.8	10.7	10.2	11.4	22.7	21.6	24.2	33.4	30.3	37.5	21.0	19.5	23.0	79.0	77.0	80.5	27.0	20.1	34.1	17.7	10.5	22.0
16	Region 29	11.6	9.0	14.2	10.6	9.8	11.5	22.3	20.6	23.3	34.7	31.1	37.6	20.9	17.8	23.2	79.1	76.8	82.2	26.1	22.0	29.8	16.0	11.5	21.4
31	Region 30	13.0	10.9	15.2	11.0	10.1	12.1	22.3	21.5	23.5	31.9	28.9	35.0	21.9	19.2	24.0	78.1	76.0	80.8	27.3	14.6	34.4	17.3	2.0	23.0
15	Region 31	12.4	10.2	15.0	11.1	10.4	11.9	22.0	20.7	24.0	32.2	29.6	35.9	22.3	20.0	25.6	77.7	74.4	80.0	23.2	2.4	30.6	12.7	-9.3	22.2
28	Region 32	12.4	10.2	14.5	10.9	10.0	12.2	22.6	21.8	24.0	32.7	29.5	36.5	21.5	17.8	23.2	78.5	76.8	82.2	27.6	20.1	33.4	19.2	14.3	23.4
35	Region 33	13.3	11.0	15.6	10.9	10.0	12.0	22.0	20.6	23.4	31.8	28.6	35.9	22.0	19.5	23.8	78.0	76.2	80.5	29.3	12.7	36.1	19.6	-0.8	28.6
30	Region 34	12.0	8.9	14.2	10.9	9.7	12.2	21.0	19.6	23.7	33.9	30.3	36.4	22.1	19.8	24.4	77.9	75.6	80.2	29.1	20.4	38.2	19.7	15.3	25.8
27	Region 35	14.0	10.7	19.3	11.0	9.7	12.1	22.3	19.4	26.5	32.0	28.5	35.8	20.7	13.6	23.5	79.3	76.5	86.4	27.2	8.7	33.5	17.4	-4.0	23.4
32	Region 36	11.6	10.9	12.6	10.4	8.8	11.8	21.5	20.3	22.6	34.2	32.1	36.2	22.3	19.1	24.8	77.7	75.2	80.9	24.8	20.0	31.2	16.4	6.9	24.7
415	**Ave. white**	**12.1**			**10.8**			**21.7**			**33.9**			**21.6**			**78.4**			**26.1**			**17.5**		
	Min. white		**8.3**			**6.8**			**18.6**			**27.3**			**13.6**			**71.8**			**-1.5**			**-14.6**	
	Max. white			**19.3**			**12.3**			**26.5**			**39.1**			**28.2**			**86.4**			**38.2**			**28.6**

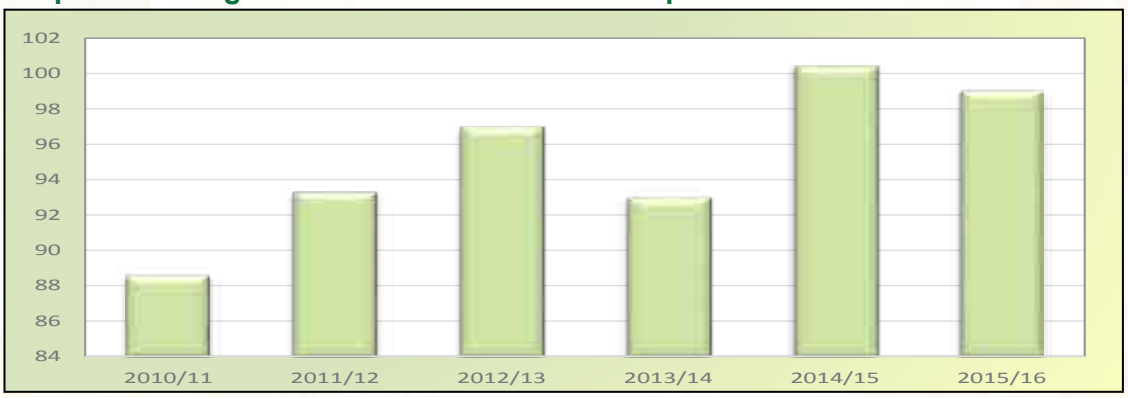
Graph 42: Roff Mill Total Extraction percentage over the past six seasons



Graph 43: Whiteness index of white maize over the past six seasons (Sifted 87:13)



Graph 44: Milling index of white maize over the past six seasons



Graph 45: Milling index of yellow maize over the past six seasons

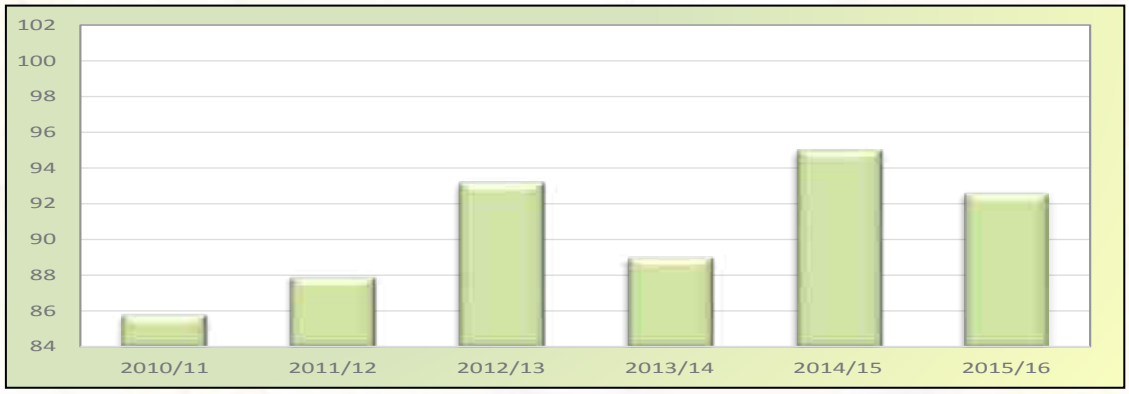


TABLE 18: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2015/2016)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1										
-	Region 3	-	-	-	-	-	-	-	-	-
-	Region 8	-	-	-	-	-	-	-	-	-
-	Region 10	-	-	-	-	-	-	-	-	-
2	Region 11	3.9	3.9	3.9	9.3	9.3	9.3	74.2	73.9	74.4
8	Region 12	4.4	4.3	4.5	10.0	8.9	11.1	72.7	71.1	73.6
12	Region 13	4.3	3.9	4.6	9.9	8.5	12.0	72.6	70.4	75.4
18	Region 14	4.2	4.0	4.4	10.2	9.4	10.8	72.2	70.8	74.2
16	Region 17	4.2	3.8	4.5	10.3	9.7	11.3	72.3	70.4	73.9
4	Region 18	4.2	4.0	4.4	10.1	9.6	10.8	72.1	71.4	72.9
5	Region 19	4.2	3.9	4.6	9.5	8.7	10.3	73.4	71.6	74.9
9	Region 20	4.1	3.9	4.3	9.5	8.7	10.2	73.0	72.1	74.4
4	Region 21	4.2	4.1	4.3	10.5	10.1	10.9	71.7	71.4	72.3
5	Region 22	4.2	3.9	4.6	9.5	9.1	9.9	73.6	72.2	74.6
4	Region 23	4.1	4.0	4.2	10.0	9.4	10.4	72.5	71.7	73.3
8	Region 24	4.2	3.9	4.5	9.9	9.7	10.4	72.2	71.3	72.8
4	Region 25	4.2	4.0	4.5	9.8	9.3	10.5	72.3	70.7	72.8
9	Region 26	4.1	3.9	4.4	9.8	8.6	11.0	73.1	71.8	73.6
1	Region 27	3.9	-	-	10.6	-	-	71.8	-	-
11	Region 28	4.1	3.8	4.4	9.7	8.2	11.1	72.6	71.1	74.8
16	Region 29	4.1	3.8	4.5	9.8	8.1	11.2	72.5	71.1	75.1
28	Region 30	3.9	3.7	4.5	9.3	8.3	10.7	72.9	71.0	74.7
9	Region 31	4.1	3.7	4.5	9.3	8.2	10.2	73.1	71.7	74.7
28	Region 32	4.1	3.7	4.8	9.6	8.4	10.8	72.5	70.6	74.8
29	Region 33	4.1	3.6	4.8	9.4	8.4	10.6	72.8	71.0	74.6
29	Region 34	4.1	3.8	4.5	9.6	8.6	10.8	72.6	71.4	75.2
19	Region 35	4.1	3.8	4.6	9.1	7.9	10.7	73.4	69.8	76.3
22	Region 36	4.2	3.9	4.6	9.4	8.7	10.5	72.3	70.9	73.4
300	**Ave. WM1**	**4.1**			**9.7**			**72.7**		
	Min. WM1		**3.6**			**7.9**			**69.8**	
	Max. WM1			**4.8**			**12.0**			**76.3**

TABLE 18: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM1										
1	Region 3	3.8	-	-	8.2	-	-	74.0	-	-
6	Region 8	4.2	4.0	4.3	8.9	8.5	9.4	72.6	72.0	73.1
23	Region 10	3.7	3.4	4.0	8.6	7.8	9.9	73.4	72.0	74.9
19	Region 11	3.6	3.5	3.8	9.1	8.2	9.8	73.2	71.7	74.3
3	Region 12	4.0	3.9	4.1	10.5	10.1	10.9	71.9	71.8	71.9
1	Region 13	4.2	-	-	10.1	-	-	71.4	-	-
3	Region 14	4.1	3.9	4.3	10.9	10.3	11.6	71.5	70.6	72.4
3	Region 17	4.2	4.0	4.3	11.1	10.8	11.2	70.8	70.7	70.9
4	Region 18	3.9	3.7	4.1	9.9	9.2	11.3	71.9	70.8	72.8
4	Region 19	4.2	4.0	4.4	10.2	8.9	11.4	71.6	70.4	73.1
7	Region 20	4.0	3.6	4.3	9.7	9.0	10.1	72.4	71.5	73.7
2	Region 21	4.0	3.8	4.3	10.7	10.4	10.9	71.1	70.7	71.5
2	Region 22	3.9	3.9	3.9	11.1	10.5	11.6	71.1	70.9	71.4
3	Region 23	3.9	3.8	4.1	10.4	9.5	11.1	72.1	71.1	73.2
1	Region 24	3.9	-	-	9.0	-	-	72.9	-	-
10	Region 25	4.0	3.7	4.5	10.3	9.3	11.2	71.7	70.7	72.7
11	Region 26	4.1	3.7	5.1	9.9	8.7	11.0	71.6	70.2	72.8
2	Region 27	4.1	4.0	4.1	10.8	10.4	11.2	71.0	70.3	71.6
27	Region 28	4.1	3.5	4.6	10.2	8.9	11.0	71.5	70.2	72.5
42	Region 29	4.1	3.7	4.6	9.8	9.0	10.4	72.0	70.8	73.1
53	Region 30	4.1	3.4	4.5	9.6	8.8	11.2	72.3	71.1	74.6
31	Region 31	4.0	3.6	4.5	9.8	8.3	11.0	72.1	70.6	74.6
37	Region 32	4.0	3.5	4.3	9.6	8.6	11.0	72.6	71.1	74.5
28	Region 33	4.0	3.5	4.5	9.7	8.5	10.6	72.1	70.5	74.4
29	Region 34	4.1	3.8	4.5	9.8	8.5	10.5	72.1	71.0	74.8
13	Region 35	3.9	3.7	4.2	8.9	7.7	10.6	73.6	72.2	74.5
30	Region 36	3.9	3.7	4.5	9.6	8.3	10.8	72.6	70.9	74.0
395	**Ave. YM1**	**4.0**			**9.7**			**72.3**		
	Min. YM1		**3.4**			**7.7**			**70.2**	
	Max .YM1			**5.1**			**11.6**			**74.9**

TABLE 18: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2										
-	Region 8	-	-	-	-	-	-	-	-	-
-	Region 10	-	-	-	-	-	-	-	-	-
-	Region 11	-	-	-	-	-	-	-	-	-
3	Region 12	4.3	4.3	4.3	10.8	9.7	11.5	71.2	70.5	72.5
10	Region 13	4.4	3.8	4.9	10.2	8.6	11.4	72.2	70.4	74.6
3	Region 14	4.3	4.2	4.4	11.1	10.5	11.5	71.1	70.7	71.7
2	Region 17	4.1	4.0	4.3	10.3	10.2	10.4	71.9	71.7	72.1
3	Region 18	4.1	4.1	4.1	10.2	10.0	10.3	72.3	72.1	72.7
12	Region 19	4.3	3.7	5.2	10.5	8.9	11.3	72.0	70.7	74.6
8	Region 20	4.1	3.9	4.4	10.0	9.1	10.6	72.1	71.2	72.9
1	Region 21	4.3	-	-	11.0	-	-	70.9	-	-
3	Region 22	4.2	4.1	4.4	9.9	9.7	10.1	73.1	72.9	73.6
1	Region 23	4.1	-	-	10.7	-	-	71.7	-	-
2	Region 24	4.0	3.9	4.1	10.2	9.7	10.6	72.5	72.4	72.7
1	Region 25	4.0	-	-	9.8	-	-	71.9	-	-
6	Region 26	4.2	3.9	4.4	9.9	9.4	10.7	72.5	70.6	73.7
2	Region 27	4.3	4.2	4.3	9.1	8.7	9.6	73.2	72.5	74.0
3	Region 28	4.0	3.8	4.3	9.6	8.3	10.6	72.7	70.9	74.1
-	Region 29	-	-	-	-	-	-	-	-	-
2	Region 30	3.9	3.9	3.9	9.0	8.1	9.9	73.3	71.8	74.8
3	Region 31	4.0	3.7	4.3	10.4	8.2	12.2	72.6	70.2	75.1
-	Region 32	-	-	-	-	-	-	-	-	-
5	Region 33	3.9	3.8	4.0	8.7	7.8	9.3	73.8	73.2	74.9
1	Region 34	4.0	-	-	9.5	-	-	72.4	-	-
5	Region 35	4.1	3.9	4.3	9.2	8.5	9.9	73.4	71.9	74.8
8	Region 36	4.3	3.8	4.6	9.3	8.9	10.5	72.8	72.2	73.5
84	**Ave. WM2**	**4.2**			**9.9**			**72.4**		
	Min. WM2		**3.7**			**7.8**			**70.2**	
	Max. WM2			**5.2**			**12.2**			**75.1**

TABLE 18: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2										
4	Region 8	4.2	3.9	4.5	9.2	9.0	9.6	72.7	72.0	73.4
3	Region 10	3.9	3.7	4.0	8.5	8.4	8.7	73.9	73.6	74.6
4	Region 11	3.6	3.5	3.6	9.4	9.1	9.8	72.9	72.5	73.3
2	Region 12	4.0	4.0	4.0	11.0	10.5	11.4	70.8	70.7	71.0
7	Region 13	4.0	3.6	4.2	11.1	10.2	12.6	71.2	70.0	71.8
-	Region 14	-	-	-	-	-	-	-	-	-
2	Region 17	4.2	4.2	4.2	10.0	9.6	10.3	71.9	71.2	72.7
3	Region 18	3.9	3.7	4.1	10.0	9.3	10.4	71.7	71.0	72.6
7	Region 19	3.9	3.5	4.2	9.9	8.9	12.0	72.3	71.0	73.1
12	Region 20	4.0	3.6	4.2	9.8	8.7	10.7	72.1	70.8	74.6
3	Region 21	4.3	3.8	4.6	10.1	9.9	10.5	71.1	70.5	71.7
2	Region 22	4.1	4.0	4.2	11.3	10.8	11.8	70.6	70.4	70.8
1	Region 23	4.0	-	-	10.6	-	-	71.6	-	-
4	Region 24	3.9	3.7	4.1	9.4	7.8	10.6	72.5	71.2	74.2
3	Region 25	3.9	3.8	4.0	10.7	10.0	11.3	71.4	70.8	72.2
3	Region 26	3.8	3.8	3.9	10.8	9.6	12.2	71.0	70.0	71.6
2	Region 27	4.2	3.8	4.6	10.7	10.0	11.3	70.8	70.2	71.5
5	Region 28	3.9	3.7	4.2	9.9	9.3	10.5	72.0	71.5	72.4
1	Region 29	3.7	-	-	9.7	-	-	73.1	-	-
5	Region 30	3.9	3.6	4.0	10.1	9.6	10.6	72.4	71.6	72.8
5	Region 31	3.6	3.5	3.9	9.9	9.0	11.1	72.9	72.1	73.8
6	Region 32	4.1	3.8	4.3	9.2	7.9	10.5	72.5	71.6	73.1
3	Region 33	3.8	3.5	4.1	10.2	10.0	10.5	71.5	70.6	72.1
2	Region 34	4.3	4.1	4.5	9.4	9.0	9.9	71.8	71.4	72.2
2	Region 35	3.8	3.7	3.9	8.8	8.7	8.9	74.2	74.1	74.3
6	Region 36	4.0	3.6	4.7	9.4	8.6	10.2	72.7	71.9	73.8
97	**Ave. YM2**	**3.9**			**9.9**			**72.1**		
	Min. YM2		**3.5**			**7.8**			**70.0**	
	Max .YM2			**4.7**			**12.6**			**74.6**

TABLE 18: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3										
-	Region 11	-	-	-	-	-	-	-	-	-
4	Region 13	4.1	3.9	4.3	9.6	8.6	11.7	73.2	70.1	74.8
-	Region 17	-	-	-	-	-	-	-	-	-
2	Region 18	4.2	4.1	4.3	9.9	9.7	10.1	72.0	71.3	72.8
4	Region 19	4.2	3.9	4.5	9.9	9.3	10.6	72.4	71.3	73.2
3	Region 20	4.2	4.0	4.4	9.4	8.8	10.0	73.8	72.7	74.5
1	Region 21	4.2	-	-	11.3	-	-	70.6	-	-
4	Region 22	4.1	4.0	4.2	11.1	10.8	11.4	71.0	70.3	71.5
1	Region 28	4.2	-	-	9.2	-	-	73.5	-	-
1	Region 30	4.5	-	-	7.5	-	-	74.8	-	-
2	Region 31	4.3	4.2	4.4	10.4	10.3	10.5	71.8	71.3	72.3
-	Region 32	-	-	-	-	-	-	-	-	-
1	Region 33	4.0	-	-	10.3	-	-	71.4	-	-
2	Region 35	4.4	4.3	4.6	9.4	9.0	9.9	72.8	72.7	72.9
2	Region 36	4.1	4.1	4.2	9.5	9.2	9.8	72.3	71.8	72.7
27	**Ave. WM3**	**4.2**			**9.9**			**72.4**		
	Min. WM3		**3.9**			**7.5**			**70.1**	
	Max. WM3			**4.6**			**11.7**			**74.8**

TABLE 18: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3										
1	Region 11	3.9	-	-	9.3	-	-	73.6	-	-
-	Region 13	-	-	-	-	-	-	-	-	-
1	Region 17	3.7	-	-	11.4	-	-	71.1	-	-
2	Region 18	3.8	3.6	4.0	11.4	10.4	12.5	71.8	71.4	72.2
1	Region 19	3.3	-	-	11.8	-	-	72.6	-	-
-	Region 20	-	-	-	-	-	-	-	-	-
-	Region 21	-	-	-	-	-	-	-	-	-
-	Region 22	-	-	-	-	-	-	-	-	-
-	Region 28	-	-	-	-	-	-	-	-	-
-	Region 30	-	-	-	-	-	-	-	-	-
1	Region 31	3.7	-	-	11.2	-	-	71.9	-	-
1	Region 32	4.1	-	-	8.1	-	-	73.2	-	-
-	Region 33	-	-	-	-	-	-	-	-	-
1	Region 35	3.9	-	-	8.0	-	-	75.3	-	-
2	Region 36	3.9	3.8	3.9	9.8	9.8	9.8	72.9	72.8	73.1
10	**Ave. YM3**	**3.8**			**10.2**			**72.7**		
	Min. YM3		**3.3**			**8.0**			**71.1**	
	Max .YM3			**4.1**			**12.5**			**75.3**

TABLE 18: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM										
1	Region 19	3.5	-	-	10.9	-	-	72.8	-	-
1	Region 20	4.1	-	-	8.9	-	-	73.1	-	-
-	Region 30	-	-	-	-	-	-	-	-	-
1	Region 31	3.9	-	-	9.6	-	-	72.7	-	-
1	Region 35	4.3			8.8			73.1		
	Region 36	-	-	-		-	-		-	-
4	**Ave. COM**	**3.9**			**9.5**			**72.9**		
	Min. COM		**3.5**			**8.8**			**72.7**	
	Max. COM			**4.3**			**10.9**			**73.1**
415	**Ave. White**	**4.1**			**9.7**			**72.6**		
	Min. White		**3.5**			**7.5**			**69.8**	
	Max. White			**5.2**			**12.2**			**76.3**
920	**Ave. Maize**	**4.1**			**9.7**			**72.4**		
	Min. Maize		**3.3**			**7.5**			**69.8**	
	Max. Maize			**5.2**			**12.6**			**76.3**

TABLE 18: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM										
-	Region 19	-	-	-	-	-	-	-	-	-
1	Region 20	3.8	-	-	8.8	-	-	73.5	-	-
1	Region 30	3.7	-	-	10.0	-	-	72.9	-	-
-	Region 19	-	-	-	-	-	-	-	-	-
-	Region 21	-	-	-	-	-	-	-	-	-
1	Region 36	3.8	-	-	9.4	-	-	72.9	-	-
3	**Ave. COM**	**3.8**			**9.4**			**73.1**		
	Min. COM		**3.7**			**8.8**			**72.9**	
	Max. COM			**3.8**			**10.0**			**73.5**
505	**Min. Yellow**	**4.0**			**9.7**			**72.3**		
	Min. Yellow		**3.3**			**7.7**			**70.0**	
	Max. Yellow			**5.1**			**12.6**			**75.3**
920	**Ave. Maize**	**4.1**			**9.7**			**72.4**		
	Min .Maize		**3.3**			**7.5**			**69.8**	
	Max. Maize			**5.2**			**12.6**			**76.3**

TABLE 19: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2015/2016)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
	WHITE									
2	Region 11	3.9	3.9	3.9	9.3	9.3	9.3	74.2	73.9	74.4
11	Region 12	4.4	4.3	4.5	10.3	8.9	11.5	72.3	70.5	73.6
26	Region 13	4.3	3.8	4.9	10.0	8.5	12.0	72.5	70.1	75.4
21	Region 14	4.2	4.0	4.4	10.3	9.4	11.5	72.0	70.7	74.2
18	Region 17	4.2	3.8	4.5	10.3	9.7	11.3	72.3	70.4	73.9
9	Region 18	4.2	4.0	4.4	10.1	9.6	10.8	72.2	71.3	72.9
22	Region 19	4.3	3.5	5.2	10.2	8.7	11.3	72.4	70.7	74.9
21	Region 20	4.1	3.9	4.4	9.7	8.7	10.6	72.8	71.2	74.5
6	Region 21	4.2	4.1	4.3	10.7	10.1	11.3	71.4	70.6	72.3
12	Region 22	4.2	3.9	4.6	10.1	9.1	11.4	72.6	70.3	74.6
5	Region 23	4.1	4.0	4.2	10.1	9.4	10.7	72.4	71.7	73.3
10	Region 24	4.2	3.9	4.5	10.0	9.7	10.6	72.3	71.3	72.8
5	Region 25	4.2	4.0	4.5	9.8	9.3	10.5	72.2	70.7	72.8
15	Region 26	4.2	3.9	4.4	9.8	8.6	11.0	72.9	70.6	73.7
3	Region 27	4.2	3.9	4.3	9.6	8.7	10.6	72.8	71.8	74.0
15	Region 28	4.1	3.8	4.4	9.7	8.2	11.1	72.7	70.9	74.8
16	Region 29	4.1	3.8	4.5	9.8	8.1	11.2	72.5	71.1	75.1
31	Region 30	4.0	3.7	4.5	9.3	7.5	10.7	73.0	71.0	74.8
15	Region 31	4.1	3.7	4.5	9.7	8.2	12.2	72.8	70.2	75.1
28	Region 32	4.1	3.7	4.8	9.6	8.4	10.8	72.5	70.6	74.8
35	Region 33	4.0	3.6	4.8	9.3	7.8	10.6	72.9	71.0	74.9
30	Region 34	4.1	3.8	4.5	9.6	8.6	10.8	72.6	71.4	75.2
27	Region 35	4.1	3.8	4.6	9.1	7.9	10.7	73.3	69.8	76.3
32	Region 36	4.2	3.8	4.6	9.4	8.7	10.5	72.4	70.9	73.5
415	**Ave. white**	**4.1**			**9.7**			**72.6**		
	Min. white		**3.5**			**7.5**			**69.8**	
	Max. white			**5.2**			**12.2**			**76.3**
	YELLOW									
1	Region 3	3.8	-	-	8.2	-	-	74.0	-	-
10	Region 8	4.2	3.9	4.5	9.0	8.5	9.6	72.7	72.0	73.4
26	Region 10	3.7	3.4	4.0	8.6	7.8	9.9	73.5	72.0	74.9
24	Region 11	3.6	3.5	3.9	9.1	8.2	9.8	73.2	71.7	74.3
5	Region 12	4.0	3.9	4.1	10.7	10.1	11.4	71.5	70.7	71.9
8	Region 13	4.0	3.6	4.2	11.0	10.1	12.6	71.3	70.0	71.8
3	Region 14	4.1	3.9	4.3	10.9	10.3	11.6	71.5	70.6	72.4
6	Region 17	4.1	3.7	4.3	10.7	9.6	11.4	71.3	70.7	72.7
9	Region 18	3.9	3.6	4.1	10.3	9.2	12.5	71.8	70.8	72.8
12	Region 19	4.0	3.3	4.4	10.2	8.9	12.0	72.1	70.4	73.1
20	Region 20	4.0	3.6	4.3	9.7	8.7	10.7	72.3	70.8	74.6
5	Region 21	4.2	3.8	4.6	10.3	9.9	10.9	71.1	70.5	71.7
4	Region 22	4.0	3.9	4.2	11.2	10.5	11.8	70.9	70.4	71.4
4	Region 23	3.9	3.8	4.1	10.5	9.5	11.1	71.9	71.1	73.2
5	Region 24	3.9	3.7	4.1	9.3	7.8	10.6	72.6	71.2	74.2
13	Region 25	4.0	3.7	4.5	10.4	9.3	11.3	71.6	70.7	72.7

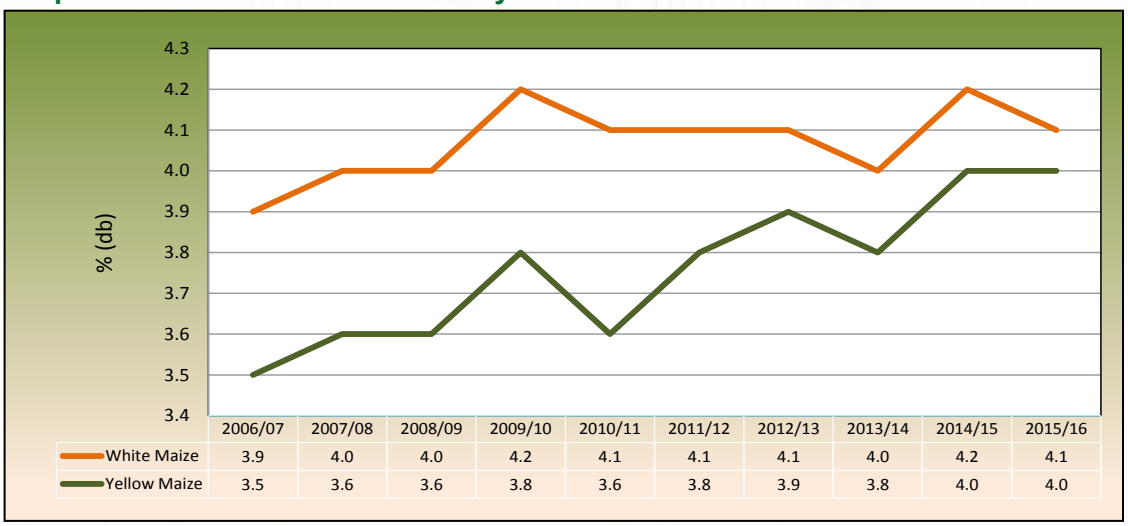
TABLE 19: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2015/2016) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
YELLOW										
14	Region 26	4.1	3.7	5.1	10.1	8.7	12.2	71.5	70.0	72.8
4	Region 27	4.1	3.8	4.6	10.7	10.0	11.3	70.9	70.2	71.6
32	Region 28	4.1	3.5	4.6	10.1	8.9	11.0	71.6	70.2	72.5
43	Region 29	4.1	3.7	4.6	9.8	9.0	10.4	72.0	70.8	73.1
59	Region 30	4.1	3.4	4.5	9.6	8.8	11.2	72.3	71.1	74.6
37	Region 31	4.0	3.5	4.5	9.8	8.3	11.2	72.2	70.6	74.6
44	Region 32	4.0	3.5	4.3	9.5	7.9	11.0	72.6	71.1	74.5
31	Region 33	4.0	3.5	4.5	9.8	8.5	10.6	72.1	70.5	74.4
31	Region 34	4.1	3.8	4.5	9.7	8.5	10.5	72.1	71.0	74.8
16	Region 35	3.9	3.7	4.2	8.8	7.7	10.6	73.7	72.2	75.3
39	Region 36	3.9	3.6	4.7	9.6	8.3	10.8	72.7	70.9	74.0
505	**Ave. yellow**	**4.0**			**9.7**			**72.3**		
	Min. yellow		**3.3**			**7.7**			**70.0**	
	Max. yellow			**5.1**			**12.6**			**75.3**
WHITE AND YELLOW										
1	Region 3	3.8	-	-	8.2	-	-	74.0	-	-
10	Region 8	4.2	3.9	4.5	9.0	8.5	9.6	72.7	72.0	73.4
26	Region 10	3.7	3.4	4.0	8.6	7.8	9.9	73.5	72.0	74.9
26	Region 11	3.7	3.5	3.9	9.2	8.2	9.8	73.2	71.7	74.4
16	Region 12	4.3	3.9	4.5	10.4	8.9	11.5	72.1	70.5	73.6
34	Region 13	4.2	3.6	4.9	10.2	8.5	12.6	72.2	70.0	75.4
24	Region 14	4.2	3.9	4.4	10.4	9.4	11.6	72.0	70.6	74.2
24	Region 17	4.2	3.7	4.5	10.4	9.6	11.4	72.0	70.4	73.9
18	Region 18	4.0	3.6	4.4	10.2	9.2	12.5	72.0	70.8	72.9
34	Region 19	4.2	3.3	5.2	10.2	8.7	12.0	72.3	70.4	74.9
41	Region 20	4.0	3.6	4.4	9.7	8.7	10.7	72.5	70.8	74.6
11	Region 21	4.2	3.8	4.6	10.5	9.9	11.3	71.3	70.5	72.3
16	Region 22	4.1	3.9	4.6	10.4	9.1	11.8	72.2	70.3	74.6
9	Region 23	4.0	3.8	4.2	10.3	9.4	11.1	72.2	71.1	73.3
15	Region 24	4.1	3.7	4.5	9.7	7.8	10.6	72.4	71.2	74.2
18	Region 25	4.0	3.7	4.5	10.2	9.3	11.3	71.8	70.7	72.8
29	Region 26	4.1	3.7	5.1	10.0	8.6	12.2	72.2	70.0	73.7
7	Region 27	4.1	3.8	4.6	10.3	8.7	11.3	71.7	70.2	74.0
47	Region 28	4.1	3.5	4.6	10.0	8.2	11.1	71.9	70.2	74.8
59	Region 29	4.1	3.7	4.6	9.8	8.1	11.2	72.2	70.8	75.1
90	Region 30	4.0	3.4	4.5	9.5	7.5	11.2	72.5	71.0	74.8
52	Region 31	4.0	3.5	4.5	9.8	8.2	12.2	72.4	70.2	75.1
72	Region 32	4.0	3.5	4.8	9.6	7.9	11.0	72.5	70.6	74.8
66	Region 33	4.0	3.5	4.8	9.5	7.8	10.6	72.5	70.5	74.9
61	Region 34	4.1	3.8	4.5	9.7	8.5	10.8	72.3	71.0	75.2
43	Region 35	4.0	3.7	4.6	9.0	7.7	10.7	73.5	69.8	76.3
71	Region 36	4.0	3.6	4.7	9.5	8.3	10.8	72.5	70.9	74.0
920	**Ave. white & yellow**	**4.1**			**9.7**			**72.4**		
	Min. white & yellow		**3.3**			**7.5**			**69.8**	
	Max. white & yellow			**5.2**			**12.6**			**76.3**

TABLE 20: NUTRITIONAL VALUES OF SOUTH AFRICAN WHITE AND YELLOW MAIZE 2006/2007 - 2015/2016

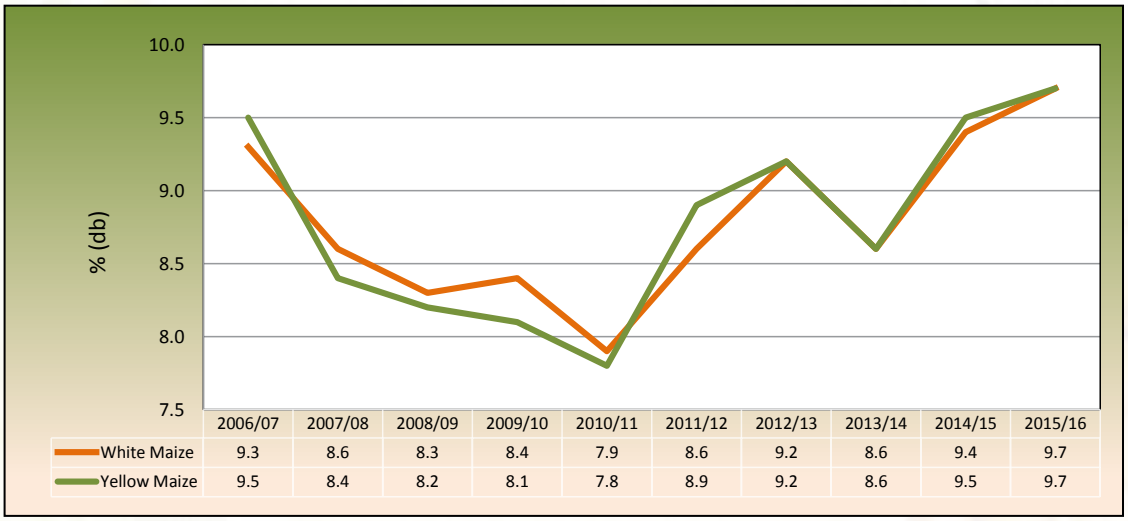
Season	Number of samples	Fat % (db)			Protein % (db)			Starch % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize										
2006/07	563	3.9	2.9	4.8	9.3	7.5	12.0	72.9	70.1	74.9
2007/08	483	4.0	3.2	4.7	8.6	6.6	10.9	71.9	69.9	74.0
2008/09	483	4.0	3.5	5.1	8.3	6.4	10.4	72.4	70.7	74.2
2009/10	458	4.2	3.5	5.8	8.4	6.6	10.0	72.6	70.6	74.6
2010/11	413	4.1	2.8	4.6	7.9	6.1	9.5	73.6	71.9	77.0
2011/12	577	4.1	3.3	4.7	8.6	6.3	11.2	72.6	70.6	74.3
2012/13	508	4.1	3.3	5.3	9.2	6.4	11.5	71.4	68.5	73.6
2013/14	451	4.0	3.4	5.0	8.6	6.7	10.1	72.9	70.9	75.1
2014/15	485	4.2	3.3	5.8	9.4	6.3	11.2	72.6	69.8	74.9
2015/16	415	4.1	3.5	5.2	9.7	7.5	12.2	72.6	69.8	76.3
Weighted Average		**4.1**			**8.8**			**72.5**		
Minimum			**2.8**			**6.1**			**68.5**	
Maximum				**5.8**			**12.2**			**77.0**
Yellow Maize										
2006/07	337	3.5	2.8	4.6	9.5	6.9	12.7	73.3	70.5	75.2
2007/08	417	3.6	2.9	4.8	8.4	6.9	10.4	72.3	70.0	75.0
2008/09	327	3.6	2.9	4.7	8.2	6.2	10.6	73.2	71.1	74.8
2009/10	342	3.8	3.3	4.7	8.1	6.5	10.1	73.4	71.0	75.4
2010/11	280	3.6	2.8	4.4	7.8	6.3	9.8	74.2	72.2	76.0
2011/12	423	3.8	3.0	4.6	8.9	7.0	11.3	73.0	71.0	75.0
2012/13	492	3.9	2.9	4.7	9.2	7.1	12.8	71.9	69.4	73.9
2013/14	479	3.8	3.0	4.8	8.6	6.0	11.3	73.1	70.8	75.7
2014/15	515	4.0	3.1	5.1	9.5	7.1	11.9	72.9	70.8	75.2
2015/16	505	4.0	3.3	5.1	9.7	7.7	12.6	72.3	70.0	75.3
Weighted Average		**3.8**			**8.9**			**72.9**		
Minimum			**2.8**			**6.0**			**69.4**	
Maximum				**5.1**			**12.8**			**76.0**
White and Yellow Maize										
2006/07	900	3.7	2.8	4.8	9.4	6.9	12.7	73.0	70.1	75.2
2007/08	900	3.8	2.9	4.8	8.5	6.6	10.9	72.1	69.9	75.0
2008/09	810	3.8	2.9	5.1	8.3	6.2	10.6	72.7	70.7	74.8
2009/10	800	4.0	3.3	5.8	8.3	6.5	10.1	72.9	70.6	75.4
2010/11	693	3.9	2.8	4.6	7.9	6.1	9.8	73.8	71.9	77.0
2011/12	1000	4.0	3.0	4.7	8.7	6.3	11.3	72.8	70.6	75.0
2012/13	1000	4.0	2.9	5.3	9.2	6.4	12.8	71.6	68.5	73.9
2013/14	930	3.9	3.0	5.0	8.6	6.0	11.3	73.0	70.8	75.7
2014/15	1000	4.1	3.1	5.8	9.4	6.3	11.9	72.8	69.8	75.2
2015/16	920	4.1	3.3	5.2	9.7	7.5	12.6	72.4	69.8	76.3
Weighted Average		**3.9**			**8.8**			**72.7**		
Minimum			**2.8**			**6.0**			**68.5**	
Maximum				**5.8**			**12.8**			**77.0**

Graph 46: Fat content of white and yellow maize over 10 seasons



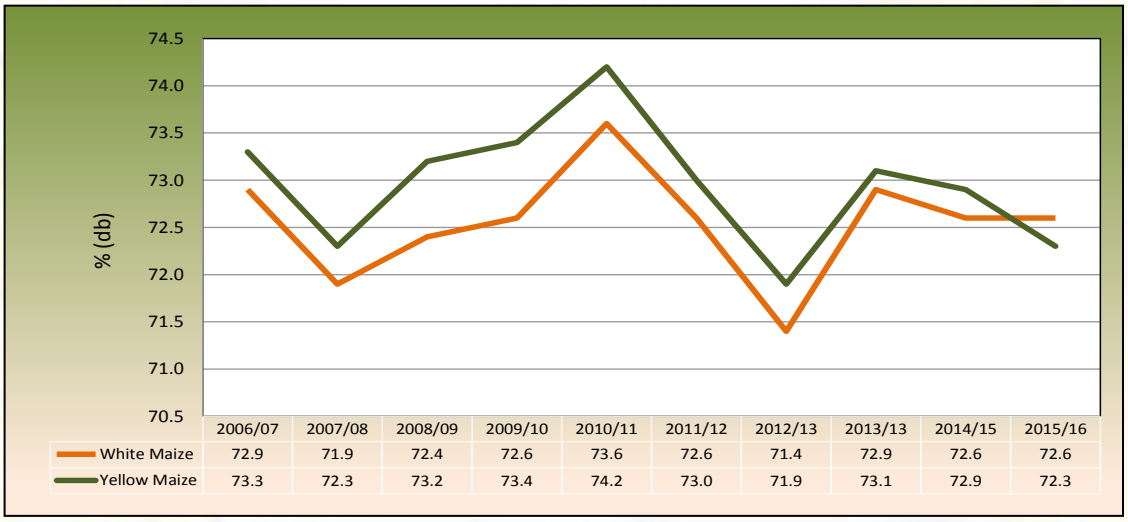
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	3.9	4.0	4.0	4.2	4.1	4.1	4.1	4.0	4.2	4.1
Yellow Maize	3.5	3.6	3.6	3.8	3.6	3.8	3.9	3.8	4.0	4.0

Graph 47: Protein content of white and yellow maize over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
White Maize	9.3	8.6	8.3	8.4	7.9	8.6	9.2	8.6	9.4	9.7
Yellow Maize	9.5	8.4	8.2	8.1	7.8	8.9	9.2	8.6	9.5	9.7

Graph 48: Starch content of white and yellow maize over 10 seasons



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/13	2014/15	2015/16
White Maize	72.9	71.9	72.4	72.6	73.6	72.6	71.4	72.9	72.6	72.6
Yellow Maize	73.3	72.3	73.2	73.4	74.2	73.0	71.9	73.1	72.9	72.3

TABLE 21: PRESENCE OF GENETICALLY MODIFIED MAIZE (2015/2016)

REGION	W/Y	Cry1Ab % (LOQ: 0.4%)	Cry2Ab % (LOQ: 0.5%)	CP4 EPSPS % (LOQ: 0.25%)	REGION	W/Y	Cry1Ab % (LOQ: 0.4%)	Cry2Ab % (LOQ: 0.5%)	CP4 EPSPS % (LOQ: 0.25%)	REGION	W/Y	Cry1Ab % (LOQ: 0.4%)	Cry2Ab % (LOQ: 0.5%)	CP4 EPSPS % (LOQ: 0.25%)
8	Y	>5.0	>5.0	>5.0	25	W	>5.0	<0.5	>5.0	32	Y	>5.0	>5.0	>5.0
10	Y	>5.0	>5.0	>5.0	25	Y	>5.0	1.4	>5.0	32	W	>5.0	>5.0	0.81
10	Y	1.1	<0.5	1.0	26	W	>5.0	>5.0	>5.0	32	Y	1.3	<0.5	>5.0
10	Y	>5.0	>5.0	>5.0	26	Y	>5.0	>5.0	>5.0	32	W	0.92	<0.5	1.2
11	Y	>5.0	<0.5	>5.0	26	Y	>5.0	>5.0	>5.0	32	Y	<0.4	<0.5	2.1
11	Y	>5.0	>5.0	>5.0	28	W	>5.0	>5.0	>5.0	32	Y	>5.0	>5.0	>5.0
11	Y	>5.0	<0.5	>5.0	28	W	>5.0	>5.0	>5.0	33	W	>5.0	>5.0	>5.0
12	W	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	33	Y	>5.0	0.76	>5.0
12	Y	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	33	Y	1.1	<0.5	>5.0
13	Y	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	33	W	>5.0	<0.5	>5.0
13	W	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	33	Y	>5.0	>5.0	>5.0
13	W	>5.0	1.1	>5.0	29	W	0.66	<0.5	0.27	33	W	>5.0	>5.0	>5.0
13	W	>5.0	1.1	>5.0	29	Y	1.8	0.57	1.5	33	W	>5.0	>5.0	0.25
14	W	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	34	Y	>5.0	>5.0	>5.0
14	W	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	34	Y	1.7	0.98	3.1
17	Y	>5.0	>5.0	>5.0	29	W	>5.0	4.0	3.6	34	Y	>5.0	>5.0	>5.0
17	W	>5.0	>5.0	>5.0	29	W	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
18	Y	>5.0	>5.0	>5.0	30	Y	>5.0	0.53	>5.0	34	Y	>5.0	>5.0	>5.0
18	W	>5.0	4.0	>5.0	30	W	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
19	W	>5.0	>5.0	1.1	30	Y	>5.0	>5.0	>5.0	34	W	>5.0	2.7	>5.0
19	Y	>5.0	>5.0	>5.0	30	W	2.9	0.57	>5.0	35	Y	>5.0	1.30	>5.0
19	Y	>5.0	1.0	>5.0	30	Y	>5.0	0.52	>5.0	35	W	>5.0	<0.5	>5.0
19	W	>5.0	>5.0	>5.0	30	Y	3.1	0.60	0.37	35	W	>5.0	<0.5	>5.0
20	W	>5.0	>5.0	>5.0	30	W	>5.0	>5.0	>5.0	35	W	>5.0	<0.5	>5.0
20	W	>5.0	>5.0	>5.0	30	Y	>5.0	>5.0	>5.0	35	Y	>5.0	>5.0	>5.0
20	Y	>5.0	>5.0	>5.0	30	W	<0.4	<0.5	0.82	36	W	>5.0	3.7	>5.0
20	Y	>5.0	>5.0	>5.0	31	Y	>5.0	1.1	>5.0	36	Y	>5.0	>5.0	>5.0
21	Y	>5.0	>5.0	>5.0	31	Y	>5.0	>5.0	>5.0	36	W	<0.4	<0.5	<0.25
21	W	>5.0	>5.0	>5.0	31	Y	<0.4	<0.5	0.40	36	W	1.1	<0.5	1.4
22	Y	>5.0	>5.0	>5.0	31	Y	>5.0	>5.0	>5.0	36	Y	>5.0	1.6	>5.0
22	W	>5.0	>5.0	>5.0	31	W	>5.0	<0.5	>5.0	36	Y	<0.4	<0.5	0.47
23	Y	>5.0	<0.5	>5.0	31	W	>5.0	>5.0	>5.0	36	Y	>5.0	>5.0	>5.0
24	W	>5.0	>5.0	>5.0	32	W	>5.0	<0.5	3.1					
24	Y	>5.0	1.4	>5.0	32	Y	<0.4	<0.5	0.43					

n	Season	% Samples positive for Cry1Ab	n	Season	% Samples positive for Cry2Ab	n	Season	% Samples positive for CP4 EPSPS
100	**2015/16**	**94**	**100**	**2015/16**	**78**	**100**	**2015/16**	**99**
100	2014/15	94	100	2014/15	81	100	2014/15	98
100	2013/14	96	100	2013/14	90	100	2013/14	94
100	2012/13	97	100	2012/13	73	100	2012/13	95
100	2011/12	97	100	2011/12	27	100	2011/12	93

LOQ: Limit of Quantification

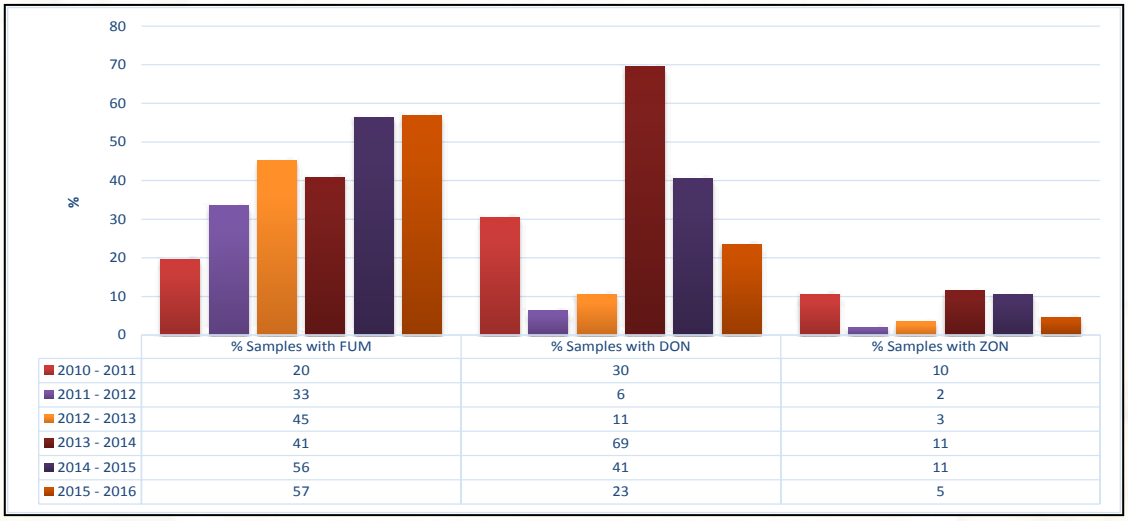
MYCOTOXINS

The annual maize crop quality surveys provide an ideal opportunity to evaluate the occurrence status of mycotoxins throughout all production regions in South Africa. Reliable analytical data is accumulated to establish a database to enable industry to comment on proposed legislative levels and to supply reliable data for targeted research projects to effectively manage the mycotoxin levels in maize.

A total number of 325 samples were analysed for mycotoxin residue levels in the 2010/2011 season. From the 2011/2012 season onwards to this, the 2015/2016 season, 350 samples were analysed annually. The samples were selected to represent all the production regions as well as both white and yellow maize proportionally.

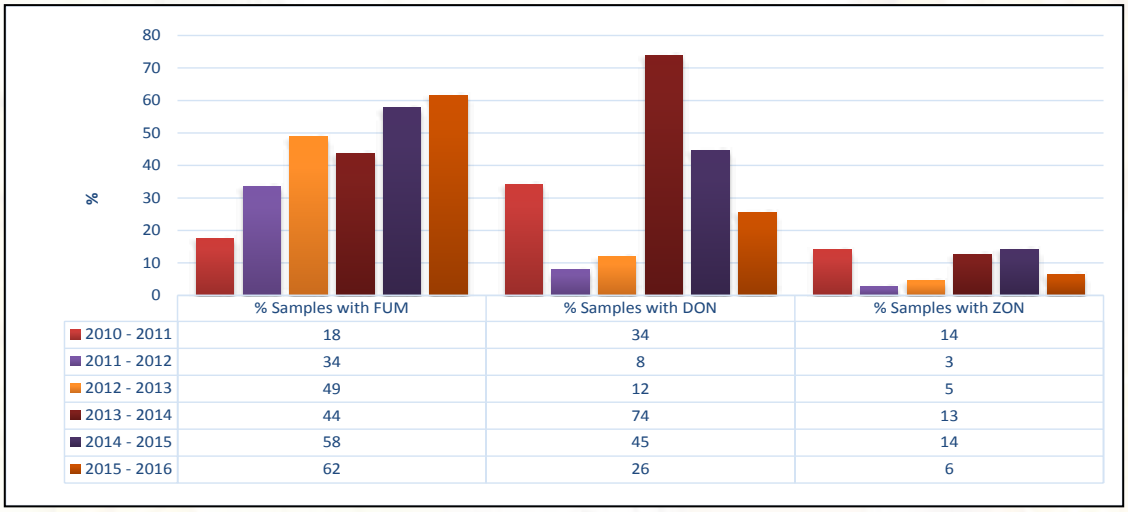
Graphs 49 to 51 provide a summary of the seasonal effect on the percentages white and yellow maize, white maize and yellow maize samples from the samples selected, that tested positive for Fumonisins (FUM), Deoxinyvalenol (DON) and Zearalenone (ZON).

Graph 49: Percentage white and yellow maize samples that tested positive for mycotoxins over six seasons



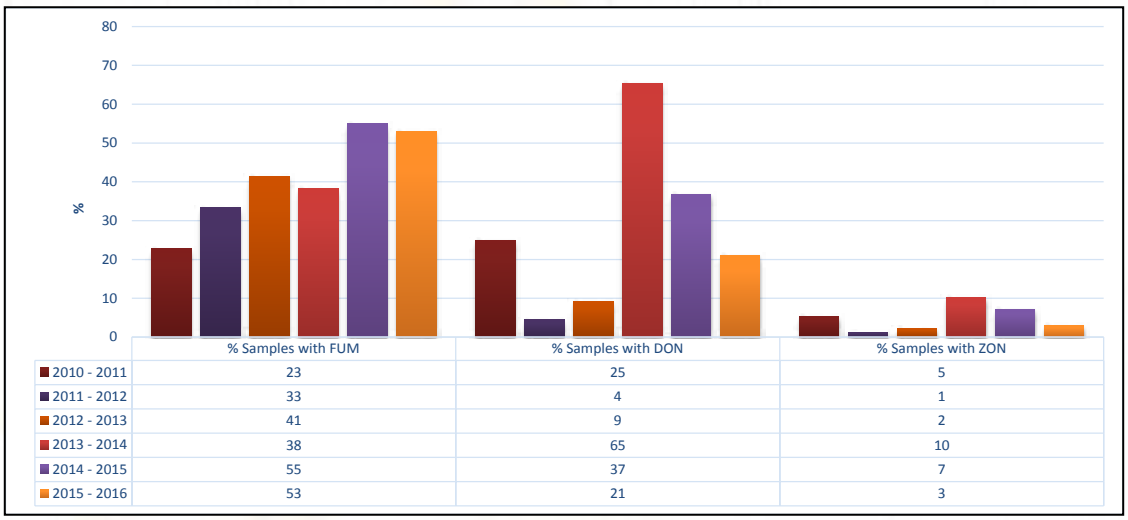
	% Samples with FUM	% Samples with DON	% Samples with ZON
2010 - 2011	20	30	10
2011 - 2012	33	6	2
2012 - 2013	45	11	3
2013 - 2014	41	69	11
2014 - 2015	56	41	11
2015 - 2016	57	23	5

Graph 50: Percentage white maize samples that tested positive for mycotoxins over six seasons



	% Samples with FUM	% Samples with DON	% Samples with ZON
2010 - 2011	18	34	14
2011 - 2012	34	8	3
2012 - 2013	49	12	5
2013 - 2014	44	74	13
2014 - 2015	58	45	14
2015 - 2016	62	26	6

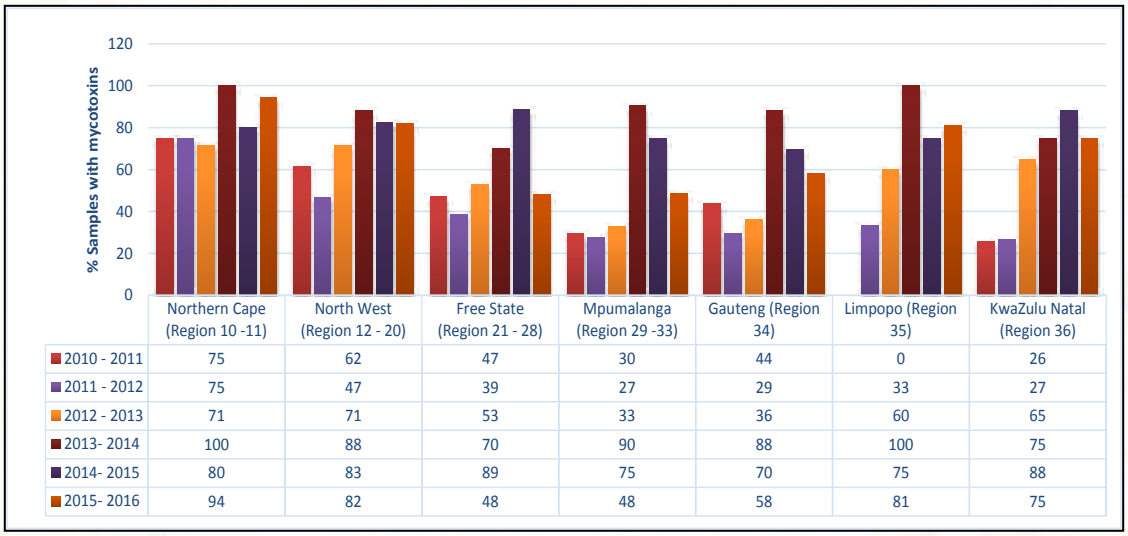
Graph 51: Percentage yellow maize samples that tested positive for mycotoxins over six seasons



	% Samples with FUM	% Samples with DON	% Samples with ZON
2010 - 2011	23	25	5
2011 - 2012	33	4	1
2012 - 2013	41	9	2
2013 - 2014	38	65	10
2014 - 2015	55	37	7
2015 - 2016	53	21	3

The percentage of samples that tested positive for mycotoxins from the samples selected per season in the different provinces, are provided in Graph 52. Three samples tested positive for Aflatoxin (Afla) residues in the 2014/2015 season. All three samples were white maize from regions in North West.

Graphs 52: Percentage of samples that tested positive for mycotoxins per province over six seasons



	Northern Cape (Region 10 -11)	North West (Region 12 - 20)	Free State (Region 21 - 28)	Mpumalanga (Region 29 -33)	Gauteng (Region 34)	Limpopo (Region 35)	KwaZulu Natal (Region 36)
2010 - 2011	75	62	47	30	44	0	26
2011 - 2012	75	47	39	27	29	33	27
2012 - 2013	71	71	53	33	36	60	65
2013- 2014	100	88	70	90	88	100	75
2014- 2015	80	83	89	75	70	75	88
2015- 2016	94	82	48	48	58	81	75

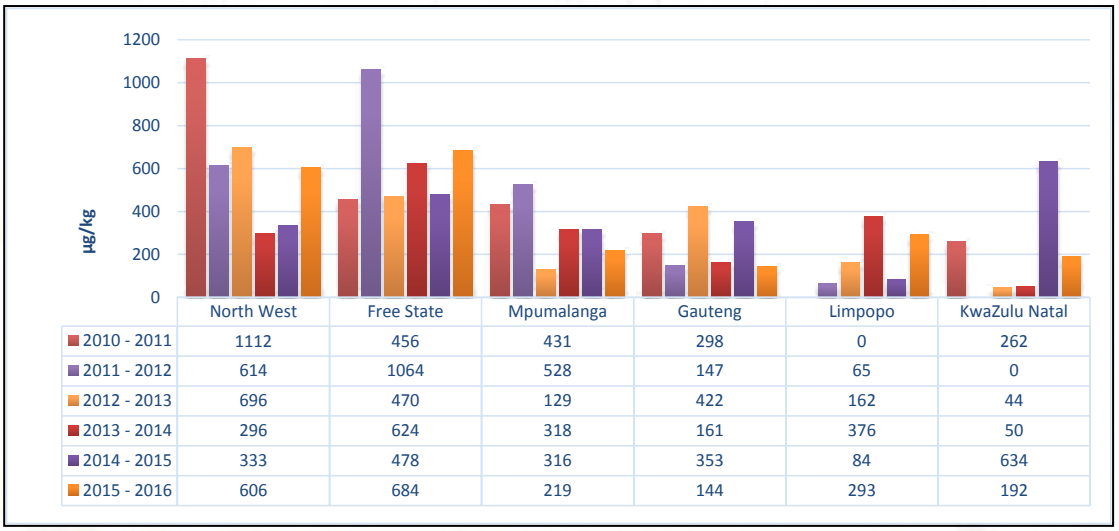
The annual BIOMIN World Mycotoxin Survey 2016 summarised the mycotoxin results of 16 511 agricultural commodity samples from 81 different countries analysed in 2016. The sixth monthly mycotoxin trends from January 2015 to December 2016 confirmed the influence of climate change patterns on the mycotoxin occurrence and levels.

Summaries of the regulated mycotoxins, aflatoxin, fumonisins, deoxynivalenol, ochratoxin A, zearalenone and T-2 toxin in the main commodities, finished feed, maize and cereals (including wheat, barley, oats and triticale) for Europe, Asia, Middle East, North America, South & Central America and Africa are included in this report.

In South & Central America, DON was present in 62% of the 715 maize samples with an average of 1 185 µg/kg of the positive samples and a maximum of 43 770 µg/kg ppb. 94% of the 1 117 maize samples from South & Central America was contaminated with FUM at an average level of 2 894 µg/kg. The highest FUM concentration in maize worldwide was detected in this region (171 920 µg/kg). The average FUM content in 56 maize sample from Africa was 1 872 µg/kg. 24% of the 2 483 maize samples from South & Central America contained aflatoxins, with an average of 8 µg/kg. In Africa, 14% of the 56 maize samples tested contained aflatoxins, with an average of 3 µg/kg and a maximum of 9 µg/kg.

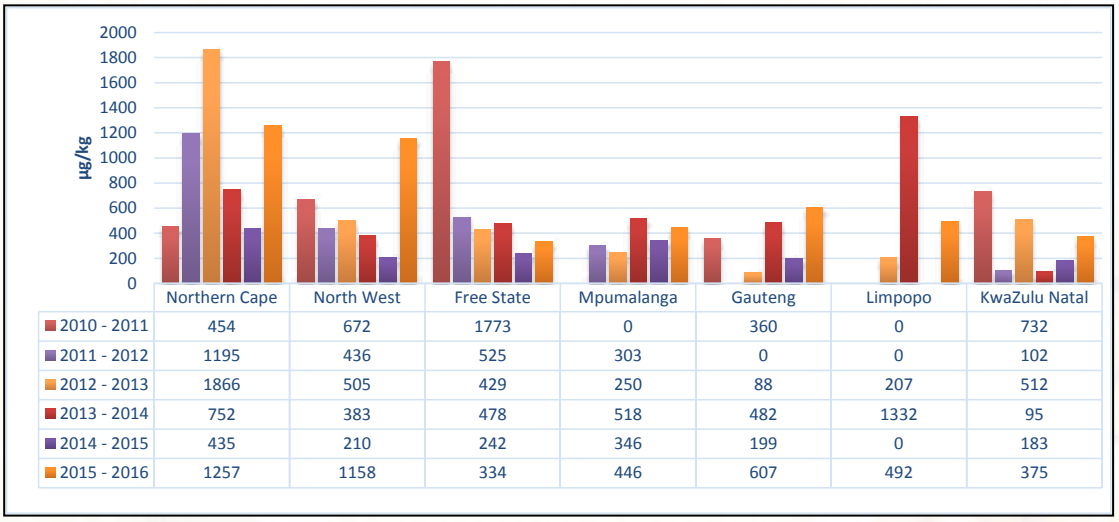
Locally, FUM and DON were found in samples from all the maize producing regions, except for Limpopo where no DON was found the past two seasons. Different patterns of occurrence are observed in different seasons. Mean concentration levels also differ over seasons. FUM tend to show higher mean concentrations on yellow maize compared to white maize from the same region. Please see Graphs 53 and 54.

Graph 53: Total Fumonisin mean concentration in white maize per province over six seasons



	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	1112	456	431	298	0	262
2011 - 2012	614	1064	528	147	65	0
2012 - 2013	696	470	129	422	162	44
2013 - 2014	296	624	318	161	376	50
2014 - 2015	333	478	316	353	84	634
2015 - 2016	606	684	219	144	293	192

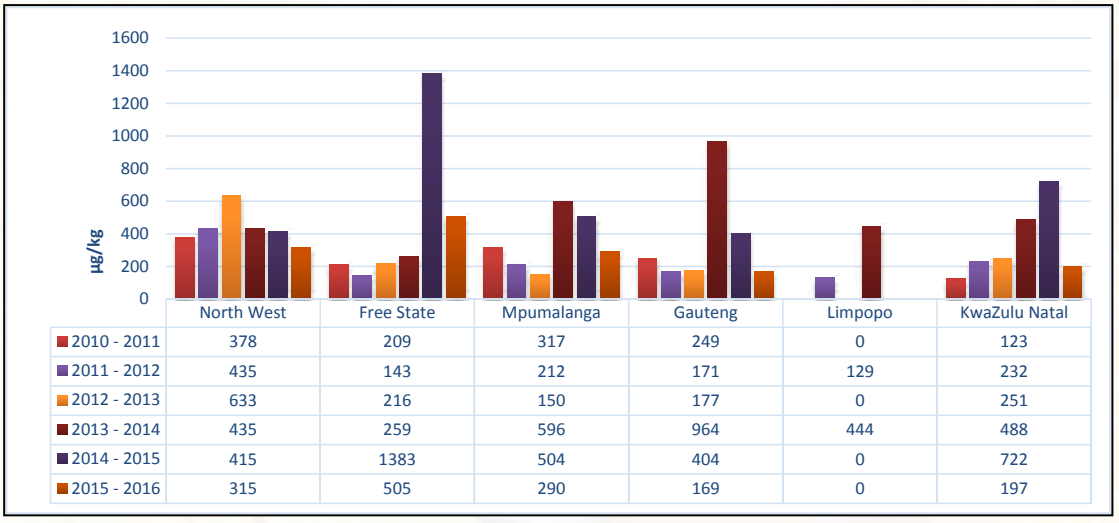
Graph 54: Total Fumonisin mean concentration in yellow maize per province over six seasons



	Northern Cape	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	454	672	1773	0	360	0	732
2011 - 2012	1195	436	525	303	0	0	102
2012 - 2013	1866	505	429	250	88	207	512
2013 - 2014	752	383	478	518	482	1332	95
2014 - 2015	435	210	242	346	199	0	183
2015 - 2016	1257	1158	334	446	607	492	375

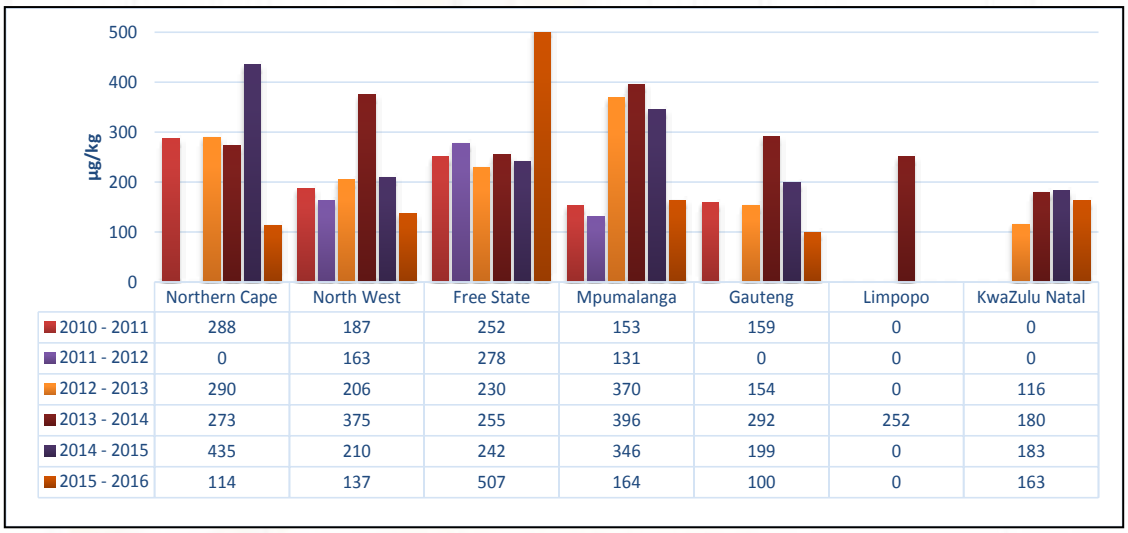
DON shows higher mean concentrations on white maize than yellow maize from the same region. Please see Graphs 55 and 56.

Graph 55: DON mean concentration in white maize per province over six seasons



	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	378	209	317	249	0	123
2011 - 2012	435	143	212	171	129	232
2012 - 2013	633	216	150	177	0	251
2013 - 2014	435	259	596	964	444	488
2014 - 2015	415	1383	504	404	0	722
2015 - 2016	315	505	290	169	0	197

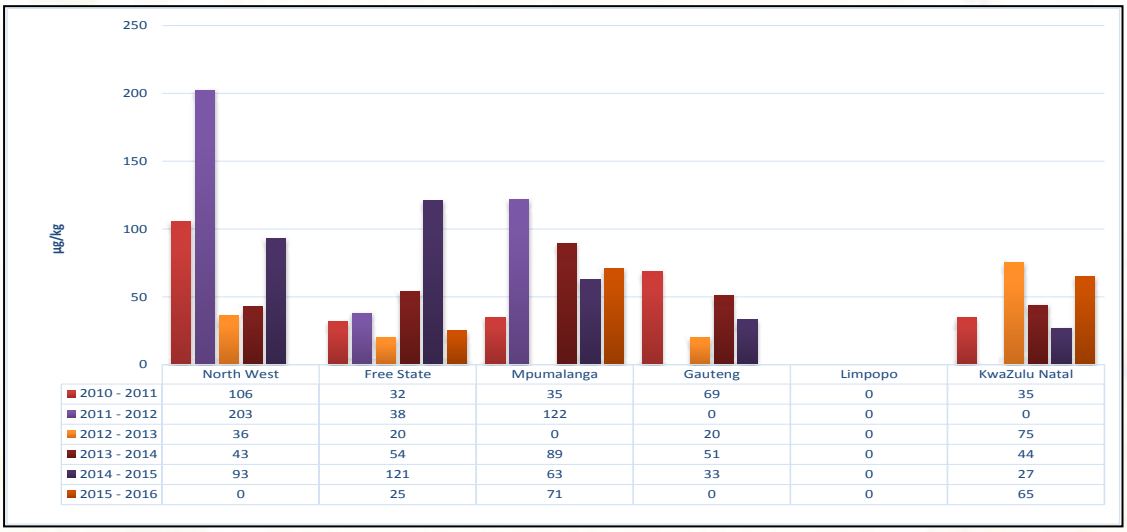
Graph 56: DON mean concentration in yellow maize per province over six seasons



	Northern Cape	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	288	187	252	153	159	0	0
2011 - 2012	0	163	278	131	0	0	0
2012 - 2013	290	206	230	370	154	0	116
2013 - 2014	273	375	255	396	292	252	180
2014 - 2015	435	210	242	346	199	0	183
2015 - 2016	114	137	507	164	100	0	163

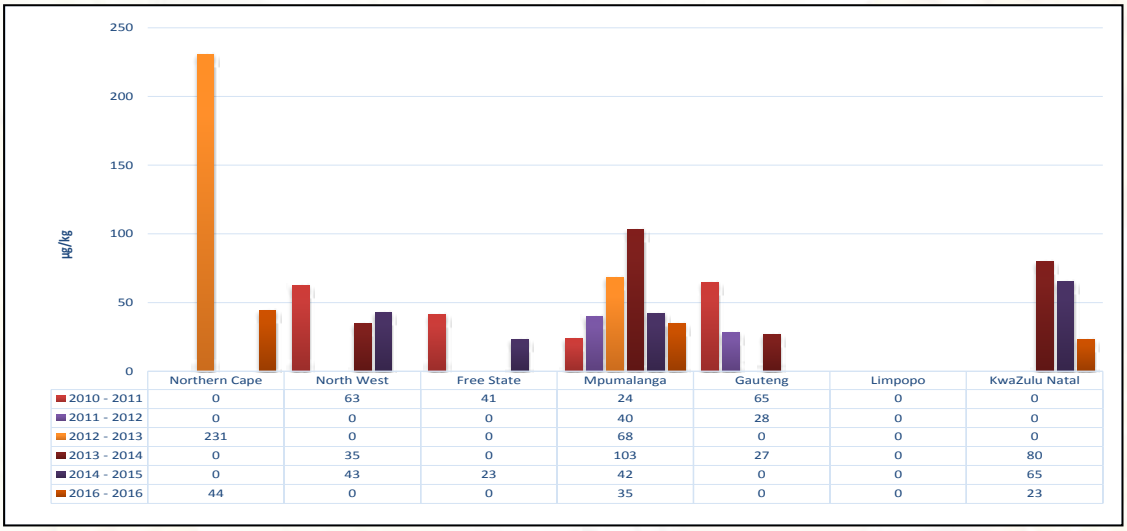
ZON mean concentrations tend to show better correlation between white and yellow maize from the same region, than FUM and DON. Please see Graphs 57 and 58.

Graph 57: ZON mean concentration in white maize per province over six seasons



	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	106	32	35	69	0	35
2011 - 2012	203	38	122	0	0	0
2012 - 2013	36	20	0	20	0	75
2013 - 2014	43	54	89	51	0	44
2014 - 2015	93	121	63	33	0	27
2015 - 2016	0	25	71	0	0	65

Graph 58: ZON mean concentration in yellow maize per province over six seasons



	Northern Cape	North West	Free State	Mpumalanga	Gauteng	Limpopo	KwaZulu Natal
2010 - 2011	0	63	41	24	65	0	0
2011 - 2012	0	0	0	40	28	0	0
2012 - 2013	231	0	0	68	0	0	0
2013 - 2014	0	35	0	103	27	0	80
2014 - 2015	0	43	23	42	0	0	65
2016 - 2016	44	0	0	35	0	0	23

Table 22 on pages 76 to 87 provides the mycotoxin results of all 350 samples analysed for the 2015/2016 season. Table 23 on page 88 provides an overview of the mycotoxin results obtained from the 2004/2005 to 2015/2016 seasons.

National Mycotoxin Regulations

According to the Foodstuffs, Cosmetics and Disinfectants Act (Act 54 of 1972) and regulations published under Government Notice No. R. 1145, dated 8 October 2004, all foodstuffs, ready for human consumption, may not contain more than 10 µg/kg of aflatoxin, of which aflatoxin B_1 may not exceed 5 µg/kg.

Amendments to Government Notice No. R. 1145, dated 8 October 2004, recently published under Government Notice No. 987 of 05 September 2016, specify that

- Cereal grains (wheat, maize and barley) intended for further processing, may not contain more than 2000 µg/kg of Deoxinyvalenol.
- Flour, meal, semolina and flakes derived from wheat, maize or barley, ready for human consumption, may not contain more than 1000 µg/kg of Deoxinyvalenol.
- Raw maize grain, intended for further processing, may not contain more than 4000 µg/kg of Fumonisins ($B_1 + B_2$), the whole commodity.
- Maize flour and maize meal, ready for human consumption, may not contain more than 2000 µg/kg of Fumonisins ($B_1 + B_2$), the whole commodity.
- Further processing means any other treatment or processing method that has been proven to reduce levels of fungus produced toxins in foodstuffs intended for human consumption.

According to the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) and Regulation No. R. 70 of 12 February 2010, the maximum allowable levels of mycotoxins in animal feeds, are as follows:

Substance, Products	Farm Feeds	MAXIMUM CONTENT IN mg/kg (ppm) relative to a farm feed with a moisture content of 120 g/kg	MAXIMUM CONTENT IN µg/kg (ppb) relative to a farm feed with a moisture content of 120 g/kg
Aflatoxin B_1	Feed ingredients with the exception of:	0.05	50
	groundnut, copra, palm-kernel cotton seed, maize and products derived from the processing thereof	0.02	20
	Complete farm feeds for cattle, sheep and goats with the exeption of:	0.05	50
	dairy cattle	0.005	5
	calves and lambs	0.01	10
	complete feeds for pigs and poultry (except young animals)	0.02	20
	other complete farm feeds (including pets)	0.01	10
	maize products intended for feedlot	300 000	300 000 000
	supplement/cncentrates for cattle, sheep and goats (except for dairy animals, calves and lambs)	0.05	50
Deoxynivalenol (DON)	Feeding stuffs on a full ration basis for:		
	Pigs	1	1 000
	cattle	5	5 000
	calves up tp 4 months	2	2 000
	dairy cattle	3	3 000
	poultry	4	4 000
	pets	1	1 000
Fumonisin B_1	Horses and pets	5	5 000
	Pigs	10	10 000
	Beef and poultry	50	50 000
	Fish	10	10 000
Ochratoxin A	Feeding stuffs on full ration basis for:		
	Pigs	0.05	50
	poultry	0.2	200
Zearalenone	Feeding stuffs on full ration basis for:		
	sows and pigs	5	5 000
	piglets	3	3 000
	calves and dairy cattle	0.5	500

International Mycotoxin Regulations

The Maximum, advisory and guidance levels for mycotoxins on maize, maize products and cereals from the European Union, USA and China are provided below for comparison purposes.

The **European Union** specifies the following maximum levels for mycotoxins on maize in foodstuffs:

Aflatoxin

- Maize and rice to be subjected to sorting or other physical treatment before human consumption or used as an ingredient in foodstuffs, 5.0 µg/kg (B_1) and 10.0 µg/kg (Sum of B_1, B_2, G_1 and G_2).

Fumonisin

- Unprocessed maize with the exception of unprocessed maize intended to be processed by wet milling, 4 000 µg/kg.
- Maize intended for direct human consumption, maize-based foods for direct consumption, with certain exceptions, 1 000 µg/kg.
- Maize-based breakfast cereals and maize-based snacks, 800 µg/kg.
- Processed maize-based foods and baby foods for infants and young children, 200 µg/kg.
- Milling fractions and other milling products with particle size > 500 µm not used for direct human consumption, 1 400 µg/kg.
- Milling fractions and other milling products with particle size ≤ 500 µm not used for direct human consumption, 2 000 µg/kg.

Deoxynivalenol (DON)

- Unprocessed maize, with the exception of unprocessed maize intended to be processed by wet milling, 1 750 µg/kg.
- Cereals intended for direct human consumption, cereal flour, bran and germ as end product marketed for direct human consumption, 750 µg/kg.
- Processed cereal based baby and baby foods for infants and young children, 200 µg/kg.
- Milling fractions of maize and other milling products with particle size > 500 µm not used for direct human consumption, 750 µg/kg.
- Milling fractions of maize and other milling products with particle size ≤ 500 µm not used for direct human consumption, 1 250 µg/kg.

Zearalenone

- Unprocessed maize with the exception of unprocessed maize intended to be processed by wet milling, 350 µg/kg.
- Cereals intended for direct human consumption, cereal flour, bran and germ as end product marketed for direct human consumption, 75 µg/kg.
- Maize intended for direct human consumption, maize-based snacks and maize-based breakfast cereals, 100 µg/kg.
- Processed maize-based foods for infants and young children, 20 µg/kg.
- Milling fractions and other milling products with particle size > 500 µm not used for direct human consumption, 200 µg/kg.
- Milling fractions and other milling products with particle size ≤ 500 µm not used for direct human consumption, 300 µg/kg.

Ochratoxin A

- Unprocessed cereals, 5 µg/kg.
- All products derived from unprocessed cereals, including processed cereal products and cereals intended for direct human consumption with the exception of food for infants and young children, 3 µg/kg. [(2)]

The European Union recommends the following maximum levels for Aflatoxin B_1 on products intended for animal feeds with a moisture content of 12%:

Complementary and complete feedingstuffs depending on the class and age of the animal, 5 – 20 µg/kg.

The European Union recommends the following guidance levels for mycotoxins on products intended for animal feeds with a moisture content of 12%:

Fumonisin $B_1 + B_2$

- Maize and maize products, 60 000 µg/kg.
- Complementary and complete feedingstuffs depending on the class and age of animal, 5 000 – 50 000 µg/kg.

Deoxynivalenol (DON)

- Cereals and cereal products with the exception of maize by-products, 8 000 µg/kg.
- Maize by-products, 12 000 µg/kg.
- Complementary and complete feedingstuffs depending on the class and age of animal, 900 – 5 000 µg/kg.

Zearalenone

- Cereals and cereal products with the exception of maize by-products, 2 000 µg/kg.
- Maize by-products, 3 000 µg/kg.
- Complementary and complete feedingstuffs depending on the class of animal, 100 – 500 µg/kg.

Ochratoxin A

- Cereals and cereal products, 250 µg/kg.
- Complementary and complete feedingstuffs depending on the class of animal, 50 – 5000 µg/kg.[3]

In the **USA**, the Food and Drug Administration (FDA) actions levels for Aflatoxin in animal feeds vary between 20 µg/kg and 300 µg/kg, depending on the intended use (species of animal). The action level for all commodities intended for human consumption is 20 µg/kg (excluding Aflatoxin M_1 (milk) where the maximum level is 0.5 µg/kg).

Advisory maximum levels for DON in animal feed varies between 5 000 and 10 000 µg/kg in grains and grain by-products and 1 000 to 10 000 µg/kg in the complete diet, depending on the species of animal as well as the percentage portion of the diet represented by the grain. Distillers grains, brewers grains, gluten feeds and gluten meals should not exceed 30 000 µg/kg.

Guidance levels for Fumonisin in maize and maize by-products used in animal feeds varies between 5 000 µg/kg and 100 000 µg/kg based on the class of animal and proportion of the diet and 1 000 µg/kg to 50 000 µg/kg for the complete diet.

Guidance levels for Fumonisins ($FB_1 + FB_2 + FB_3$) in foodstuffs are as follows: Degermed dry milled maize products (e.g. flaking grits, maize grits, maize meal, maize flour with fat content of < 2.25%, dry weight basis), 2 000 µg/kg. Cleaned corn intended for popcorn, 3 000 µg/kg. Whole or partially degermed dry milled maize products (e.g. flaking grits, maize grits, maize meal, maize flour with fat content of > 2.25%, dry weight basis), 4 000 µg/kg. [4]

In **China**, the maximum level for Aflatoxin B_1 in maize, maize flour and maize products, is 20 µg/kg. The maximum levels for DON and Zearalenone in maize and maize flour is 1000 µg/kg and 60 µg/kg respectively. In grains and milled grain products, the maximum level of Ochratoxin A allowed is 5 µg/kg. [5]

References:

1. BIOMIN World Mycotoxin Survey 2016, Annual Report No. 13, www.biomin.net.
2. COMMISSION REGULATION (EC) No 1881/226 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs.
3. COMMISSION RECOMMENDATION 2006/576/EC of 17 August 2006 on the presence of deoxynivalenol, zearalenone, ochratoxin A, T-2 and HT-2 and fumonisins in products intended for animal feeding.
4. FDA Mycotoxin Regulatory Guidance, A Guide for Grain Elevators, Feed Manufacturers, Grain Processors and Exporters, August 2011.
5. National Food Safety Standard, Maximum Levels of Mycotoxins in Foods, GB 2761-2012.

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
3	YM1	ND	ND	ND	ND	ND	217	89	ND	306	115	ND	ND	26	ND	ND
8	YM2	ND	ND	ND	ND	ND	65	24	ND	89	158	ND	ND	ND	ND	ND
8	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	YM1	ND	ND	ND	ND	ND	98	45	ND	143	174	ND	ND	ND	ND	ND
8	YM1	ND	ND	ND	ND	ND	36	20	ND	56	439	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	169	34	ND	203	ND	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	114	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	1 612	373	96	2 081	554	122	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	898	287	62	1 247	156	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	212	125	ND	337	ND	ND	ND	ND	ND	ND
10	YM2	ND	ND	ND	ND	ND	153	69	ND	222	ND	ND	ND	ND	ND	ND
10	YM2	ND	ND	ND	ND	ND	81	43	ND	124	ND	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	882	418	52	1 352	349	ND	ND	44	ND	ND
10	YM1	ND	ND	ND	ND	ND	89	ND	ND	89	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	306	101	ND	407	195	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	1 394	431	137	1 962	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	694	199	63	956	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	1 365	594	104	2 063	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	297	131	26	454	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	155	65	ND	220	ND	ND	ND	ND	ND	ND
11	YM3	ND	ND	ND	ND	ND	447	116	33	596	ND	ND	ND	ND	ND	ND
11	YM2	ND	ND	ND	ND	ND	5 638	1 726	437	7 801	118	ND	ND	ND	ND	ND
11	WM1	ND	ND	ND	ND	ND	551	202	37	790	110	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	155	76	ND	231	ND	ND	ND	ND	ND	ND
12	YM2	ND	ND	ND	ND	ND	83	35	ND	118	ND	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	577	373	36	986	ND	ND	ND	ND	ND	ND
12	WM2	ND	ND	ND	ND	ND	1 387	803	92	2 282	ND	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	118	57	ND	175	ND	ND	ND	ND	ND	ND
12	YM1	ND	ND	ND	ND	ND	116	47	ND	163	ND	ND	ND	ND	ND	ND
13	YM2	ND	ND	ND	ND	ND	169	69	ND	238	ND	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
13	WM2	ND	ND	ND	ND	ND	260	168	ND	428	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	55	30	ND	85	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	31	ND	ND	31	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	281	217	ND	498	ND	ND	ND	ND	ND	ND
13	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	WM2	ND	ND	ND	ND	ND	193	108	ND	301	ND	ND	ND	ND	ND	ND
13	YM2	ND	ND	ND	ND	ND	828	446	49	1 323	ND	ND	ND	ND	ND	ND
13	WM2	ND	ND	ND	ND	ND	33	ND	ND	33	ND	ND	ND	ND	ND	ND
13	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	465	ND	ND	ND	ND	ND
13	YM2	ND	ND	ND	ND	ND	46	ND	ND	46	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	4 391	1 975	499	6 865	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	165	66	ND	231	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	136	92	ND	228	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	149	65	ND	214	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	84	38	ND	122	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	780	374	71	1 225	ND	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	54	25	ND	79	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	70	31	ND	101	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	49	22	ND	71	ND	ND	ND	ND	ND	ND
14	WM2	ND	ND	ND	ND	ND	627	315	61	1 003	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	53	29	ND	82	ND	ND	ND	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	28	ND	ND	28	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	111	45	ND	156	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	35	ND	ND	35	ND	ND	ND	ND	ND	ND
17	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	27	ND	ND	27	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	63	46	ND	109	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	393	150	28	571	ND	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
18	WM1	ND	ND	ND	ND	ND	68	33	ND	101	598	ND	ND	ND	ND	ND
18	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	114	ND	ND	ND	ND	ND
18	YM1	ND	ND	ND	ND	ND	876	365	60	1 301	ND	ND	ND	ND	ND	ND
18	YM2	ND	ND	ND	ND	ND	77	33	ND	110	ND	ND	ND	ND	ND	ND
18	WM2	ND	ND	ND	ND	ND	454	147	50	651	ND	ND	ND	ND	ND	ND
18	YM3	ND	ND	ND	ND	ND	1 014	505	ND	1 519	ND	ND	ND	ND	ND	ND
18	WM3	ND	ND	ND	ND	ND	48	20	ND	68	141	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	123	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	131	126	ND	257	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	194	66	20	280	ND	ND	ND	ND	ND	ND
19	YM2	ND	ND	ND	ND	ND	71	27	ND	98	ND	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	29	ND	ND	29	ND	ND	ND	ND	ND	ND
19	COM	ND	ND	ND	ND	ND	283	115	30	428	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	210	86	28	324	ND	ND	ND	ND	ND	ND
19	YM2	ND	ND	ND	ND	ND	316	129	28	473	ND	ND	ND	ND	ND	ND
19	WM3	ND	ND	ND	ND	ND	542	278	44	864	ND	ND	ND	ND	ND	ND
19	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	64	ND	ND	64	ND	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	1 215	529	101	1 845	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	134	47	ND	181	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	74	33	ND	107	ND	ND	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	1 412	536	138	2 086	ND	ND	ND	ND	ND	ND
20	YM2	ND	ND	ND	ND	ND	7 406	3 340	601	11 347	ND	ND	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	2 610	1 062	186	3 858	ND	ND	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	601	257	34	892	ND	ND	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	66	47	ND	113	ND	ND	ND	ND	ND	ND
20	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	321	157	21	499	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	246	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
20	YM1	ND	ND	ND	ND	ND	72	33	ND	105	159	ND	ND	ND	ND	ND
20	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	305	178	ND	483	ND	ND	ND	ND	ND	ND
20	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	YM3	ND	ND	ND	ND	ND	38	22	ND	60	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	WM3	ND	ND	ND	ND	ND	475	189	36	700	ND	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	26	ND	ND	26	ND	ND	ND	ND	ND	ND
21	YM2	ND	ND	ND	ND	ND	484	175	59	718	ND	ND	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	46	ND	ND	46	ND	ND	ND	ND	ND	ND
22	WM1	ND	ND	ND	ND	ND	76	27	ND	103	ND	ND	ND	ND	ND	ND
22	WM2	ND	ND	ND	ND	ND	1 789	735	154	2 678	ND	ND	ND	ND	ND	ND
22	YM1	ND	ND	ND	ND	ND	804	248	57	1 109	ND	ND	ND	ND	ND	ND
22	WM3	ND	ND	ND	ND	ND	480	229	42	751	ND	ND	ND	ND	ND	ND
22	YM1	ND	ND	ND	ND	ND	139	58	ND	197	ND	ND	ND	ND	ND	ND
22	WM1	ND	ND	ND	ND	ND	2 398	850	182	3 430	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	95	33	ND	128	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	21	ND	ND	21	ND	ND	ND	ND	ND	ND
23	YM2	ND	ND	ND	ND	ND	32	ND	ND	32	ND	ND	ND	ND	ND	ND
23	YM1	ND	ND	ND	ND	ND	144	62	ND	206	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	30	ND	ND	30	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	322	103	32	457	312	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	310	139	24	473	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	81	33	ND	114	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	59	21	ND	80	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	672	310	27	1 009	ND	ND	ND	ND	ND	ND
25	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	227	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
25	YM2	ND	ND	ND	ND	ND	116	47	ND	163	ND	ND	ND	ND	ND	ND
25	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	YM2	ND	ND	ND	ND	ND	111	53	ND	164	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	348	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	152	91	ND	243	513	ND	ND	26	ND	ND
26	YM2	ND	ND	ND	ND	ND	417	201	22	640	ND	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	72	31	ND	103	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	48	25	ND	73	640	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 585	310	ND	ND	ND	ND
27	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	169	ND	ND	ND	ND	ND
28	WM3	ND	ND	ND	ND	ND	272	125	ND	397	384	102	ND	24	ND	ND
28	YM1	ND	ND	ND	ND	ND	113	44	ND	157	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	373	184	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	117	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	108	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	191	ND	ND	127	ND	ND
29	YM1	ND	ND	ND	ND	ND	120	40	ND	160	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	105	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	154	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	36	ND	ND	36	586	110	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
30	WM1	ND	ND	ND	ND	ND	159	ND	ND	159	229	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	196	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	304	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	542	ND	ND	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	801	130	ND	125	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	215	62	21	298	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	119	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	728	184	ND	28	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	180	65	26	271	370	ND	ND	ND	ND	ND
30	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM2	ND	ND	ND	ND	ND	140	54	ND	194	105	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	216	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
31	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	26	ND	ND
31	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	565	264	32	861	154	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	628	240	30	898	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	316	118	23	457	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	435	158	23	616	ND	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	128	110	ND	238	ND	ND	ND	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	48	ND	ND	48	205	ND	ND	35	ND	ND
31	YM1	ND	ND	ND	ND	ND	1 064	358	81	1 503	171	ND	ND	34	ND	ND
31	WM1	ND	ND	ND	ND	ND	531	190	64	785	296	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	44	ND	ND	44	141	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	85	ND	ND	85	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	136	54	ND	190	ND	ND	ND	ND	ND	ND
31	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	31	ND	ND	31	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	354	195	30	579	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	101	34	ND	135	135	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	140	55	ND	195	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	309	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	62	26	ND	88	197	ND	ND	36	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
32	YM1	ND	ND	ND	ND	ND	40	ND	ND	40	ND	ND	ND	ND	ND	ND
32	YM3	ND	ND	ND	ND	ND	1 308	528	157	1 993	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	176	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	219	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	447	198	28	673	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	261	106	33	400	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	199	92	26	317	228	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	173	94	ND	267	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	573	294	63	930	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	92	37	ND	129	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	43	ND	ND	43	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	163	39	ND	202	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	1 143	380	125	1 648	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	64	22	ND	86	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	171	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	66	ND	ND	66	208	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	79	23	ND	102	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	36	ND	ND	36	ND	ND	ND	ND	ND	ND
33	WM3	ND	ND	ND	ND	ND	108	38	ND	146	206	ND	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	139	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	133	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	132	ND	ND	23	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
33	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	20	ND	ND	20	157	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	96	43	ND	139	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	32	20	ND	52	127	ND	ND	122	ND	ND
33	WM1	ND	ND	ND	ND	ND	231	72	ND	303	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	WM2	ND	ND	ND	ND	ND	411	165	31	607	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	27	ND	ND	27	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	327	166	ND	493	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	220	ND	ND	43	ND	ND
33	WM1	ND	ND	ND	ND	ND	52	28	ND	80	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	268	76	23	367	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	924	254	43	1 221	100	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	ND	ND	ND	ND	ND
34	YM2	ND	ND	ND	ND	ND	370	88	24	482	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	257	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	151	66	ND	217	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	221	96	22	339	120	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	77	23	ND	100	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	40	ND	ND	40	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	24	ND	ND	24	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	20	ND	ND	20	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	35	ND	ND	35	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	216	41	ND	257	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	984	324	123	1 431	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	77	36	ND	113	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	131	29	ND	160	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	184	43	23	250	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	373	82	31	486	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	202	52	ND	254	ND	ND	ND	31	ND	ND
35	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	248	61	27	336	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	605	221	28	854	ND	ND	ND	ND	ND	ND
35	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	WM2	ND	ND	ND	ND	ND	92	20	ND	112	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	22	ND	ND	22	ND	ND	ND	ND	ND	ND
35	WM3	ND	ND	ND	ND	ND	102	25	ND	127	ND	ND	ND	ND	ND	ND
35	YM3	ND	ND	ND	ND	ND	424	140	27	591	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	719	336	31	1 086	ND	ND	ND	ND	ND	ND
35	WM2	ND	ND	ND	ND	ND	263	85	28	376	ND	ND	ND	ND	ND	ND
35	YM2	ND	ND	ND	ND	ND	190	84	ND	274	ND	ND	ND	ND	ND	ND
35	WM3	ND	ND	ND	ND	ND	33	ND	ND	33	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	106	27	ND	133	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	294	108	24	426	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	57	43	ND	100	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	156	68	ND	224	ND	ND	ND	ND	ND	ND
36	WM2	ND	ND	ND	ND	ND	99	33	ND	132	253	ND	ND	ND	ND	ND

TABLE 22: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2015/2016 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		G_1	B_1	G_2	B_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	500	254	47	801	109	ND	ND	ND	ND	ND
36	WM2	ND	ND	ND	ND	ND	155	49	ND	204	ND	ND	ND	ND	ND	ND
36	WM2	ND	ND	ND	ND	ND	69	32	ND	101	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	235	84	ND	319	ND	ND	ND	ND	ND	ND
36	YM3	ND	ND	ND	ND	ND	154	46	ND	200	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	WM3	ND	ND	ND	ND	ND	99	23	ND	122	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	208	119	ND	327	ND	ND	ND	ND	ND	ND
36	YM2	ND	ND	ND	ND	ND	89	40	ND	129	206	ND	ND	23	ND	ND
36	YM1	ND	ND	ND	ND	ND	613	213	37	863	ND	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	62	ND	ND	62	108	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	229	ND	ND	65	ND	ND
36	YM1	ND	ND	ND	ND	ND	257	106	20	383	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	104	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	58	ND	ND	58	ND	ND	ND	ND	ND	ND
36	YM2	ND	ND	ND	ND	ND	360	100	30	490	234	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	289	97	22	408	ND	ND	ND	ND	ND	ND
Total number of samples		**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**
Average of total number of samples		**0**	**0**	**0**	**0**	**0**	**222**	**88**	**15**	**325**	**56**	**3**	**0**	**2**	**0**	**0**
Number of positive results		**0**	**0**	**0**	**0**	**0**	**200**	**166**	**74**	**200**	**75**	**7**	**0**	**17**	**0**	**0**
Average of positive results		**-**	**-**	**-**	**-**	**-**	**388**	**185**	**71**	**569**	**259**	**163**	**-**	**49**	**-**	**-**
Maximum of positive results		**-**	**-**	**-**	**-**	**-**	**7 406**	**3 340**	**601**	**11 347**	**1 585**	**310**	**-**	**127**	**-**	**-**

Note:

Limit of quantitation (LOQ) means the lowest concentration level that can be quantified with acceptable precision and accuracy by the LC-MS/MS.

A concentration measured below the LOQ is reported as <LOQ.

Limit of detection (LOD) is the lowest concentration level that can be detected but not quantified and is 50% of the LOQ of each mycotoxin.

A concentration measured below the LOD is reported as not detected (ND).

µg/kg = ppb (parts per billion)

TABLE 23: MYCOTOXIN RESULTS - SUMMARY OF SEASONS 2004/2005 TO 2015/2016

Season	Total Number of samples received	Number of samples tested for mycotoxins	Aflatoxin µg/kg			Fumonisin µg/kg			Deoxynivalenol µg/kg			Zearalenone µg/kg			Ochratoxin A µg/kg			T-2 Toxin µg/kg		
			ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
2004/2005	1 000	100	0	0	0	1 080	0	5 300	600	0	3 900	<100	0	440	<2.0	0	2.4	Not tested		
2005/2006	900	90	0	0	0	970	0	13 000	2 740	0	6 200	30	0	390	<2.0	0	2.9	Not tested		
2006/2007	900	90	<1	0	9	640	0	4 500	530	0	3 100	0	0	0	<2.0	0	6.5	Not tested		
2007/2008	900	100	0	0	2	470	0	5 500	240	0	1 700	0	0	100	<1.0	0	2	Not tested		
2008/2009	810	90	0	0	0	490	0	3 300	430	0	2 900	<25	0	160	<1.0	0	1	Not tested		
*2009/2010	800	90	0	0	0	251	0	4 035	206	0	1 845	0	0	0	0	0	0	0	0	0
*2010/2011	693	325	0	0	0	468	0	7 048	165	0	1 835	33	0	270	0	0	0	0	0	0
**2011/2012	1 000	350	0	0	0	383	0	11 297	146	0	911	33	0	297	0	0	0	0	0	0
**2012/2013	1 000	350	0	0	0	530	0	11 243	186	0	1 175	30	0	426	0	0	0	2	0	232
**2013/2014	930	350	0	0	0	451	0	5 357	243	0	6 134	38	0	445	0	0	0	0	0	0
**2014/2015	1 000	350	2	0	48	357	0	3 382	397	0	9 736	36	0	337	0	0	0	0	0	0
**2015/2016	920	350	0	0	0	444	0	11 347	175	0	1 585	16	0	127	0	0	0	0	0	0
Total	10 853	2 635																		
Min.				0			0			0			0			0			0	
Max.					48			13 000			9 736			445			7			232

*** Sum of Aflatoxin (G_1; B_1; G_2; B_2) and sum of Fumonisin (B_1; B_2)**

**** Sum of Aflatoxin (G_1; B_1; G_2; B_2) and sum of Fumonisin (B_1; B_2; B_3)**

RSA averages calculated from averages per province.

Mycotoxin methodology

Technique used for season 2003/2004 - 2006/2007

The mycotoxin analyses were carried out in accordance with the Vicam Immunoaffinity Column Chromatography method using the different Vicam Instruction Manuals for the different mycotoxins. Detection of the toxins was done on a Fluorometer. The following range and limit of detection apply for each toxin:

Mycotoxin	Assay range µg/kg	LOD for maize µg/kg
Aflatoxin	0 - 300	1
2umonisin	0 - 10 000	250
Deoxynivalenol	500 - 50 000	500
Zearalenone	0 - 5 000	100
Ochratoxin A	0 - 50	2
T - 2 Toxin	150 - 2 000	150

Technique used for season 2007/2008 - 2008/2009

The SAGL used the ROSA (Rapid One Step Assay) Quantitative test, which is a lateral flow immuno assay test, together with the ROSA-M Reader for measuring the mycotoxin content. The following range and limit of detection apply for each toxin:

Mycotoxin	Assay range µg/kg	LOD for maize µg/kg
Aflatoxin	0 - 100	2
Fumonisin	0 - 60 000	100
Deoxynivalenol	0 - 5 000	250
Zearalenone	0 - 1 000	25
Ochratoxin A	0 - 150	1

Technique used for season 2009/2010 - 2015/2016

During 2010 SAGL implemented a multi-mycotoxin screening method using UPLC-MS/MS. The following limit of detection applies for each toxin:

Mycotoxin	LOQ for maize µg/kg	LOD for maize µg/kg
Aflatoxin G_1	5	2.5
Aflatoxin B_1	5	2.5
Aflatoxin G_2	5	2.5
Aflatoxin B_2	5	2.5
Fumonisin B_1	20	10
Fumonisin B_2	20	10
Fumonisin B_3	20	10
Deoxynivalenol	100	50
Zearalenone	20	10
Ochratoxin A	5	2.5
T - 2 Toxin	20	10

Notes:

Limit of detection (LOD) means the lowest level that can be detected accurately by the technique.

Limit of quantitation (LOQ) means the lowest level that can be quantified accurately by the technique.

A result above zero but lower than the limit of detection/quantitation, is reported as <LOD/<LOQ.

µg/kg = ppb (parts per billion)

METHODS

SAMPLING PROCEDURE

A working group determined the process to be followed to ensure that the crop quality samples sent to the SAGL by the various grain silo owners/ agricultural businesses, are representative of the total crop.

Each delivery is sampled as per the grading regulations for grading purposes.

After grading, a sub-sample of each of these grading samples are placed in separate containers according to class and grade, per silo bin at each silo.

After 80% of the expected harvest has been received, the silo divides the content of each container with a multi slot divider in order to obtain a 3 kg sample (this should be done for each class and grade separately).

If there is more than one container per class and grade, the combined contents of the containers is mixed thoroughly before dividing it with a multi slot divider to obtain the required 3 kg sample.

The samples are marked clearly with the name of the depot, the bin/bag/bunker/dam number(s) represented by each individual sample as well as the class and grade and are then forwarded to the SAGL.

RSA GRADING

RSA grading was done in accordance with the Grading Regulations for maize, as published in the Government Gazette No. 32190 of 8 May 2009, Regulation No. R.473 and amended by Industry-Wide Dispensation REF No: 20/4/14/1, dated 15 April 2010.

Description of deviations relating to RSA grading:

Defective maize kernels

The following definition of Defective maize kernels is quoted from the Grading Regulations:
"Defective maize kernels" means maize kernels and pieces of maize kernels –

(a) that are shrivelled, obviously immature, frost-damaged, heat damaged, water damaged, mouldy or chalky;
(b) that are discoloured by external factors such as water and sun: Provided that discoloration on both sides of the maize kernel limited to less than a quarter from the bottom tip of the maize kernel shall not be considered as defective, oxidation stained maize kernels, coffee stained maize kernels and pinked maize kernels shall not be considered as defective;
(c) that have sprouted, including kernels which the shoot (plumule) in the germ is visibly discoloured;
(d) that have cavities in the germ or endosperm caused by insects or rodents;
(e) that are visibly soiled (smeared) or contaminated by smut, fire, soil, smoke or coal-dust;
(f) all matter that can pass through the 6.35 mm round-hole sieve; and
(g) that are of subspecies other than *Zea mays indentata* or *Zea mays indurata*.

Provided that –

(i) irregularity of shape and size of maize kernels shall not affect the grading thereof;
(ii) chipped or cracked maize kernels or pieces of maize kernels which are in a sound condition and which appear in a sample of maize, but which do not pass through a 6.35 mm round-hole sieve, shall not be regarded as defective maize kernels under these regulations."

Foreign matter

The term "foreign matter" means all matter above the sieve other than maize, glass, stones, coal, dung or metal.

Other colour

"Other colour maize kernels" in relation to -

(a) white maize, means maize kernels or pieces of maize kernels of which the endosperm as a result of genetic (characteristics) composition have another colour than white, excluding pinked maize kernels;
(b) yellow maize, means maize kernels or pieces of maize kernels of which the endopserm as a result of genetic (characteristics) composition have another colour than yellow.

Combined deviation

The term "combined deviation" means the sum of defective kernels (above and below the 6.35 mm sieve), foreign matter and other colour kernels.

Pinked kernels

The term "pinked maize kernels" means kernels and

pieces of kernels of white maize of which the pericarp or part thereof is shaded red or pink in colour.

The specification, according to the Grading Regulations for classes 1 to 3 of white maize is a maximum of 12%. No specification for yellow maize according to the Grading Regulations.

Fungal infection

Kernels which are mouldy (fungi infected) are reported as defective kernels according to the grading regulations.

"Mouldy" means kernels and pieces of kernels that –
(a) are visibly infected by fungi and are characterised by black, blue, green, yellow or white fungi growth anywhere on the kernel, or are characterised by fungi growth underneath the bran layer of the kernel;
(b) are infected by ear-rot and are characterised by red, pink or brown discolorations. The kernel are partially to completely infected.

For this survey all samples were also inspected for the visual symptoms of Diplodia and Fusarium infection and reported separately.

Fusarium spp infections are localized on the cob with discoloured maize kernels, which become reddish (light pink to lilac).

Diplodia maydis normally rots the entire maize cob and infected maize kernels are recognized by a light ash colour to black colour that appears at the germ and can infest the whole kernel.

% Cobrot reported is the percentage maize kernels that are both Fusarium and Diplodia infected.

USA GRADING

USA grading was determined in accordance with the method of the American Grading Regulations (United States Department of Agriculture).

There are seven grades or standards in US grading, Grades nos. 1 to 5, sample grade and mixed grade. No.1 is the most desirable followed by no. 2 down to sample grade and mixed grade.

Description of deviations relating to USA grading:

Damaged kernels

Kernels and pieces of corn kernels that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mould-damaged, sprout-damaged or otherwise materially damaged.

Heat damaged kernels

Kernels and pieces of kernels which are materially discolored by excessive respiration, with the dark discoloration extending out of the germ through the sides and into the back of the kernel as well as kernels and pieces of kernels which are puffed or swollen and materially discolored by external heat caused by artificial drying methods.

Broken corn and foreign material

Broken corn is all matter that passes readily through a 12/64-inch (4.76 mm) round-hole sieve and over a 6/64-inch (2.38 mm) round-hole sieve.

Foreign material is all matter that passes readily through a 2.38 mm round-hole sieve and all matter other than corn that remains on top of the 4.76 mm round-hole sieve after sieving.

Broken corn and foreign material is all matter that passes readily through a 4.76 mm round-hole sieve and all matter other than corn that remains in the sieved sample after sieving.

Bushel weight

The specific mass (or grain density) of maize (expressed as test weight or bushel weight) is a quality characteristic which is important to some maize consumers and is applied as a grading factor in the USA grading regulations.

The Test weight per bushel apparatus is used to determine the approximate weight of a bushel of a particular lot of grain.

Bushel weight in pounds (lbs), was determined on the maize crop samples and the results converted to test weight, reported in kilogram/hectoliter (kg/hl), by multiplication with a factor of 1.2872.

Other colour

Maize samples are deemed to be mixed grade when maize kernels of another colour for white maize exceeds 2% and for yellow maize exceeds 5%.

NUTRITIONAL VALUES

The fat, protein and starch contents are measured with an Infratec 1241 - Generation 3 Standard Version Whole Grain Analyser. The measurements are based on the fact that the constituents to be measured in the grain, absorb electromagnetic radiation in the near-infrared region of the spectrum. Since the Infratec 1241 Grain Analyser uses transmission absorption, the test is done on intact maize kernels.

Foss updated the calibration on the Infratec 1241 Grain Analyser (NIT) during 2016, using NIT spectra and international primary chemical method results of maize crop quality samples from the 2012/2013 to 2014/2015 seasons, provided by SAGL.

The chemical methods used to check the calibration were:

a) Crude fat: Petroleum ether extraction (Soxhlet) method (In house method 024)
b) Crude protein: Dumas (Leco) method (AACCI 46-30.01)
c) Starch: Hydrochloric Acid dissolution method (Polarimeter) (In house method 019)

The results obtained by the Infratec 1241 Grain Analyser (NIT) on the 2015/2016 season's samples, were checked by analysing every tenth sample by means of the primary methods.

PHYSICAL CHARACTERISTICS

Test weight

Test weight is reported in kilogram per hectolitre. The specific mass (or grain density) of maize expressed as test weight is influenced by amongst other, factors like cultivar, moisture content, foreign matter, other grain and damaged kernels like insect damaged and immature kernels.

Bushel weight in pounds (lbs) was determined on the maize crop samples and the results converted to test weight, reported in kilogram/hectoliter (kg/hl), by multiplication with a factor of 1.2872.

Hundred (100) kernel mass - Industry accepted method 001

100 kernel mass is the weight in grams of one hundred whole maize kernels and provides a measure of grain size and density.

Kernel size - Industry accepted method 017

Kernel size is important to the sophisticated starch manufacturing industry. Kernels that are too small hamper the separation of kernel fractions in the wet milling process. The result is a lower starch yield. A mixture of small and large kernels causes additional problems, as homogeneous steeping cannot be achieved. On the other hand, very large kernels can also cause problems since the ratio between volume and mass is unfavourable to proper steeping.

The dry milling industry also prefers fairly larger maize kernels. However, uniform kernel size is of particular importance to this industry, since too large kernels create problems especially when mixed with smaller kernels.

Kernel size is less important to the animal feed manufacturing industry. Larger kernels are nevertheless preferred, as small kernels are easily lost during the screening stage of processing. The determination of kernel size comprises the sieving of a 100 g representative whole maize sample through both 8 mm and 10 mm round-hole grading sieves, normally used in the seed industry.

Breakage susceptibility - Industry accepted method 007

Maize is normally cleaned before processing. In the cleaning process, broken kernels are removed together with other impurities, causing losses. Broken kernels are further broken during handling, resulting in excessive grain dust being generated. This creates the potential for dust explosions, health hazards, hygiene problems, etc. Maize containing a high percentage of broken kernels is more prone to insect infestation and is subject to general deterioration.

In the modern dry milling industry, maize is cleaned first and then conditioned by dampening before the germ is removed. Broken kernels cause many problems during these stages of processing. Broken kernels can also lead to a lower extraction of the so-called high-quality products, like samp and maize grits. The presence of many broken kernels causes problems with the fibre and fat content of maize products, for example the various grades of maize meal, because the quantity of germ required to be returned to the milled endosperm cannot be determined accurately.

In the wet milling process broken kernels steep more rapidly than whole kernels and by the time the whole kernels have been sufficiently steeped, the broken kernels have been over-steeped, causing an ineffective separation of protein and starch.

In the livestock feed industry breakability is not an important quality characteristic, except for dust and hygiene reasons.

All samples were subjected to a breakage susceptibility test. After the sample of whole maize kernels was propelled in a Stein Breakage tester for 4 minutes, the fraction below the 6.35 mm and 4.75 mm sieves was collected and the percentage broken kernels < 6.35 mm and < 4.75 mm was determined.

Stress cracks - Industry accepted method 006

Stress cracks are determined by visual inspection of a certain amount of whole maize kernels examined on top of a light box for small internal cracks in the endosperm. Some kernels may even have two or more internal cracks. Any form of stress may cause internal cracks, for example rapid moisture loss in the field, during harvest or during drying.

MILLING INDEX - Industry accepted method 015

Milling index is an indication of the milling abilities and milling quality of maize kernels where a higher milling index means a higher extraction of the high-grade and most profitable products like samp, maize rice and maize grits (degermed products) that are manufactured from the corneous part of the endosperm. The milling index is an indication of the relative differences between samples tested. The milling index is measured with the Infratec 1241 - Generation 3 Standard Version Grain Analyser.

In previous seasons (up to 2012/2013) the samples were analysed by means of the calibration model developed by die Grain Crops Institute of the ARC. The last three seasons' samples were analysed by means of the new version of the milling index model developed by the SAGL. The NMI (New Milling Index) model was developed on data acquired from analyses performed on maize cultivar trials over four seasons. These trials included a range of hardness levels. The NMI model has improved precision compared to the older version, due to the almost tenfold increase in sample numbers used to build the model. Samples were supplied by the ARC-GCI and by commercial seed breeders for inclusion in the statistical modelling.

Calibrations were done between NIT spectra and various Roff Milling parameters including the ARC Roff milling formula. From these, the best solution was selected based on multivariate regression (Partial Least Square Regression). The samples used for the model were all pure cultivar samples.

MILLING OF MAIZE ON ROFF MAIZE MILL - Industry accepted method 013

The Roff 150 Series maize mill is used to mill representative samples of 500 g. The mill is pre-set to the following specifications: Break 1 roll nip - 0.3 mm, Break 2 roll nip - 0.18 mm and Break 3 roll nip - 0.08 mm. These settings are according to the specifications in the method developed by the ARC Grain Crops Institute. Every mill has three separations, namely germ, grits and maize meal. The grits from Break 1 are transferred to the Break 2 rolls and the grits from Break 2 are transferred to Break 3 rolls.

The following fractions are weighed and determined as percentage: Break 1 meal, Break 2 meal, Break 3 meal and Break 3 grits. Break 1, 2 and 3 germ and bran are combined and then weighed for determination of Bran/Germ %. Break 3 grits are weighed for determination of % Grits. Break 1, 2 and 3 meal are weighed for determination of % extraction total meal.

WHITENESS INDEX - Industry accepted method 004

Whiteness index of white maize meal was determined with the HunterLab ColorFlex 45°/0°. Whiteness is associated with a region or volume in colour space in which objects are recognized as white. The degree of whiteness is measured by the degree of departure of the object from a perfect white. The higher the whiteness index value, the whiter the sample.

Whiteness index was done on unsifted and sifted maize meal obtained from Break 2 and 3 of the Roff mill. The sifted samples were obtained by sieving the unsifted samples through a 300 µm sieve. The fractions on top and below the sieve were then combined to result in sifted samples that contain 87% of maize meal > 300 µm and 13% of maize meal < 300 µm.

MYCOTOXIN ANALYSES

Mycotoxins are fungal metabolites, toxic to animals and humans, that are produced by moulds commonly found in almost all types of grain.

350 of the 920 maize crop samples were tested for Aflatoxin G_1; B_1; G_2; B_2, Fumonisin B_1, B_2 and B_3, Deoxynivalenol, 15-ADON, HT-2 Toxin, T-2 Toxin, Zearalenone and Ochratoxin A by means of a multi-mycotoxin screening method using UPLC - MS/MS.

Limit of quantitation (LOQ) means the lowest concentration level that can be quantified with acceptable presicion and accuracy by the mass spectrometer. A concentration measured below the LOQ is reported as <LOQ.

Limit of detection (LOD) is the lowest concentration level that can be detected but not quantified and is 50% of the LOQ of each mycotoxin. A concentration measured below the LOD is reported as not detected (ND).

GMO (Genetically Modified Organisms)

The EnviroLogix QuickComb kit for bulk grain was used to quantitatively determine the presence of genetically modified maize. The kit is designed to extract and detect the presence of certain proteins at the levels typically expressed in genetically modified bulk maize grain. The procedure prescribed in the EnviroLogix - QuickScan Instruction Manual, Rev 10-04-10 was followed. Results were scanned and interpreted quantitatively with the EnviroLogix QuickScan system.

100 crop samples were tested for Cry1Ab, Cry2Ab and CP4 EPSPS modified maize. Cry1Ab protein in maize is produced from a gene derived from *Bacillus thuringiensis (Bt)*.

GMO Protein/Trait	Event	Trade name / Brand
Cry1Ab	MON810 MON89034 Bt11	YieldGard®
Cry2Ab	MON89034	*in* Genuity™ VT Triple PRO™ SmartStax™
CP4 EPSPS	NK603	Roundup Ready®

Maize Imports and Exports

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

WHITE MAIZE EXPORT/IMPORTS

2015/16 Season (25 Apr 2015 - 29 Apr 2016)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR EXPORTS		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons
Botswana	154 660	Mexico	51 040	United States	2 373			Durban	58 794
Lesotho	63 564	United States	28 238					East London	22 857
Mozambique	73 464	Zambia	21 525						
Namibia	104 759								
Swaziland	33 106								
Zimbabwe	43 874								
Total	**473 427**	**Total**	**100 803**	**Total**	**2 373**	**Total**	**0**	**Total***	**81 651**

**Includes imports for RSA and other countries*

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

YELLOW MAIZE EXPORT/IMPORTS

2015/16 Season (25 Apr 2015 - 29 Apr 2016)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR EXPORTS		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons
Botswana	61 810	Argentina	1 120 281	Argentina	14 030	Lesotho	1 489	Cape Town	630 605
Central African Rep	897	Brazil	502 147	Brazil	1 064	Mozambique	269	Durban	969 481
Korea, Dem People's Rep	5 420	Paraguay	212 840	Paraguay	3 191	Swaziland	10 178	East London	31 411
Korea, Republic of	2 277	Ukraine	27 539			Zimbabwe	1 084	Port Elizabeth	234 601
Lesotho	12 149							Richards Bay	14 994
Mozambique	39 007								
Namibia	42 874								
Swaziland	53 634								
Zimbabwe	1 933								
Total	**220 001**	**Total**	**1 862 807**	**Total**	**18 285**	**Total**	**13 020**	**Total***	**1 881 092**

**Includes imports for RSA and other countries*

Maize Imports and Exports during the 2015/2016 marketing season

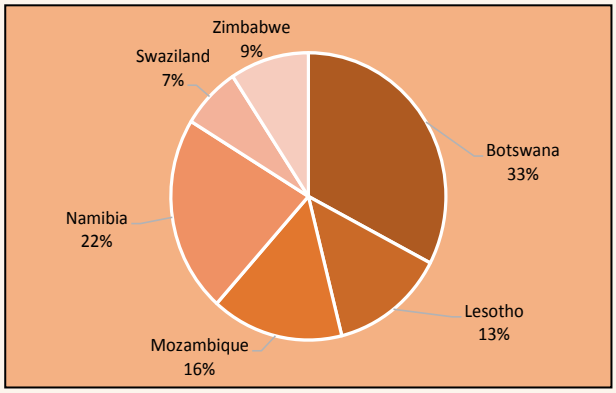
A total of 100 803 tons of white maize and 1 862 807 tons of yellow maize was imported for local use during the period 25 April 2015 to 29 April 2016. Two hundred and forty samples of imported maize were received at the SAGL for quality analyses purposes and of these, eight samples were white maize. 22% of the 240 samples were downgraded to Class Other Maize according to South African grading regulations. More than half of these were downgraded due to the presence of an undesirable odour and most of the remainder as a result of poisonous seeds in excess of the maximum permissible number, namely 1 per 1000 g or 7 per 1000 g.

The results of the quality analyses performed on the imported maize are compared to those of the local maize crop of the corresponding class and grade and period (2014/2015). Please see the summary of results on pages 98 to 103. The 100 kernel mass of the imported maize was higher on average, as were the stress cracks. The kernel sizes were more comparable than in previous seasons, but still smaller. The smaller kernels sizes of the local maize due to the drought conditions played a role. The average protein content of the imported maize was lower than that of the RSA maize, while the average fat content was higher and the starch lower. Multi-mycotoxin analyses were done on 75 composite samples per shipment. The Fumonisin, Deoxynivalenol (DON) and Zearalenone mycotoxin content was on average higher than locally produced maize. Twenty yellow maize samples exceeded the national maximum Fumonisin ($B_1 + B_2$) level for raw maize intended for further processing and six samples Fumonisin B_1 national maximum limits for animal feed.

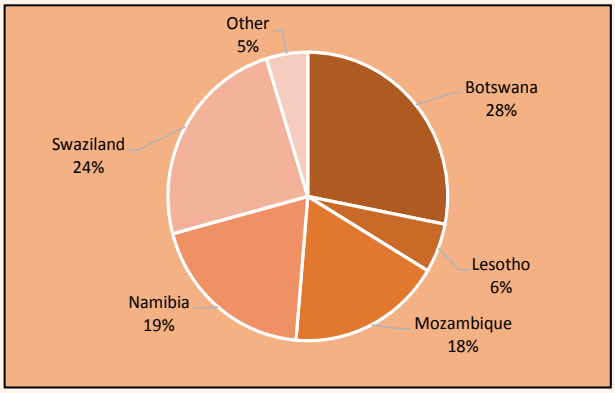
During the season under review, 473 427 tons of local white maize and 220 001 tons of local yellow maize were exported to both Africa and overseas. Please see graphs 59 to 62 below for the major destinations for exports of RSA maize as well as origins of import for local use.

All figures were obtained from SAGIS.

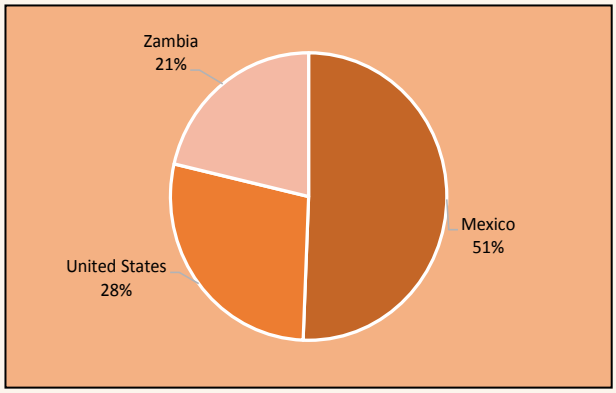
Graph 59: Major destinations for RSA white maize exported during the 2015/2016 marketing season



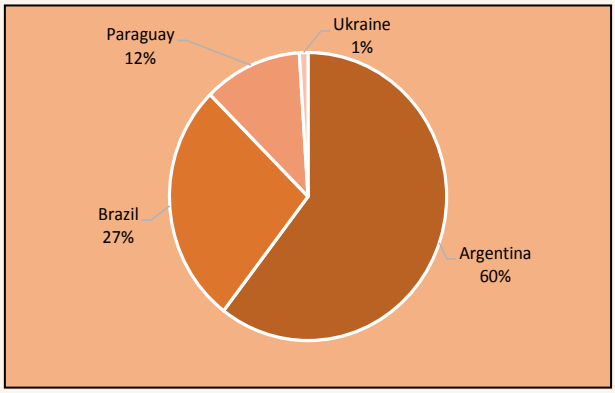
Graph 60: Major destinations for RSA yellow maize exported during the 2015/2016 marketing season



Graph 61: Country of origin for white maize imports for local use during the 2015/2016 marketing season



Graph 62: Country of origin for yellow maize imports for local use during the 2015/2016 marketing season



IMPORTED MAIZE QUALITY

Quality of maize imported from 25 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	Argentina					RSA Crop Average				
Class and grade yellow maize	**YM1**	**YM2**	**YM3**	**COM**	**Average**	**YM1**	**YM2**	**YM3**	**COM**	**Average**
RSA Grading										
Defective kernels above 6.35 mm sieve, %	3.7	4.1	3.7	6.5	4.7	2.5	4.5	10.5	6.0	3.1
Defective kernels below 6.35 mm sieve, %	3.0	4.8	6.1	3.9	3.8	2.0	4.7	8.9	4.7	2.7
Total defective kernels, %	6.6	8.9	9.7	10.4	8.5	4.5	9.2	19.5	10.6	5.9
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	5.7	0.3
Foreign matter, %	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.4	0.1
Combined deviations, %	6.8	9.1	10.0	10.6	8.7	4.7	9.7	19.7	16.7	6.2
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors										
100 Kernel mass, g	30.5	30.0	33.7	30.3	30.3	29.4	25.9	22.9	28.7	28.6
Stress cracks, %	6	9	2	8	7	5	5	5	10	5
Milling Index	88.0	84.9	82.4	88.1	87.1	95.4	93.9	89.4	96.6	95.0
Kernel Size										
% above 10 mm sieve	3.1	3.0	10.0	3.2	3.2	9.5	6.3	2.7	12.5	8.8
% above 8 mm sieve	62.5	61.6	65.2	60.6	61.6	65.5	57.4	43.6	61.5	63.4
% belowe 8 mm sieve	34.4	35.4	24.9	36.2	35.1	25.0	36.2	53.6	26.0	27.8
Breakage susceptibility										
% Below 6.35 mm sieve	0.3	0.3	0.4	0.2	0.3	1.2	1.5	1.9	2.4	1.3
% Below 4.75 mm sieve	0.4	0.4	0.3	0.4	0.4	0.9	1.0	1.1	1.3	0.9
Nutritional Factors										
Protein, % (db)	8.5	8.3	8.7	8.5	8.4	9.4	9.6	10.1	9.7	9.5
Fat, % (db)	4.5	4.5	4.4	4.5	4.5	4.0	3.9	3.8	3.9	4.0
Starch, % (db)	71.9	71.5	72.7	71.0	71.5	72.9	73.1	73.2	72.9	72.9
Number of samples	***50***	***37***	***2***	***43***	***132***	***392***	***103***	***9***	***11***	***515***
Mycotoxins										
Afla G_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [5]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	3 344 [11 935]					198 [2 714]	149 [1 440]	176 [504]	50 [136]	179
Fum B_2 (µg/kg) [max. value]	648 [2 135]					50 [505]	38 [377]	41 [133]	11 [43]	45
Fum B_3 (µg/kg) [max. value]	238 [797]					9 [163]	9 [180]	7 [25]	0 [0]	8
Deoxynivalenol (µg/kg) [max. value]	129 [404]					80 [851]	117 [593]	23 [164]	65 [253]	87
15-ADON [max. value]	0 [0]					9 [228]	5 [238]	0 [<100]	0 [0]	8
Ochratoxin A (µg/kg) [max. value]	0 [0]					0 [<5]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	19 [168]					2 [71]	7 [124]	4 [25]	0 [0]	3
HT2 [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***47***					***121***	***48***	***7***	***6***	***182***
GMO										
Cry1Ab, % [max value]	>5.0 [>5.0]					4.5 [>5.0]	3.7 [>5.0]	3.8 [3.80]	>5.0 [>5.0]	4.1
Cry2Ab, % [max value]	>5.0 [>5.0]					3.7 [>5.0]	2.9 [>5.0]	<0.5 [<0.5]	3.3 [>5.0]	3.5
CP4 EPSPS, % [max value]	>5.0 [>5.0]					4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.1
Number of samples	***47***					***40***	***10***	***1***	***3***	***54***

IMPORTED MAIZE QUALITY

Quality of maize imported from 25 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	Brazil					RSA Crop Average				
Class and grade yellow maize	**YM1**	**YM2**	**YM3**	**COM**	**Average**	**YM1**	**YM2**	**YM3**	**COM**	**Average**
RSA Grading										
Defective kernels above 6.35 mm sieve, %	4.3	6.0	3.7	5.0	5.5	2.5	4.5	10.5	6.0	3.1
Defective kernels below 6.35 mm sieve, %	3.1	4.9	10.6	5.4	4.5	2.0	4.7	8.9	4.7	2.7
Total defective kernels, %	7.4	10.9	14.3	10.4	10.0	4.5	9.2	19.5	10.6	5.9
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	5.7	0.3
Foreign matter, %	0.1	0.1	1.0	0.7	0.2	0.1	0.2	0.3	0.4	0.1
Combined deviations, %	7.5	11.1	15.3	11.0	10.1	4.7	9.7	19.7	16.7	6.2
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors										
100 Kernel mass, g	31.1	31.1	28.8	33.2	31.1	29.4	25.9	22.9	28.7	28.6
Stress cracks, %	14	29	11	32	25	5	5	5	10	5
Milling Index	95.8	94.0	83.4	88.2	94.2	95.4	93.9	89.4	96.6	95.0
Kernel Size										
% above 10 mm sieve	4.8	5.8	1.8	6.6	5.5	9.5	6.3	2.7	12.5	8.8
% above 8 mm sieve	66.1	66.4	63.9	69.0	66.3	65.5	57.4	43.6	61.5	63.4
% belowe 8 mm sieve	29.2	27.8	34.3	24.5	28.2	25.0	36.2	53.6	26.0	27.8
Breakage susceptibility										
% Below 6.35 mm sieve	0.5	1.1	0.3	1.5	1.0	1.2	1.5	1.9	2.4	1.3
% Below 4.75 mm sieve	1.0	1.9	0.6	2.7	1.7	0.9	1.0	1.1	1.3	0.9
Nutritional Factors										
Protein, % (db)	8.2	8.4	8.6	8.5	8.4	9.4	9.6	10.1	9.7	9.5
Fat, % (db)	4.4	4.2	4.3	4.1	4.2	4.0	3.9	3.8	3.9	4.0
Starch, % (db)	72.7	73.0	71.1	73.9	72.9	72.9	73.1	73.2	72.9	72.9
Number of samples	***20***	***47***	***1***	***2***	***70***	***392***	***103***	***9***	***11***	***515***
Mycotoxins										
Afla G_1 (µg/kg) [max. value]	0 [8]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 122 [2 050]					198 [2 714]	149 [1 440]	176 [504]	50 [136]	179
Fum B_2 (µg/kg) [max. value]	227 [385]					50 [505]	38 [377]	41 [133]	11 [43]	45
Fum B_3 (µg/kg) [max. value]	86 [164]					9 [163]	9 [180]	7 [25]	0 [0]	8
Deoxynivalenol (µg/kg) [max. value]	16 [295]					80 [851]	117 [593]	23 [164]	65 [253]	87
15-ADON [max. value]	0 [0]					9 [228]	5 [238]	0 [<100]	0 [0]	8
Ochratoxin A (µg/kg) [max. value]	0 [0]					0 [<5]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	10 [87]					2 [71]	7 [124]	4 [25]	0 [0]	3
HT2 [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***18***					***121***	***48***	***7***	***6***	***182***
GMO										
Cry1Ab, % [max value]	>5.0 [>5.0]					4.5 [>5.0]	3.7 [>5.0]	3.8 [3.80]	>5.0 [>5.0]	4.1
Cry2Ab, % [max value]	>5.0 [>5.0]					3.7 [>5.0]	2.9 [>5.0]	<0.5 [<0.5]	3.3 [>5.0]	3.5
CP4 EPSPS, % [max value]	>5.0 [>5.0]					4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.1
Number of samples	***18***					***40***	***10***	***1***	***3***	***54***

IMPORTED MAIZE QUALITY

Quality of maize imported from 26 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	Mexico		RSA Crop Average	
Class and grade white maize	WM2	Average	WM2	Average
RSA Grading				
Defective kernels above 6.35 mm sieve, %	10.2	10.2	5.3	3.1
Defective kernels below 6.35 mm sieve, %	1.8	1.8	3.5	2.2
Total defective kernels, %	12.0	12.0	8.7	5.3
Other colour maize kernels, %	0.0	0.0	0.7	0.4
Foreign matter, %	0.4	0.4	0.2	0.1
Combined deviations, %	12.4	12.4	9.6	5.8
Pinked maize kernels, %	0.0	0.0	0.2	0.1
Physical Factors				
100 Kernel mass, g	29.4	29.4	31.2	31.1
Stress cracks, %	2	2	7	6
Milling Index	89.3	89.3	103.0	100.4
Kernel Size				
% above 10 mm sieve	1.1	1.1	17.7	15.4
% above 8 mm sieve	61.8	61.8	65.0	66.1
% belowe 8 mm sieve	37.1	37.1	17.3	18.4
Breakage susceptibility				
% Below 6.35 mm sieve	0.1	0.1	1.3	1.1
% Below 4.75 mm sieve	0.3	0.3	1.0	0.8
Number of samples	***1***	***1***	***59***	***485***
Nutritional Factors				
Protein, % (db)	8.8	8.8	9.6	9.4
Fat, % (db)	4.5	4.5	4.2	4.2
Starch, % (db)	68.4	68.4	72.4	72.6
Roff Milling				
Break 1, %	13.5	13.5	12.5	12.9
Break 2, %	12.1	12.1	11.7	11.8
Break 3, %	25.3	25.3	24.6	24.9
Grits, %	28.1	28.1	29.7	29.0
Bran and Germ, %	21.0	21.0	21.5	21.3
Extraction (Total meal), %	79.0	79.0	78.5	78.7
Whiteness Index				
Whiteness Index, 87:13, sifted	14.2	14.2	13.4	14.9
Whiteness Index, unsifted	23.4	23.4	21.2	22.9
Number of samples	***1***	***1***	***59***	***480***
Mycotoxins				
Afla G_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 604 [1 604]		268 [1 229]	164
Fum B_2 (µg/kg) [max. value]	299 [299]		70 [283]	41
Fum B_3 (µg/kg) [max. value]	223 [223]		18 [88]	9
Deoxynivalenol (µg/kg) [max. value]	0 [0]		416 [3 167]	284
15-ADON [max. value]	0 [0]		64 [890]	47
Ochratoxin A (µg/kg) [max. value]	0 [0]		0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [0]		23 [212]	10
HT2 [max. value]	0 [0]		0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]		0 [0]	0
Number of samples	***1***		***30***	***168***
GMO				
Cry1Ab, % [max value]	<0.4 [<0.4]		>5.0 [>5.0]	4.5
Cry2Ab, % [max value]	<0.5 [<0.5]		4.1 [>5.0]	3.9
CP4 EPSPS, % [max value]	<0.25 [<0.25]		4.7 [>5.0]	4.5
Number of samples	***1***		***15***	***46***

IMPORTED MAIZE QUALITY

Quality of maize imported from 26 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	Paraguay					RSA Crop Average				
Class and grade yellow maize	**YM1**	**YM2**	**YM3**	**COM**	**Average**	**YM1**	**YM2**	**YM3**	**COM**	**Average**
RSA Grading										
Defective kernels above 6.35 mm sieve, %	5.5	8.3	7.2	12.0	8.0	2.5	4.5	10.5	6.0	3.1
Defective kernels below 6.35 mm sieve, %	1.3	2.6	12.0	13.7	5.5	2.0	4.7	8.9	4.7	2.7
Total defective kernels, %	6.8	10.9	19.2	25.7	13.6	4.5	9.2	19.5	10.6	5.9
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	5.7	0.3
Foreign matter, %	0.1	0.2	0.4	0.1	0.2	0.1	0.2	0.3	0.4	0.1
Combined deviations, %	6.9	11.1	19.6	25.8	13.7	4.7	9.7	19.7	16.7	6.2
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors										
100 Kernel mass, g	32.8	34.3	32.8	32.5	33.0	29.4	25.9	22.9	28.7	28.6
Stress cracks, %	39	32	19	55	41	5	5	5	10	5
Milling Index	105.1	103.0	97.2	100.2	102.9	95.4	93.9	89.4	96.6	95.0
Kernel Size										
% above 10 mm sieve	13.5	13.8	14.3	14.5	13.9	9.5	6.3	2.7	12.5	8.8
% above 8 mm sieve	71.5	72.2	69.2	68.7	70.8	65.5	57.4	43.6	61.5	63.4
% belowe 8 mm sieve	14.9	14.0	16.5	16.8	15.3	25.0	36.2	53.6	26.0	27.8
Breakage susceptibility										
% Below 6.35 mm sieve	1.3	1.2	2.1	1.3	1.3	1.2	1.5	1.9	2.4	1.3
% Below 4.75 mm sieve	1.6	1.3	3.2	1.6	1.6	0.9	1.0	1.1	1.3	0.9
Number of samples	***11***	***6***	***1***	***7***	***25***	***392***	***103***	***9***	***11***	***515***
Nutritional Factors										
Protein, % (db)	9.1	9.2	9.1	9.3	9.2	9.4	9.6	10.1	9.7	9.5
Fat, % (db)	4.4	4.4	4.4	4.5	4.4	4.0	3.9	3.8	3.9	4.0
Starch, % (db)	73.7	72.3	74.7	71.5	72.8	72.9	73.1	73.2	72.9	72.9
Number of samples	***11***	***6***	***1***	***7***	***25***	***392***	***103***	***9***	***11***	***515***
Mycotoxins										
Afla G_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	2 706 [9 310]					198 [2 714]	149 [1 440]	176 [504]	50 [136]	179
Fum B_2 (µg/kg) [max. value]	584 [1 760]					50 [505]	38 [377]	41 [133]	11 [43]	45
Fum B_3 (µg/kg) [max. value]	182 [625]					9 [163]	9 [180]	7 [25]	0 [0]	8
Deoxynivalenol (µg/kg) [max. value]	0 [0]					80 [851]	117 [593]	23 [164]	65 [253]	87
15-ADON [max. value]	0 [0]					9 [228]	5 [238]	0 [<100]	0 [0]	8
Ochratoxin A (µg/kg) [max. value]	0 [0]					0 [<5]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	28 [69]					2 [71]	7 [124]	4 [25]	0 [0]	3
HT2 [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***6***					***121***	***48***	***7***	***6***	***182***
GMO										
Cry1Ab, % [max value]	>5.0 [>5.0]					4.5 [>5.0]	3.7 [>5.0]	3.8 [3.80]	>5.0 [>5.0]	4.1
Cry2Ab, % [max value]	>5.0 [>5.0]					3.7 [>5.0]	2.9 [>5.0]	<0.5 [<0.5]	3.3 [>5.0]	3.5
CP4 EPSPS, % [max value]	>5.0 [>5.0]					4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.1
Number of samples	***6***					***40***	***10***	***1***	***3***	***54***

IMPORTED MAIZE QUALITY

Quality of maize imported from 26 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	Ukraine				RSA Crop Average				
Class and grade yellow maize	**YM2**	**YM3**	**COM**	**Average**	**YM1**	**YM2**	**YM3**	**COM**	**Average**
RSA Grading									
Defective kernels above 6.35 mm sieve, %	4.1	4.4	5.6	4.5	2.5	4.5	10.5	6.0	3.1
Defective kernels below 6.35 mm sieve, %	8.8	15.6	15.4	12.8	2.0	4.7	8.9	4.7	2.7
Total defective kernels, %	12.9	20.0	21.0	17.3	4.5	9.2	19.5	10.6	5.9
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.1	0.4	0.0	5.7	0.3
Foreign matter, %	0.2	0.2	0.0	0.2	0.1	0.2	0.3	0.4	0.1
Combined deviations, %	13.1	20.2	21.0	17.5	4.7	9.7	19.7	16.7	6.2
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors									
100 Kernel mass, g	26.3	26.5	30.2	27.1	29.4	25.9	22.9	28.7	28.6
Stress cracks, %	86	92	61	83	5	5	5	10	5
Milling Index	86.0	89.5	81.6	86.5	95.4	93.9	89.4	96.6	95.0
Kernel Size									
% above 10 mm sieve	2.8	2.5	2.4	2.6	9.5	6.3	2.7	12.5	8.8
% above 8 mm sieve	55.4	49.1	54.5	52.7	65.5	57.4	43.6	61.5	63.4
% belowe 8 mm sieve	41.9	48.4	43.1	44.7	25.0	36.2	53.6	26.0	27.8
Breakage susceptibility									
% Below 6.35 mm sieve	3.5	5.0	4.2	4.2	1.2	1.5	1.9	2.4	1.3
% Below 4.75 mm sieve	5.2	9.2	8.9	7.5	0.9	1.0	1.1	1.3	0.9
Number of samples	***2***	***2***	***1***	***5***	***392***	***103***	***9***	***11***	***515***
Nutritional Factors									
Protein, % (db)	8.9	9.0	9.1	9.0	9.4	9.6	10.1	9.7	9.5
Fat, % (db)	4.2	4.3	4.2	4.2	4.0	3.9	3.8	3.9	4.0
Starch, % (db)	67.5	73.5	71.7	70.7	72.9	73.1	73.2	72.9	72.9
Number of samples	***2***	***2***	***1***	***5***	***392***	***103***	***9***	***11***	***515***
Mycotoxins									
Afla G_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	<20]				198 [2 714]	149 [1 440]	176 [504]	50 [136]	179
Fum B_2 (µg/kg) [max. value]	0 [0]				50 [505]	38 [377]	41 [133]	11 [43]	45
Fum B_3 (µg/kg) [max. value]	0 [0]				9 [163]	9 [180]	7 [25]	0 [0]	8
Deoxynivalenol (µg/kg) [max. value]	102 [102]				80 [851]	117 [593]	23 [164]	65 [253]	87
15-ADON [max. value]	0 [0]				9 [228]	5 [238]	0 [<100]	0 [0]	8
Ochratoxin A (µg/kg) [max. value]	0 [0]				0 [<5]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [0]				2 [71]	7 [124]	4 [25]	0 [0]	3
HT2 [max. value]	<20]				0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***1***				***121***	***48***	***7***	***6***	***182***
GMO									
Cry1Ab, % [max value]	<0.4 [<0.4]				4.5 [>5.0]	3.7 [>5.0]	3.8 [3.80]	>5.0 [>5.0]	4.1
Cry2Ab, % [max value]	<0.5 [<0.5]				3.7 [>5.0]	2.9 [>5.0]	<0.5 [<0.5]	3.3 [>5.0]	3.5
CP4 EPSPS, % [max value]	0 [0]				4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.1
Number of samples	***1***				***40***	***10***	***1***	***3***	***54***

IMPORTED MAIZE QUALITY

Quality of maize imported from 26 April 2015 to 29 April 2016 compared to RSA crop quality 2014/2015

Country of origin	USA		RSA Crop Average	
Class and grade white maize	WM2	Average	WM2	Average
RSA Grading				
Defective kernels above 6.35 mm sieve, %	4.2	4.2	5.3	3.1
Defective kernels below 6.35 mm sieve, %	4.6	4.6	3.5	2.2
Total defective kernels, %	8.8	8.8	8.7	5.3
Other colour maize kernels, %	0.1	0.1	0.7	0.4
Foreign matter, %	0.2	0.2	0.2	0.1
Combined deviations, %	9.0	9.0	9.6	5.8
Pinked maize kernels, %	0.0	0.0	0.2	0.1
Physical Factors				
100 Kernel mass, g	33.3	33.3	31.2	31.1
Stress cracks, %	35	35	7	6
Milling Index	89.3	89.3	103.0	100.4
Kernel Size				
% above 10 mm sieve	3.6	3.6	17.7	15.4
% above 8 mm sieve	69.4	69.4	65.0	66.1
% belowe 8 mm sieve	27.0	27.0	17.3	18.4
Breakage susceptibility				
% Below 6.35 mm sieve	0.5	0.5	1.3	1.1
% Below 4.75 mm sieve	1.7	1.7	1.0	0.8
Number of samples	***1***	***1***	***59***	***485***
Nutritional Factors				
Protein, % (db)	8.4	8.4	9.6	9.4
Fat, % (db)	3.7	3.7	4.2	4.2
Starch, % (db)	73.7	73.7	72.4	72.6
Roff Milling				
Break 1, %	15.6	15.6	12.5	12.9
Break 2, %	12.3	12.3	11.7	11.8
Break 3, %	25.4	25.4	24.6	24.9
Grits, %	24.2	24.2	29.7	29.0
Bran and Germ, %	21.8	21.8	21.5	21.3
Extraction (Total meal), %	78.2	78.2	78.5	78.7
Whiteness Index				
Whiteness Index, 87:13, sifted	17.3	17.3	13.4	14.9
Whiteness Index, unsifted	27.7	27.7	21.2	22.9
Number of samples	***7***	***7***	***59***	***480***
Mycotoxins				
Afla G_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 209 [1 452]		268 [1 229]	164
Fum B_2 (µg/kg) [max. value]	174 [227]		70 [283]	41
Fum B_3 (µg/kg) [max. value]	83 [108]		18 [88]	9
Deoxynivalenol (µg/kg) [max. value]	879 [1 255]		416 [3 167]	284
15-ADON [max. value]	0 [0]		64 [890]	47
Ochratoxin A (µg/kg) [max. value]	0 [0]		0 [0]	0
Zearalenone (µg/kg) [max. value]	14 [28]		23 [212]	10
HT2 [max. value]	0 [0]		0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]		0 [0]	0
Number of samples	***2***		***30***	***168***
GMO				
Cry1Ab, % [max value]	<0.4 [<0.4]		>5.0 [>5.0]	4.5
Cry2Ab, % [max value]	<0.5 [<0.5]		4.1 [>5.0]	3.9
CP4 EPSPS, % [max value]	<0.25 [<0.25]		4.7 [>5.0]	4.5
Number of samples	***2***		***15***	***46***

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

WHITE MAIZE EXPORT/IMPORTS

2016/17 Season (30 Apr 2016 - 28 Apr 2017)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR EXPORTS		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons
Botswana	134 812	Mexico	502 396	Mexico	259 405	Botswana	2 311	Durban	703 205
Lesotho	82 898	United States	144 486	United States	7 613	Lesotho	38 229	East London	200 408
Malawi	2 827					Mozambique	68	Richards Bay	10 287
Mozambique	42 009					Namibia	2 478		
Namibia	80 634					Swaziland	1 152		
Swaziland	53 024					Tanzania	19 995		
Tanzania	10 105					Zimbabwe	174 542		
Zambia	288								
Zimbabwe	119 003								
Total	**525 600**	**Total**	**646 882**	**Total**	**267 018**	**Total**	**238 775**	**Total***	**913 900**

**Includes imports for RSA and other countries*

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM
Reg no. 1997/019186/08

YELLOW MAIZE EXPORT/IMPORTS

2016/17 Season (30 Apr 2016 - 28 Apr 2017)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR EXPORTS		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons
Botswana	69 607	Argentina	989 783	Argentina	2 661	Angola	724	Cape Town	726 150
Korea, Dem People's Rep	5 963	Brazil	94 462	Romania	8 294	Namibia	1 694	Durban	638 110
Lesotho	12 685	Romania	36 382	Ukraine	149	Swaziland	3 524	East London	11 031
Mozambique	26 795	Ukraine	371 559	United States	429	Zimbabwe	9 360	Port Elizabeth	228 913
Namibia	14 991	United States	100 485						
Swaziland	69 373								
Zambia	132								
Zimbabwe	89 594								
Total	**289 140**	**Total**	**1 592 671**	**Total**	**11 533**	**Total**	**15 302**	**Total***	**1 604 204**

**Includes imports for RSA and other countries*

Maize Imports and Exports during the 2016/2017 marketing season

A total of 646 882 tons of white maize and 1 592 671 tons of yellow maize was imported for local use during the period 30 April 2016 to 28 April 2017. To date, 269 samples of imported maize were received at the SAGL for quality analyses purposes. The analyses on 244 of these have been completed and the results are included in this report. The total number of samples include 86 white maize samples. 11% of the 244 samples were downgraded to Class Other Maize according to South African grading regulations. More than half of these were downgraded due to the presence of an undesirable odour. Half of the remainder was downgraded as a result of total defective kernels exceeding the maximum permissible level of 30%.

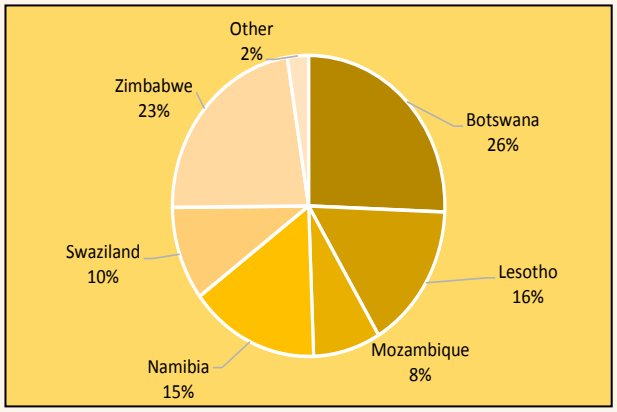
The results of the quality analyses performed on the imported maize are compared to those of the local maize crop of the corresponding class and grade and period (2015/2016). Please see the summary of results on pages 107 to 113. The 100 kernel mass of the imported maize was lower on average (except for the white maize), the stress cracks were higher. The kernel sizes were more comparable than in previous seasons, but still smaller. The smaller kernels sizes of the local maize due to the drought conditions again played a role, as in the previous season. The protein content of the imported maize was on average 1.1% lower than that of the RSA maize, while the average fat and starch contents were higher.

Multi-mycotoxin analyses have been completed on 85 composite samples per shipment to date. Aflatoxin B_1 and B_2 residues were detected on a couple of samples (five white and one yellow), the B_1 levels exceeded national maximum levels. The Fumonisin, Deoxynivalenol (DON) and Zearalenone mycotoxin content was on average higher than locally produced maize. Twenty seven yellow maize samples and two white maize samples exceeded the national maximum Fumonisin (B_1 + B_2) level for raw maize intended for further processing and 11 yellow samples, the national Fumonisin B_1 maximum limits for animal feed.

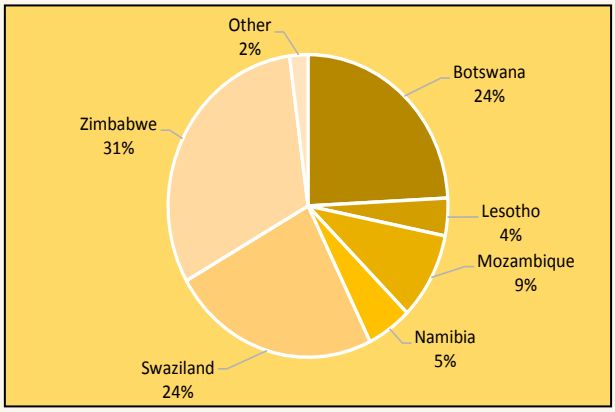
During the season under review, 525 600 tons of local white maize and 289 140 tons of local yellow maize were exported to both Africa and overseas. Please see graphs 63 to 66 below for the major destinations for exports of RSA maize as well as origins of import for local use.

All figures were obtained from SAGIS.

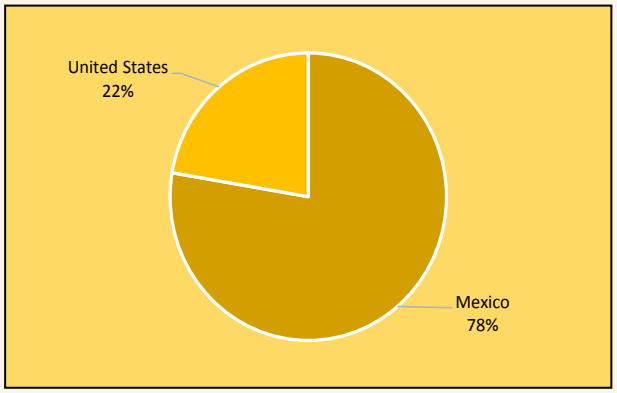
Graph 63: Major destinations for RSA white maize exports during the 2016/2017 marketing season



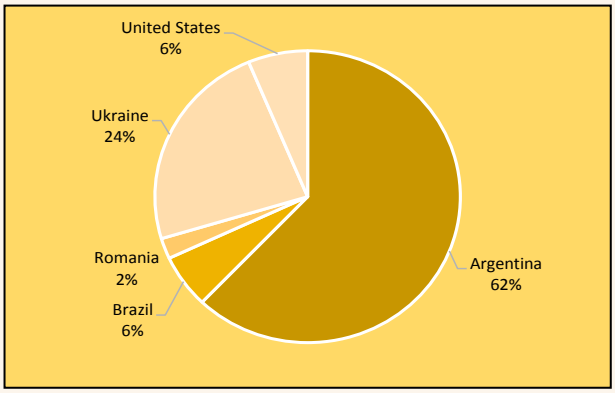
Graph 64: Major destinations for RSA yellow maize exports during the 2016/2017 marketing season



Graph 65: Country of origin for white maize imports for local use during the 2016/2017 marketing season



Graph 66: Country of origin for yellow maize imports for local use during the 2016/2017 marketing season



IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	Argentina				RSA Crop Average			
Class and grade yellow maize	**YM1**	**YM2**	**COM**	**Average**	**YM1**	**YM2**	**COM**	**Average**
RSA Grading								
Defective kernels above 6.35 mm sieve, %	3.9	4.9	4.2	4.5	2.5	5.0	10.3	3.1
Defective kernels below 6.35 mm sieve, %	3.3	5.4	5.7	4.7	1.9	4.5	7.9	2.6
Total defective kernels, %	7.2	10.3	9.9	9.2	4.4	9.5	18.2	5.7
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.2
Foreign matter, %	0.2	0.2	0.3	0.2	0.1	0.2	1.1	0.2
Combined deviations, %	7.3	10.5	10.2	9.4	4.6	10.1	19.7	6.0
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors								
100 Kernel mass, g	30.5	30.2	29.8	30.3	32.3	30.7	27.0	31.8
Stress cracks, %	10	13	21	13	5	6	5	5
Milling Index	87.7	81.2	85.2	83.7	92.9	92.4	65.0	92.6
Kernel Size								
% above 10 mm sieve	3.2	3.3	2.6	3.2	12.7	8.8	5.5	11.8
% above 8 mm sieve	60.9	60.2	60.8	60.5	67.6	64.4	56.7	66.6
% belowe 8 mm sieve	36.6	37.3	36.7	37.0	19.6	26.8	37.8	21.6
Breakage susceptibility								
% Below 6.35 mm sieve	0.3	0.7	0.3	0.5	0.9	1.2	1.5	1.0
% Below 4.75 mm sieve	0.5	0.6	0.7	0.6	0.5	0.5	0.5	0.5
Nutritional Factors								
Protein, % (db)	8.5	8.5	8.4	8.5	9.7	9.9	9.4	9.7
Fat, % (db)	4.4	4.9	4.5	4.7	4.0	3.9	3.8	4.0
Starch, % (db)	72.2	71.8	73.0	72.1	72.3	72.1	73.1	72.3
Number of samples	***40***	***71***	***14***	***125***	***395***	***97***	***3***	***505***
Mycotoxins								
Afla G_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [11]				0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	3 806 [15 965]				182 [2 610]	434 [7 406]	13 [38]	251
Fum B_2 (µg/kg) [max. value]	1 456 [7 460]				67 [1 062]	170 [3 340]	7 [22]	95
Fum B_3 (µg/kg) [max. value]	323 [1 552]				11 [186]	32 [601]	0 [0]	17
Deoxynivalenol (µg/kg) [max. value]	243 [948]				33 [554]	55 [640]	0 [0]	36
15-ADON [max. value]	0 [<100]				1 [122]	4 [184]	0 [0]	2
Ochratoxin A (µg/kg) [max. value]	0 [<100]				0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	53 [219]				1 [44]	2 [36]	0 [0]	1
HT2 [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Number of samples	***45***				***139***	***46***	***3***	***194***
GMO								
Cry1Ab, % [max value]	4.9 [>5.0]				4.2 [>5.0]	4.4 [>5.0]	-	4.3
Cry2Ab, % [max value]	4.9 [>5.0]				3.2 [>5.0]	3.6 [>5.0]	-	3.3
CP4 EPSPS, % [max value]	4.9 [>5.0]				4.4 [>5.0]	4.7 [>5.0]	-	4.5
Number of samples	***45***				***40***	***15***	***-***	***56***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	Brazil		RSA Crop Average	
Class and grade yellow maize	**YM2**	**Average**	**YM2**	**Average**
RSA Grading				
Defective kernels above 6.35 mm sieve, %	3.1	3.1	5.0	3.1
Defective kernels below 6.35 mm sieve, %	6.6	6.6	4.5	2.6
Total defective kernels, %	9.7	9.7	9.5	5.7
Other colour maize kernels, %	0.0	0.0	0.4	0.2
Foreign matter, %	0.1	0.1	0.2	0.2
Combined deviations, %	9.8	9.8	10.1	6.0
Pinked maize kernels, %	0.0	0.0	0.0	0.0
Physical Factors				
100 Kernel mass, g	28.9	28.9	30.7	31.8
Stress cracks, %	19	19	6	5
Milling Index	96.9	96.9	92.4	92.6
Kernel Size				
% above 10 mm sieve	5.3	5.3	8.8	11.8
% above 8 mm sieve	56.6	56.6	64.4	66.6
% belowe 8 mm sieve	38.0	38.0	26.8	21.6
Breakage susceptibility				
% Below 6.35 mm sieve	1.6	1.6	1.2	1.0
% Below 4.75 mm sieve	1.9	1.9	0.5	0.5
Nutritional Factors				
Protein, % (db)	9.1	9.1	9.9	9.7
Fat, % (db)	4.3	4.3	3.9	4.0
Starch, % (db)	71.6	71.6	72.1	72.3
Number of samples	***5***	***5***	***97***	***505***
Mycotoxins				
Afla G_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]		0 [0]	0
Fum B_1 (µg/kg) [max. value]	2 786 [3 223]		434 [7 406]	251
Fum B_2 (µg/kg) [max. value]	1 175 [1 253]		170 [3 340]	95
Fum B_3 (µg/kg) [max. value]	193 [213]		32 [601]	17
Deoxynivalenol (µg/kg) [max. value]	0 [0]		55 [640]	36
15-ADON [max. value]	0 [0]		4 [184]	2
Ochratoxin A (µg/kg) [max. value]	0 [0]		0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [0]		2 [36]	1
HT2 [max. value]	0 [0]		0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]		0 [0]	0
Number of samples	***2***		***46***	***194***
GMO				
Cry1Ab, % [max value]	>5.0 [>5.0]		4.4 [>5.0]	4.3
Cry2Ab, % [max value]	>5.0 [>5.0]		3.6 [>5.0]	3.3
CP4 EPSPS, % [max value]	>5.0 [>5.0]		4.7 [>5.0]	4.5
Number of samples	***2***		***15***	***56***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	Mexico					RSA Crop Average				
Class and grade white maize	**WM1**	**WM2**	**WM3**	**COM**	**Average**	**WM1**	**WM2**	**WM3**	**COM**	**Average**
RSA Grading										
Defective kernels above 6.35 mm sieve, %	2.9	5.6	10.4	21.2	6.2	2.5	5.3	9.1	26.4	3.8
Defective kernels below 6.35 mm sieve, %	3.0	4.1	3.4	3.6	3.5	1.8	3.3	5.8	9.2	2.4
Total defective kernels, %	5.9	9.8	13.8	24.8	9.7	4.3	8.6	15.1	35.6	6.2
Other colour maize kernels, %	0.2	0.1	0.0	0.2	0.1	0.2	0.5	1.3	0.5	0.4
Foreign matter, %	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.9	0.2
Combined deviations, %	6.3	10.1	14.0	25.2	10.1	4.7	9.3	16.6	37.0	6.7
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Physical Factors										
100 Kernel mass, g	38.2	36.0	35.6	38.0	37.4	32.7	31.7	31.7	32.0	32.4
Stress cracks, %	12	10	16	10	11	4	6	7	3	5
Milling Index	95.8	88.9	78.5	61.9	88.9	98.9	99.3	100.4	91.8	99.0
Kernel Size										
% above 10 mm sieve	19.9	16.4	18.3	21.9	18.9	15.3	15.2	15.1	7.6	15.2
% above 8 mm sieve	71.4	70.3	70.9	70.4	70.9	67.3	64.7	66.0	62.7	66.7
% belowe 8 mm sieve	8.7	13.3	10.8	7.7	10.2	17.4	20.1	18.9	29.7	18.2
Breakage susceptibility										
% Below 6.35 mm sieve	0.4	0.8	0.0	0.1	0.5	0.8	1.2	1.7	2.0	0.9
% Below 4.75 mm sieve	0.6	0.5	0.3	0.5	0.6	0.4	0.5	0.7	0.8	0.4
Nutritional Factors										
Protein, % (db)	8.8	8.7	8.5	8.6	8.7	9.7	9.9	9.9	9.5	9.7
Fat, % (db)	4.6	4.4	4.7	4.6	4.5	4.1	4.2	4.2	3.9	4.1
Starch, % (db)	73.7	73.2	73.3	73.7	73.5	72.7	72.4	72.4	72.9	72.6
Number of samples	***38***	***25***	***2***	***9***	***74***	***300***	***84***	***27***	***4***	***415***
Roff Milling										
Break 1, %	12.7	13.6	13.5	12.7	13.1	12.2	12.0	11.6	12.4	12.1
Break 2, %	10.9	11.4	11.2	11.4	11.1	10.8	10.8	10.8	11.2	10.8
Break 3, %	21.6	21.1	21.4	21.1	21.4	21.8	21.4	21.2	21.4	21.7
Grits, %	32.5	31.0	30.5	31.2	31.8	33.7	34.1	34.6	32.8	33.9
Bran and Germ, %	22.2	22.9	23.5	23.5	22.6	21.5	21.7	21.8	22.3	21.6
Extraction (Total meal), %	77.8	77.1	76.6	76.5	77.4	78.5	78.3	78.2	77.7	78.4
Whiteness Index										
Whiteness Index, 87:13, sifted	19.0	17.7	18.7	21.0	18.8	18.3	16.8	11.6	13.8	17.5
Whiteness Index, unsifted	28.0	27.5	27.9	30.7	28.1	27.0	24.8	20.8	22.9	26.1
Number of samples	***38***	***25***	***2***	***9***	***74***	***300***	***84***	***27***	***4***	***415***
Mycotoxins										
Afla G_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	11 [189]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	1 [25]					0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 195 [3 640]					166 [4 391]	272 [1 789]	154 [542]	94 [283]	186
Fum B_2 (µg/kg) [max. value]	344 [1 054]					68 [1 975]	124 [803]	66 [278]	38 [115]	79
Fum B_3 (µg/kg) [max. value]	134 [392]					12 [499]	18 [154]	9 [44]	10 [30]	13
Deoxynivalenol (µg/kg) [max. value]	58 [891]					54 [598]	143 [1 585]	137 [728]	0 [0]	79
15-ADON [max. value]	0 [0]					1 [110]	13 [310]	20 [184]	0 [0]	5
Ochratoxin A (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	1 [32]					4 [127]	5 [125]	6 [28]	0 [0]	4
HT2 [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***25***					***106***	***33***	***14***	***3***	***156***
GMO										
Cry1Ab, % [max value]	<0.4 [0.72]					4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.5
Cry2Ab, % [max value]	<0.5 [<0.5]					3.4 [>5.0]	2.7 [>5.0]	4.0 [>5.0]	<0.5 [<0.5]	3.2
CP4 EPSPS, % [max value]	<0.25 [0.40]					3.9 [>5.0]	4.4 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.2
Number of samples	***25***					***30***	***8***	***5***	***1***	***44***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	Romania			RSA Crop Average		
Class and grade yellow maize	**YM2**	**YM3**	**Average**	**YM2**	**YM3**	**Average**
RSA Grading						
Defective kernels above 6.35 mm sieve, %	2.3	5.3	2.9	5.0	5.0	3.1
Defective kernels below 6.35 mm sieve, %	7.3	10.1	7.9	4.5	11.5	2.6
Total defective kernels, %	9.6	15.4	10.7	9.5	16.4	5.7
Other colour maize kernels, %	0.0	0.0	0.0	0.4	0.0	0.2
Foreign matter, %	0.1	0.1	0.1	0.2	0.3	0.2
Combined deviations, %	9.7	15.5	10.9	10.1	16.8	6.0
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors						
100 Kernel mass, g	32.0	33.4	32.2	30.7	28.7	31.8
Stress cracks, %	38	12	33	6	6	5
Milling Index	55.9	64.8	57.7	92.4	89.5	92.6
Kernel Size						
% above 10 mm sieve	7.4	6.4	7.2	8.8	3.3	11.8
% above 8 mm sieve	68.5	60.8	67.0	64.4	51.7	66.6
% belowe 8 mm sieve	24.1	32.8	25.8	26.8	45.0	21.6
Breakage susceptibility						
% Below 6.35 mm sieve	2.4	4.3	2.8	1.2	1.6	1.0
% Below 4.75 mm sieve	6.3	13.1	7.7	0.5	0.6	0.5
Nutritional Factors						
Protein, % (db)	8.3	8.2	8.3	9.9	10.2	9.7
Fat, % (db)	3.8	3.7	3.8	3.9	3.8	4.0
Starch, % (db)	74.9	74.6	74.8	72.1	72.7	72.3
Number of samples	***4***	***1***	***5***	***97***	***10***	***505***
Mycotoxins						
Afla G_1 (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	568 [603]			434 [7 406]	558 [1 308]	251
Fum B_2 (µg/kg) [max. value]	187 [208]			170 [3 340]	223 [528]	95
Fum B_3 (µg/kg) [max. value]	50 [61]			32 [601]	36 [157]	17
Deoxynivalenol (µg/kg) [max. value]	127 [254]			55 [640]	0 [<100]	36
15-ADON [max. value]	0 [0]			4 [184]	0 [0]	2
Ochratoxin A (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [0]			2 [36]	0 [0]	1
HT2 [max. value]	0 [0]			0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Number of samples	***2***			***46***	***6***	***194***
GMO						
Cry1Ab, % [max value]	<0.4 [<0.4]			4.4 [>5.0]	>5.0 [>5.0]	4.3
Cry2Ab, % [max value]	<0.5 [<0.5]			3.6 [>5.0]	<0.5 [<0.5]	3.3
CP4 EPSPS, % [max value]	<0.25 [<0.25]			4.7 [>5.0]	>5.0 [>5.0]	4.5
Number of samples	***2***			***15***	***1***	***56***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	Ukraine				RSA Crop Average			
Class and grade yellow maize	**YM2**	**YM3**	**COM**	**Average**	**YM2**	**YM3**	**COM**	**Average**
RSA Grading								
Defective kernels above 6.35 mm sieve, %	5.6	5.6	6.2	5.6	5.0	5.0	10.3	3.1
Defective kernels below 6.35 mm sieve, %	10.1	16.0	25.4	14.3	4.5	11.5	7.9	2.6
Total defective kernels, %	15.6	21.6	31.6	19.9	9.5	16.4	18.2	5.7
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.2
Foreign matter, %	0.1	0.1	0.1	0.1	0.2	0.3	1.1	0.2
Combined deviations, %	15.7	21.7	31.7	20.0	10.1	16.8	19.7	6.0
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors								
100 Kernel mass, g	30.1	29.1	29.7	29.6	30.7	28.7	27.0	31.8
Stress cracks, %	37	38	35	38	6	6	5	5
Milling Index	65.6	67.3	69.6	66.8	92.4	89.5	65.0	92.6
Kernel Size								
% above 10 mm sieve	6.0	4.6	5.0	5.2	8.8	3.3	5.5	11.8
% above 8 mm sieve	55.7	59.1	54.9	57.4	64.4	51.7	56.7	66.6
% belowe 8 mm sieve	38.3	36.3	40.1	37.4	26.8	45.0	37.8	21.6
Breakage susceptibility								
% Below 6.35 mm sieve	3.0	4.6	3.5	3.8	1.2	1.6	1.5	1.0
% Below 4.75 mm sieve	10.8	10.1	11.7	10.5	0.5	0.6	0.5	0.5
Nutritional Factors								
Protein, % (db)	8.4	8.5	8.3	8.4	9.9	10.2	9.4	9.7
Fat, % (db)	4.0	4.0	4.0	4.0	3.9	3.8	3.8	4.0
Starch, % (db)	73.0	73.3	73.8	73.2	72.1	72.7	73.1	72.3
Number of samples	***5***	***6***	***1***	***12***	***97***	***10***	***3***	***505***
Mycotoxins								
Afla G_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	204 [675]				434 [7 406]	558 [1 308]	13 [38]	251
Fum B_2 (µg/kg) [max. value]	52 [186]				170 [3 340]	223 [528]	7 [22]	95
Fum B_3 (µg/kg) [max. value]	14 [57]				32 [601]	36 [157]	0 [0]	17
Deoxynivalenol (µg/kg) [max. value]	400 [762]				55 [640]	0 [<100]	0 [0]	36
15-ADON [max. value]	0 [<100]				4 [184]	0 [0]	0 [0]	2
Ochratoxin A (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [<200]				2 [36]	0 [0]	0 [0]	1
HT2 [max. value]	17 [47]				0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	8 [33]				0 [0]	0 [0]	0 [0]	0
Number of samples	***4***				***46***	***6***	***3***	***194***
GMO								
Cry1Ab, % [max value]	<0.4 [<0.4]				4.4 [>5.0]	>5.0 [>5.0]	-	4.3
Cry2Ab, % [max value]	<0.5 [<0.5]				3.6 [>5.0]	<0.5 [<0.5]	-	3.3
CP4 EPSPS, % [max value]	<0.25 [0.32]				4.7 [>5.0]	>5.0 [>5.0]	-	4.5
Number of samples	***4***				***15***	***1***	***-***	***56***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	USA					RSA Crop Average				
Class and grade white maize	**WM1**	**WM2**	**WM3**	**COM**	**Average**	**WM1**	**WM2**	**WM3**	**COM**	**Average**
RSA Grading										
Defective kernels above 6.35 mm sieve, %	2.2	5.0	13.8	5.5	5.1	2.5	5.3	9.1	26.4	3.8
Defective kernels below 6.35 mm sieve, %	3.7	4.0	3.5	2.8	3.8	1.8	3.3	5.8	9.2	2.4
Total defective kernels, %	5.9	8.9	17.3	8.3	8.8	4.3	8.6	15.1	35.6	6.2
Other colour maize kernels, %	0.2	0.0	0.0	0.0	0.1	0.2	0.5	1.3	0.5	0.4
Foreign matter, %	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.9	0.2
Combined deviations, %	6.2	9.2	17.4	8.4	9.1	4.7	9.3	16.6	37.0	6.7
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Physical Factors										
100 Kernel mass, g	41.9	34.4	32.8	35.9	36.3	32.7	31.7	31.7	32.0	32.4
Stress cracks, %	4	16	0	2	10	4	6	7	3	5
Milling Index	103.9	88.9	88.5	92.2	92.9	98.9	99.3	100.4	91.8	99.0
Kernel Size										
% above 10 mm sieve	8.5	5.5	7.1	5.8	6.4	15.3	15.2	15.1	7.6	15.2
% above 8 mm sieve	78.2	69.9	75.1	72.0	72.6	67.3	64.7	66.0	62.7	66.7
% belowe 8 mm sieve	13.3	24.6	17.8	22.2	21.0	17.4	20.1	18.9	29.7	18.2
Breakage susceptibility										
% Below 6.35 mm sieve	0.2	0.3	0.4	0.0	0.2	0.8	1.2	1.7	2.0	0.9
% Below 4.75 mm sieve	0.2	1.0	1.1	0.8	0.8	0.4	0.5	0.7	0.8	0.4
Nutritional Factors										
Protein, % (db)	8.9	8.3	8.6	8.3	8.5	9.7	9.9	9.9	9.5	9.7
Fat, % (db)	3.6	3.8	3.6	3.9	3.7	4.1	4.2	4.2	3.9	4.1
Starch, % (db)	72.1	74.5	75.4	73.9	74.0	72.7	72.4	72.4	72.9	72.6
Number of samples	***3***	***7***	***1***	***1***	***12***	***300***	***84***	***27***	***4***	***415***
Roff Milling										
Break 1, %	12.1	14.9	14.6	14.3	14.2	12.2	12.0	11.6	12.4	12.1
Break 2, %	11.9	12.3	12.2	11.4	12.1	10.8	10.8	10.8	11.2	10.8
Break 3, %	21.0	22.4	20.6	21.2	21.8	21.8	21.4	21.2	21.4	21.7
Grits, %	33.8	27.9	28.9	29.9	29.6	33.7	34.1	34.6	32.8	33.9
Bran and Germ, %	21.1	22.4	23.8	23.2	22.3	21.5	21.7	21.8	22.3	21.6
Extraction (Total meal), %	78.9	77.6	76.2	76.7	77.7	78.5	78.3	78.2	77.7	78.4
Whiteness Index										
Whiteness Index, 87:13, sifted	18.3	21.9	16.2	26.3	20.9	18.3	16.8	11.6	13.8	17.5
Whiteness Index, unsifted	28.1	29.7	27.5	31.7	29.3	27.0	24.8	20.8	22.9	26.1
Number of samples	***3***	***7***	***1***	***1***	***12***	***300***	***84***	***27***	***4***	***415***
Mycotoxins										
Afla G_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 604 [2 664]					166 [4 391]	272 [1 789]	154 [542]	94 [283]	186
Fum B_2 (µg/kg) [max. value]	508 [936]					68 [1 975]	124 [803]	66 [278]	38 [115]	79
Fum B_3 (µg/kg) [max. value]	154 [311]					12 [499]	18 [154]	9 [44]	10 [30]	13
Deoxynivalenol (µg/kg) [max. value]	564 [1 052]					54 [598]	143 [1 585]	137 [728]	0 [0]	79
15-ADON [max. value]	0 [0]					1 [110]	13 [310]	20 [184]	0 [0]	5
Ochratoxin A (µg/kg) [max. value]	0 [0]					0 [0]	0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	44 [177]					4 [127]	5 [125]	6 [28]	0 [0]	4
HT2 [max. value]	6 [23]					0 [0]	0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [<20]					0 [0]	0 [0]	0 [0]	0 [0]	0
Number of samples	***4***					***106***	***33***	***14***	***3***	***156***
GMO										
Cry1Ab, % [max value]	1.5 [>5.0]					4.4 [>5.0]	4.1 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.5
Cry2Ab, % [max value]	<0.5 [0.59]					3.4 [>5.0]	2.7 [>5.0]	4.0 [>5.0]	<0.5 [<0.5]	3.2
CP4 EPSPS, % [max value]	1.8 [>5.0]					3.9 [>5.0]	4.4 [>5.0]	>5.0 [>5.0]	>5.0 [>5.0]	4.2
Number of samples	***4***					***30***	***8***	***5***	***1***	***44***

IMPORTED MAIZE QUALITY

Quality of maize imported from 30 April 2016 to 28 April 2017 compared to RSA crop quality 2015/2016

Country of origin	USA				RSA Crop Average			
Class and grade yellow maize	**YM1**	**YM2**	**COM**	**Average**	**YM1**	**YM2**	**COM**	**Average**
RSA Grading								
Defective kernels above 6.35 mm sieve, %	4.8	7.0	4.8	6.2	2.5	5.0	10.3	3.1
Defective kernels below 6.35 mm sieve, %	3.3	6.3	2.3	5.2	1.9	4.5	7.9	2.6
Total defective kernels, %	8.1	13.3	7.1	11.3	4.4	9.5	18.2	5.7
Other colour maize kernels, %	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.2
Foreign matter, %	0.1	0.2	0.2	0.2	0.1	0.2	1.1	0.2
Combined deviations, %	8.3	13.5	7.3	11.5	4.6	10.1	19.7	6.0
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors								
100 Kernel mass, g	30.5	31.7	31.2	31.3	32.3	30.7	27.0	31.8
Stress cracks, %	4	5	4	4	5	6	5	5
Milling Index	95.6	75.5	99.0	83.1	92.9	92.4	65.0	92.6
Kernel Size								
% above 10 mm sieve	1.9	3.4	2.6	3.0	12.7	8.8	5.5	11.8
% above 8 mm sieve	58.5	59.0	60.7	59.0	67.6	64.4	56.7	66.6
% belowe 8 mm sieve	39.6	37.6	36.7	38.0	19.6	26.8	37.8	21.6
Breakage susceptibility								
% Below 6.35 mm sieve	0.9	1.0	1.8	1.0	0.9	1.2	1.5	1.0
% Below 4.75 mm sieve	0.2	0.9	0.6	0.7	0.5	0.5	0.5	0.5
Nutritional Factors								
Protein, % (db)	9.1	8.5	9.1	8.7	9.7	9.9	9.4	9.7
Fat, % (db)	4.1	4.2	4.3	4.2	4.0	3.9	3.8	4.0
Starch, % (db)	70.6	73.5	71.9	72.6	72.3	72.1	73.1	72.3
Number of samples	***3***	***7***	***1***	***11***	***395***	***97***	***3***	***505***
Mycotoxins								
Afla G_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_1 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla G_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Afla B_2 (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Fum B_1 (µg/kg) [max. value]	1 948 [3 319]				182 [2 610]	434 [7 406]	13 [38]	251
Fum B_2 (µg/kg) [max. value]	855 [1 672]				67 [1 062]	170 [3 340]	7 [22]	95
Fum B_3 (µg/kg) [max. value]	164 [216]				11 [186]	32 [601]	0 [0]	17
Deoxynivalenol (µg/kg) [max. value]	927 [1 489]				33 [554]	55 [640]	0 [0]	36
15-ADON [max. value]	57 [170]				1 [122]	4 [184]	0 [0]	2
Ochratoxin A (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	93 [130]				1 [44]	2 [36]	0 [0]	1
HT2 [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
T-2 Toxin (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Number of samples	***3***				***139***	***46***	***3***	***194***
GMO								
Cry1Ab, % [max value]	>5.0 [>5.0]				4.2 [>5.0]	4.4 [>5.0]	-	4.3
Cry2Ab, % [max value]	>5.0 [>5.0]				3.2 [>5.0]	3.6 [>5.0]	-	3.3
CP4 EPSPS, % [max value]	>5.0 [>5.0]				4.4 [>5.0]	4.7 [>5.0]	-	4.5
Number of samples	***3***				***40***	***15***	***-***	***56***

CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that -

SOUTHERN AFRICAN GRAIN LABORATORY NPC

Co. Reg. No.: 1997/018518/08

Facility Accreditation Number: **T0116**

Is a South African National Accreditation System accredited Testing laboratory provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying schedule of accreditation Annexure "A", bearing the above accreditation number for

CHEMICAL AND PHYSICAL ANALYSIS

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2005

The accreditation demonstrates technical competency for a defined scope and the operation of a laboratory quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the relevant SANAS accreditation symbol to issue facility reports and/or certificates

Mr R Josias
Chief Executive Officer
Effective Date: 01 November 2014
Certificate Expires: 31 October 2019

ANNEXURE A

SCHEDULE OF ACCREDITATION

Facility Number: **T0116**

Permanent Address of Laboratory:

Southern African Grain Laboratory (NPC)
Agri-Hub Office Park - Grain Building
477 Witherite Road
The Willows
Pretoria
0040

Technical Signatories:

Ms J Nortje (All Methods)
Ms M Bothma (Chemical, Excl. SOP MC23)
Ms M Hammes (Chemical)
Ms A de Jager (Nutrients & Contaminants)
Ms W Louw (In-house Methods 001, 002, 003, 010 & 026)
Ms D Moleke (Rheological)
Ms I Terblanche (Rheological)
Ms H Meyer (Chemical, Nutrients and Contaminants & Grading)
Ms J Kruger (Chemical, excl. In-house method 012)
Ms P Modiba (Chemical)
Ms M Motlanthe (In-house methods 001, 003 & 026)
Mr B van Der Linde (Grading)
Ms M Ramare (All moisture methods & In-house methods 024)

Postal Address:

Postnet Suite # 391
Private Bag X1
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Tel: (012) 807-4019
Fax: N/A
E-mail: Paulina.Modiba@sagl.co.za

Nominated Representative:

Ms PM Modiba

Issue No.: 26
Date of Issue: 26 January 2017
Expiry Date: 31 October 2019

Material or Products Tested	Type of Tests / Properties Measured, Range of Measurement	Standard Specifications, Techniques / Equipment Used
CHEMICAL		
Ground Barley	Moisture (Oven Method)	Analytical EBC Method 3.2, latest Edition (2 hour; 130˚C)
Cereal and cereal products specifically-wheat, rice, (hulled paddy), barley, millet, rye, and oats as grain, semolina and flour	Moisture (Oven Method)	ICC Std No.110/1, Latest Edition (90 min; 130˚C) (2 hour; 130˚C)
Flour, semolina, bread, all kind of grains and cereal products and food products (except those that are sugar coated)	Moisture (Oven Method)	AACCI 44-15.02, Latest Edition (1 hour; 130˚C) (72 hour; 103˚C)

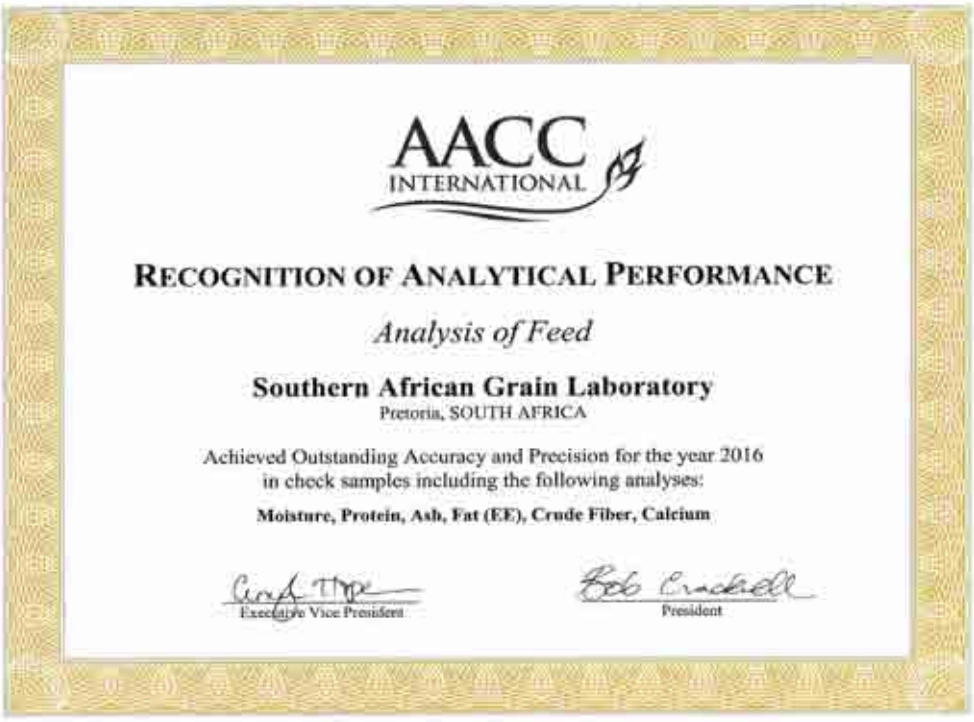
All flours, cereal grains, oilseeds and animal feeds	Nitrogen and protein (Combustion method - Dumas)	AACCI 46-30.01, Latest Edition
Cereal based food stuff	Dietary fibres (Total)	In-house method 012
Food stuff and feeds	Carbohydrates (by difference) (calculation) Energy value (calculation) Total digestible nutritional value (calculation)	SOP MC 23
Food Stuff and feeds	Determination of Ash	In-house method 011
Wheat Kernels	Moisture (Oven Method)	Government Gazette Wheat Regulation, Latest Edition (72 hour, 103°C)
Flours of grains e.g. barley, oats, triticale, maize, rye, sorghum and wheat; oilseeds like soybeans and sunflower, feeds and mixed feeds and foodstuffs	Crude fat (Ether extraction by Soxhlet)	In-house method 024
Meal and flour of wheat, rye, barley, other grains, starch containing and malted products	Falling number	ICC Std 107/1, Latest Edition
NUTRIENTS AND CONTAMINANTS		
Vitamin fortified food and feed products and fortification mixes grain based	Vitamin A as all trans Retinol (Saponification) (HPLC)	In-house method 001
	Thiamine Mononitrate (HPLC) Riboflavin (HPLC) Nicotinamide (HPLC) Pyridoxine Hydrochloride (HPLC)	In-house method 002
	Folic Acid (HPLC)	In-house method 003
Grain based food and feed products (fortified and unfortified) and fortification mixes	Total Sodium (Na) Total Iron (Fe) Total Zinc (Zn)	In-house method 010
Food and feed	Multi-Mycotoxin: -Aflatoxin G_1, B_1, G_2, B_2 and total -Deoxynivalenol (DON), 15-ADON -Fumonisin B_1, B_2, B_3 -Ochratoxin A -T2, HT-2 - Zearalenone	In-house method 026

GRADING		
Maize	Defective kernels (White maize/ yellow maize)	Government Gazette Maize Regulation, Latest Edition
Cereal as grains (Wheat, barley, rye and oats)	Hectolitre mass (Kern222)	ISO 7971-3, Latest edition
Wheat	Screenings	Government Gazette Wheat Grading Regulation, Latest Edition
RHEOLOGICAL		
Wheat flour	Alveograph (Rheological properties)	ICC Std.121, Latest Edition
Flours	Farinograph (Rheological properties)	AACCI 54.02, Latest Edition (Rheological behaviour of flour Farinograph: Constant Flour Weight procedure)
Hard, soft and durum wheat (flour and whole wheat flour)	Mixograph (Rheological properties)	Industry accepted method 020 (Based on AACCI 54-40.02, Latest Edition Mixograph Method)

Original Date of Accreditation: 01 November 1999

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Accreditation Manager



AACC INTERNATIONAL

RECOGNITION OF ANALYTICAL PERFORMANCE

Analysis of Feed

Southern African Grain Laboratory
Pretoria, SOUTH AFRICA

Achieved Outstanding Accuracy and Precision for the year 2016
in check samples including the following analyses:

Moisture, Protein, Ash, Fat (EE), Crude Fiber, Calcium

Executive Vice President

President

CERTIFICATE
SERTIFIKAAT

IT IS HEREBY CERTIFIED THAT
HIERMEE WORD GESERTIFISEER DAT

Southern African Grain Laboratory NPC

The Willows, Pretoria

Feeds / Voere

FOR THE PERIOD OF / VIR DIE TYDPERK VAN: ***27 April 2015*** TO / TOT: ***22 February 2016***

PARTICIPATED IN THE PROFICIENCY TEST SCHEME AND THE FOLLOWING ANALYTES HAVE CONFORMED TO 83% PARTICIPATION WITH A Z VALUE <=2, AS SET BY AgriLASA:

DEELGENEEM HET AAN DIE INTERLAB-KONTROLESKEMA EN DIE VOLGENDE ONTLEDINGS HET AAN DIE AgriLASA VOORGESKREWE 83% DEELNAME MET N Z WAARDE VAN <=2 VOLDOEN:

Ash ***Crude Fibre*** ***Dietary Fibre*** ***Fat***

Moisture ***Nx6.25-Protein*** ***Zn***

FOR AGRILASA

AgriLASA
AGRI LABORATORY ASSOCIATION OF SOUTHERN AFRICA
AGRI LABORATORIUM ASSOSIASIE VAN SUIDELIKE AFRIKA

Prepared and published by Thistle QA on behalf of, and under direction of, AGRILASA. Printed: 31/03/2016

GOVERNMENT NOTICES
GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF AGRICULTURE
DEPARTEMENT VAN LANDBOU

No. R. 473 **8 May 2009**

AGRICULTURAL PRODUCT STANDARDS ACT, 1990
(ACT No. 119 OF 1990)

REGULATIONS RELATING TO THE GRADING, PACKING AND MARKING OF MAIZE INTENDED FOR SALE IN THE REPUBLIC OF SOUTH AFRICA

The Minister of Agriculture, acting under section 15 of the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990),

(a) made the regulations in the Schedule; and

(b) determined that the said regulations shall come into operation on date of publication.

SCHEDULE

Definitions

1. In these regulations any word or expression to which a meaning has been assigned in the Act shall have that meaning and, unless the context otherwise indicates -

"**bag**" means a bag manufactured from -

(a) jute or phormium or a mixture of jute and phormium; or

(b) polypropylene that complies with SABS specification CKS632;

"**bulk container**" means any vehicle or container in which bulk maize is stored or transported-

"**consignment**" means -

(a) a quantity of maize of the same class, which belongs to the same owner, delivered at any one time under cover of the same consignment note, delivery note or receipt note, or delivered by the same vehicle or bulk container, or loaded from the same bin of a grain elevator or from a ship's hold; or

(b) in the case where a quantity referred to in paragraph (a), is subdivided into different grades, each such quantity of each of the different grades;

"**coffee stained maize kernels**" means maize kernels with a shiny brown colour that occurs anywhere on the pericarp of the maize kernel;

"**container**" means a bag or a bulk container;

"**defective maize kernels**" means maize kernels and pieces of maize kernels-

(a) that are shrivelled, obviously immature, frost-damaged, heat damaged, water damaged, mouldy or chalky;

(b) that are discoloured by external factors such as water and sun: Provided that discoloration on both sides of the maize kernel limited to less than a quarter from the bottom tip of the maize kernel shall not be considered as defective; oxidation stained maize kernels; coffee stained maize kernels; and pinked maize kernels shall not be considered as defective;

(c) that have sprouted, including kernels of which the shoot (plumule) in the germ is visibly discoloured;

(d) that have cavities in the germ or endosperm caused by insects or rodents;

(e) that are visibly soiled (smeared) or contaminated by smut, fire, soil, smoke or coal-dust;

(f) all matter that can pass through the 6,35 mm round-hole sieve; and

(g) that are of subspecies other than *Zea mays indentata* or *Zea mays indurata*.

Provided that:

(i) irregularity of shape and size of maize kernels shall not affect the grading thereof;

(ii) chipped or cracked maize kernels or pieces of maize kernels which are in a sound condition and which appear in a sample of maize, but which do not pass through a 6,35 mm round-hole sieve, shall not be regarded as defective maize kernels under these regulations;

"**discoloured maize kernels**" means maize kernels that are as a result of environmental conditions more than 25% discoloured on both sides of the kernel, excluding coffee stained maize kernels, oxidation stained maize kernels and pinked maize kernels;

"**foreign matter**" means all matter above the sieve other than maize, glass, stone, coal, dung or metal;

"**frost damaged**" means maize kernels that are covered with wrinkles on both sides of the kernel to the crown and have a pearl-like appearance. Maize kernels of which the bran is flaking is considered frost damaged if signs of frost damage are present;

"**heat damaged**" means kernels that are as a result of external heat or internal fermentation affected with excess moisture and have at least one of the following characteristics:

(a) Kernels or pieces of kernels that are amber, brown, dark-brown or black discoloured;

(b) Kernels of which the germ has dark-brown to black discoloration;

"**insect**" in relation to maize, means any live insect which is injurious to stored grain, irrespective of the stage of development of the insect;

"**maize**" means the threshed kernels or pieces of kernels of the plants of *Zea mays indurata* and *Zea mays indentata* or one or more crossings of the two types;

"**mouldy**" means kernels or pieces of kernels that-

(a) are visibly infected by fungi and are characterised by black, blue, green, yellow or white fungi growth anywhere on the kernel, or are characterised by fungi growth underneath the bran layer of the kernel;

(b) are infected by ear-rot and are characterised by red, pink or brown discolorations. The kernels are partially to completely infected;

"**other colour maize kernels**" in relation to -

(a) white maize, means maize kernels or pieces of maize kernels of which the endosperm as a result of genetic (characteristics) composition have another colour than white, excluding pinked maize kernels;

(b) yellow maize, means maize kernels or pieces of maize kernels of which the endosperm as a result of genetic (characteristics) composition have another colour than yellow;

"**oxidation stained maize kernels**" means maize kernels with a shiny light brown colour that are discoloured from the crown and not from the tip cap;

"**pinked maize kernels** "means kernels and pieces of kernels of white maize of which the pericarp or part thereof is shaded red or pink in colour;

"**poisonous seeds**" means seeds or part of seeds of plant species that may in terms of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972) represent a hazard to human or animal health when consumed, including seeds of *Argemone mexicana, Convolvulus* spp., *Crotalaria* spp., *Datura* spp., *Ipomoea* spp. *Lolium temulentum, Ricinus communis* or *Xanthium* spp;

"**shrivelled or obviously immature maize kernels**" means maize kernels with a thin and shrunken appearance;

"**sprouted maize kernels**" means maize kernels which have sprouted so far that developing roots and/or sprouts are clearly visible, or the shoot (plumule) in the germ is visibly discoloured;

"**the Act**" means the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990);

"**the 6,35 mm round-hole sieve**"means a sieve-

(a) with a flat metal sheet bottom of 1,0 mm thickness perforated with round holes of 6,35 mm (± 0,05 mm) in diameter that are arranged with the centres of the holes at the points of intersection of an equilateral triangular grid with a pitch of 8 mm;

(b) of which the upper surface of the bottom is smooth;

(c) the frame of which is at least 40 mm high;

(d) with the inner width of at least 200 mm and the inner length of at least 300 mm, or, in the case of a circular sieve, the inner diameter of at least 278 mm;

(e) with a minimum area of 600cm^2 and a maximum of 750cm^2; and

(f) that fits onto a tray with a solid bottom and must be at least 20mm above the bottom of the tray; and

"**water damaged maize kernels**" means maize kernels with a light yellow shine from the tip cap in a band around the maize kernel.

Scope of regulations

2. These regulations are the minimum standards applicable to maize that are destined for sale in the Republic of South Africa but does not include –

(a) maize in retail quantities; and

(b) maize for seed production purposes.

Restrictions on sale of maize

3. (1) No person shall sell maize in the Republic of South Africa -

(a) unless the maize is sold according to the classes set out in regulation 4;

(b) unless the maize complies with the standards for the class concerned set out in regulation 5;

(c) unless the maize complies with the grades of maize and the standards for grades, where applicable, set out in regulations 6 and 7 respectively;

(d) unless the maize is packed in accordance with the packing requirements set out in regulation 8;

(e) unless the containers or sale documents, as the case may be, are marked in accordance with the marking requirements set out in regulation 9; and

(f) if such maize contains a substance that renders it unfit for human consumption or for processing into or utilisation thereof as food or feed.

(2) The Executive Officer may grant written exemption, entirely or partially to any person on such conditions as he or she may deem necessary, from the provisions of subregulation 1: Provided that such exemption is done in terms of section 3 (1) (c) of the Act.

PART I
QUALITY STANDARDS

Classes of maize

4. The classes of Maize shall be -

(a) Class White Maize;

(b) Class Yellow Maize; and

(c) Class Other Maize.

Standards for classes of maize

5. (1) A consignment of maize shall be classified as Class White Maize if -

(a) subject to the allowable deviation in respect of other colour maize kernels that apply to the different grades of white maize, it consists of maize the endosperm of which is by nature white in colour; and

(b) it complies with the standards for one of the grades of white maize set out in regulation 7.

(2) A consignment of maize shall be classified as Class Yellow Maize if -

(a) subject to the allowable deviation in respect of other colour maize kernels that apply to the different grades of yellow maize, it consists of maize the endosperm of which is by nature yellow in colour; and

(b) it complies with the standards for one of the grades of yellow maize set out in regulation 7.

(3) A consignment of maize shall be classified as Class Other Maize if the consignment does not comply with the standards for Class White Maize or Class Yellow Maize.

Grades of maize

6. (1) Maize of the Class White Maize shall be graded as WM1, WM2 or WM3.

(2) Maize of the Class Yellow Maize shall be graded as YM1, YM2 or YM3.

(3) No grades are determined for Class Other Maize.

Standards for grades of Class White Maize and Class Yellow Maize

7. All grades of maize -

(a) shall be free from a musty, sour or other undesired odour;

(b) shall be free from glass, metal, coal or dung;

(c) shall be free from a substance which renders it unfit for human consumption or for processing into or utilisation thereof as food or feed;

(d) shall be free from insects;

(e) shall be free from stones which cannot pass through the 6,35 mm round-hole sieve;

(f) shall contain not more than one gram of stones, which can pass through the 6,35 mm round-hole sieve, per 10 kg;

(g) shall contain not more poisonous seeds than permitted in terms of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972);

(h) shall have a moisture content of not more than 14 per cent; and

(i) shall not exceed the maximum percentage of permissible deviation as determined in the table in the Annexure for each grade.

PART II
PACKING AND MARKING REQUIREMENTS

Packing requirements

8. Maize of different classes and grades shall be packed in different containers.

Marking requirements

9. Each container or the accompanying sales document of a consignment of maize shall be marked or endorsed with -

(a) the class of the maize;

(b) the grade, in the case of Class White Maize or Class Yellow Maize; and

PART III
SAMPLING

Obtaining sample

10. (1) A sample of a consignment of maize shall -

(a) in the case of maize delivered in bags and subject to regulation 11, be obtained by sampling at least ten per cent of the bags, chosen from that consignment at random, with a bag probe: Provided that at least 25 bags in a consignment shall be sampled and where a consignment consists of less than 25 bags, all the bags in that consignment shall be sampled; and

(b) in the case of maize delivered in bulk and subject to regulation 10, be obtained by sampling that consignment throughout the whole depth of the layer, in at least six different places, chosen at random in that bulk quantity, with a bulk sampling apparatus.

(2) The collective sample obtained in subregulation (1) (a) or (b) shall -

(a) have a total mass of at least 10 kg; and

(b) be thoroughly mixed by means of dividing before further examination.

(3) If it is suspected that the sample referred to in subregulation (1)(a) is not representative of that consignment, an additional five per cent of the remaining bags, chosen from that consignment
at random, shall be emptied into a suitable bulk container and sampled in the manner contemplated in subregulation (1)(b).

(4) A sample taken in terms of these regulations shall be deemed representative of the consignment from which it was taken.

Sampling if contents differ

11. (1) If, after an examination of the maize taken from different bags in a consignment in terms of regulation 10(1), it appears that the contents of those bags differ substantially -

(a) the bags concerned shall be placed separately;

(b) all the bags in the consignment concerned shall be sampled in order to do such separation; and

(c) each group of bags with similar contents in that consignment shall for the purposes of these regulations be deemed to be a separate consignment.

(2) If, after the discharge of a consignment of maize in bulk has commenced, it is suspected that the consignment could be of a class or grade other than that determined by means of the initial sampling, the discharge shall immediately be stopped and the part of the consignment remaining in the bulk container, as well as the grain that is already in the collecting tray, shall be sampled anew with a bulk sampling apparatus or by catching at least 20 samples at regular intervals throughout the whole offloading period with a suitable container from the stream of grain that is flowing in bulk.

Working sample

12. A working sample shall be obtained by dividing the representative sample of the consignment according to the ICC 101/1 method.

PART IV
DETERMINATION OF OTHER SUBSTANCES

Determination of undesirable odours and harmful substances

13. A sample of a consignment of maize shall be sensorial assessed or chemically analysed in order to determine -

(a) whether it has a musty, sour or other undesirable odour: Provided that a working sample of unscreened maize that is ground in a grain mill to a fine meal may be used for the determination concerned; and

(b) whether it contains a substance that renders the maize unfit for human consumption or for processing into or for utilisation as food or feed.

Determination of glass, metal, coal, dung, stone, poisonous seed and insect content

14. A consignment of maize shall be sensorial assessed and a sample of that consignment shall be sensorial assessed and sorted by hand in order to determine whether the sample contains glass, metal, coal, dung, insects, stones and poisonous seeds.

Determination of percentage of foreign matter

15. The percentage of foreign matter in a consignment of maize shall be determined as follows:

(a) Obtain a working sample with a mass of at least 150g from the sample of the consignment.

(b) Remove all foreign matter from the working sample and determine the mass thereof.

(c) Express the mass thus determined as a percentage of the total mass of the working sample.

(d) Such percentage shall represent the percentage of foreign matter in the consignment concerned.

PART V
MAIZE KERNELS

Determination of percentage of defective maize kernels

16. The percentage of defective maize kernels in a consignment of maize shall be determined as follows:

(a) Obtain a working sample with a mass of at least 150g from the sample of the consignment.

(b) Place the working sample on the 6, 35 mm round-hole sieve and screen the sample by moving the sieve 20 strokes to and fro, alternately away from and towards the operator of the sieve. Move the sieve, which rests on a table or other suitable smooth surface, 250 mm to 460 mm away from and towards the operator with each stroke. The prescribed 20 strokes must be completed within 20 to 30 seconds.

(c) Determine the mass of the matter that has passed through the sieve and express it as a percentage of the mass of the working sample.

(d) Remove all defective maize kernels from that part of the working sample remaining on the sieve and determine the mass thereof.

(e) Express the mass as a percentage of the mass of the working sample.

(f) Calculate the sum of the masses determined in terms of paragraphs (c) and (d).

(g) Express the combined mass calculated in terms of paragraph (f) as a percentage of the mass of the working sample.

(h) In the case of yellow maize the percentage obtained -

(i) in terms of paragraph (c), represents the percentage of defective maize kernels in the consignment concerned, which can pass through the 6,35 mm round-hole sieve; and

(ii) in terms of paragraph (e), represents the percentage of defective maize kernels in the consignment concerned, which can not pass through the 6,35 mm round-hole sieve.

(i) In the case of white maize, the percentage obtained in terms of paragraph (g) represents the percentage of defective maize kernels in the consignment concerned.

Determination of percentage of other colour maize kernels

17. The percentage of other colour maize kernels in a consignment of maize shall be determined as follows:

(a) Obtain a working sample with a mass of at least 150g from the sample of the consignment.

(b) Remove all other colour maize kernels from the working sample and determine the mass thereof.

(c) Express the mass thus determined as a percentage of the mass of the working sample.

(d) Such percentage shall represent the percentage of other colour maize kernels in the consignment concerned.

Determination of percentage of pinked maize kernels

18. The percentage of pinked maize kernels in a consignment of maize shall be determined as follows:

(a) Obtain a working sample with a mass of at least 150g from the sample of the consignment.

(b) Remove all pinked maize kernels from the working sample and determines the mass thereof.

(c) Express the mass thus determined as a percentage of the mass of the working sample.

(d) Such percentage shall represent the percentage of pinked maize kernels in the consignment concerned.

PART VI
MOISTURE CONTENT

Determination of moisture content

19. The moisture content of a consignment of maize may be determined according to any suitable method: Provided that the results thus obtained are in accordance with the maximum permissible deviation for a class 1 moisture meter as detailed in ISO 7700/1based on the results of the 72 hour, 103°C oven dried method (AACC Method 44-15A).

OFFENCE AND PENALTIES

20. Any person who contravenes or fails to comply with any provision of these regulations shall be guilty of an offence and upon conviction be liable to a fine or imprisonment in terms of section 11 of the Act.

ANNEXURE/AANHANGSEL
TABLE/TABEL

STANDARDS FOR GRADES OF CLASS WHITE MAIZE AND CLASS YELLOW MAIZE/
STANDAARDE VIR GRADE VAN KLAS WITMIELIES EN KLAS GEELMIELIES

	Maximum permissible deviation/ Maksimum toelaatbare afwyking					
Deviation/Afwyking	White maize/ Witmielies			Yellow maize/ Geelmielies		
	WM1	WM 2	WM 3	YM1	YM2	YM3
1	2	3	4	5	6	7
1. Foreign matter [regulation 15]/ Vreemde voorwerpe [regulasie 15]	0,3%	0,5%	0,75 %	0,3%	0,5%	0,75%
2. Defective maize kernels, above and below the 6,35 mm round-hole sieve [regulations 16]/ *Gebrekkige mieliepitte, bo en onder die 6,35 mm-rondegatsif [regulasies 16]*	7%	13%	30%	*	*	*
3. Defective maize kernels that can pass through the 6,35 mm round-hole sieve [regulation 16(c)]/ *Gebrekkige mieliepitte wat deur die 6,35 mm rondegastsif kan gaan [regulasie 16(c)]*	*	*	*	4%	10%	30%
4. Defective maize kernels that can not pass through the 6,35 mm round-hole sieve [regulation 16(e)]/ *Gebrekkige mieliepitte wat nie deur die 6,35 mm-rondegatsif kan gaan nie [regulasie 16(e)]*	*	*	*	9%	20%	30%
5. Other colour maize kernels [regulation 17]/ *Mieliepitte van 'n ander kleur [regulasie 17]*	3%	6%	10%	2%	5%	5%
6. Deviations referred to in items 1, 3, 4 and 5 individually within the specified limits/ *Afwykings in items 1, 3, 4 en 5 bedoel,gesamentlik: met dien verstande dat die afwykings individueel binne die gespesifisserde perke is*	8%	16%	30%	9%	20%	30%
7. Pinked maize kernels [regulation 18]/ *Verrooide mieliepitte [regulasie 18]*	12%	12%	12%	*	*	*

* Not specified/Nie gespesifiseer nie.

agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Directorate Food Safety and Quality Assurance Private Bag X258, PRETORIA, 0001 • Tel: +27 12 319 6291

FAX COVER SHEET

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FAX:	012 348 2980		
FROM:	Mrs. Caroline Makobe	E-MAIL:	CarolineL@nda.agric.za
TEL:	(012) 319 6291	REF NO:	20/4/14/1 / Dispensation
FAX:	(012) 319 6055	SERIAL NO:	
NO. PAGES:	1	DATE:	15 April 2010

Subject

INDUSTRY-WIDE DISPENSATION: AMENDMENT OF THE REGULATION RELATING TO THE GRADING, PACKING AND MARKING OF MAIZE INTENDED FOR SALE IN THE REPUBLIC OF SOUTH AFRICA.

Please refer to the e-mail dated 29th March 2010 from Grain Silo Industry

Permission is hereby granted by the Executive Officer: Agricultural Product Standards, in terms of Section (3) of the Agricultural Products Standards Act, 1990 (Act No. 119 of 1990), to all producers, wholesalers, traders, retailers and importers of Maize to sell and import maize whereby the definition of "Foreign matter" is amended in the English version in order to align it to the Afrikaans one of the above mentioned Regulation to read as follows : ***"Foreign matter" means all matter other than maize, glass, stones above the sieve, coal, dung or metal.***

This dispensation is extended further to apply to item 6 of the Annexure in the Table relating to Standards for grades of Class White and Yellow maize which is amended and replaced with the following item: Provided that all provisions of the regulations shall be complied with:

ANNEXURE/AANHANGSEL

TABLE/TABEL

STANDARDS FOR GRADES OF CLASS WHITE MAIZE AND CLASS YELLOW MAIZE/
STANDAARDE VIR GRADE VAN KLAS WITMIELIES EN KLAS GEELMIELIES

Deviation/Afwyking	Maximum permissible deviation/ Maksimum toelaatbare afwyking					
	White maize/ Witmielies			Yellow maize/ Geelmielies		
	WM 1	WM2	WM3	YM1	YM2	YM3
1	2	3	4	5	6	7
6. Deviations referred to in items 1, 2, 3, 4 and 5 collectively: Provided that the deviations are individually within the specified limits/Afwykings in items 1, 2, 3,4 en 5 bedoel, gesamentlik: Met dien verstande dat die afwykings individueel binne die gespesifiseerde perke is	8%	16%	30%	9%	20%	30%

INDUSTRY-WIDE DISPENSATION: AMENDMENT OF THE REGULATION RELATING TO THE GRADING, PACKING AND MARKING OF MAIZE INTENDED FOR SALE IN THE REPUBLIC OF SOUTH AFRICA.

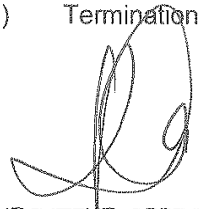
This permission is subject to the following conditions:

(a) All other conditions of the regulations shall be complied with.

(b) It may be withdrawn at any time should a valid complaint be received

(c) All producers, wholesalers, traders, retailers and importers of Maize, Indemnifies this Directorate and the Department from any detrimental effect, financially or otherwise, which may emanate as a result of this permission.

(d) Termination date: until the regulation is reviewed and gazetted.



EXECUTIVE OFFICER:
AGRICULTURAL PRODUCT STANDARDS ACT, NO. 119 OF 1990
Copies: APIS : NPPIS North – Attention: Jimmy Mogodi