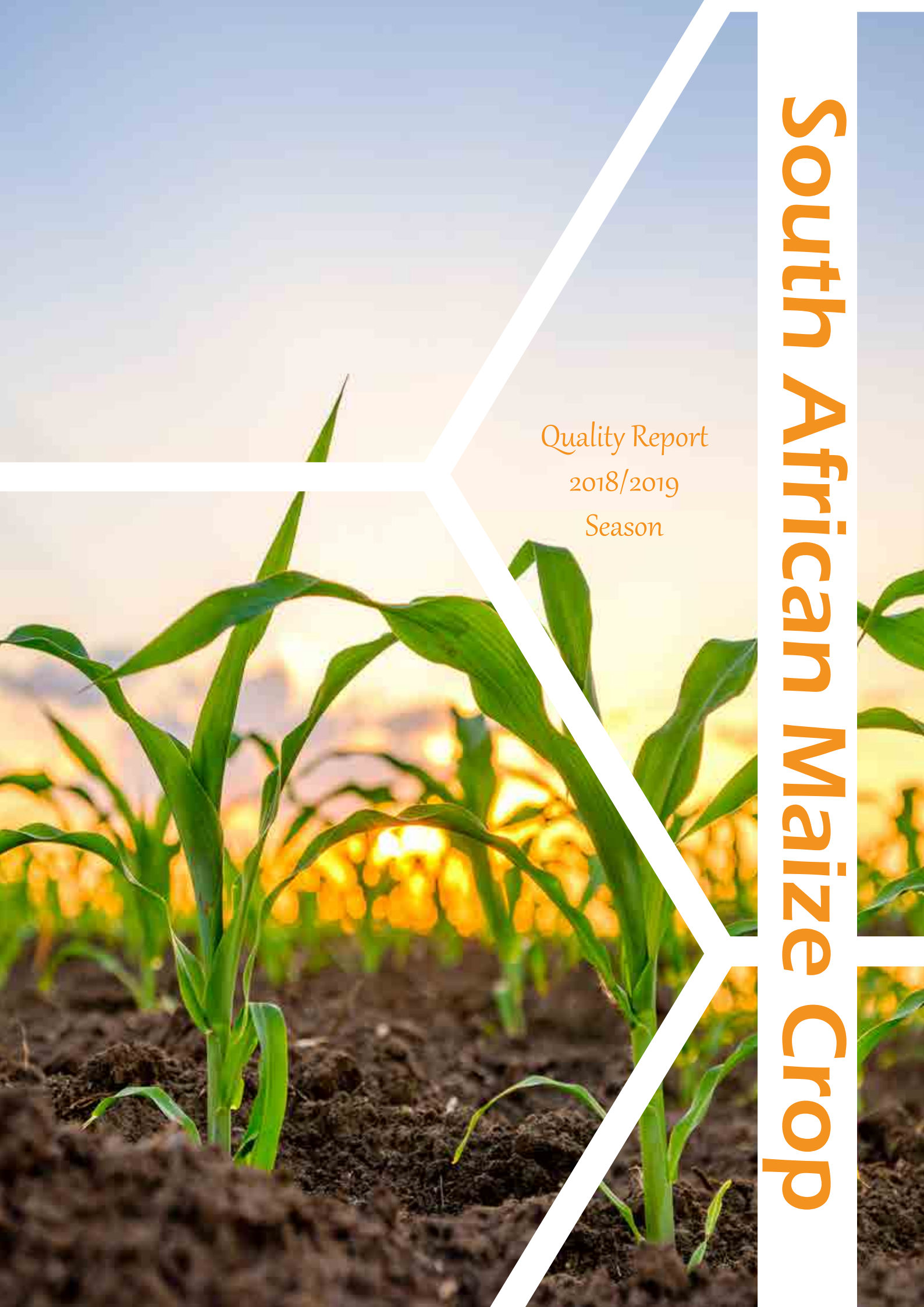


South African Maize Crop

Quality Report
2018/2019
Season





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South African

COMMERCIAL MAIZE QUALITY 2018/2019



Acknowledgments

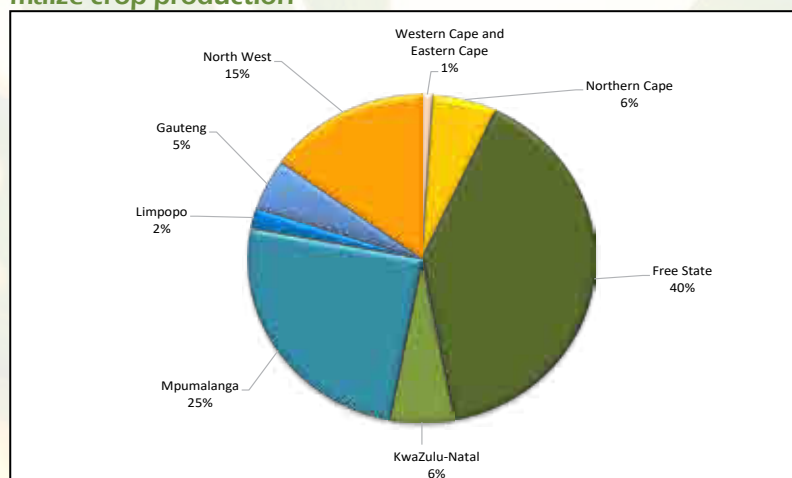
With gratitude to:

- 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, Land Reform and Rural Development for providing production related figures.
- South African Grain Information Service (SAGIS) for providing supply and demand figures relating to maize and maize products.
- The Bureau for Food and Agricultural Policy (BFAP) for providing research based market analysis.

Introduction

During the 2019 harvesting season, a representative sample of each delivery of maize at the various grain intake points was taken according to the prescribed grading regulation. The sampling procedure for the samples used in this survey is described on page 97. A total of 808 composite samples, representing white and yellow maize of each production region, were received and analysed to determine the quality. The samples consisted of 404 white and 404 yellow maize samples.

Graph 1: Contribution of the nine provinces to the 2018/19 maize crop production



Figures provided by the CEC.

The quality attributes which were tested for, include:

- RSA grading: 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.
- USA grading: Samples were graded according to the American Grading Regulations 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.
- Nutritional values: Moisture, crude protein, crude fat, crude fibre and starch.
- Physical Quality factors: Test weight (kg/hl), 100 kernel mass, kernel size, breakage susceptibility, stress cracks, milling index and grit yield.
- All white maize samples were milled on the Roff laboratory mill and the whiteness index of the maize meal determined.
- Mycotoxin analyses were performed on 350 samples representative of white and yellow maize produced per region.

Testing for the presence of a selection of traits present in Genetically Modified (GM) maize were performed on 70 samples representative of white and yellow maize produced per region.

Please refer to pages 97 - 101 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, the 22nd survey, as well as previous years' surveys are available on the SAGL website (www.sagl.co.za). Hard copy reports are distributed to 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 are provided in table and graph format, also import and export data. Information on maize processed per province as well as 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 provided on pages 112 to 122.

The goal of this crop quality survey is to accumulate quality data on the commercial maize crop on a national level. This valuable data reveals 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. During seasons when maize is imported for domestic use, the quality of the imported maize can also be compared to that of locally produced maize.

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. Historically, the data has only been presented in table and graph format and 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, Grit yield and Bran yield (all Roff milling data). Data is added annually to this data set.

As part of the project, the possibility was explored to develop a Geographic Information System (GIS) map system, where grain production regions (with the boundaries illustrated) are presented on a map of South Africa. 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 optimisation in future.

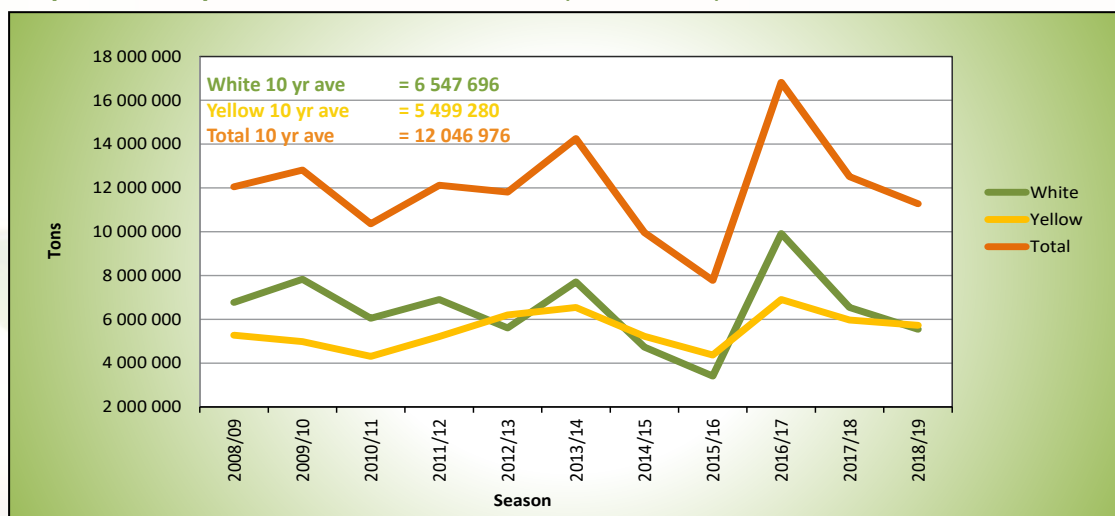
The project outcome provides a decision-making tool to the maize industry stakeholders to assist in the identification of potential problem areas in maize quality and to focus future research activities.

Production

The final figure for the 2018/19 season's commercial maize crop as overseen by the National Crop Estimates Liaison Committee (CELC) is 11,275 million tons. This figure represents a year on year decrease of 9.9% and is also 6.4% lower than the previous 10-year crop average (12,047 million tons). White maize's contribution to the total production was 5,545 million tons (49.2%) and that of yellow maize 5,730 million tons (50.8%).

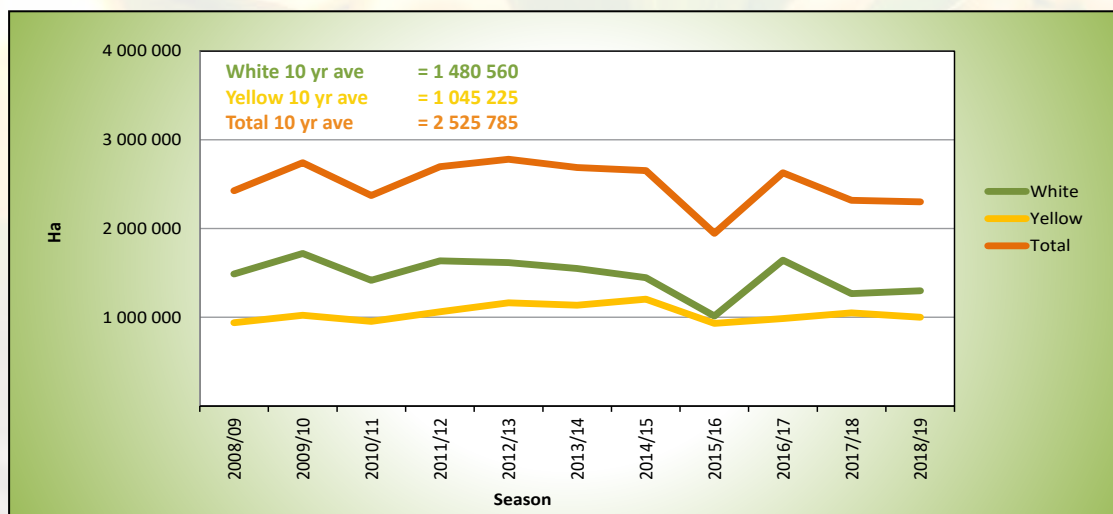
The national Crop Estimates Committee's (CEC) estimated total production figures were revised, using the South African Grain Information Services' (SAGIS) published figures of actual deliveries as basis for the calculations. Figures from the maize utilisation survey, conducted by the Department of Agriculture, Forestry and Fisheries (DAFF) to determine on-farm usage and retentions as well as 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 2008/09 to 2018/19



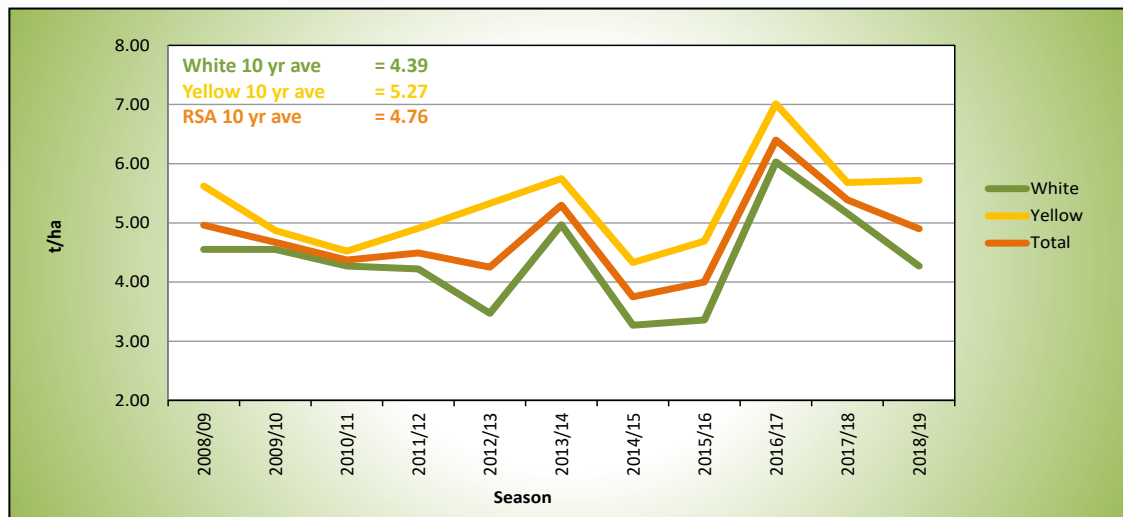
The total area utilised for maize production in the 2018/19 season was 2 300 500 hectares, 0.8% less than the previous season and 9% lower than the previous 10-year average. White maize was planted on 1 298 400 hectares and yellow maize on 1 002 100 hectares (1 268 100 and 1 050 750 hectares respectively in the 2017/18 season).

Graph 3: Total RSA area utilised for maize production from 2008/09 to 2018/19



The maize yield of 4.90 tons per hectare (t/ha) this season, was 0.49 t/ha lower than the previous season. The previous 10-year average is 4.76 t/ha. White maize yielded 4.27 t/ha and yellow maize 5.72 t/ha (5.16 t/ha and 5.68 t/ha respectively last season).

Graph 4: RSA Maize yield from 2008/09 to 2018/19



The maize area planted in the non-commercial agricultural sector is estimated at 296 00 ha, a decrease of 5.98% compared to the previous season. The expected maize crop is 549 180 tons, 7.54% less than last season. Approximately 43% of non-commercial maize is produced in the Eastern Cape, followed by KwaZulu-Natal with 27%.

Table 1: Maize production overview - 2018/19 season

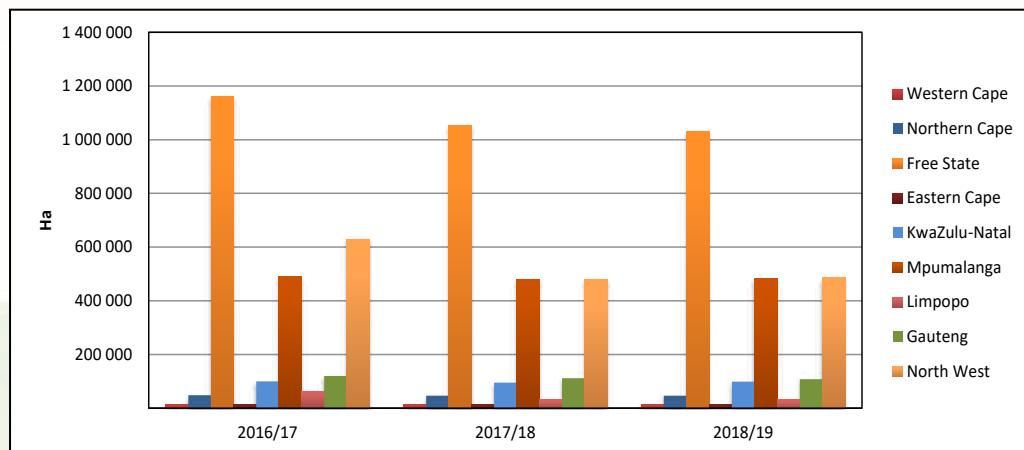
Province	Type of production	White			Yellow		
		Hectares planted, ha	Production, tons	Yield, t/ha	Hectares planted, ha	Production, tons	Yield, t/ha
Western Cape	Dryland	-	-	-	-	-	-
	Irrigation	400	3 600	9.00	3 400	30 600	9.00
	Total	400	3 600	9.00	3 400	30 600	9.00
Northern Cape	Dryland	-	-	-	-	-	-
	Irrigation	3 400	39 500	11.62	43 500	630 750	14.50
	Total	3 400	39 500	11.62	43 500	630 750	14.50
Free State	Dryland	627 500	2 561 000	4.08	350 000	1 450 500	4.14
	Irrigation	22 500	234 000	10.40	30 000	307 500	10.25
	Total	650 000	2 795 000	4.30	380 000	1 758 000	4.63
Eastern Cape	Dryland	2 550	9 750	3.82	6 850	27 050	3.95
	Irrigation	1 250	13 250	10.60	3 350	42 700	12.75
	Total	3 800	23 000	6.05	10 200	69 750	6.84
KwaZulu-Natal	Dryland	38 000	197 900	5.21	36 000	217 800	6.05
	Irrigation	7 000	72 100	10.30	18 000	181 800	10.10
	Total	45 000	270 000	6.00	54 000	399 600	7.40
Mpumalanga	Dryland	134 500	688 300	5.12	320 000	1 789 300	5.59
	Irrigation	10 500	109 200	10.40	18 000	188 000	10.44
	Total	145 000	797 500	5.50	338 000	1 977 300	5.85
Limpopo	Dryland	6 800	22 000	3.24	8 000	21 000	2.63
	Irrigation	6 000	61 200	10.20	10 000	96 000	9.60
	Total	12 800	83 200	6.50	18 000	117 000	6.50
Gauteng	Dryland	46 000	236 200	5.13	53 000	269 600	5.09
	Irrigation	2 000	23 000	11.50	7 000	78 400	11.20
	Total	48 000	259 200	5.40	60 000	348 000	5.80
North West	Dryland	373 000	1 110 000	2.98	83 250	284 500	3.42
	Irrigation	17 000	164 000	9.65	11 750	114 500	9.74
	Total	390 000	1 274 000	3.27	95 000	399 000	4.20
RSA	Dryland	1 228 350	4 825 150	3.93	857 100	4 059 750	4.74
	Irrigation	70 050	719 850	10.28	145 000	1 670 250	11.52
	Total	1 298 400	5 545 000	4.27	1 002 100	5 730 000	5.72

Figures provided by the CEC.

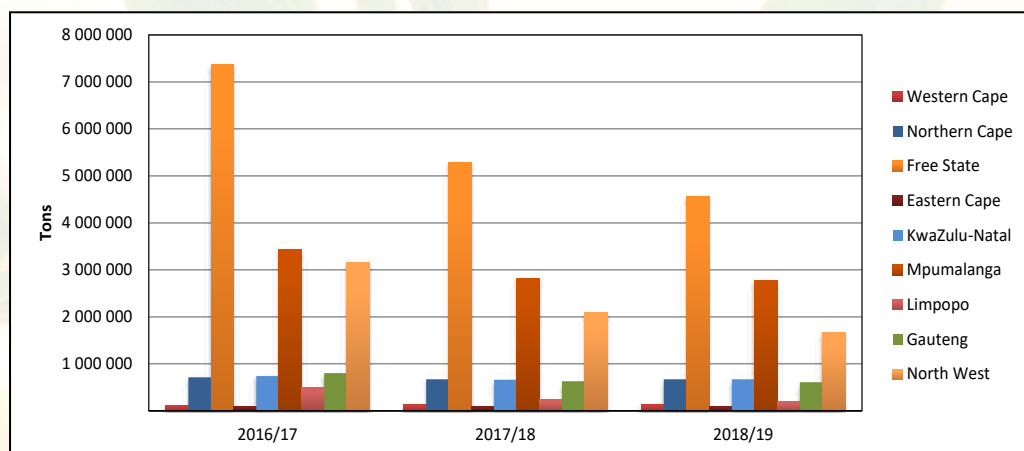
The major commercial maize-producing provinces are the Free State, Mpumalanga and North West, contributing 80% of the total maize production in the RSA. The Free State produced 4 553 000 tons of maize on 1 030 000 hectares with a yield of 4.42 t/ha. Mpumalanga produced 2 774 800 tons of maize on 483 000 hectares with a yield of 5.74 t/ha and North West harvested 1 673 000 tons of maize on 485 000 hectares yielding 3.45 t/ha. Yellow maize contributed 71% of the total maize production in Mpumalanga while the majority of maize produced in the Free State (61%) and North West (76%) was white.

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

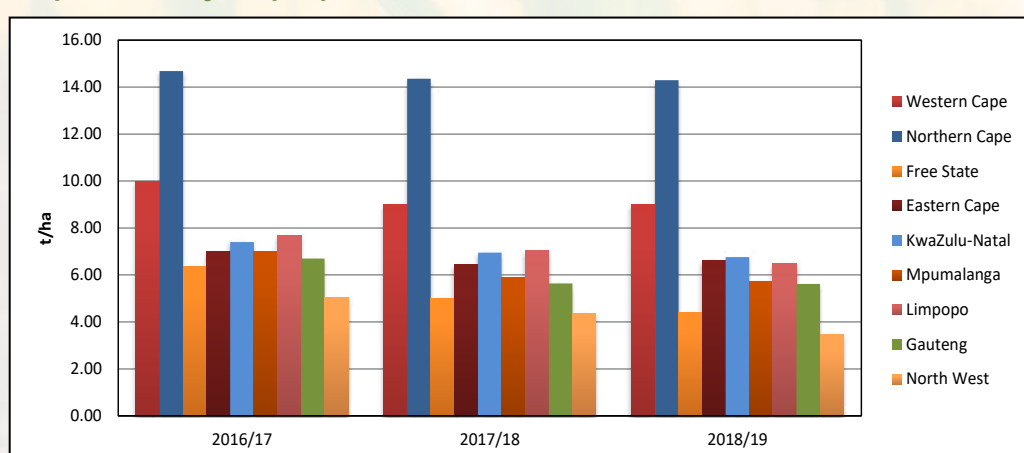
Graph 5: Area utilised for maize production per province over three seasons



Graph 6: Maize production per province over three seasons



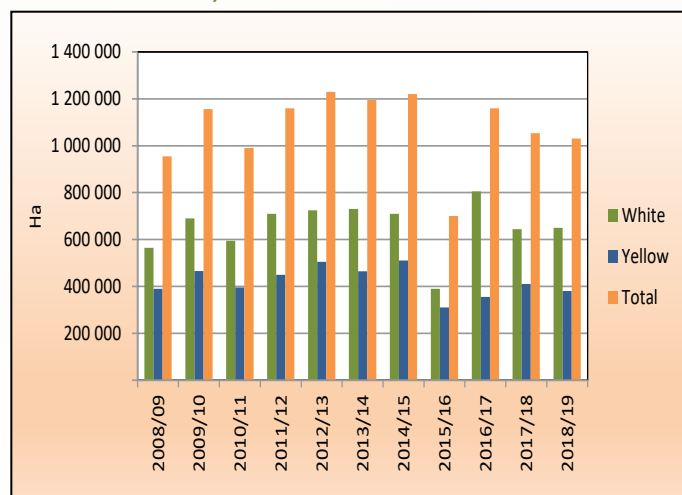
Graph 7: Maize yield per province over three seasons



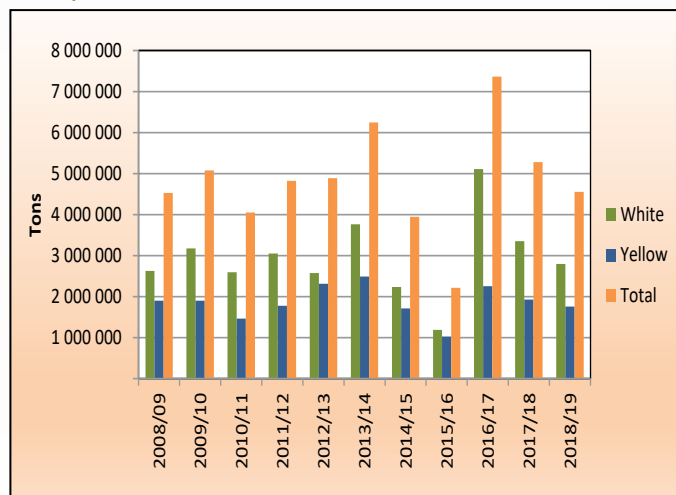
Figures provided by the CEC.

Graphs 8 to 13 provide an overview of the area planted and production figures for the Free State, Mpumalanga and North West from the 2008/09 to 2018/19 seasons.

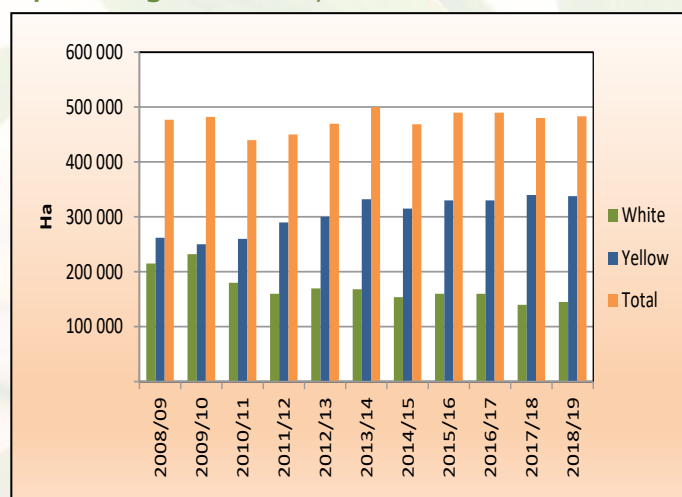
Graph 8: Area utilised for maize production in the Free State since 2008/09



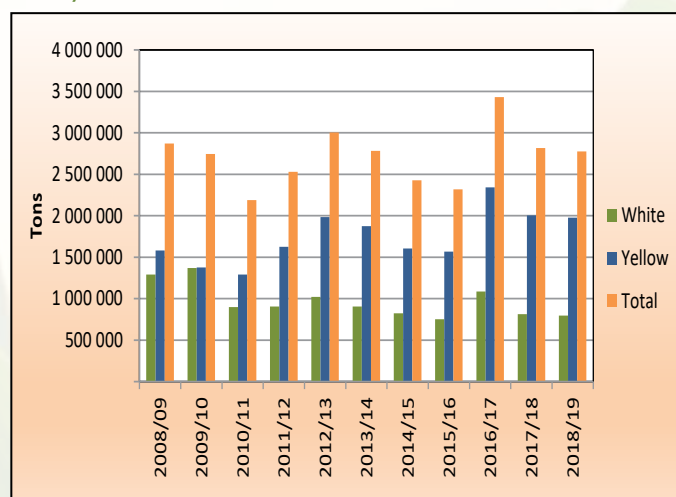
Graph 9: Maize production in the Free State since 2008/09



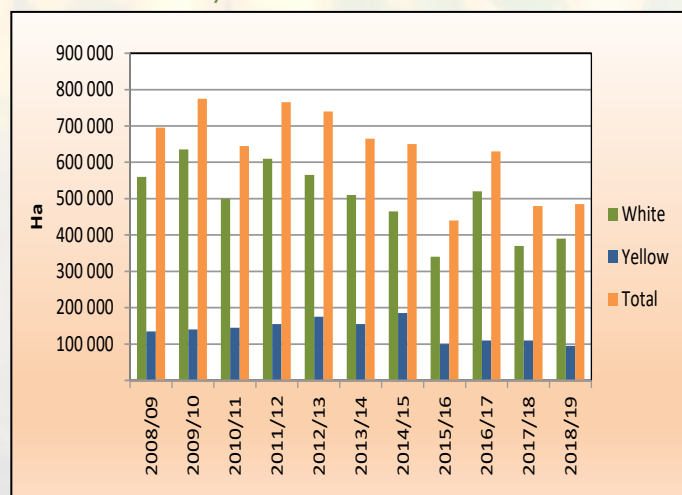
Graph 10: Area utilised for maize production in Mpumalanga since 2008/09



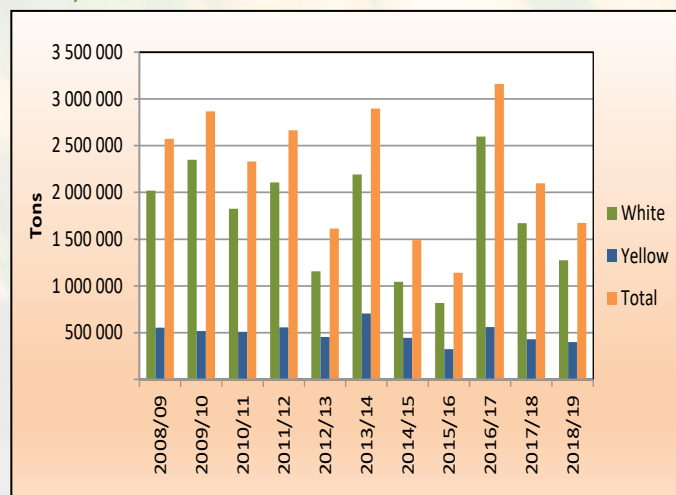
Graph 11: Maize production in Mpumalanga since 2008/09



Graph 12: Area utilised for maize production in North West since 2008/09



Graph 13: Maize production in North West since 2008/09



Figures provided by the CEC.

Supply and Demand

World maize production for the 2018/19 season was estimated at 1 129.0 million tons according to the *International Grains Council Grain Market Report GMR 510 – 28 May 2020*, with the major maize producing countries being the USA, China and Brazil. The USA, Brazil, Argentina and the Ukraine are the biggest exporters of maize. Maize usage figures are estimated at 127.8, 303.9 and 675.3 million tons respectively for food, industrial and feed purposes. World production for the 2019/20 season is forecasted at 1 118.3 million tons and the 2020/21 figure is projected to be 1 168.6 million tons.

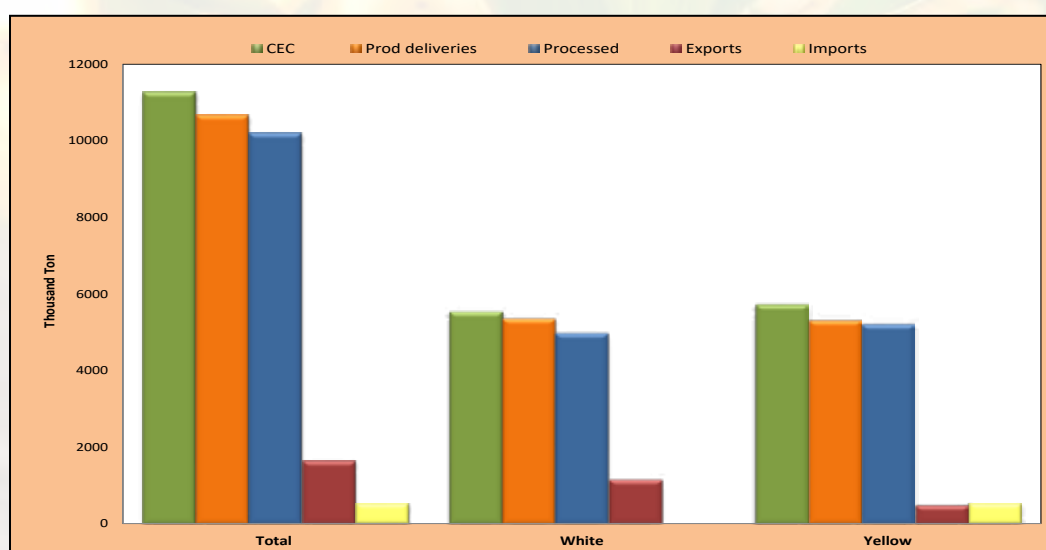
According to *The Bureau for Food and Agricultural Policy (BFAP) Baseline, Agricultural Outlook 2019 – 2028*, demand growth prospects for different summer crops differs substantially over the next decade, due to the differences in use and the underlying consumption trends related to these different products. While staple grains such as white maize is predominantly consumed as food, the bulk of yellow maize consumption is as primary energy source in most animal feed rations.

Although white maize consumption declined on a per capita basis over the past decade, a marginal increase is projected over the coming decade. Demand for meat products both domestically and in the export market (despite slowing significantly relative to the last decade), is still expected to support substantially faster growth in the demand for yellow maize and soybeans than is the case for white maize.

Area trends over the coming decade also reflect this continued shift in demand, with white maize area continuing to decline, by a total of 17% by 2028 relative to the 2016-2018 base period. Reasons for the decline in white maize area are weaker demand growth as well as the poor profitability of maize production in the Western production regions, where the bulk of white maize is produced. Yield gains (assuming stable rainfall and continuously improving cultivars) of 23% over the same period are however sufficient to meet projected demand growth. The removal of more marginal areas also supports this greater average yield gains. By contrast, the area cultivated to yellow maize continue to expand, increasing by 15% over the 10-year period to 2028.

Local Supply and Demand figures, compiled by SAGIS, are provided in graphs and tables below and on pages 8 to 13.

Graph 14: Maize supply and demand overview 2019/20 marketing season



Information provided by SAGIS.

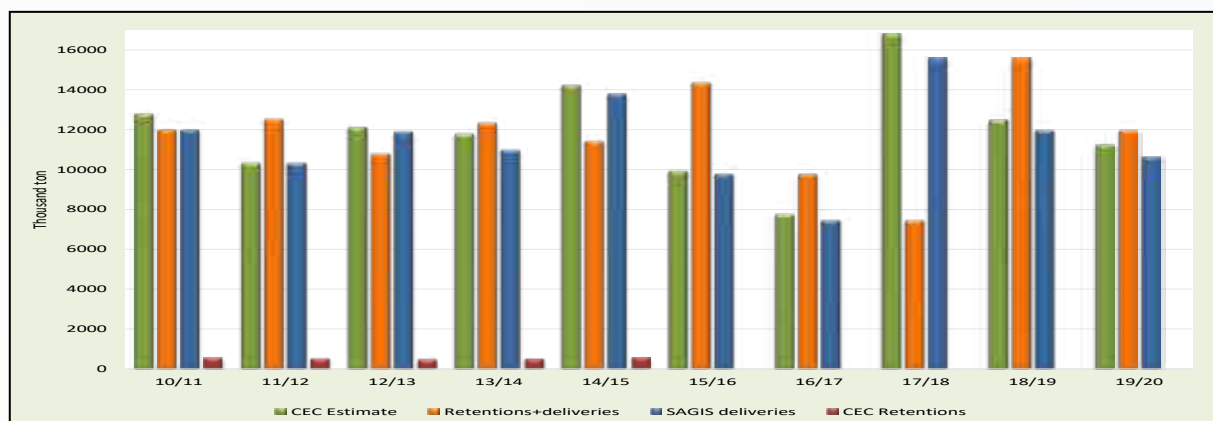
TOTAL MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2020-04-29

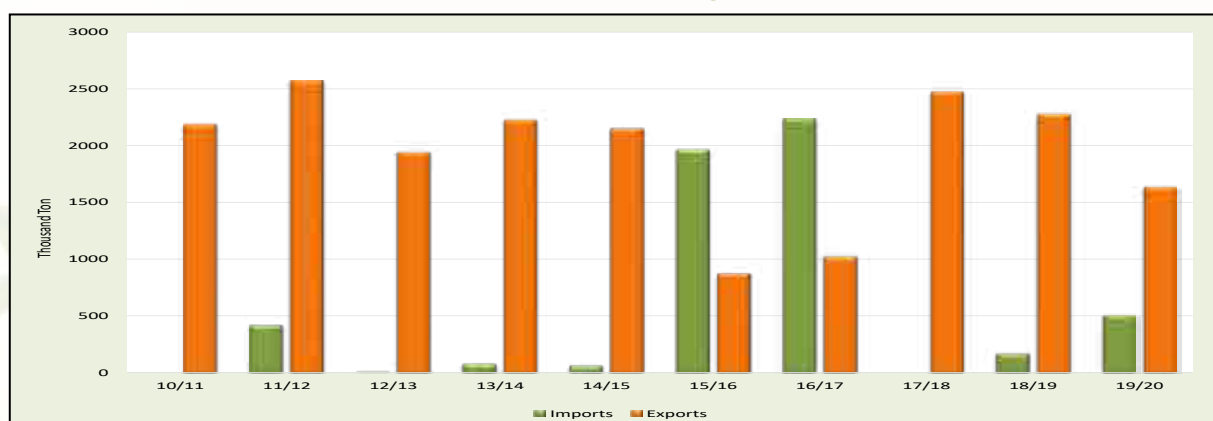
Season	Marketing Season (May - Apr)																		Current			10 Year average
																			Season			
																			May - Mar			
01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	2009/10-2018/19			
...																						
11																						
CEC (Crop Estimate)	7 225 000	9 732 000	9 392 000	9 482 000	11 450 000	6 618 000	7 425 000	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	16 820 000	12 510 000	11 275 000			
CEC (Retention)	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	0	0	0			
SUPPLY																						
Opening stock (1 May)	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	1 094 638	3 689 476	2 663 086			
Prod deliveries*	7 936 000	9 310 000	8 409 000	9 093 000	10 055 000	6 707 000	6 882 000	11 869 000	11 629 000	12 016 000	10 340 000	11 929 000	10 991 995	13 827 632	9 794 332	7 469 600	15 628 682	11 983 852	10 668 389			
Imports	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	2 236 743	0	171 622	509 684			
Surplus	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	44 417	46 657	22 173	31 936			
Total Supply	10 446 000	11 437 000	11 800 000	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	12 221 827	16 769 977	15 867 123	13 873 095			
DEMAND																						
Processed	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	9 838 709	10 299 680	10 690 977	10 211 290			
-human	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	4 498 000	4 582 310	4 840 021	4 698 482	4 809 221	4 993 476	5 160 772	4 916 173			
-animal/industrial	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	5 003 810	5 276 447	5 507 180	5 272 932			
-gristing	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	25 678	29 757	23 025	22 185			
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Withdrawn by producers	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	94 948	102 906	64 264	53 441			
Released to end-consumers	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	157 460	180 544	151 643	91 383			
Net receipts(-)/dispt(+)	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	9 770	15 663	13 095	8 468			
Deficit	156 000	14 000	0	49 000	12 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Exports	1 335 000	1 188 000	1 186 000	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	1 026 302	2 481 708	2 284 058	1 641 845			
Products	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	189 112	192 874	213 592	328 214			
African Countries	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	144 229	117 797	142 117	290 827			
Other Countries	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	44 883	75 077	71 475	37 387			
Whole maize	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	837 190	2 288 834	2 070 466	1 313 631			
Border Posts	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	804 322	591 692	630 572	1 096 697			
Harbours	529 000	37 000	146 000	141 000	832 000	60 000	0	830 000	987 000	1 437 000	1 862 000	1 200 000	1 134 164	1 264 326	8 594	32 868	1 697 142	1 439 894	216 934			
Total Demand	9 244 000	8 727 000	8 976 000	8 768 000	10 394 000	8 769 000	9 052 000	11 424 000	11 174 000	11 888 000	12 157 000	11 559 000	12 022 660	12 434 428	11 413 440	11 127 189	13 080 501	13 204 037	12 006 427			
Ending Stock (30 Apr)	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	1 094 638	3 689 476	2 663 086	1 866 668			
- processed p/month	595 900	581 900	603 600	606 900	621 800	638 300	669 100	717 800	721 500	738 100	745 100	744 583	779 066	827 210	854 083	819 892	859 307	880 915	928 269			
- months' stock	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	1.3	4.3	3.0	2.0			
Note : *** Figures for current season up to date																						

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

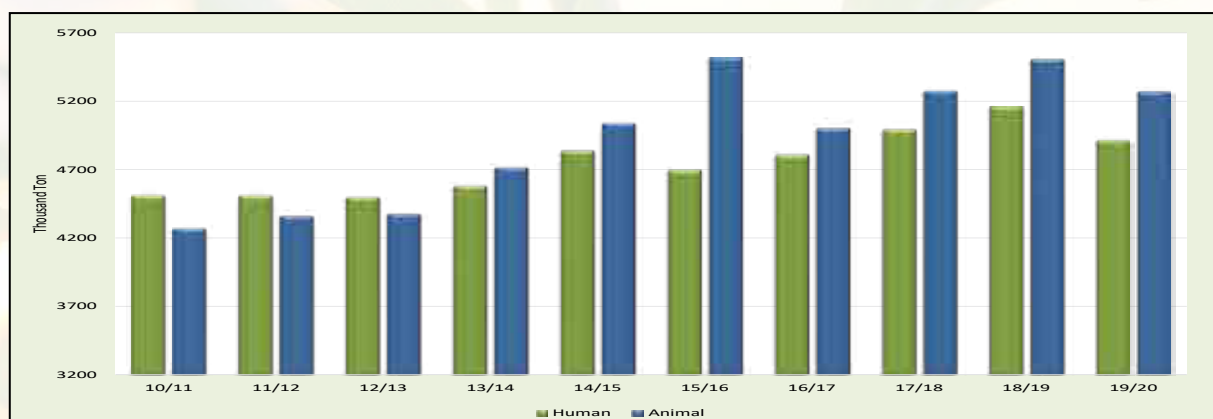
Graph 15: Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



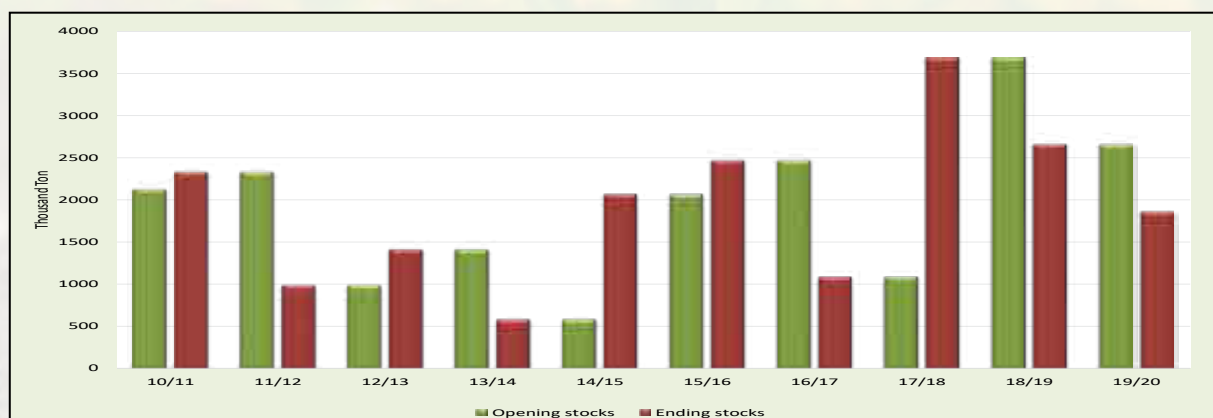
Graph 16: Maize: Imports and exports over 10 marketing seasons



Graph 17: Maize: RSA consumption over 10 marketing seasons



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



Information provided by SAGIS.

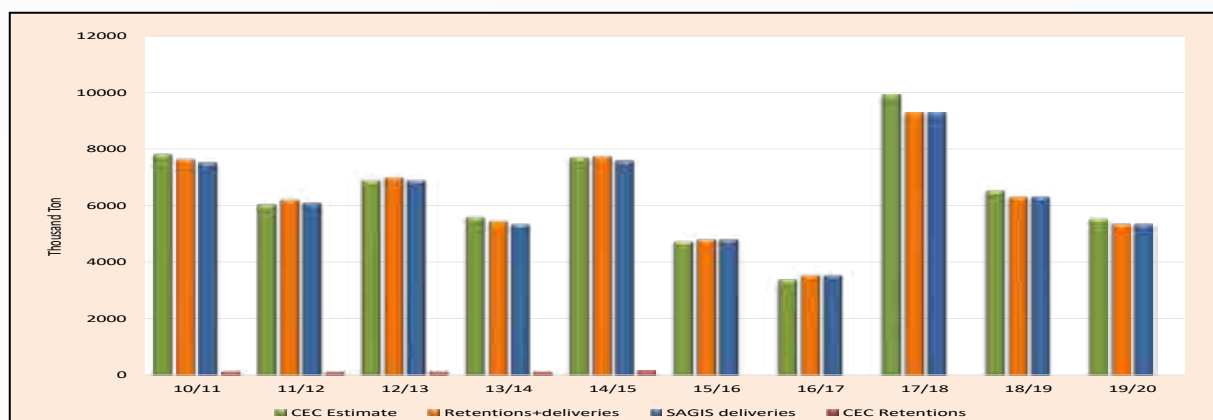
WHITE MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2020-04-29

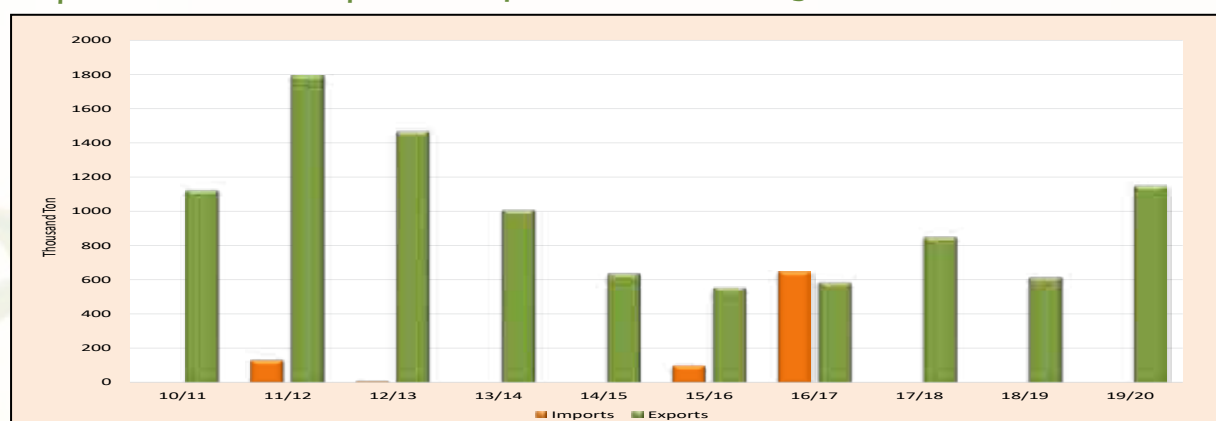
Season	Marketing Season (May - Apr)																Current		10 Year average
																	Season		
																	May - Mar		
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	
																		...	
																		11	
CEC (Crop Estimate)	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	9 916 000	6 540 000	5 545 000
CEC (Retention)	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	0	0	0
SUPPLY																			
Opening stock (1 May)	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	597 837	2 428 653	1 798 998
Prod deliveries*	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	4 803 279	3 551 822	9 268 593	6 308 941	5 357 925
Imports	47 000	274 000	33 000	0	0	1 000	46 000	0	0	0	133 000	11 000	0	0	100 803	644 144	0	0	0
Surplus	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	31 994	21 751	1 403	4 607
Total Supply	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	5 535 827	9 888 181	8 738 997	7 161 530
DEMAND																			
Processed	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	4 331 787	6 533 966	6 283 320	4 987 785
-human	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	4 232 583	4 459 504	4 594 123	4 380 583
-animal/industrial	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	86 153	2 081 649	1 677 236	597 223
-gristing	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	13 051	12 813	11 961	9 979
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	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	14 083	35 885	12 844	11 938
Released to end-consumers	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	5 660	30 125	22 946	15 566
Net receipts(-)/dispt(+)	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	-963	7 583	4 238	2 684
Deficit	112 000	0	0	38 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	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	587 423	851 969	616 651	1 151 926
Products	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	41 042	42 038	72 280	213 520
African Countries	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	36 573	40 695	70 726	213 157
Other Countries	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	4 469	1 343	1 554	363
Whole maize	760 000	744 000	1 004 000	688 000	1 786 000	480 000	400 000	1 887 000	1 408 000	1 049 000	1 734 000	1 400 000	926 046	547 500	473 427	546 381	809 931	544 371	938 406
Border Posts	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	520 200	417 327	397 657	736 093
Harbours	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	26 181	392 604	146 714	202 313
Total Demand	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	4 937 990	7 459 528	6 939 999	6 169 889
Ending Stock (30 Apr)	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	597 837	2 428 653	1 798 998	991 641
- processed p/month	350 200	306 600	351 000	359 400	348 900	365 400	395 900	410 200	379 600	489 300	447 800	420 583	400 723	488 537	359 975	360 982	544 497	523 610	453 435
- months' stock	1.6	5.6	6.0	6.7	6.6	4.5	1.6	1.9	3.6	3.3	1.2	1.8	.7	2.6	3.6	1.7	4.5	3.4	2.2
Note: ** Figures for current season up to date																			

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

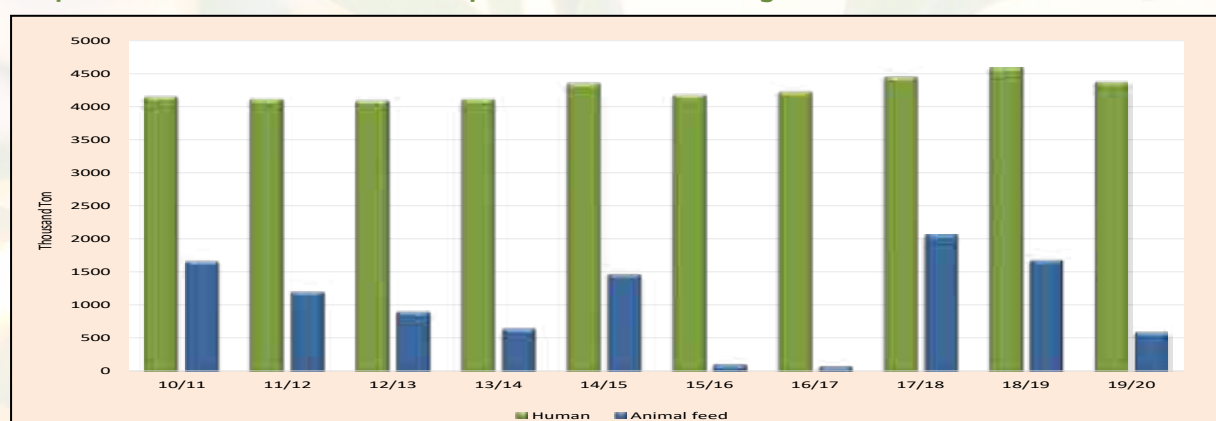
Graph 19: White Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



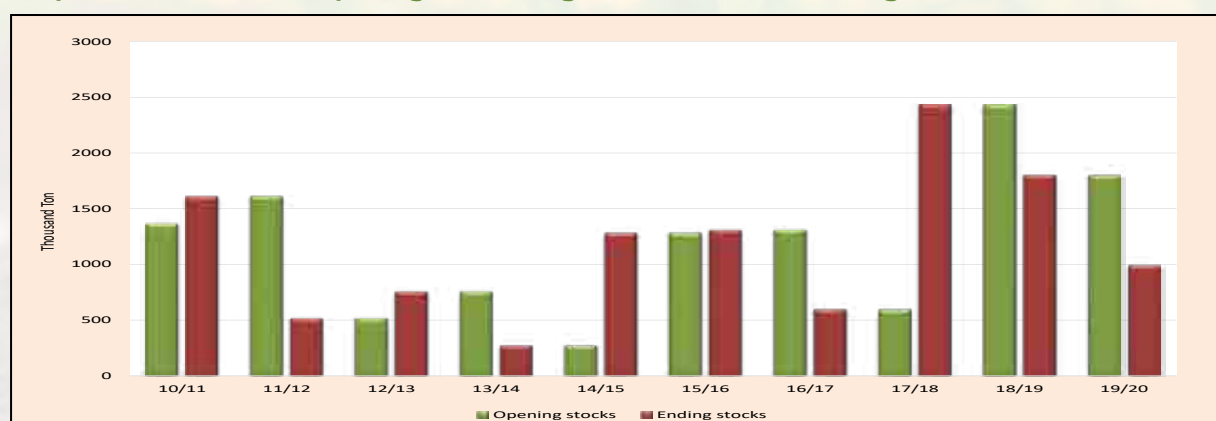
Graph 20: White Maize: Imports and exports over 10 marketing seasons



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.

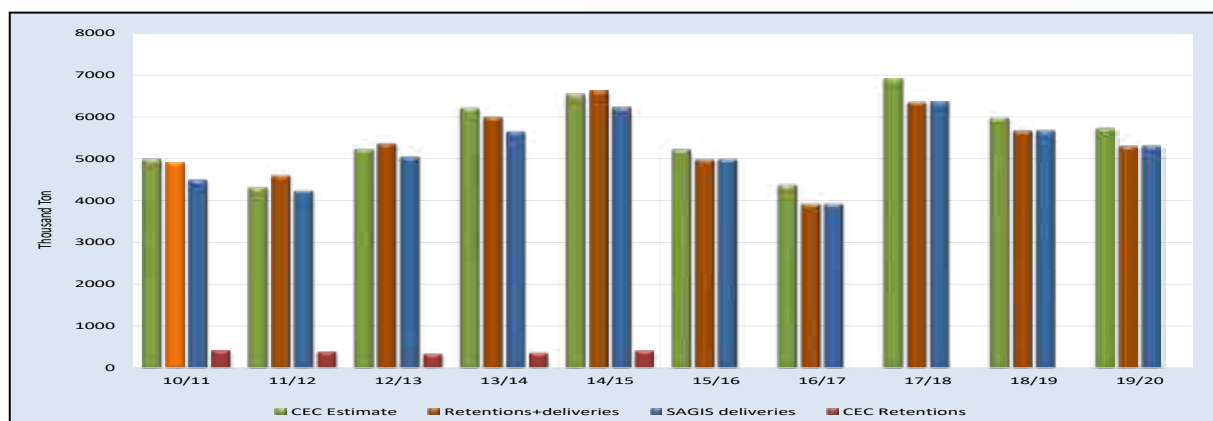
YELLOW MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2020-04-29

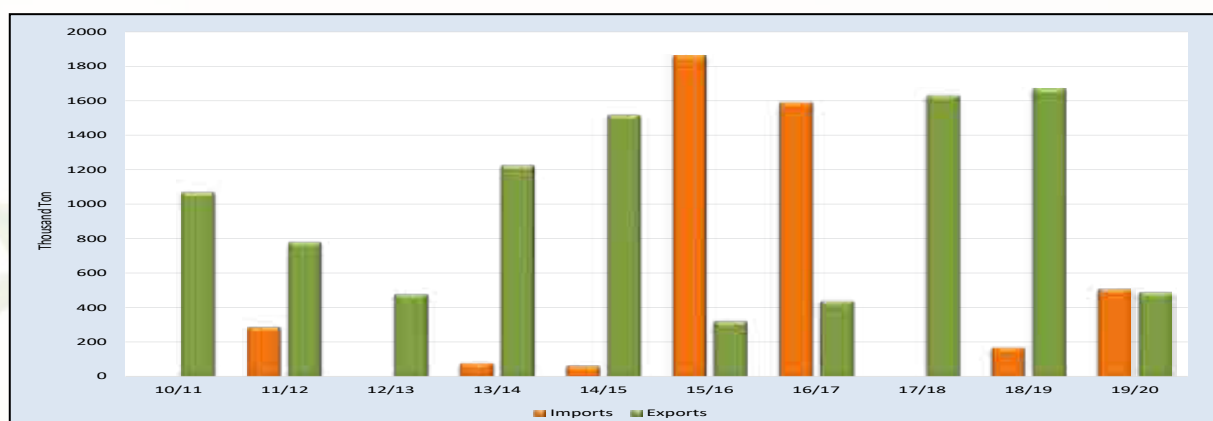
Season	Marketing Season (May - Apr)																	Current		10 Year average
																		Season	May-Mar	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	
CEC (Crop Estimate)	3 115 000	4 194 000	3 026 000	3 677 000	4 909 000	2 431 000	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	6 904 000	5 970 000	5 730 000	5 499 280
CEC (Retention)	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	0	0	215 390	
SUPPLY																				
Opening stock (1 May)	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	496 801	1 260 823	864 088	747 777
Prod deliveries*	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	3 917 778	6 360 089	5 674 911	5 310 464	5 149 736
Imports	348 000	651 000	408 000	219 000	380 000	930 000	1 074 000	27 000	27 000	0	288 000	0	79 682	65 250	1 862 807	1 592 599	0	171 622	509 684	408 696
Surplus	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	12 423	24 906	20 770	27 329	27 165
Total Supply	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	6 686 000	6 881 796	7 128 126	6 711 565	6 333 374
DEMAND																				
Processed	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	4 539 986	4 064 081	5 929 297	5 506 922	3 765 714	4 407 657	5 223 505	4 275 767
-human	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	516 415	576 638	533 972	566 648	535 590	463 426
-animal/industrial	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	4 917 657	3 214 798	3 829 944	4 675 709	3 798 514
-gristing	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	12 627	16 944	11 064	12 206	13 827
-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	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	80 865	67 021	51 420	41 503	103 388
Released to end-consumers	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	151 800	150 419	128 697	75 827	240 130
Net receipts(-)/disp(+)	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	10 733	8 080	8 857	5 784	17 485
Deficit	44 000	14 000	0	11 000	16 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	523 000	371 000	116 000	120 000	383 000	117 000	103 000	303 000	319 000	1 068 000	761 000	478 000	1 223 673	1 514 917	322 748	438 879	1 629 739	1 687 407	489 919	944 336
Products	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	148 070	150 836	141 312	114 694	98 408
African Countries	1 000	24 000	12 000	26 000	5 000	14 000	11 000	10 000	29 000	22 000	39 000	39 000	51 008	59 812	59 839	107 666	77 102	71 391	77 670	55 581
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	43 063	45 200	42 908	40 414	73 734	69 921	37 024	42 827
Whole maize	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	290 809	1 478 903	1 526 085	375 225	845 929
Border Posts	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	163 531	211 407	284 122	174 365	232 915	360 604	180 281
Harbours	440 000	30 000	23 000	0	256 000	0	0	174 000	125 000	897 000	567 000	262 000	936 107	1 264 954	8 594	6 687	1 304 538	1 293 180	14 621	665 506
Total Demand	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	6 189 199	5 620 973	6 264 038	5 836 538	5 581 106
Ending Stock (30 Apr)	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	496 801	1 260 823	864 088	875 027	752 268
- processed p/month	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	458 910	313 810	367 305	474 864	356 314
- months' stock	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	1.1	4.0	2.4	1.8	2
Note: "" Figures for current season up to date																				

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

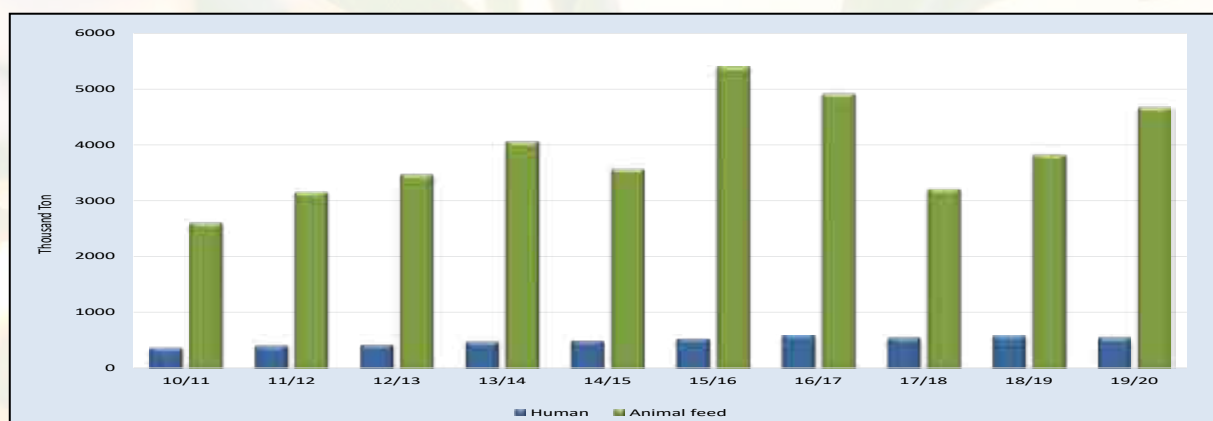
Graph 23: Yellow Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



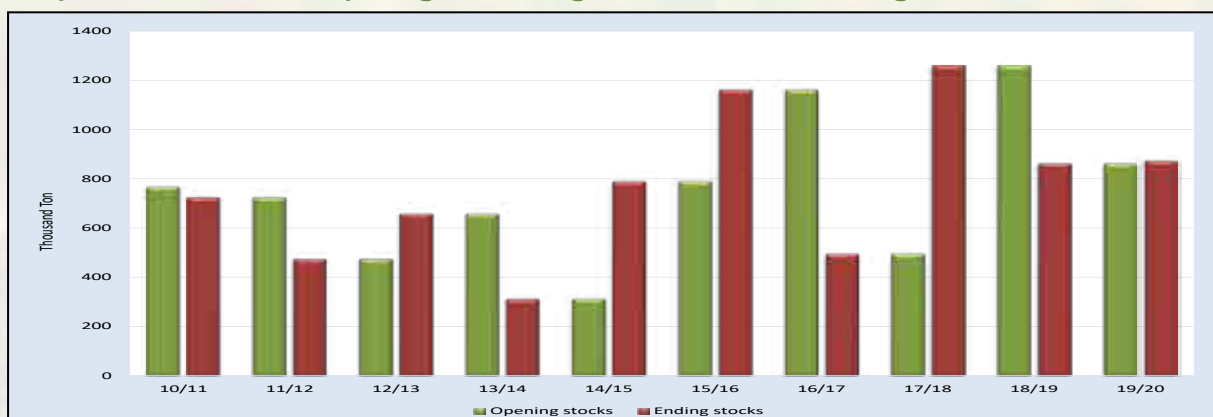
Graph 24: Yellow Maize: Imports and exports over 10 marketing seasons



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.

TOTAL WHOLE MAIZE PROCESSED PER PROVINCE

PROGRESSIVE: May 2015 to April 2016 (Full 2015/16 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	287 173	1 434 869	320 708	541 762	461 460	796 715	969 695	4 812 382
Animal Feed and Industrial	1 409 879	708 649	549 048	750 759	127 928	1 462 697	614 035	5 622 995
	1 697 052	2 143 518	869 756	1 292 521	589 388	2 259 412	1 583 730	10 435 377

PROGRESSIVE: May 2016 to April 2017 (Full 2016/17 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	295 116	1 540 652	329 189	552 654	420 093	835 516	971 342	4 944 562
Animal Feed and Industrial	1 347 809	624 812	474 090	656 874	119 216	1 297 980	562 478	5 083 259
	1 642 925	2 165 464	803 279	1 209 528	539 309	2 133 496	1 533 820	10 027 821

PROGRESSIVE: May 2017 to April 2018 (2017/18 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	285 475	1 614 961	356 881	591 932	426 137	857 317	967 932	5 100 635
Animal Feed and Industrial	1 445 836	712 710	456 876	722 148	127 893	1 390 634	535 822	5 391 919
	1 731 311	2 327 671	813 757	1 314 080	554 030	2 247 951	1 503 754	10 492 554

PROGRESSIVE: May 2018 to April 2019 (2018/19 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	252 646	1 756 439	319 708	641 477	395 583	891 486	1 030 218	5 287 557
Animal Feed and Industrial	1 461 593	736 532	473 837	780 575	141 674	1 446 615	576 186	5 617 012
	1 714 239	2 492 971	793 545	1 422 052	537 257	2 338 101	1 606 404	10 904 569

PROGRESSIVE: May 2019 to April 2020 (2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	197 142	1 373 412	255 475	560 606	294 134	677 470	840 319	4 198 558
Animal Feed and Industrial	1 187 006	592 280	377 656	593 190	98 234	1 095 934	487 094	4 431 394
	1 384 148	1 965 692	633 131	1 153 796	392 368	1 773 404	1 327 413	8 629 952

* Please note that included are the products destined for exports

WHOLE WHITE MAIZE PROCESSED PER PROVINCE

PROGRESSIVE: May 2015 to April 2016 (Full 2015/16 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	268 480	1 251 753	310 003	443 817	460 955	693 080	856 723	4 284 811
Animal Feed and Industrial	5 362	19 622	9 662	1 093		70 342	12 441	118 522
	273 842	1 271 375	319 665	444 910	460 955	763 422	869 164	4 403 333

PROGRESSIVE: May 2016 to April 2017 (Full 2016/17 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	278 099	1 275 202	316 507	420 766	419 247	712 136	864 719	4 286 676
Animal Feed and Industrial	5 300	17 357	4 124	4 724		20 511	34 137	86 153
	283 399	1 292 559	320 631	425 490	419 247	732 647	898 856	4 372 829

PROGRESSIVE: May 2017 to April 2018 (2017/18 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	273 153	1 354 218	334 987	473 802	426 011	754 160	898 024	4 514 355
Animal Feed and Industrial	870 796	237 831	75 440	43 510	10 689	387 213	436 170	2 061 649
	1 143 949	1 592 049	410 427	517 312	436 700	1 141 373	1 334 194	6 576 004

PROGRESSIVE: May 2018 to April 2019 (2018/19 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	232 450	1 474 013	278 228	524 341	395 583	794 170	979 579	4 678 364
Animal Feed and Industrial	782 873	197 307	80 064	6 857	7 797	261 040	341 298	1 677 236
	1 015 323	1 671 320	358 292	531 198	403 380	1 055 210	1 320 877	6 355 600

PROGRESSIVE: May 2019 to April 2020 (2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	179 476	1 161 397	219 903	450 714	294 134	602 330	815 903	3 723 857
Animal Feed and Industrial	187 646	102 535	1 122	2 472	1 681	21 980	151 331	468 767
	367 122	1 263 932	221 025	453 186	295 815	624 310	967 234	4 192 624

* Please note that included are the products destined for exports

WHOLE YELLOW MAIZE PROCESSED PER PROVINCE

PROGRESSIVE: May 2015 to April 2016 (Full 2015/16 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	18 693	183 116	10 705	97 945	505	103 635	112 972	527 571
Animal Feed and Industrial	1 404 517	689 027	539 386	749 666	127 928	1 392 355	601 594	5 504 473
	1 423 210	872 143	550 091	847 611	128 433	1 495 990	714 566	6 032 044

PROGRESSIVE: May 2016 to April 2017 (Full 2016/17 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	17 017	265 450	12 682	131 888	846	123 380	106 623	657 886
Animal Feed and Industrial	1 342 509	607 455	469 966	652 150	119 216	1 277 469	528 341	4 997 106
	1 359 526	872 905	482 648	784 038	120 062	1 400 849	634 964	5 654 992

PROGRESSIVE: May 2017 to April 2018 (2017/18 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	12 322	260 743	21 894	118 130	126	103 157	69 908	586 280
Animal Feed and Industrial	575 040	474 879	381 436	678 638	117 204	1 003 421	99 652	3 330 270
	587 362	735 622	403 330	796 768	117 330	1 106 578	169 560	3 916 550

PROGRESSIVE: May 2018 to April 2019 (2018/19 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	20 196	282 426	41 480	117 136		97 316	50 639	609 193
Animal Feed and Industrial	678 720	539 225	393 773	773 718	133 877	1 185 575	234 888	3 939 776
	698 916	821 651	435 253	890 854	133 877	1 282 891	285 527	4 548 969

PROGRESSIVE: May 2019 to April 2020 (2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	17 666	212 015	35 572	109 892		75 140	24 416	474 701
Animal Feed and Industrial	999 360	489 745	376 534	590 718	96 553	1 073 954	335 763	3 962 627
	1 017 026	701 760	412 106	700 610	96 553	1 149 094	360 179	4 437 328

* Please note that included are the products destined for exports

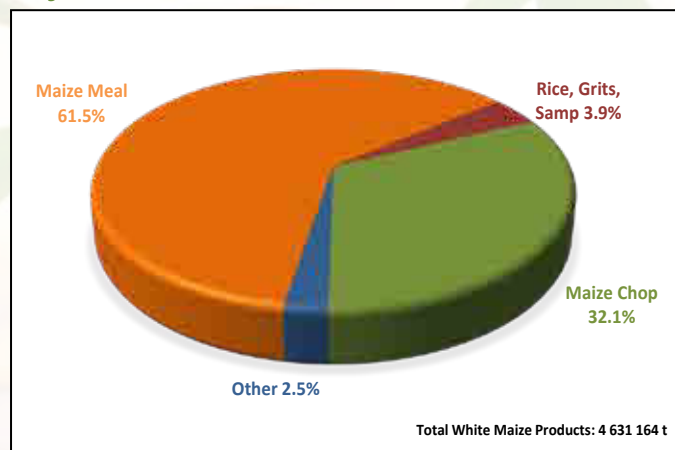
SAGIS Maize Product Information

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

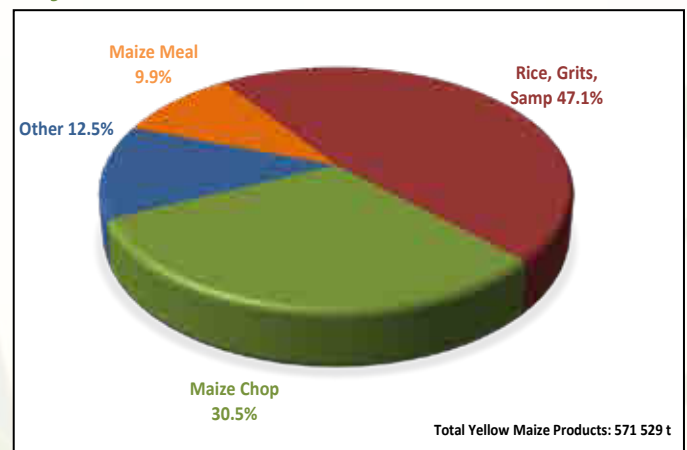
To comply with the abovementioned statutory measures, manufacturers of these products have to register with SAGIS and submit information with regards to the manufacture, import and export of maize products.

Please see graphs 27 to 30 below for an overview of the white and yellow maize products as well as white and yellow maize meal manufactured for the period May 2019 to March 2020. The tables on pages 15 to 17 provide a summary of the figures for maize products manufactured, imported and exported during the previous two marketing seasons (May to April) as well as the current marketing season to date (May 2019 to March 2020).

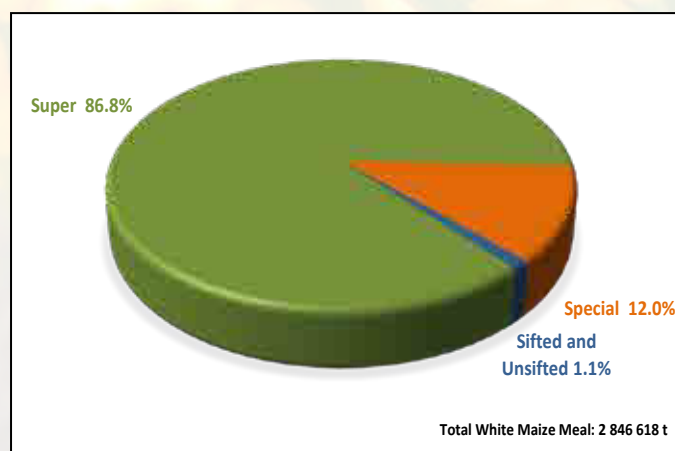
Graph 27: White maize products manufactured from May 2019 to March 2020



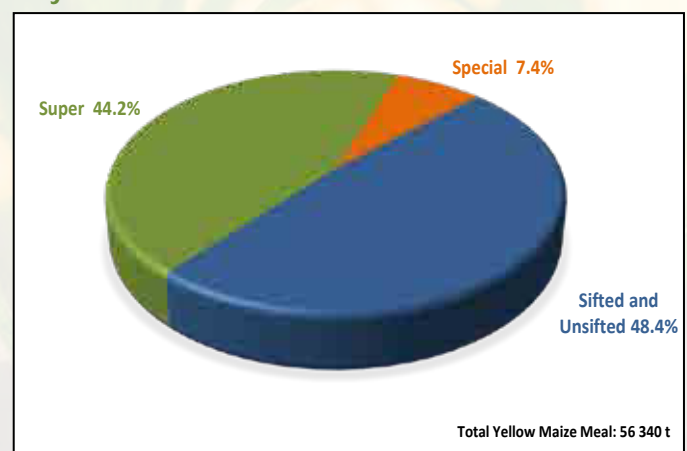
Graph 28: Yellow maize products manufactured from May 2019 to March 2020



Graph 29: White maize meal manufactured from May 2019 to March 2020



Graph 30: Yellow maize meal manufactured from May 2019 to March 2020



MAIZE PRODUCTS MANUFACTURED PER MARKETING YEAR										Date Published: 2020/05/08		
	Marketing year: May 2017 - Apr 2018			Marketing year: May 2018 - Apr 2019			Marketing year: May 2019 - Apr 2020					
	Manufactured Tons			Manufactured Tons			Manufactured Tons					
	Progressive: 12 Months			Progressive: 12 Months			Progressive: 11 Months (May - Mar)					
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"			
Maize Chop	1 430 700	171 566	1 602 266	1 491 097	176 241	1 667 338	1 488 132	174 355	1 662 487			
Maize Rice	8 727	*	8 727	8 228	*	8 228	7 819	*	7 819			
Maize Grits	60 423	*	60 423	62 964	*	62 964	64 999	*	64 999			
Samp	112 676	*	112 676	118 545	*	118 545	109 209	*	109 209			
* Total Yellow Maize Rice / Maize Grits / Samp		266 524	266 524		268 369	268 369	0	269 257	269 257			
Sifted Maize Meal	37 556	33 355	70 911	28 439	22 252	50 691	20 437	27 245	47 682			
Special Maize Meal	357 886	3 978	361 864	371 301	10 734	382 035	342 154	4 168	346 322			
Super Maize Meal	2 388 000	31 789	2 419 789	2 495 637	29 187	2 524 824	2 472 260	24 922	2 497 182			
Unsifted Maize Meal	10 376	2	10 378	8 568	6	8 574	11 767	5	11 772			
Other maize products intended for Human consumption	113 303	56 325	169 628	109 299	88 803	198 102	114 387	71 577	185 964			
Total	4 519 647	563 539	5 083 186	4 694 078	595 592	5 289 670	4 631 164	571 529	5 202 693			

* Included total for yellow rice, grits and samp

MAIZE PRODUCTS IMPORTED PER MARKETING YEAR										Date Published: 2020/05/08		
	Marketing year: May 2017 - Apr 2018 Imported Tons				Marketing year: May 2018 - Apr 2019 Imported Tons				Marketing year: May 2019 - Apr 2020 Imported Tons			
	Progressive: 12 Months				Progressive: 12 Months				Progressive: 11 Months (May - Mar)			
	"White Maize"	"Yellow Maize"	"Total Maize"		"White Maize"	"Yellow Maize"	"Total Maize"		"White Maize"	"Yellow Maize"	"Total Maize"	
Maize Chop	1 505	0	1 505		1 123	0	1 123		8 191	0	8 191	
Maize Rice	0	*	0		0	*	0		0	*	0	
Maize Grits	0	*	0		0	*	0		0	*	0	
Samp	0	*	0		0	*	0		0	*	0	
* Total Yellow Maize Rice / Maize Grits / Samp		22	22			0	0		0	0	0	
Sifted Maize Meal	5 942	0	5 942		5 768	0	5 768		2 652	0	2 652	
Special Maize Meal	0	0	0		0	0	0		0	0	0	
Super Maize Meal	0	0	0		3	0	3		11	0	11	
Unsifted Maize Meal	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	
Total	7 447	22	7 469		6 894	0	6 894		10 854	0	10 854	

* Included total for yellow rice, grits and samp

MAIZE PRODUCTS EXPORTED PER MARKETING YEAR							Date Published: 2020/05/08		
	Marketing year: May 2017 - Apr 2018 Exported Tons			Marketing year: May 2018 - Apr 2019 Exported Tons			Marketing year: May 2019 - Apr 2020 Exported Tons		
	Progressive: 12 Months			Progressive: 12 Months			Progressive: 11 Months (May - Mar)		
	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"	"White Maize"	"Yellow Maize"	"Total Maize"
Maize Chop	0	0	0	40	0	40	667	0	667
Maize Rice	20	*	20	8	*	8	72	*	72
Maize Grits	0	*	0	0	*	0	253	*	253
Samp	1 183	*	1 183	836	*	836	1 213	*	1 213
* Total Yellow Maize Rice / Maize Grits / Samp		20 453	20 453		14 264	14 264	0	14 317	14 317
Sifted Maize Meal	76	5 964	6 040	0	4 240	4 240	0	8 168	8 168
Special Maize Meal	316	4	320	17 325	3 292	20 617	32 479	817	33 296
Super Maize Meal	22 702	2 183	24 885	25 858	1 349	27 207	83 453	7 248	90 701
Unsifted Maize Meal	0	0	0	0	0	0	580	0	580
Other maize products intended for Human consumption	8 623	5	8 628	11 539	2 417	13 956	41 217	830	42 047
Total	32 920	28 609	61 529	55 606	25 562	81 168	159 934	31 380	191 314

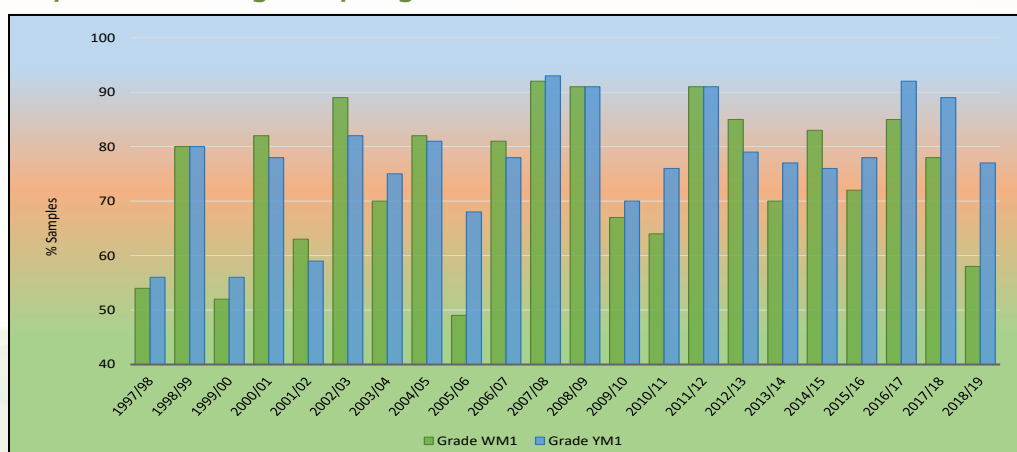
* Included total for yellow rice, grits and samp

Maize Crop Quality 2018/19 - summary of results

RSA Grading

The maize crop was of below average quality as far as the white maize was concerned, with only 58% of white maize graded as maize grade one. Last season this figure was 78%. The yellow maize was of average quality with 76% graded as grade one, compared to the 89% of the previous season. Please see Graph 31 for the percentages of grade 1 samples (white and yellow) per season since commencement of the annual maize crop quality survey in 1998.

Graph 31: Percentage samples graded as Grade 1 over seasons



The percentage total defective kernels above and below the 6.35 mm sieve, 8.7% for white and 5.4% for yellow maize, was respectively 3.2% and 0.5% higher than the previous season. Defective white maize kernels above the 6.35 mm sieve made the largest contribution to the increase in the percentage total defective kernels, increasing from 3.7% last season to 6.8% this season. The percentage defective kernels below the 6.35 mm sieve was equal to last season's average, namely 1.8%. The average percentage Diplodia infected kernels in white maize increased from 0.1% to 0.4% this season and in yellow maize from 0.2% to 0.9%. Fusarium infected kernels decreased in both white and yellow maize compared to the previous season, from 0.9% to 0.3% in white and from 1.2% to 0.3% in yellow maize.

The number of samples that were downgraded to class other maize as a result of the percentage foreign matter exceeding 0.75%, increased from 4 each for white and yellow maize during the previous season, to 23 samples for white and 18 samples for yellow maize. Only one white and one yellow maize sample were downgraded as a result of other colour maize that exceeded 10% and 5% (maximum permissible deviation for grade 3) respectively. The average percentage combined deviations of white maize was 9.3% compared to the 5.9% of the 2017/18 season and that of yellow maize 5.7% compared to 5.1% previously.

Please refer to Tables 3 to 7 and Graphs 32 to 34 on pages 32 to 43.

USA Grading

Of the 808 maize samples graded according to USA grading regulations, 41% were graded US1, 27% US2, 13% US3, 5% US4, 4% US5, while sample grade and class mixed corn represented 7% and 3% respectively. The percentage samples graded as US1 varies substantially over seasons, varying from 41% to 51%, 71%, 58%, 64% and 42% over the previous five seasons. The percentage samples graded as US2 compared well with the 29% of the previous season. The main reason for downgrading the samples was (as in previous seasons) the percentage total damaged kernels exceeding the maximum limit per grade, followed by broken corn and foreign material. Please see Tables 8 and 9 on pages 44 to 49.

Physical Quality characteristics

Bushel weight/Test weight is applied as a grading factor in the USA grading regulations and is also routinely

done at most intake points locally. White maize had an average test weight of 75.9 kg/hl compared to the 76.9 kg/hl of yellow maize. White maize's average test weight was 1.1 kg/hl lower than the previous season and that of yellow maize 0.3 kg/hl lower. The test weight in total varied from 61.0 kg/hl to 83.6 kg/hl. 42 samples reported Bushel weight values below the minimum requirement (56.0 lbs or 72.1 kg/hl) for USA grade 1 maize, 17 of these samples were from the North West production regions, 18 from the Free State, three each from Mpumalanga and Gauteng and one from Limpopo.

The 100 kernel mass ("as is" basis) of white maize was 33.4 g and averaged higher than yellow maize (30.6 g) as in previous seasons. The percentage white maize kernels above the 10 mm sieve decreased by 1.6% compared to the previous season. The percentage yellow maize kernels above the 10 mm sieve decreased by 2.8%. The percentage yellow maize kernels above the 10 mm sieve was on average 16.3% lower than white kernels and the percentage yellow kernels below the 8 mm sieve 13.3% higher than that of white maize.

Both white and yellow maize were more susceptible to breakage than during the previous season, white maize to a greater extent so. The percentage stress cracks observed varied overall from 1 to 58% and averaged 17% for white and 13% for yellow maize. The average stress crack percentages were the highest of all the seasons since 1999/00 when stress crack analyses were commenced.

Please refer to Tables 12 to 16 on pages 51 to 61 and Graphs 35 to 38 on pages 61 and 62.

The milling index obtained from the SAGL Milling Index 2019 model, varied from an average of 78.7 for white maize to 79.5 for yellow maize. Grit Yield All (GYA) values averaged 64.4 for white maize and 64.6 for yellow maize.

Roff milling and whiteness index (WI)

The average % extraction of total meal in white maize obtained with the Roff mill, averaged 76.0% (3.1% lower than the previous season) and varied from 67.7% to 80.5%.

The whiteness index averaged 30.2 for unsifted and 20.3 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 29.8 and 19.2 for unsifted and sifted maize meal respectively.

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 two samples with the lowest sifted whiteness index values this season, namely -7.67 and -5.19, also had the highest percentages total defective kernels (96.7%) and other colour maize (12.9%) respectively. Please see Tables 17 and 18 on pages 63 to 67.

Nutritional Values

The maize industry requested that crude fibre be added to the scope of analysis performed on the annual maize crop quality survey. With the assistance of Foss, a calibration was developed on the Infratec 1241 Grain Analyser (NIT) during the previous season. The calibration will be updated annually with the latest season's results.

The average fat content of white maize equaled the 4.0% of yellow maize this season. The 10-year average fat content of white maize is 4.1% and that yellow maize 3.9%. The protein content of yellow maize averaged 9.2%, which was 0.2% higher than that of white maize. The protein content of both white and yellow maize was slightly higher (0.3% and 0.2% respectively) than in the previous season.

The average starch content of white maize (73.6%) was 0.4% higher than in the previous season and yellow maize (72.7%) averaged 0.7% higher. Ten-year averages for white and yellow maize are 72.9% and 72.8% respectively. The average crude fibre content of white maize was 1.9% and that of yellow maize 2.0%.

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

Please refer to Tables 19 to 22 on pages 68 to 74 and Graphs 39 to 41 on page 75.

Genetic Modification (GM)

The SAGL used the EnviroLogix QuickComb kit for bulk grain, to screen 70 of the crop samples in order to quantitatively determine the presence of genetically modified maize (Cry1Ab, Cry2Ab and/or CP4 EPSPS traits). 91% of the samples tested positive for the Cry1Ab trait, 83% for Cry2Ab and 96% for the CP4 EPSPS trait.

The sensitivity of the measurements for Cry1Ab using the above-mentioned kit is 0.8%, i.e. approximately 6 GM kernels in 800 conventional maize kernels. The limit of detection (LOD) for measurements of the Cry1Ab protein is 0.4%.

The sensitivity of the measurements for Cry2Ab using the above-mentioned kit is 0.9%, i.e. approximately 8 GM kernels in 800 conventional maize kernels. The limit of detection (LOD) for measurements of the Cry1Ab protein is 0.5%.

The sensitivity of the measurements for CP EPSPS using the above-mentioned kit is 0.5%, i.e. 4 GM kernels in 800 conventional maize kernels. The limit of detection (LOD) for measurements of the Roundup Ready protein is 0.25%.

Values higher than 5%, the highest value of the detection range for all three traits, are reported as > 5%.

Important to remember is that the crop quality samples received and analysed by the SAGL are composite samples per class and grade, made up of individual deliveries to grain silos.

Please see Table 23 on page 76 for the results obtained as well as page 101 for a summary of the Events and Trade names/Brands represented by these three traits.

Mycotoxins

Aflatoxin (B₁ and G₁) residues were found on a white maize sample from region 23. This is only the second season that Aflatoxin residues are detected by SAGL on maize crop samples since the implementation of the UPLC-MS/MS technique in 2010. During the 2014/15 season, Aflatoxin B₁, B₂, G₁ and G₂ residues were found on one sample and B₁ as well as B₁ and B₂ residues on two more samples respectively.

The average Fumonisin level (Sum of B₁, B₂ and B₃) on all 350 samples tested was 298 µg/kg (ppb), compared to the previous season's average of 244 µg/kg. Levels ranged from not detected (ND) to 34 740 µg/kg. This extremely high concentration was detected on only one yellow maize sample. The second highest positive concentration was 7 341 µg/kg, which is more in line with previous seasons' results. Of the 350 samples tested, 151 samples (43%) tested positive for fumonisin levels and the average of these positive results was 689 µg/kg. The previous season, 44% of the samples tested positive, with an average of 554 µg/kg.

The highest Deoxynivalenol (DON) level detected was 11 181 µg/kg, compared to the 3 510 µg/kg of last season. The average level of all samples tested this season was 424 µg/kg, 393 µg/kg the previous season. 58% of the samples tested positive for DON last season compared to 68% this season. Although the percentage of positive results increased this season, the average of the positive results decreased from 674 µg/kg in 2017/18 to 627 µg/kg in 2018/19.

17% of the samples tested positive for 15-acetyl-deoxynivalenol (15-ADON) residues. The average of the positive results was 218 µg/kg compared to 163 µg/kg in the previous season.

Zearalenone residues were found in 10% of the samples, 8% during the previous season. Values ranged from ND to 957 µg/kg. The average of the positive samples was 98 µg/kg compared to the 61 µg/kg of the previous season.

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

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 24 on pages 84 to 95.

TABLE 2: SOUTH AFRICAN MAIZE CROP QUALITY 2018/19 (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, %	2.7	6.3	12.6	27.4	2.7	6.8	7.5	7.1	5.3
Defective kernels below 6.35 mm sieve, %	1.2	2.3	3.1	3.6	1.4	2.9	2.2	2.8	1.8
Total defective kernels, %	3.9	8.6	15.6	31.0	4.1	9.7	9.7	10.0	7.0
Other colour maize kernels, %	0.4	0.8	0.6	0.6	0.1	0.4	0.1	0.4	0.4
Foreign matter, %	0.0	0.1	0.2	0.9	0.0	0.1	0.5	0.7	0.1
Combined deviation, %	4.3	9.5	16.4	32.5	4.2	10.3	10.3	11.1	7.5
Pinked maize kernels, %	0.2	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.2
Physical Factors									
Test weight, kg/hl	76.9	75.8	74.7	71.8	77.3	75.8	75.7	75.8	76.4
100 Kernel mass, g	33.6	33.9	32.6	31.3	30.9	29.2	31.4	29.8	32.0
Stress cracks, %	14	18	23	26	12	16	17	16	15
Milling Index	80.9	78.9	74.7	68.4	79.4	80.8	78.5	78.5	79.1
Kernel Size									
% on top 10 mm	22.2	28.0	27.7	27.3	8.4	7.5	8.5	8.1	16.4
% on top 8 mm	64.9	61.2	61.8	61.5	66.8	64.7	69.4	64.1	64.9
% through 8 mm	12.9	10.8	10.6	11.1	24.8	27.8	22.1	27.7	18.7
Breakage susceptibility									
% Below 6.35 mm sieve	1.0	1.8	2.6	3.4	0.8	1.6	1.4	1.3	1.3
% Below 4.75 mm sieve	0.8	1.3	2.0	2.3	0.6	1.1	1.0	0.9	0.9
Nutritional Values									
Fat, % (db)	4.0	4.0	3.9	3.8	3.9	4.0	3.8	4.0	4.0
Protein, %	8.9	8.9	9.1	9.1	9.2	9.4	9.1	9.1	9.1
Starch, % (db)	73.8	73.7	73.5	72.9	72.8	72.6	73.1	72.6	73.2
Crude fibre, % (db)	1.9	1.9	2.0	2.1	1.9	2.0	2.0	2.0	1.9
Number of samples	233	92	42	37	309	47	13	35	808
Mycotoxins									
Total Aflatoxin, µg/kg (ppb) [max. value]	0 [0]	<5 [143]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [143]
Total Fumonisin, µg/kg (ppb) [max. value]	89 [1 901]	162 [1 503]	445 [7 341]	64 [479]	219 [4 393]	1 430 [34 740]	993 [3 471]	142 [520]	298 [34 740]
Deoxynivalenol, µg/kg (ppb) [max. value]	344 [4 058]	858 [6 510]	1 109 [11 181]	441 [2 410]	238 [1 735]	394 [1 723]	273 [914]	736 [3 256]	424 [11 181]
15-ADON, µg/kg (ppb) [max. value]	<100 [694]	<100 [593]	<100 [737]	<100 [467]	<100 [195]	<100 [227]	<100 [271]	124 [593]	<100 [37]
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]	<20 [60]	25 [271]	<20 [176]	0 [≤20]	<20 [148]	43 [957]	20 [180]	<20 [70]	<20 [957]
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	38	19	12	124	29	9	13	350
GMO									
Cry1Ab, % Samples positive (>LOQ of 0.4%)	91	89	100	100	94	80	100	100	91
Cry2Ab, % Samples positive (>LOQ of 0.5%)	74	89	100	0	89	80	100	100	83
CP4 EPSPS, % Samples positive (>LOQ of 0.25%)	96	100	100	100	94	90	100	100	96
Number of samples	23	9	2	1	18	10	4	3	70

Note: Not detected mycotoxin results are reported as 0, see LOQ in Table 24 page 84.

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

The 9 provinces are divided into 36 grain production regions.

The regions are distributed as follows:

Region 1: Namakwaland
Regions 2 to 4: Swartland
Regions 5 and 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

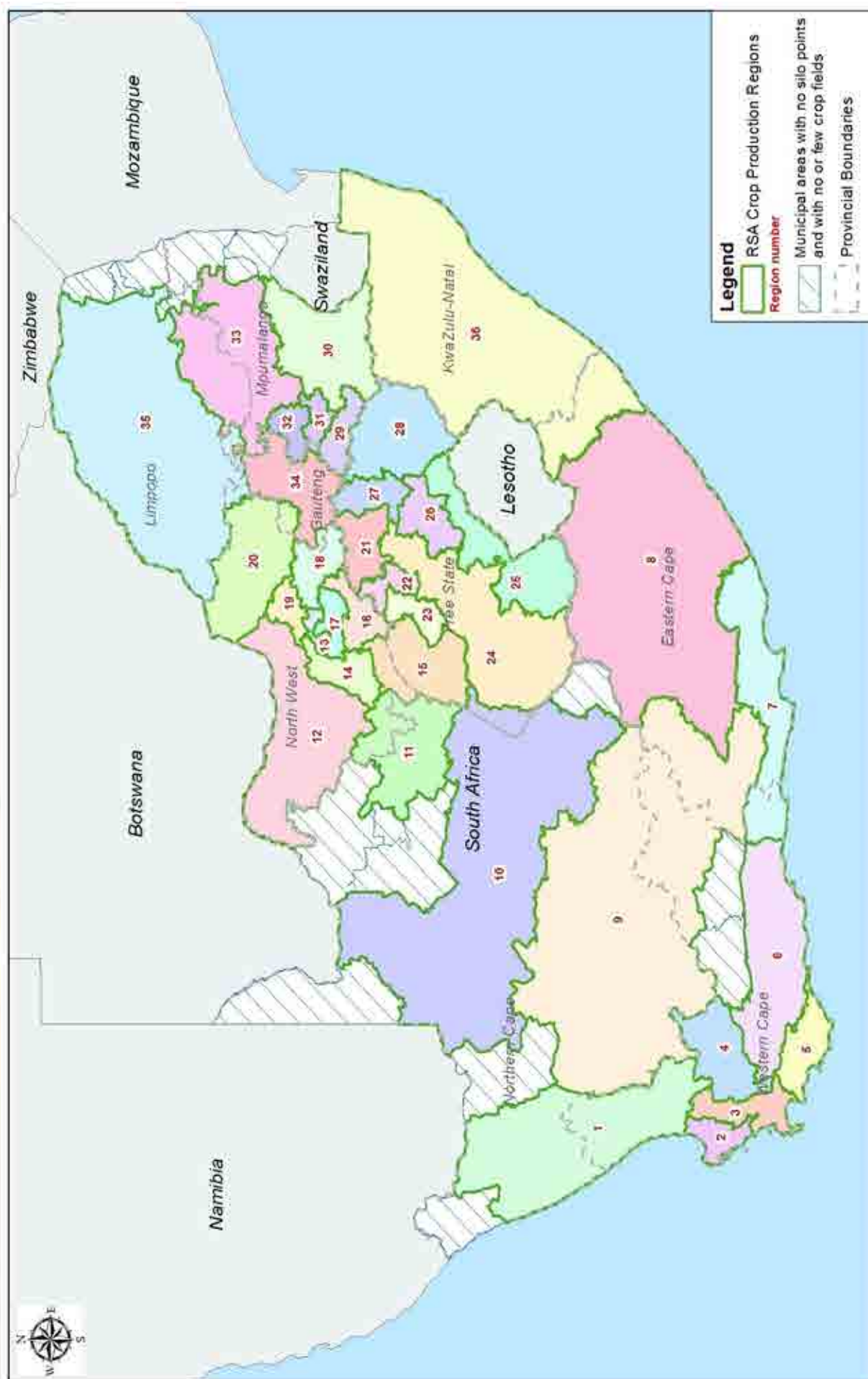
Please see the Crop Production Regions map on the next page.

The production regions from which maize samples have been received for the crop quality survey of the 2018/19 production season, are named and described on pages 27 to 30. All the silo/intake stands as well as the type of storage structure, situated in a particular region, 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

Afgri	Eensgezindt Bunker (Bunkers)	KaapAgri	Malmesbury (Bins)
Afgri	Malandam (Bunkers)	KaapAgri	Piketberg (Bins)
Afgri	Klipfontein (Bunkers)	KaapAgri	Pools (Bins)
BKB	Eenboom (Bunkers)	KaapAgri	Rustasie (Bins)
BKB	Melkboom (Bunkers)	Overberg Agri	Koringberg (Bins)
BKB	Pampoenkraal (Bunkers)	Overberg Agri	Moorreesburg (Bins)
KaapAgri	Eendekuil (Bins)	Overberg Agri	Moravia (Bins)
KaapAgri	Klipheuwel (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	Modderivier (Bags/Bins/Bulk)	OVK	Oranjerivier (Bins/Bunkers)
GWK	Prieska (Bins/Dams)	OVK	Prieska (Bins/Bunkers)
GWK	Rietrivier (Bins)	OVK	Rietrivier (Bins)
GWK	Stoffelshoek (Bunkers)		

Region 11: Vaalharts Region

GWK	Barkly-Wes (Bins/Bulk)	Senwes	Jan Kempdorp (Bins)
GWK	Jan Kempdorp (Bags/Bunkers)	Senwes	Magogong (Bins)
Senwes	Hartswater (Bins)	Senwes	Tadcaster (Bins)

Region 12: North West Western Region

NWK	Blaauwbank (Bins)	NWK	Mareetsane (Bins)
NWK	Bührmannsdrif (Bins)	Suidwes	Kameel (Bins)
NWK	Kameel (Bins)	Suidwes	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	Amalia (Bins)
NWK	Excelsior (Bins)	Suidwes	Hallatshope (Bins)
NWK	Geysdorp (Bins)	Suidwes	Migdol (Bins)
NWK	Migdol (Bins)	Suidwes	Schweizer-Reneke (Bins)
NWK	Nooitgedacht (Bins)		

Region 15: North West South-Eastern Region

Suidwes	Bloemhof (Bins)	Suidwes	Kingswood (Bins)
Suidwes	Christiana (Bins)	Suidwes	Kruising (Bunkers)
Suidwes	Hertzogville (Bins)	Suidwes	Poppieland (Bunkers)
Suidwes	Hoopstad (Bins)		

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

Region 16: North West Central-Eastern Region

Senwes	Klerksdorp (Bins)	Suidwes Landbou	Makwassie (Bins)
Senwes	Regina (Bins)	Suidwes Landbou	Strydpoort (Bins)
Suidwes Landbou	Bamboesspruit (Bins)	Suidwes Landbou	Wolmaranstad (Bins)
Suidwes Landbou	Leeudoringstad (Bins)		

Region 17: North West Central-Northern Region (Ottosdal)

NWK	Boschpoort (Bags/Bins/Bulk)	NWK	Vermaas (Bins)
NWK	Kleinsharts (Bins)	Senwes	Hartbeesfontein (Bins)
NWK	Ottosdal (Bins)	Senwes	Melliodora (Bins)
NWK	Rostrataville (Bins)	Senwes	Werda (Bins)

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	Lusthof (Bins)
NWK	Grootpan (Bins)	NWK	Lichtenburg Silo 3 (Bins)
NWK	Halfpad (Bins)	NWK	Lichtenburg Silo 5 (Bins)
NWK	Hibernia (Bins)	NWK	Mafikeng
NWK	Lottie Halte (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)

Afgri	Kommandonek (Bunkers)	Senwes	Rooiwal (Bins)
Senwes	Attie (Bins)	Senwes	Vierfontein (Bins)
Senwes	Groenebloem (Bins)	Senwes	Viljoenskroon (Bins)
Senwes	Heuningspruit (Bins)	Senwes	Vredefort (Bins)
Senwes	Koppies (Bins)	Senwes	Weiveld (Bins)

Region 22: Free State North-Western Region (Bothaville)

Senwes	Allanridge (Bins)	Senwes	Schoonspruit (Bins)
Senwes	Bothaville (Bins)	Senwes	Schuttesdraai (Bins)
Senwes	Mirage (Bins)	Suidwes	Misgunst (Bunkers)
Senwes	Odendaalsrus (Bins)		

Region 23: Free State North-Western Region (Bultfontein)

Senwes	Bultfontein (Bins)	Senwes	Tierfontein (Bins)
Senwes	Kaalplaas (Bins)	Senwes	Wesselsbron (Bins)
Senwes	Losdoorns (Bins)	Senwes	Willemsrus (Bins)
Senwes	Protespan (Bins)		

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

Region 24: Free State Central Region

Senwes	Bainsvlei (Bins)	Senwes	Kroonstad (Bins)
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)

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)	Senwes	Dewetsdorp (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 Grainlink (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	Maizefield (Bins)
Afgri	Carolina (Bins)	Afgri	Morgenzon (Bins)
Afgri	Davel (Bins)	Afgri	Overvaal (Bins)
Afgri	Eerstelingsfontein (Bunkers)	Afgri	Sandspruit (Bunkers)
Afgri	Ermelo (Bins)	BKB	Waterval (Bunkers)
Afgri	Estancia (Bins)	TWK	Mkondo (Bins)
Afgri	Hendriksvallei (Bunkers)	TWK	Panbult (Bins)
Afgri	Lothair (Bins)	TWK	Rietspruit (Bunkers)

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

Region 31: Mpumalanga Central Region

Afgri	Bakenlaagte (Bunkers)	Afgri	Leslie (Bins)
Afgri	Bethal (Bins)	Afgri	Palmietfontein (Bunkers)
Afgri	Brakfontein (Bunkers)	Afgri	Trichardt (Bins)
Afgri	Devon (Bins)	Afgri	Vaalkrantz (Bunkers)
Afgri	Kinross (Bins/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)	Afgri	Vlakfontein (Bunkers)

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	Bronkhorstspuit (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)	VKB	Nylstroom (Modimolle) (Bins)
VKB	Alma (Bins)	VKB	Potgietersrus (Mokopane) (Bins)
VKB	Lehau (Bins)	VKB	Roedtan (Bins)
VKB	Naboomspruit (Mookgophong) (Bins)	VKB	Settlers (Bins)
VKB	Nutfield (Bins)	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 (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 the Free State (regions 21 to 28), Mpumalanga (regions 29 to 33) and North West (regions 12 to 20) are compared below, the values provided are all weighted averages.

Average test weights expressed in kilogram per hectoliter for white maize, ranged between 75.4 in the Free State, 75.6 in North West and 76.9 in Mpumalanga. Yellow maize varied from 76.0 kg/hl in North West to 76.7 kg/hl in both Mpumalanga and the Free State. The white maize 100 kernel mass values ranged from 32.3 g in Mpumalanga to 34.1 g in the Free State, North West averaged 33.5 g. Yellow maize kernels had the highest average 100 kernel mass in the Free State with 30.7 g, followed by 29.7 g in Mpumalanga and 29.2 g in North West.

Kernel sizes are indicated by the percentage of sample above a 10 mm sieve as well as the percentages above and below a 8 mm sieve. The largest white kernel size with regards to the percentage of kernels above the 10 mm sieve, was found in the Free State (31.2%), followed by North West with 26.0%. Mpumalanga had the smallest white kernel sizes (18.5%) on average. Mpumalanga however had the largest yellow maize kernels, averaging 9.3% kernels above the 10 mm sieve, followed by the Free State with 7.7% and North West with 6.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.8% of white maize and 0.7% of yellow maize passing through the 6.35 mm sieve. North West averaged 1.9% for both white and yellow maize, while the Free State averaged 2.1% and 0.9% for white and yellow maize respectively. The percentage stress cracks on white maize ranged from 13% in Mpumalanga, to 17% in North West and 19% in the Free State. Stress cracks on yellow maize varied between 13% in both Mpumalanga and the Free State to 16% in North West. These are the highest percentages of the last 19 seasons for which stress crack results are available.

The percentage total defective kernels, is the sum 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 include amongst others, mouldy, discoloured, insect damaged and small kernels that can pass through the 6.35 mm round hole sieve. White maize averages ranged from a low of 4.6% in Mpumalanga to a high of 12.7% in the Free State. North West averaged 8.2%. The highest percentage total defective kernels (8.1%) on yellow maize was found in North West, followed by the Free State with 5.7% and Mpumalanga with 4.3%. Please see page 97 for the definition of Defective maize kernels as quoted from the Grading Regulations.

The average milling index on white and yellow maize (yellow maize in brackets) was as follows: North West averaged 80.5 (83.2), Mpumalanga 79.0 (78.1) and the Free State 75.0 (79.9). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (76.2%), followed by the Free state with 76.0% and North West with 75.7%.

The meal obtained from the white maize in the Free State gave an average whiteness index of 31.2 (unsifted) and 21.2 (sifted). North West had an average of 30.3 (unsifted) and 20.5 (sifted) and Mpumalanga 28.7 (unsifted) and 18.8 (sifted). Results were similar to that of last season.

The nutritional component analyses namely fat, protein, starch and crude fibre compared well between the three provinces. The Free State and Mpumalanga both averaged 3.9% fat on white maize, North West averaged 4.1%. The average fat content of yellow maize ranged from 4.0% in both Mpumalanga and the Free State to 4.1% in North West. The lowest average protein content on white maize was found in the Free State and Mpumalanga (8.9%), North West averaged 9.1%. The protein content of yellow maize varied from 9.2% in Mpumalanga to 9.4% in North West and 9.5% in the Free State. The Free State had the highest average starch content on white maize, namely 73.7%, followed by the Mpumalanga with 73.6% and North West with 73.5%. The yellow maize starch content ranged from a low of 72.4% in the Free State to a high of 72.7% in North West. Mpumalanga averaged 72.5%. Crude fibre averages on white maize varied from 1.9% in North West to 2.0% in the Free State and 2.2% in Mpumalanga. All three provinces averaged 2.0% for crude fibre on yellow maize. These values are all reported on a dry basis.

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2018/19)

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.																												
GRADE: WM1																																			
4	Region 11	1.2	0.5	1.6	1.1	0.6	2.1	2.3	1.2	3.5	0.0	0.0	0.1	0.1	0.0	0.3	2.4	1.5	3.8	0.4	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1		
9	Region 12	2.3	0.3	6.0	0.5	0.1	1.4	2.8	0.4	6.2	0.0	0.0	0.2	0.2	0.0	1.2	3.1	0.6	6.2	0.4	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.4	0.2	0.0	1.4		
7	Region 13	3.3	1.7	4.6	1.4	0.9	2.2	4.7	3.2	5.9	0.0	0.0	0.1	0.9	0.0	2.4	5.6	4.2	7.0	0.1	0.0	0.4	0.3	0.0	1.4	0.3	0.0	1.4	0.1	0.0	0.5	0.4	0.0	1.4	
13	Region 14	3.1	1.3	4.6	1.0	0.0	4.5	4.1	1.6	6.8	0.0	0.0	0.1	0.1	0.0	1.1	4.2	1.6	6.8	0.3	0.0	2.1	0.1	0.0	0.4	0.1	0.0	0.4	0.2	0.0	0.4	0.2	0.0	0.4	
2	Region 15	3.2	2.7	3.8	0.5	0.3	0.7	3.8	3.4	4.1	0.1	0.0	0.2	0.0	0.0	0.0	3.9	3.6	4.1	0.6	0.0	1.3	0.8	0.0	1.7	0.2	0.0	0.3	1.0	0.0	2.0	1.0	0.0	2.0	
4	Region 16	3.1	2.5	4.3	2.0	0.1	3.9	5.1	2.6	6.8	0.0	0.0	0.0	0.4	0.0	1.0	5.5	3.7	6.8	0.2	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.4	0.1	0.0	0.4	
10	Region 17	2.5	1.2	4.5	1.3	0.1	3.7	3.8	2.6	5.8	0.0	0.0	0.1	0.9	0.0	2.8	4.8	3.1	6.8	0.2	0.0	1.6	0.3	0.0	1.1	0.1	0.0	0.4	0.3	0.0	1.1	0.3	0.0	1.1	
4	Region 18	2.5	2.1	2.9	1.9	1.0	2.8	4.4	3.1	5.6	0.1	0.0	0.2	0.9	0.6	1.2	5.4	4.4	6.3	0.2	0.0	0.4	0.2	0.0	0.4	0.2	0.0	0.5	0.3	0.0	0.5	0.3	0.0	0.5	
9	Region 19	2.7	1.7	4.5	1.3	0.8	2.2	4.0	2.5	5.9	0.1	0.0	0.2	1.2	0.0	2.6	5.3	4.2	7.3	0.3	0.0	1.8	0.1	0.0	0.8	0.2	0.0	0.7	0.4	0.0	1.2	0.4	0.0	1.2	
10	Region 20	3.0	1.2	5.3	0.9	0.4	1.7	3.9	2.2	6.3	0.0	0.0	0.3	0.8	0.0	2.8	4.7	2.2	7.1	0.6	0.0	1.6	0.2	0.0	0.9	0.2	0.0	0.7	0.4	0.0	0.9	0.4	0.0	0.9	
16	Region 21	3.0	1.6	5.0	1.3	0.4	3.5	4.4	2.3	6.6	0.0	0.0	0.2	0.5	0.0	3.0	4.9	2.3	7.3	0.1	0.0	1.5	0.3	0.0	1.2	0.3	0.0	1.0	0.6	0.0	1.5	0.6	0.0	1.5	
8	Region 22	4.6	3.7	5.8	1.0	0.6	1.4	5.7	4.7	6.8	0.0	0.0	0.1	0.2	0.0	0.5	5.9	5.2	7.1	0.2	0.0	1.0	0.3	0.0	2.0	0.3	0.0	0.8	0.5	0.0	2.0	0.5	0.0	2.0	
7	Region 23	4.0	1.6	5.0	1.2	0.6	1.9	5.2	2.9	6.9	0.1	0.0	0.1	0.3	0.0	1.9	5.6	3.2	6.9	0.3	0.0	1.2	0.0	0.0	0.0	0.3	0.0	0.6	0.3	0.0	0.6	0.3	0.0	0.6	
6	Region 24	3.8	1.5	5.3	0.8	0.4	1.1	4.5	2.4	5.7	0.1	0.0	0.3	0.1	0.0	0.2	4.7	2.4	5.8	0.2	0.0	0.7	0.1	0.0	0.4	0.4	0.0	1.1	0.5	0.0	1.1	0.5	0.0	1.1	
4	Region 26	2.2	2.0	2.8	1.2	0.5	3.0	3.5	2.5	5.1	0.0	0.0	0.0	0.6	0.0	1.0	4.1	3.1	6.0	0.4	0.0	1.4	0.2	0.0	0.4	0.2	0.0	0.2	0.2	0.0	0.4	0.2	0.0	0.4	
2	Region 27	2.3	1.6	2.9	1.4	1.0	1.8	3.7	3.4	3.9	0.2	0.2	0.2	0.2	0.0	0.4	4.1	4.1	4.1	0.0	0.0	0.0	0.3	0.0	0.6	0.1	0.0	0.1	0.4	0.1	0.6	0.4	0.1	0.6	
9	Region 28	2.6	1.0	6.2	0.8	0.4	1.9	3.3	1.7	6.7	0.0	0.0	0.2	0.3	0.0	0.8	3.7	1.7	6.8	0.0	0.0	0.3	0.6	0.0	2.3	0.2	0.0	1.2	0.8	0.0	2.3	0.8	0.0	2.3	
13	Region 29	1.6	0.4	3.5	1.3	0.4	4.3	3.0	1.3	5.1	0.0	0.0	0.2	0.4	0.0	2.2	3.4	1.5	6.3	0.1	0.0	1.0	0.2	0.0	1.0	0.1	0.0	0.6	0.3	0.0	1.6	0.3	0.0	1.6	
20	Region 30	3.1	1.3	5.7	1.0	0.2	2.8	4.1	2.6	5.9	0.0	0.0	0.2	0.5	0.0	2.3	4.6	3.1	7.0	0.1	0.0	1.5	0.6	0.0	1.9	0.3	0.0	0.8	0.9	0.0	1.9	0.9	0.0	1.9	
5	Region 31	1.7	0.6	2.7	1.0	0.6	1.6	2.6	1.5	3.3	0.0	0.0	0.1	0.5	0.0	1.6	3.1	1.9	3.9	0.1	0.0	0.2	0.4	0.0	0.7	0.1	0.0	0.3	0.5	0.2	1.0	0.5	0.2	1.0	
7	Region 32	2.0	1.4	3.0	1.8	0.7	2.5	3.9	2.1	5.2	0.0	0.0	0.2	0.2	0.0	0.4	4.1	2.1	5.5	0.2	0.0	0.5	0.4	0.0	1.3	0.1	0.0	0.5	0.5	0.0	1.3	0.5	0.0	1.3	
17	Region 33	3.0	1.9	4.4	0.8	0.2	1.5	3.9	2.5	5.3	0.0	0.0	0.2	0.4	0.0	2.5	4.3	2.6	7.5	0.1	0.0	1.4	0.4	0.0	1.8	0.2	0.0	1.0	0.6	0.0	1.8	0.6	0.0	1.8	
26	Region 34	1.9	0.8	5.7	1.4	0.0	4.0	3.3	1.3	6.7	0.0	0.0	0.3	0.3	0.0	1.0	3.6	1.3	7.4	0.3	0.0	4.1	0.1	0.0	1.6	0.1	0.0	1.3	0.3	0.0	1.6	0.3	0.0	1.6	
7	Region 35	1.9	0.2	3.7	1.2	0.5	2.0	3.1	1.2	4.5	0.0	0.0	0.2	0.4	0.0	1.0	3.5	1.5	4.8	0.5	0.0	2.9	0.2	0.0	0.7	0.3	0.0	1.4	0.5	0.0	2.1	0.5	0.0	2.1	
14	Region 36	3.4	1.1	5.9	1.0	0.1	4.9	4.5	1.8	6.5	0.0	0.0	0.2	0.1	0.0	1.1	4.6	1.8	7.2	0.3	0.0	3.3	0.5	0.0	1.1	0.6	0.0	2.0	1.1	0.0	3.0	1.1	0.0	3.0	
233	Ave. WM1	2.7			1.2			3.9			0.0			0.4			4.3			0.2			0.3			0.5			0.2			0.5			0.5
	Min. WM1	0.2			0.0			0.4			0.0			0.0			0.6			0.0			0.0			0.0			0.0			0.0			0.0
	Max. WM1	6.2			4.9			6.9			0.3			3.0			7.5			4.1			2.3			3.0			2.0			3.0			3.0

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (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.																									
GRADE: WM2																																
5	Region 13	6.4	3.8	9.1	2.8	1.1	5.4	9.2	7.6	10.8	0.1	0.0	0.4	0.9	0.6	1.0	10.2	8.7	11.8	0.3	0.0	1.4	0.1	0.0	0.5	0.2	0.0	0.8	0.3	0.0	0.8	
9	Region 14	7.2	4.7	11.2	1.9	0.3	4.5	9.0	6.1	12.3	0.2	0.0	0.5	0.3	0.0	2.3	9.5	6.7	12.3	0.3	0.0	0.9	0.3	0.0	1.3	0.2	0.0	0.8	0.6	0.0	1.4	
1	Region 15	6.9	6.9	6.9	0.6	0.6	0.6	7.5	7.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5	7.5	0.5	0.5	0.5	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	
1	Region 16	4.2	4.2	4.2	7.4	7.4	7.4	11.6	11.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0	11.6	11.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	Region 17	6.5	6.0	7.0	2.6	1.2	4.3	9.0	8.2	11.1	0.0	0.0	0.0	1.2	0.3	2.9	10.2	8.4	14.0	0.6	0.0	1.3	0.9	0.0	1.5	0.5	0.0	0.9	1.3	0.6	2.2	
6	Region 18	3.7	0.2	7.3	3.9	1.2	6.6	7.5	4.9	9.4	0.1	0.0	0.5	1.8	0.0	4.6	9.4	7.6	10.5	0.6	0.0	2.4	0.5	0.0	1.5	0.5	0.0	1.3	1.0	0.0	1.9	
1	Region 19	8.8	8.8	8.8	1.5	1.5	1.5	10.3	10.3	10.3	0.0	0.0	0.0	0.0	0.0	0.0	10.3	10.3	10.3	2.3	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Region 20	3.3	3.1	3.5	4.4	3.5	5.7	7.7	6.6	9.1	0.0	0.0	0.0	1.5	0.4	2.8	9.3	7.9	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	Region 21	3.9	3.3	4.6	3.4	1.9	5.0	7.4	6.5	8.3	0.3	0.0	0.5	0.1	0.0	0.3	7.8	7.0	8.5	0.1	0.0	0.2	1.2	0.0	2.4	0.2	0.0	0.4	1.4	0.4	2.4	
16	Region 22	6.5	3.7	8.5	2.3	0.6	5.2	8.7	5.6	12.9	0.1	0.0	0.5	0.5	0.0	2.2	9.4	6.1	13.4	0.2	0.0	0.8	0.3	0.0	1.9	0.2	0.0	0.6	0.5	0.0	1.9	
12	Region 23	6.6	5.1	9.1	2.2	0.7	4.2	8.8	6.2	13.0	0.1	0.0	0.5	0.2	0.0	1.2	9.0	6.7	13.0	0.4	0.0	1.6	0.1	0.0	0.5	0.1	0.0	0.3	0.1	0.0	0.5	
5	Region 24	8.2	0.8	11.6	2.5	0.2	8.1	10.7	8.4	12.6	0.1	0.0	0.2	0.3	0.0	1.1	11.1	8.4	13.7	0.1	0.0	0.3	0.3	0.0	0.9	0.8	0.0	1.8	1.1	0.0	2.4	
2	Region 26	7.1	3.0	11.1	0.9	0.7	1.1	7.9	4.1	11.8	0.2	0.0	0.4	0.5	0.4	0.7	8.7	5.1	12.2	0.1	0.0	0.2	0.7	0.4	1.0	0.2	0.0	0.4	0.9	0.4	1.4	
5	Region 28	5.8	2.3	10.3	0.6	0.5	0.8	6.5	3.1	10.8	0.0	0.0	0.0	2.9	0.4	4.7	9.3	6.4	11.1	1.1	0.0	5.2	1.3	0.0	5.4	0.4	0.0	0.8	1.6	0.2	5.7	
2	Region 29	4.2	3.9	4.5	3.0	1.5	4.5	7.2	6.0	8.4	0.3	0.0	0.5	1.9	0.0	3.7	9.4	9.0	9.8	1.3	0.0	2.7	0.0	0.0	0.0	0.4	0.2	0.7	0.4	0.2	0.7	
4	Region 30	7.9	3.7	9.7	0.9	0.2	1.6	8.8	5.3	10.9	0.1	0.0	0.5	1.1	0.0	3.9	10.0	6.2	13.8	0.1	0.0	0.2	1.6	1.0	2.5	1.7	0.3	2.9	3.3	2.1	4.5	
2	Region 31	11.1	9.3	12.9	0.4	0.2	0.7	11.5	10.0	13.0	0.0	0.0	0.0	0.2	0.0	0.3	11.7	10.0	13.4	0.7	0.0	1.3	0.3	0.0	0.5	2.3	1.3	3.4	2.6	1.9	3.4	
2	Region 32	4.7	4.3	5.2	2.3	2.1	2.4	7.0	6.4	7.6	0.2	0.0	0.5	0.5	0.2	0.8	7.8	7.7	7.8	0.3	0.2	0.3	0.5	0.0	1.1	0.4	0.0	0.9	1.0	0.9	1.1	
3	Region 33	7.0	3.2	11.3	2.3	0.6	4.7	9.4	7.1	13.0	0.0	0.0	0.0	0.6	0.1	1.7	10.0	7.2	14.7	0.2	0.0	0.5	4.0	0.8	9.3	0.2	0.0	0.7	4.2	1.4	9.3	
2	Region 34	3.8	1.4	6.3	2.0	1.0	2.9	5.8	4.3	7.3	0.3	0.3	0.4	0.4	0.1	0.6	6.5	4.8	8.2	0.0	0.0	0.1	0.2	0.0	0.4	0.9	0.1	1.7	1.1	0.1	2.2	
5	Region 36	6.3	4.0	7.6	2.0	0.4	4.3	8.3	7.2	9.0	0.0	0.0	0.0	0.6	0.0	1.0	8.9	8.2	10.0	0.3	0.0	0.7	2.0	0.8	3.1	0.4	0.0	0.9	2.4	0.8	4.1	
92	Ave. WM2	6.3	0.2	12.9	2.3	0.2	8.1	8.6	3.1	13.0	0.1	0.0	0.5	0.8	0.0	4.7	9.5	4.8	14.7	0.4	0.0	5.2	0.6	0.0	9.3	0.4	0.0	3.4	1.0	0.0	9.3	
	Min. WM2																															
	Max. WM2																															

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (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.																									
GRADE: WM3																																
3	Region 16	13.1	7.7	19.8	6.3	1.2	15.6	19.5	13.2	23.2	0.1	0.0	0.3	0.6	0.0	1.7	20.1	13.2	25.0	0.1	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.3	
3	Region 19	11.3	6.7	15.3	1.9	0.5	3.1	13.2	7.2	18.4	0.3	0.0	0.7	0.1	0.0	0.4	13.6	8.3	18.4	0.8	0.0	1.9	0.0	0.0	0.0	0.3	0.0	0.8	0.3	0.0	0.8	
1	Region 21	6.9	-	-	8.2	-	-	15.1	-	-	0.2	-	-	0.0	-	-	15.2	-	-	0.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
4	Region 22	11.7	6.5	17.4	1.7	1.0	2.6	13.4	8.0	18.4	0.3	0.0	0.6	0.5	0.0	1.4	14.1	10.0	18.4	0.2	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.9	0.3	0.0	0.9	
14	Region 23	16.0	7.5	29.6	2.4	0.2	11.3	18.4	10.6	29.8	0.1	0.0	0.6	0.2	0.0	1.5	18.7	11.2	29.8	0.2	0.0	0.6	0.8	0.0	11.2	0.3	0.0	1.3	1.2	0.0	11.2	
1	Region 24	6.3	-	-	17.1	-	-	23.4	-	-	0.6	-	-	1.1	-	-	25.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	Region 26	11.3	-	-	5.0	-	-	16.2	-	-	0.1	-	-	3.5	-	-	19.8	-	-	0.6	-	-	4.1	-	-	0.5	-	-	4.6	-	-	
1	Region 30	22.5	-	-	5.3	-	-	27.8	-	-	0.1	-	-	1.0	-	-	28.8	-	-	0.0	-	-	14.5	-	-	1.0	-	-	15.5	-	-	
2	Region 33	16.4	14.5	18.4	1.5	0.5	2.5	17.9	15.0	20.8	0.0	0.0	0.0	1.1	0.0	2.2	19.0	17.2	20.8	3.1	0.4	5.7	2.0	1.7	2.3	2.4	0.2	4.7	4.5	2.0	7.0	
2	Region 34	1.6	1.3	1.9	1.0	0.9	1.1	2.6	2.3	2.9	0.7	0.7	0.7	0.9	0.3	1.4	4.1	3.3	5.0	0.1	0.0	0.3	0.0	0.0	0.0	0.5	0.4	0.7	0.5	0.4	0.7	
2	Region 35	6.0	4.7	7.2	2.2	0.7	3.7	8.1	7.8	8.4	0.6	0.6	0.6	0.8	0.2	1.4	9.5	8.7	10.4	3.6	0.0	7.3	0.0	0.0	0.0	0.6	0.4	0.9	0.6	0.4	0.9	
1	Region 36	14.3	-	-	3.0	-	-	17.4	-	-	0.7	-	-	1.0	-	-	19.1	-	-	0.6	-	-	6.5	-	-	2.7	-	-	9.3	-	-	
42	Ave. WM3	12.6	1.0	29.6	3.1	0.2	17.1	15.6	1.5	29.8	0.2	0.0	0.7	0.6	0.0	4.2	16.4	2.3	29.8	0.5	0.0	7.3	1.1	0.0	14.5	0.4	0.0	4.7	1.5	0.0	15.5	
CLASS: COM																																
3	*Region 13	11.5	2.9	25.9	2.9	1.0	4.5	14.3	3.9	30.4	1.6	0.0	4.0	4.4	0.0	12.9	20.4	7.9	44.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	*Region 14	4.5	2.6	6.6	1.6	0.7	2.6	6.1	4.0	8.9	0.9	0.4	1.5	0.1	0.0	0.3	7.1	4.8	9.9	0.2	0.0	0.6	0.3	0.0	0.7	0.1	0.0	0.2	0.4	0.0	0.9	
1	Region 15	35.9	-	-	1.1	-	-	37.0	-	-	1.2	-	-	0.0	-	-	38.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
3	Region 16	33.3	8.2	82.2	7.2	2.8	13.0	40.6	11.0	88.0	3.2	2.2	4.2	0.6	0.0	1.7	44.4	14.9	91.2	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.0	0.5	
2	*Region 17	20.6	15.7	25.5	1.9	1.1	2.8	22.5	18.5	26.6	0.5	0.0	1.0	0.4	0.0	0.8	23.4	18.5	28.4	0.0	0.0	0.0	1.5	0.0	3.0	0.2	0.0	0.4	1.7	0.0	3.4	
1	*Region 18	41.9	-	-	4.2	-	-	46.1	-	-	0.8	-	-	0.4	-	-	47.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	Region 19	2.3	-	-	1.8	-	-	4.1	-	-	1.0	-	-	0.7	-	-	5.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	*Region 21	2.2	-	-	0.9	-	-	3.1	-	-	0.0	-	-	0.0	-	-	3.1	-	-	0.0	-	-	0.0	-	-	0.3	-	-	0.3	-	-	
3	Region 22	28.8	2.3	70.6	5.4	0.6	10.4	34.2	3.0	75.8	0.7	0.1	1.1	0.8	0.0	2.3	35.5	3.6	75.9	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.0	0.3	
8	Region 23	66.4	7.0	88.5	2.2	0.4	3.7	68.6	8.0	91.6	0.3	0.0	1.2	0.0	0.0	0.0	69.0	9.0	91.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	
1	Region 24	7.7	-	-	8.1	-	-	15.8	-	-	1.0	-	-	1.1	-	-	17.9	-	-	1.1	-	-	0.1	-	-	0.6	-	-	0.7	-	-	
1	Region 31	4.7	-	-	0.7	-	-	5.4	-	-	1.0	-	-	0.4	-	-	6.7	-	-	0.7	-	-	0.0	-	-	0.4	-	-	0.4	-	-	

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (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.																									
		CLASS: COM																														
1	*Region 32	5.0	-	-	1.2	-	-	6.2	-	-	0.0	-	-	0.0	-	-	6.2	-	-	0.1	-	-	1.0	-	-	0.5	-	-	1.5	-	-	
2	*Region 34	2.6	1.5	3.7	2.5	1.6	3.3	5.0	3.1	7.0	0.7	0.1	1.4	0.4	0.0	0.8	6.2	4.4	7.9	0.0	0.0	0.0	0.5	0.0	1.0	0.7	0.6	0.8	1.2	0.6	1.8	
2	Region 35	43.5	2.6	84.4	6.6	0.9	12.3	50.0	3.4	96.7	0.6	0.1	1.1	0.0	0.0	0.0	50.6	4.5	96.8	4.9	0.0	9.8	0.0	0.0	0.0	0.4	0.0	0.7	0.4	0.0	0.7	
2	Region 36	3.1	1.3	4.9	10.0	1.0	19.0	13.1	5.9	20.3	1.3	0.9	1.7	0.1	0.0	0.2	14.5	6.8	22.2	0.0	0.0	0.0	0.5	0.0	0.9	0.4	0.0	0.8	0.9	0.0	1.7	
37	Ave. COM	27.4			3.6			31.0			0.9			0.6			32.5			0.4			0.2			0.2			0.4			
	Min. COM	1.3			0.4			3.0			0.0			0.0			3.1			0.0			0.0			0.0			0.0			
	Max. COM	88.5			19.0			96.7			4.2			12.9			96.8			9.8			3.0			0.8			3.4			
404	Ave. white maize	6.8			1.8			8.7			0.2			0.5			9.3			0.3			0.4			0.3			0.7			
	Min. white maize	0.2			0.0			0.4			0.0			0.0			0.6			0.0			0.0			0.0			0.0			
	Max. white maize	88.5			19.0			96.7			4.2			12.9			96.8			9.8			14.5			4.7			15.5			
808	Ave. maize	5.3			1.8			7.0			0.1			0.4			7.5			0.2			0.7			0.3			1.0			
	Min. maize	0.0			0.0			0.4			0.0			0.0			0.6			0.0			0.0			0.0			0.0			
	Max. maize	88.5			19.0			96.7			4.2			12.9			96.8			9.8			17.2			8.4			20.6			

*The following white maize samples were downgraded to Class Other Maize due to the presence of poisonous seeds exceeding the maximum allowance

Region	Number of Poisonous seeds (<i>Crotalaria</i> spp., <i>Datura</i> spp., <i>Ricinus communis</i>) Max. allowance 1 seed/1000 g	Number of Poisonous seeds (<i>Argemone mexicana</i> L., <i>Convolvulus</i> spp., <i>Ipomoea purpurea</i> Roth., <i>Lolium temulentum</i> , <i>Xanthium</i> spp.) Max. allowance 7 seeds/1000 g
13	6 <i>Datura</i> spp.	0
14	73 <i>Datura</i> spp.	0
17	34 <i>Datura</i> spp.	0
18	0	12 <i>Xanthium strumarium</i>
21	6 <i>Datura</i> spp.	0
32	0	52 <i>Ipomoea purpurea</i>
34	0	31 <i>Ipomoea purpurea</i>

TABLE 4: RSA GRADING OF WHITE MAIZE (2018/19)

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.																								
		GRADE: WHITE																													
4	Region 11	1.2	0.5	1.6	1.1	0.6	2.1	2.3	1.2	3.5	0.0	0.0	0.1	0.1	0.0	0.3	2.4	1.5	3.8	0.4	0.0	1.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
10	Region 12	4.0	0.3	19.7	0.8	0.1	3.5	4.9	0.4	23.2	0.0	0.0	0.2	0.2	0.0	1.2	5.1	0.6	23.2	0.4	0.0	1.4	0.0	0.0	0.0	0.0	0.1	0.0	1.4	0.0	1.4
17	Region 13	6.0	1.4	25.9	2.2	0.9	5.4	8.2	3.2	30.4	0.4	0.0	4.0	1.7	0.0	12.9	10.3	4.2	44.2	0.1	0.0	1.4	0.4	0.0	4.2	0.1	0.0	0.8	0.5	0.0	4.2
30	Region 14	5.0	1.0	12.1	1.4	0.0	4.5	6.4	1.5	13.3	0.2	0.0	1.5	0.2	0.0	2.3	6.9	1.6	14.5	0.3	0.0	2.1	0.2	0.0	1.3	0.1	0.0	0.8	0.3	0.0	1.4
5	Region 15	13.7	2.7	35.9	0.7	0.3	1.1	14.4	3.4	37.0	0.3	0.0	1.2	0.0	0.0	0.0	14.7	3.6	38.2	0.4	0.0	1.3	0.3	0.0	1.7	0.1	0.0	0.4	0.5	0.0	2.0
11	Region 16	14.2	2.5	82.2	5.1	0.1	15.6	19.3	2.6	88.0	0.9	0.0	4.2	0.5	0.0	1.7	20.7	3.7	91.2	0.1	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.5
16	Region 17	5.8	1.2	25.5	1.7	0.1	4.3	7.5	2.6	26.6	0.1	0.0	1.0	0.9	0.0	2.9	8.5	3.1	28.4	0.3	0.0	1.6	0.6	0.0	3.0	0.2	0.0	0.9	0.8	0.0	3.4
11	Region 18	6.7	0.2	41.9	3.2	1.0	6.6	9.9	3.1	46.1	0.2	0.0	0.8	1.4	0.0	4.6	11.4	4.4	47.3	0.4	0.0	2.4	0.3	0.0	1.5	0.3	0.0	1.3	0.6	0.0	1.9
14	Region 19	4.9	1.7	15.3	1.5	0.5	3.1	6.5	2.5	18.4	0.2	0.0	1.0	0.8	0.0	2.6	7.5	4.2	18.4	0.5	0.0	2.3	0.1	0.0	0.8	0.2	0.0	0.8	0.3	0.0	1.2
13	Region 20	3.1	1.2	5.3	1.7	0.4	5.7	4.8	2.2	9.1	0.0	0.0	0.3	0.9	0.0	2.8	5.8	2.2	10.4	0.4	0.0	1.6	0.2	0.0	0.9	0.2	0.0	0.7	0.3	0.0	0.9
20	Region 21	3.3	1.6	6.9	1.8	0.4	8.2	5.1	2.3	15.1	0.1	0.0	0.5	0.4	0.0	3.0	5.6	2.3	15.2	0.1	0.0	1.5	0.4	0.0	2.4	0.2	0.0	1.0	0.6	0.0	2.4
31	Region 22	8.8	2.3	70.6	2.2	0.6	10.4	11.0	3.0	75.8	0.2	0.0	1.1	0.5	0.0	2.3	11.6	3.6	75.9	0.2	0.0	1.0	0.2	0.0	2.0	0.2	0.0	0.9	0.4	0.0	2.0
41	Region 23	21.0	1.6	88.5	2.1	0.2	11.3	23.1	2.9	91.6	0.1	0.0	1.2	0.2	0.0	1.9	23.4	3.2	91.6	0.2	0.0	1.6	0.3	0.0	11.2	0.2	0.0	1.3	0.5	0.0	11.2
13	Region 24	6.0	0.8	11.6	3.2	0.2	17.1	9.2	2.4	23.4	0.2	0.0	1.0	0.3	0.0	1.1	9.7	2.4	25.0	0.2	0.0	1.1	0.2	0.0	0.9	0.5	0.0	1.8	0.7	0.0	2.4
7	Region 26	4.9	2.0	11.3	1.7	0.5	5.0	6.6	2.5	16.2	0.1	0.0	0.4	1.0	0.0	3.5	7.6	3.1	19.8	0.3	0.0	1.4	0.9	0.0	4.1	0.2	0.0	0.5	1.0	0.0	4.6
2	Region 27	2.3	1.6	2.9	1.4	1.0	1.8	3.7	3.4	3.9	0.2	0.2	0.2	0.2	0.0	0.4	4.1	4.1	4.1	0.0	0.0	0.0	0.3	0.0	0.6	0.1	0.0	0.1	0.4	0.1	0.6
14	Region 28	3.7	1.0	10.3	0.7	0.4	1.9	4.5	1.7	10.8	0.0	0.0	0.2	1.2	0.0	4.7	5.7	1.7	11.1	0.4	0.0	5.2	0.9	0.0	5.4	0.3	0.0	1.2	1.1	0.0	5.7
15	Region 29	2.0	0.4	4.5	1.5	0.4	4.5	3.5	1.3	8.4	0.1	0.0	0.5	0.6	0.0	3.7	4.2	1.5	9.8	0.3	0.0	2.7	0.2	0.0	1.0	0.2	0.0	0.7	0.4	0.0	1.6
25	Region 30	4.6	1.3	22.5	1.2	0.2	5.3	5.8	2.6	27.8	0.0	0.0	0.5	0.6	0.0	3.9	6.5	3.1	28.8	0.1	0.0	1.5	1.3	0.0	14.5	0.5	0.0	2.9	1.8	0.0	15.5
8	Region 31	4.4	0.6	12.9	0.8	0.2	1.6	5.2	1.5	13.0	0.1	0.0	1.0	0.4	0.0	1.6	5.7	1.9	13.4	0.3	0.0	1.3	0.3	0.0	0.7	0.7	0.0	3.4	1.0	0.2	3.4
10	Region 32	2.9	1.4	5.2	1.8	0.7	2.5	4.7	2.1	7.6	0.1	0.0	0.5	0.2	0.0	0.8	5.0	2.1	7.8	0.2	0.0	0.5	0.5	0.0	1.3	0.2	0.0	0.9	0.7	0.0	1.5
22	Region 33	4.8	1.9	18.4	1.1	0.2	4.7	5.9	2.5	20.8	0.0	0.0	0.2	0.5	0.0	2.5	6.4	2.6	20.8	0.4	0.0	5.7	1.1	0.0	9.3	0.4	0.0	4.7	1.5	0.0	9.3
32	Region 34	2.0	0.8	6.3	1.5	0.0	4.0	3.5	1.3	7.3	0.1	0.0	1.4	0.3	0.0	1.4	4.0	1.3	8.2	0.2	0.0	4.1	0.1	0.0	1.6	0.2	0.0	1.7	0.4	0.0	2.2
11	Region 35	10.2	0.2	84.4	2.3	0.5	12.3	12.5	1.2	96.7	0.2	0.0	1.1	0.4	0.0	1.4	13.2	1.5	96.8	1.9	0.0	9.8	0.1	0.0	0.7	0.4	0.0	1.4	0.5	0.0	2.1
22	Region 36	4.5	1.1	14.3	2.2	0.1	19.0	6.7	1.8	20.3	0.2	0.0	1.7	0.3	0.0	1.1	7.1	1.8	22.2	0.3	0.0	3.3	1.1	0.0	6.5	0.6	0.0	2.7	1.7	0.0	9.3
404	Ave. White	6.8			1.8			8.7			0.2			0.5			9.3			0.3			0.4			0.3			0.7		
	Min. White		0.2			0.0			0.4			0.0			0.0			0.6			0.0			0.0			0.0		0.0		
	Max. White			88.5			19.0			96.7		4.2			12.9			96.8			9.8			14.5			4.7			15.5	

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)

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.	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 03	0.4	-	-	1.3	-	-	1.7	-	-	0.0	-	-	0.0	-	-	1.7	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
19	Region 10	1.1	0.0	3.7	1.3	0.7	2.4	2.4	0.9	4.9	0.0	0.0	0.1	0.0	0.0	0.0	2.4	0.9	4.9	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.5	0.1	0.0	0.5	
15	Region 11	0.8	0.2	1.6	1.3	0.2	3.8	2.2	0.8	5.1	0.0	0.0	0.0	0.0	0.0	0.5	2.2	0.8	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	
1	Region 12	1.7	-	-	1.3	-	-	2.9	-	-	0.1	-	-	0.0	-	-	3.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	Region 13	3.3	-	-	1.5	-	-	4.8	-	-	0.1	-	-	0.0	-	-	4.8	-	-	0.0	-	-	0.8	-	-	0.2	-	-	1.1	-	-	
3	Region 14	2.9	1.2	6.0	1.0	0.1	2.7	3.9	1.5	6.1	0.1	0.0	0.2	0.1	0.0	0.2	4.0	1.6	6.1	0.0	0.0	0.0	0.2	0.0	0.6	0.2	0.0	0.2	0.0	0.6		
2	Region 15	1.3	1.1	1.5	1.5	0.6	2.3	2.8	1.7	3.9	0.1	0.0	0.1	0.3	0.0	0.5	3.1	2.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	Region 16	2.4	0.6	3.5	1.5	0.0	2.4	4.0	2.5	5.4	0.1	0.0	0.3	0.1	0.0	0.5	4.2	2.5	6.1	0.0	0.0	0.0	0.3	0.0	1.1	0.1	0.0	0.4	0.4	0.0	1.5	
1	Region 17	6.2	-	-	0.7	-	-	6.9	-	-	0.0	-	-	0.0	-	-	6.9	-	-	0.0	-	-	3.4	-	-	0.7	-	-	4.1	-	-	
1	Region 18	5.5	-	-	0.8	-	-	6.3	-	-	0.1	-	-	0.0	-	-	6.3	-	-	0.0	-	-	1.0	-	-	0.4	-	-	1.5	-	-	
3	Region 19	3.8	2.1	5.3	1.8	1.2	2.7	5.6	3.6	7.9	0.0	0.0	0.0	0.7	0.0	1.8	6.3	3.9	7.9	0.0	0.0	0.0	0.4	0.0	1.1	0.3	0.0	0.5	0.6	0.0	1.3	
3	Region 20	2.2	1.8	2.4	1.6	1.4	1.8	3.7	3.6	4.0	0.0	0.0	0.1	0.0	0.0	0.0	3.8	3.6	4.0	0.0	0.0	0.0	0.4	0.0	1.3	0.2	0.0	0.7	0.7	0.0	1.3	
7	Region 21	2.4	1.5	3.6	1.9	0.4	3.2	4.3	2.2	6.6	0.0	0.0	0.1	0.2	0.0	0.7	4.5	2.3	6.6	0.0	0.0	0.0	0.5	0.0	2.1	0.3	0.0	0.6	0.8	0.0	2.5	
1	Region 22	3.2	-	-	1.5	-	-	4.8	-	-	0.1	-	-	1.0	-	-	5.8	-	-	0.0	-	-	0.7	-	-	0.1	-	-	0.8	-	-	
2	Region 23	3.0	3.0	3.1	1.4	0.6	2.2	4.4	3.6	5.3	0.2	0.2	0.3	0.4	0.2	0.7	5.1	4.6	5.7	0.0	0.0	0.0	0.7	0.3	1.0	0.0	0.0	0.7	0.3	1.0		
11	Region 24	2.0	0.3	3.9	0.8	0.0	2.8	2.8	0.9	5.9	0.0	0.0	0.2	0.2	0.0	0.9	3.0	0.9	5.9	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.7	0.2	0.0	0.7	
6	Region 25	2.1	1.0	3.0	1.5	0.8	2.3	3.7	2.0	4.5	0.0	0.0	0.2	0.0	0.0	0.0	3.7	2.0	4.6	0.0	0.0	0.0	0.2	0.0	0.6	0.3	0.0	0.9	0.4	0.0	1.3	
15	Region 26	2.7	0.5	6.2	1.5	0.0	2.6	4.2	0.7	7.1	0.0	0.0	0.2	0.2	0.0	1.9	4.5	0.7	8.3	0.0	0.0	0.0	0.5	0.0	1.6	0.3	0.0	1.2	0.8	0.0	2.0	
7	Region 27	3.0	1.1	6.3	1.7	0.6	2.8	4.7	2.0	8.2	0.1	0.0	0.2	0.1	0.0	0.4	4.8	2.3	8.3	0.0	0.0	0.0	0.4	0.0	0.9	0.2	0.0	0.6	0.6	0.0	1.4	
28	Region 28	2.9	0.6	6.8	1.2	0.3	2.9	4.1	1.4	7.3	0.0	0.0	0.1	0.0	0.0	0.2	4.1	1.4	7.3	0.0	0.0	0.0	0.5	0.0	1.9	0.4	0.0	2.7	0.9	0.0	2.7	
26	Region 29	1.7	0.3	3.3	1.6	0.6	3.0	3.3	1.5	6.2	0.0	0.0	0.2	0.0	0.0	0.3	3.3	1.5	6.5	0.0	0.0	0.0	0.2	0.0	0.7	0.1	0.0	0.7	0.3	0.0	1.4	
33	Region 30	3.6	0.8	6.5	1.2	0.1	3.8	4.8	2.3	7.1	0.0	0.0	0.3	0.1	0.0	1.6	4.9	2.3	7.2	0.0	0.0	0.0	1.3	0.0	4.0	0.2	0.0	0.9	1.5	0.0	4.4	
31	Region 31	2.9	0.2	6.6	1.3	0.2	3.5	4.2	1.5	7.7	0.0	0.0	0.3	0.0	0.0	0.2	4.2	1.5	7.9	0.0	0.0	0.0	0.4	0.0	1.9	0.2	0.0	1.8	0.6	0.0	2.6	
26	Region 32	3.0	0.8	5.8	1.6	0.5	3.6	4.6	2.3	8.3	0.0	0.0	0.3	0.1	0.0	1.5	4.8	2.5	8.3	0.0	0.0	0.0	0.6	0.0	2.0	0.2	0.0	0.8	0.8	0.0	2.0	
15	Region 33	3.8	1.8	5.4	1.6	0.5	3.2	5.5	2.9	8.3	0.0	0.0	0.1	0.2	0.0	1.0	5.7	2.9	8.4	0.0	0.0	0.0	1.6	0.2	3.0	0.1	0.0	0.9	1.7	0.2	3.4	
21	Region 34	2.6	0.9	5.3	1.8	0.7	3.3	4.4	1.7	6.9	0.0	0.0	0.3	0.2	0.0	1.4	4.7	1.7	7.1	0.0	0.0	0.0	0.8	0.0	2.6	0.2	0.0	1.1	1.0	0.0	3.1	
9	Region 35	1.7	0.9	4.2	1.5	0.2	3.1	3.2	1.1	7.3	0.0	0.0	0.2	0.1	0.0	0.6	3.4	1.1	7.5	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.9	0.2	0.0	1.3	
17	Region 36	4.4	1.8	8.1	1.4	0.1	3.4	5.7	2.7	8.8	0.0	0.0	0.2	0.2	0.0	1.4	6.0	2.8	8.8	0.0	0.0	0.0	1.4	0.0	3.8	0.4	0.0	1.1	1.9	0.0	4.3	
309	Ave. YM1	2.7			1.4			4.1			0.0			0.1			4.2			0.0			0.6			0.2			0.8			
	Min. YM1	0.0			0.0			0.7			0.0			0.0			0.7			0.0			0.0			0.0			0.0			
	Max. YM1	8.1			3.8			8.8			0.3			1.9			8.8			0.0			4.0			2.7			4.4			

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (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.																									
GRADE: YM2																																
1	Region 13	6.3	-	-	2.6	-	-	8.9	-	-	0.0	-	-	0.7	-	-	9.6	-	-	0.0	-	-	0.0	-	-	0.3	-	-	0.3	-	-	
3	Region 14	7.9	0.8	19.6	2.8	0.3	4.2	10.8	5.0	19.8	0.0	0.0	0.1	0.0	0.0	0.1	10.8	5.1	19.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
2	Region 16	9.4	8.7	10.1	5.2	5.1	5.3	14.6	14.0	15.1	0.0	0.0	0.1	2.4	0.0	4.7	17.0	15.1	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.3	0.0	0.6	
1	Region 17	2.8	-	-	7.2	-	-	10.1	-	-	0.1	-	-	0.2	-	-	10.4	-	-	0.0	-	-	1.4	-	-	0.0	-	-	1.4	-	-	
1	Region 18	4.9	-	-	2.0	-	-	6.9	-	-	0.4	-	-	0.0	-	-	7.3	-	-	0.0	-	-	0.0	-	-	0.3	-	-	0.3	-	-	
1	Region 20	3.6	-	-	3.4	-	-	7.0	-	-	0.4	-	-	0.0	-	-	7.4	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	Region 22	5.7	-	-	1.7	-	-	7.4	-	-	0.1	-	-	4.2	-	-	11.6	-	-	0.0	-	-	0.0	-	-	0.9	-	-	0.9	-	-	
1	Region 23	5.6	-	-	5.0	-	-	10.6	-	-	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
1	Region 24	7.8	-	-	2.3	-	-	10.1	-	-	0.0	-	-	0.3	-	-	10.4	-	-	0.0	-	-	0.0	-	-	0.1	-	-	0.1	-	-	
6	Region 26	8.6	4.0	15.5	2.1	0.6	4.7	10.7	5.9	16.1	0.1	0.0	0.4	0.1	0.0	0.4	10.9	6.3	16.4	0.0	0.0	0.0	3.9	1.0	11.1	0.9	0.0	1.5	4.8	1.0	12.6	
2	Region 27	3.1	2.9	3.2	5.9	5.4	6.3	8.9	8.4	9.5	0.1	0.0	0.1	0.0	0.0	0.0	9.0	8.4	9.6	0.0	0.0	0.0	0.8	0.0	1.6	0.2	0.0	0.5	1.1	0.5	1.6	
5	Region 28	5.7	1.8	12.7	3.5	1.1	6.1	9.2	3.4	16.1	0.1	0.0	0.4	0.1	0.0	0.4	9.4	3.8	16.1	0.0	0.0	0.0	1.5	0.0	6.2	0.2	0.0	0.4	1.7	0.0	6.7	
3	Region 29	6.6	1.8	16.1	3.9	3.1	4.3	10.5	6.1	19.2	0.0	0.0	0.0	0.1	0.0	0.3	10.6	6.1	19.2	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.4	
1	Region 30	15.9	-	-	1.9	-	-	17.8	-	-	0.0	-	-	0.0	-	-	17.8	-	-	0.0	-	-	11.1	-	-	0.8	-	-	12.0	-	-	
2	Region 31	5.1	3.7	6.5	2.6	0.9	4.3	7.7	7.5	7.9	0.3	0.0	0.5	0.0	0.0	0.0	8.0	7.9	8.0	0.0	0.0	0.0	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.4	0.4	
1	Region 32	11.2	-	-	1.7	-	-	13.0	-	-	0.1	-	-	0.0	-	-	13.0	-	-	0.0	-	-	3.9	-	-	1.5	-	-	5.4	-	-	
2	Region 33	18.2	18.1	18.4	0.8	0.7	0.8	19.0	18.8	19.2	0.0	0.0	0.1	0.0	0.0	0.0	19.0	18.9	19.2	0.0	0.0	0.0	5.4	0.0	10.7	1.2	0.6	1.8	6.6	0.6	12.5	
7	Region 34	3.5	2.1	5.7	3.0	1.2	5.0	6.5	5.0	8.0	0.3	0.0	0.5	0.3	0.0	1.0	7.1	5.5	8.6	0.0	0.0	0.0	0.8	0.0	1.8	0.3	0.0	0.9	1.1	0.0	2.1	
6	Region 36	6.3	1.5	8.5	1.3	0.4	2.5	7.7	4.0	9.8	0.1	0.0	0.4	1.1	0.0	3.2	8.8	7.2	9.8	0.0	0.0	0.0	2.4	0.2	4.4	0.6	0.0	1.8	3.0	0.6	4.9	
47	Ave. YM2	6.8	0.8	19.6	2.9	0.3	7.2	9.7	3.4	19.8	0.1	0.0	0.5	0.4	0.0	4.7	10.3	3.8	19.8	0.0	0.0	0.0	1.7	0.0	11.1	0.4	0.0	1.8	2.1	0.0	12.6	
	Min. YM2																															
	Max. YM2																															

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (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.																								
GRADE: YM3		1	Region 11	1.5	-	-	5.4	-	-	6.9	-	-	0.6	-	-	0.0	-	-	7.5	-	-	0.0	-	-	0.0	-	0.0	-	-		
1	Region 17	1	Region 17	1.6	-	-	1.1	-	-	2.7	-	-	0.7	-	-	0.4	-	-	3.9	-	-	0.0	-	-	0.8	-	0.0	-	-		
1	Region 20	1	Region 20	12.1	-	-	2.1	-	-	14.2	-	-	0.7	-	-	0.2	-	-	15.0	-	-	0.0	-	-	4.2	-	6.9	-	-		
1	Region 22	1	Region 22	1.6	-	-	2.8	-	-	4.4	-	-	0.7	-	-	0.2	-	-	5.3	-	-	0.0	-	-	0.0	-	0.0	-	-		
1	Region 24	1	Region 24	1.2	-	-	0.1	-	-	1.3	-	-	0.6	-	-	0.2	-	-	2.1	-	-	0.0	-	-	0.0	-	0.0	-	-		
1	Region 28	1	Region 28	3.1	-	-	2.0	-	-	5.1	-	-	0.6	-	-	0.0	-	-	5.6	-	-	0.0	-	-	1.1	-	0.0	-	-		
1	Region 32	1	Region 32	3.0	-	-	1.0	-	-	4.0	-	-	0.7	-	-	0.0	-	-	4.7	-	-	0.0	-	-	1.0	-	0.0	-	-		
2	Region 34	2	Region 34	13.3	4.7	21.9	2.2	2.0	2.4	15.5	6.6	24.3	0.3	0.1	0.6	0.0	0.0	0.0	15.8	7.3	24.3	0.0	0.0	0.0	5.1	0.9	9.4	0.9	0.0	1.7	
1	Region 35	1	Region 35	1.2	-	-	3.3	-	-	4.5	-	-	0.7	-	-	0.0	-	-	5.2	-	-	0.0	-	-	0.0	-	0.0	-	-		
3	Region 36	3	Region 36	15.4	1.6	23.2	2.1	0.8	4.5	17.4	2.4	27.7	0.3	0.0	0.6	0.1	0.0	0.2	17.8	2.9	28.2	0.0	0.0	0.0	9.1	0.0	13.7	1.8	0.1	3.7	
13	Ave. YM3	7.5	1.2	23.2	2.2	0.1	5.4	9.7	1.3	27.7	0.5	0.0	0.7	0.1	0.0	0.4	28.2	0.0	10.3	2.1	28.2	0.0	0.0	0.0	3.3	0.0	13.7	0.9	0.0	4.2	
	Min. YM3																														
	Max. YM3																														
CLASS: COM																															
1	*Region 11	1	Region 11	1.9	-	-	5.2	-	-	7.1	-	-	0.0	-	-	0.0	-	-	7.1	-	-	0.0	-	-	0.0	-	0.0	-	0.0	-	-
1	Region 13	1	Region 13	30.6	-	-	1.4	-	-	32.1	-	-	0.1	-	-	0.5	-	-	32.6	-	-	0.0	-	-	15.7	-	2.9	-	18.7	-	-
1	Region 14	1	Region 14	3.1	-	-	0.5	-	-	3.6	-	-	0.9	-	-	0.8	-	-	5.3	-	-	0.0	-	-	0.0	-	0.3	-	0.3	-	-
1	*Region 18	1	Region 18	4.3	-	-	3.0	-	-	7.3	-	-	0.5	-	-	0.3	-	-	8.1	-	-	0.0	-	-	0.0	-	0.5	-	0.5	-	-
1	Region 19	1	Region 19	36.9	-	-	2.1	-	-	38.9	-	-	0.0	-	-	0.0	-	-	38.9	-	-	0.0	-	-	0.0	-	0.0	-	0.0	-	-
1	Region 22	1	Region 22	4.3	-	-	1.9	-	-	6.2	-	-	1.1	-	-	0.8	-	-	8.1	-	-	0.0	-	-	0.0	-	0.4	-	0.4	-	-
3	Region 24	3	Region 24	5.4	3.3	9.6	1.2	0.3	2.8	6.6	3.7	12.4	1.3	0.9	1.9	0.0	0.0	0.0	7.9	4.8	13.3	0.0	0.0	0.0	0.9	0.0	1.8	0.0	0.0	0.0	1.8
1	*Region 25	1	Region 25	1.7	-	-	1.4	-	-	3.1	-	-	0.0	-	-	0.0	-	-	3.1	-	-	0.0	-	-	0.0	-	0.4	-	0.4	-	-
6	Region 26	6	Region 26	12.7	3.3	27.8	5.7	1.4	9.2	18.4	5.6	31.2	1.4	0.0	3.4	0.2	0.0	1.4	20.1	6.7	31.4	0.0	0.0	0.0	5.2	0.1	17.2	1.9	0.0	8.4	7.1
4	*Region 28	4	Region 28	3.5	1.8	5.0	1.1	0.6	1.6	4.6	2.4	6.5	0.6	0.0	1.4	0.0	0.0	0.0	5.2	3.8	6.5	0.0	0.0	0.0	0.7	0.0	1.7	0.4	0.0	1.4	1.1
1	*Region 30	1	Region 30	2.8	-	-	1.6	-	-	4.3	-	-	0.0	-	-	0.5	-	-	4.8	-	-	0.0	-	-	0.7	-	0.0	-	0.7	-	-
1	Region 31	1	Region 31	1.8	-	-	1.4	-	-	3.2	-	-	0.8	-	-	0.0	-	-	4.0	-	-	0.0	-	-	0.5	-	0.0	-	0.5	-	-
3	*Region 32	3	Region 32	5.5	3.8	8.1	3.4	2.4	5.2	8.9	7.2	10.6	0.6	0.0	1.8	0.5	0.0	1.4	10.0	9.1	10.6	0.0	0.0	0.0	0.8	0.5	1.2	0.7	0.0	1.1	1.5
7	*Region 34	7	Region 34	3.3	1.1	5.6	2.3	0.4	6.0	5.6	4.2	7.0	0.5	0.0	1.0	0.0	0.0	0.2	6.1	4.4	7.6	0.0	0.0	0.0	0.9	0.0	2.7	0.1	0.0	0.4	1.0

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (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.						
CLASS: COM																															
3	Region 36	5.2	1.9	7.8	4.0	0.8	9.5	9.2	6.7	11.4	0.8	0.0	1.7	2.5	0.0	7.4	12.5	7.5	16.9	0.0	0.0	0.0	1.5	0.0	3.4	0.8	0.5	1.0	2.3	0.9	3.9
35	Ave. COM	7.1			2.8			10.0			0.7			0.4		0.0	11.1			0.0			1.9			0.7			2.6		
	Min. COM	1.1			0.3			2.4			0.0						3.1			0.0			0.0			0.0			0.0		
	Max. COM	36.9					9.5	38.9			3.4			7.4			38.9			0.0			17.2			8.4			20.6		
404	Ave. yellow maize	3.7			1.7			5.4			0.1			0.2		0.0	5.7			0.0			0.9			0.3			1.2		
	Min. yellow maize	0.0			0.0			0.7			0.0						0.7			0.0			0.0			0.0			0.0		
	Max. yellow maize	36.9					9.5	38.9			3.4			7.4			38.9			0.0			17.2			8.4			20.6		
808	Ave. maize	5.3			1.8			7.0			0.1			0.4		0.0	7.5			0.2			0.7			0.3			1.0		
	Min. maize	0.0			0.0			0.4			0.0						0.6			0.0			0.0			0.0			0.0		
	Max. maize	88.5					19.0	96.7			4.2			12.9			96.8			9.8			17.2			8.4			20.6		

*The following yellow maize samples were downgraded to Class Other Maize due to the presence of poisonous seeds exceeding the maximum allowance

Region	Number of Poisonous seeds (<i>Crotalaria</i> spp., <i>Datura</i> spp., <i>Ricinus communis</i>) Max. allowance 1 seed/1000 g	Number of Poisonous seeds (<i>Argemone mexicana</i> L., <i>Convolvulus</i> spp., <i>Ipomoea purpurea</i> Roth., <i>Lolium temulentum</i> , <i>Xanthium</i> spp.) Max. allowance 7 seeds/1000 g
11	93 <i>Datura</i> spp.	20 <i>Convolvulus</i> spp.
18	0	24 <i>Xanthium strumarium</i>
25	6 <i>Datura</i> spp.	0
28	6 <i>Datura</i> spp.	0
28	0	12 <i>Xanthium strumarium</i>
30	0	12 <i>Xanthium strumarium</i>
32	0	12 <i>Xanthium strumarium</i>
32	0	12 <i>Xanthium strumarium</i>
34	13 <i>Datura</i> spp.	0
34	0	12 <i>Xanthium strumarium</i>
34	0	12 <i>Xanthium strumarium</i>
34	0	12 <i>Xanthium strumarium</i>

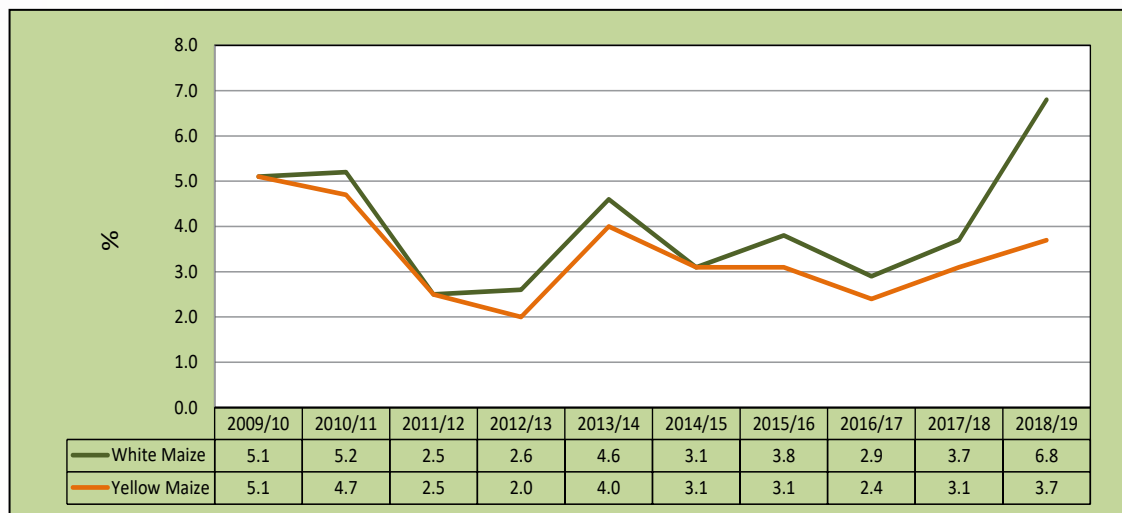
TABLE 6: RSA GRADING OF YELLOW/ MAIZE (2018/19)

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.																								
GRADE: YELLOW																															
1	Region 03	0.4	-	-	1.3	-	-	1.7	-	-	0.0	-	-	0.0	-	-	1.7	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
19	Region 10	1.1	0.0	3.7	1.3	0.7	2.4	2.4	0.9	4.9	0.0	0.0	0.1	0.0	0.0	0.0	2.4	0.9	4.9	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.5	0.1	0.0	0.5
17	Region 11	0.9	0.2	1.9	1.8	0.2	5.4	2.7	0.8	7.1	0.0	0.0	0.6	0.0	0.0	0.5	2.8	0.8	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
1	Region 12	1.7	-	-	1.3	-	-	2.9	-	-	0.1	-	-	0.0	-	-	3.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
3	Region 13	13.4	3.3	30.6	1.9	1.4	2.6	15.2	4.8	32.1	0.0	0.0	0.1	0.4	0.0	0.7	15.7	4.8	32.6	0.0	0.0	0.0	5.5	0.0	15.7	1.2	0.2	2.9	6.7	0.3	18.7
7	Region 14	5.1	0.8	19.6	1.7	0.1	4.2	6.8	1.5	19.8	0.2	0.0	0.9	0.2	0.0	0.8	7.1	1.6	19.8	0.0	0.0	0.0	0.1	0.0	0.6	0.1	0.0	0.3	0.2	0.0	0.6
2	Region 15	1.3	1.1	1.5	1.5	0.6	2.3	2.8	1.7	3.9	0.1	0.0	0.1	0.3	0.0	0.5	3.1	2.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Region 16	4.7	0.6	10.1	2.7	0.0	5.3	7.5	2.5	15.1	0.1	0.0	0.3	0.9	0.0	4.7	8.5	2.5	18.8	0.0	0.0	0.0	0.2	0.0	1.1	0.2	0.0	0.6	0.4	0.0	1.5
3	Region 17	3.6	1.6	6.2	3.0	0.7	7.2	6.6	2.7	10.1	0.3	0.0	0.7	0.2	0.0	0.4	7.1	3.9	10.4	0.0	0.0	0.0	1.9	0.8	3.4	0.2	0.0	0.7	2.1	0.8	4.1
3	Region 18	4.9	4.3	5.5	1.9	0.8	3.0	6.8	6.3	7.3	0.3	0.1	0.5	0.1	0.0	0.3	7.2	6.3	8.1	0.0	0.0	0.0	0.3	0.0	1.0	0.4	0.3	0.5	0.8	0.3	1.5
4	Region 19	12.1	2.1	36.9	1.9	1.2	2.7	13.9	3.6	38.9	0.0	0.0	0.0	0.5	0.0	1.8	14.5	3.9	38.9	0.0	0.0	0.0	0.3	0.0	1.1	0.2	0.0	0.5	0.5	0.0	1.3
5	Region 20	4.4	1.8	12.1	2.0	1.4	3.4	6.5	3.6	14.2	0.2	0.0	0.7	0.0	0.0	0.2	6.7	3.6	15.0	0.0	0.0	0.0	0.8	0.0	2.7	1.0	0.0	4.2	1.8	0.0	6.9
7	Region 21	2.4	1.5	3.6	1.9	0.4	3.2	4.3	2.2	6.6	0.0	0.0	0.1	0.2	0.0	0.7	4.5	2.3	6.6	0.0	0.0	0.0	0.5	0.0	2.1	0.3	0.0	0.6	0.8	0.0	2.5
4	Region 22	3.7	1.6	5.7	2.0	1.5	2.8	5.7	4.4	7.4	0.5	0.1	1.1	1.5	0.2	4.2	7.7	5.3	11.6	0.0	0.0	0.0	0.2	0.0	0.7	0.4	0.0	0.9	0.5	0.0	0.9
3	Region 23	3.9	3.0	5.6	2.6	0.6	5.0	6.5	3.6	10.6	0.2	0.0	0.3	0.3	0.0	0.7	6.9	4.6	10.6	0.0	0.0	0.0	0.4	0.0	1.0	0.0	0.0	0.0	0.4	0.0	1.0
16	Region 24	2.9	0.3	9.6	0.9	0.0	2.8	3.9	0.9	12.4	0.3	0.0	1.9	0.2	0.0	0.9	4.3	0.9	13.3	0.0	0.0	0.0	0.3	0.0	1.8	0.1	0.0	0.7	0.3	0.0	1.8
7	Region 25	2.1	1.0	3.0	1.5	0.8	2.3	3.6	2.0	4.5	0.0	0.0	0.2	0.0	0.0	0.0	3.6	2.0	4.6	0.0	0.0	0.0	0.1	0.0	0.6	0.3	0.0	0.9	0.4	0.0	1.3
27	Region 26	6.2	0.5	27.8	2.6	0.0	9.2	8.8	0.7	31.2	0.4	0.0	3.4	0.2	0.0	1.9	9.4	0.7	31.4	0.0	0.0	0.0	2.3	0.0	17.2	0.8	0.0	8.4	3.1	0.0	20.6
9	Region 27	3.0	1.1	6.3	2.6	0.6	6.3	5.6	2.0	9.5	0.1	0.0	0.2	0.0	0.0	0.4	5.7	2.3	9.6	0.0	0.0	0.0	0.5	0.0	1.6	0.2	0.0	0.6	0.7	0.0	1.6
38	Region 28	3.3	0.6	12.7	1.5	0.3	6.1	4.9	1.4	16.1	0.1	0.0	1.4	0.0	0.0	0.4	5.0	1.4	16.1	0.0	0.0	0.0	0.6	0.0	6.2	0.4	0.0	2.7	1.0	0.0	6.7
29	Region 29	2.2	0.3	16.1	1.8	0.6	4.3	4.1	1.5	19.2	0.0	0.0	0.2	0.0	0.0	0.3	4.1	1.5	19.2	0.0	0.0	0.0	0.2	0.0	0.7	0.1	0.0	0.7	0.3	0.0	1.4
35	Region 30	3.9	0.8	15.9	1.3	0.1	3.8	5.2	2.3	17.8	0.0	0.0	0.3	0.1	0.0	1.6	5.3	2.3	17.8	0.0	0.0	0.0	1.6	0.0	11.1	0.2	0.0	0.9	1.8	0.0	12.0
34	Region 31	3.0	0.2	6.6	1.4	0.2	4.3	4.4	1.5	7.9	0.1	0.0	0.8	0.0	0.0	0.2	4.4	1.5	8.0	0.0	0.0	0.0	0.4	0.0	1.9	0.2	0.0	1.8	0.6	0.0	2.6
31	Region 32	3.5	0.8	11.2	1.7	0.5	5.2	5.3	2.3	13.0	0.1	0.0	1.8	0.1	0.0	1.5	5.5	2.5	13.0	0.0	0.0	0.0	0.8	0.0	3.9	0.3	0.0	1.5	1.0	0.0	5.4
17	Region 33	5.5	1.8	18.4	1.5	0.5	3.2	7.1	2.9	19.2	0.0	0.0	0.1	0.2	0.0	1.0	7.3	2.9	19.2	0.0	0.0	0.0	2.0	0.0	10.7	0.3	0.0	1.8	2.3	0.2	12.5
37	Region 34	3.5	0.9	21.9	2.1	0.4	6.0	5.6	1.7	24.3	0.2	0.0	1.0	0.2	0.0	1.4	6.0	1.7	24.3	0.0	0.0	0.0	1.0	0.0	9.4	0.2	0.0	1.7	1.3	0.0	11.1
10	Region 35	1.6	0.9	4.2	1.7	0.2	3.3	3.3	1.1	7.3	0.1	0.0	0.7	0.1	0.0	0.6	3.5	1.1	7.5	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.9	0.2	0.0	1.3
29	Region 36	6.0	1.5	23.2	1.7	0.1	9.5	7.7	2.4	27.7	0.2	0.0	1.7	0.6	0.0	7.4	8.5	2.8	28.2	0.0	0.0	0.0	2.5	0.0	13.7	0.6	0.0	3.7	3.1	0.0	17.4
404	Ave. Yellow	3.7			1.7			5.4			0.1			0.2			5.7			0.0			0.9			0.3			1.2		
	Min. Yellow		0.0		0.0			0.7			0.0				0.0			0.7			0.0			0.0			0.0		0.0		
	Max. Yellow			36.9			9.5	38.9			3.4			7.4			38.9			0.0			17.2			8.4			20.6		

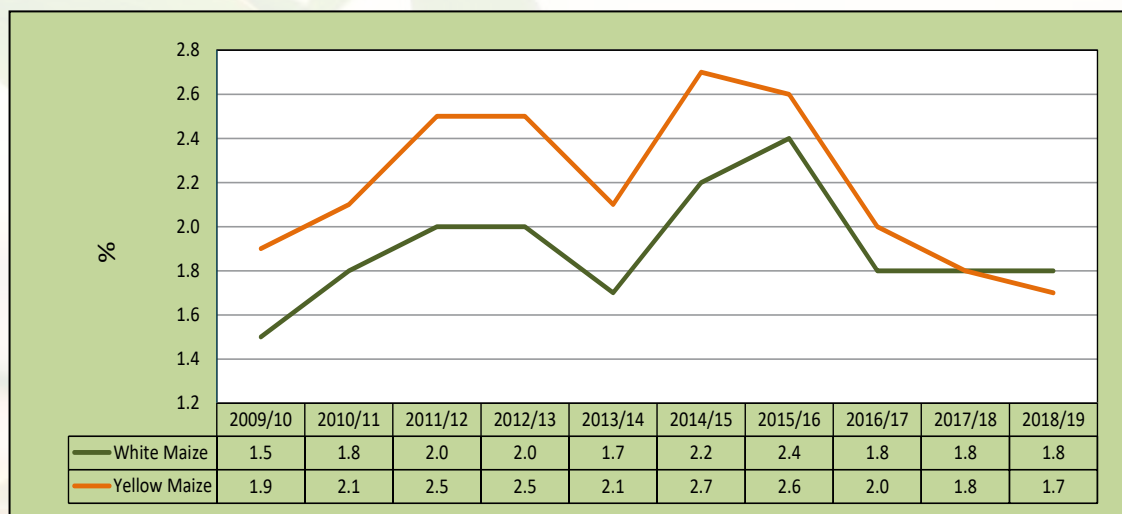
**TABLE 7: GRADING QUALITY OF SOUTH AFRICAN
WHITE AND YELLOW MAIZE 2009/10 - 2018/19**

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																
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
2016/17	549	2.9	0.3	25.5	1.8	0.1	12.7	0.2	0.0	6.9	0.2	0.0	7.0	5.1	1.1	36.7
2017/18	451	3.7	0.2	38.6	1.8	0.0	20.7	0.1	0.0	3.0	0.3	0.0	6.2	5.9	0.3	46.2
2018/19	404	6.8	0.2	88.5	1.8	0.0	19.0	0.2	0.0	4.2	0.5	0.0	12.9	9.3	0.6	96.8
Weighted Average		3.9			1.9			0.1			0.3			6.3		
Minimum		0.0			0.0			0.0			0.0			0.0		
Maximum		88.5			25.5			6.9			43.7			96.8		
Yellow Maize																
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
2016/17	451	2.4	0.4	24.3	2.0	0.0	27.4	0.2	0.0	2.8	0.2	0.0	6.9	4.7	1.3	33.5
2017/18	449	3.1	0.2	21.2	1.8	0.0	13.5	0.1	0.0	1.3	0.1	0.0	6.2	5.1	0.8	28.0
2018/19	404	3.7	0.0	36.9	1.7	0.0	9.5	0.1	0.0	3.4	0.2	0.0	7.4	5.7	0.7	38.9
Weighted Average		3.3			2.2			0.1			0.2			5.8		
Minimum		0.0			0.0			0.0			0.0			0.6		
Maximum		66.3			27.4			4.1			13.6			90.4		
White and Yellow Maize																
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
2016/17	1000	2.6	0.3	25.5	1.9	0.0	27.4	0.2	0.0	6.9	0.2	0.0	7.0	4.9	1.1	36.7
2017/18	900	3.4	0.2	38.6	1.8	0.0	20.7	0.1	0.0	3.0	0.2	0.0	6.2	5.5	0.3	46.2
2018/19	808	5.3	0.0	88.5	1.8	0.0	19.0	0.1	0.0	4.2	0.4	0.0	12.9	7.5	0.6	96.8
Weighted Average		3.6			2.1			0.1			0.3			6.0		
Minimum		0.0			0.0			0.0			0.0			0.0		
Maximum		88.5			27.4			6.9			43.7			96.8		

Graph 32: Percentage Defective Kernels above the 6.35 mm sieve over 10 seasons



Graph 33: Percentage Defective Kernels below the 6.35 mm sieve over 10 seasons



Graph 34: Percentage Combined deviations over 10 seasons

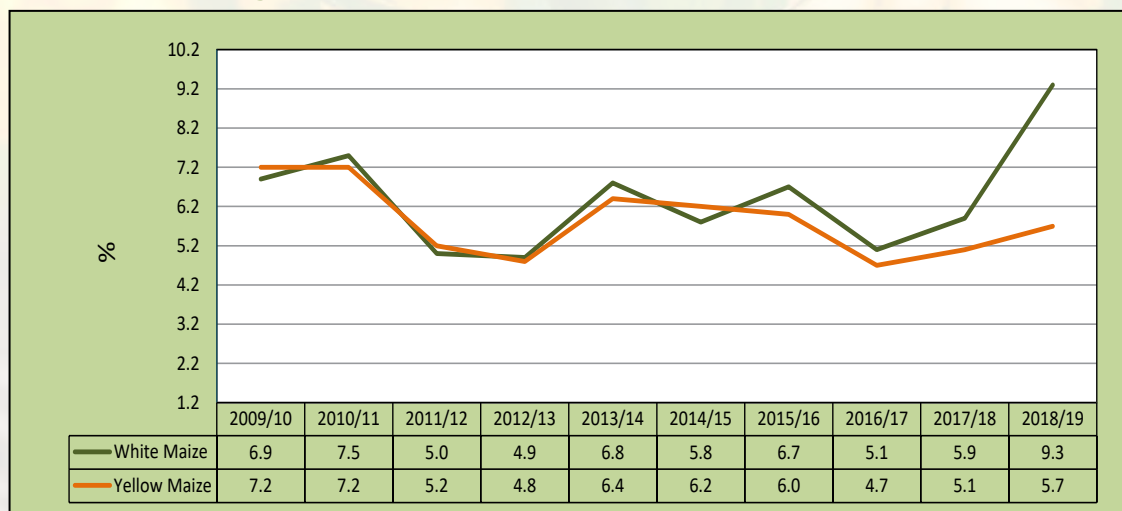


TABLE 8: USA GRADING OF WHITE MAIZE (2018/19)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		%			%			ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
		Heat damaged			Total damaged											
		ave.	min.	max.	ave.	min.	max.									
GRADE: US No.1																
4	Region 11	0.0	0.0	0.0	1.2	0.5	1.6	0.3	0.1	1.0	63.4	62.9	63.9	0.1	0.0	0.3
7	Region 12	0.0	0.0	0.0	1.6	0.3	2.7	0.2	0.0	0.5	60.6	59.4	61.5	0.3	0.0	1.2
6	Region 14	0.0	0.0	0.0	2.0	1.0	2.7	0.3	0.0	0.9	60.1	58.9	61.3	0.1	0.0	0.3
1	Region 15	0.0	-	-	2.7	-	-	0.3	-	-	56.5	-	-	0.0	-	-
1	Region 16	0.0	-	-	2.5	-	-	0.0	-	-	59.5	-	-	1.0	-	-
4	Region 17	0.0	0.0	0.0	1.9	1.3	2.7	0.6	0.4	1.0	59.6	58.6	60.6	0.8	0.2	1.3
3	Region 18	0.0	0.0	0.0	2.5	2.2	2.9	0.6	0.3	0.8	59.3	58.1	60.1	0.9	0.5	1.2
4	Region 19	0.0	0.0	0.0	2.2	1.9	2.7	0.8	0.4	1.4	59.7	58.1	60.7	1.0	0.5	1.5
5	Region 20	0.0	0.0	0.0	2.1	1.4	2.8	0.3	0.1	0.7	58.6	57.0	60.0	0.7	0.0	1.9
6	Region 21	0.0	0.0	0.0	2.3	1.6	3.0	0.3	0.1	0.8	60.2	58.4	61.8	0.0	0.0	0.2
1	Region 22	0.0	-	-	2.4	-	-	0.8	-	-	58.6	-	-	0.0	-	-
3	Region 23	0.0	0.0	0.0	2.3	1.9	3.0	1.0	0.5	1.3	58.4	56.5	60.3	0.1	0.0	0.2
2	Region 24	0.0	0.0	0.0	2.2	1.5	3.0	0.3	0.2	0.5	61.2	60.1	62.2	0.1	0.0	0.2
4	Region 26	0.0	0.0	0.0	2.4	2.0	2.8	0.3	0.0	0.8	60.3	59.6	61.8	0.7	0.0	1.0
1	Region 27	0.0	-	-	1.9	-	-	0.7	-	-	57.7	-	-	0.5	-	-
6	Region 28	0.0	0.0	0.0	1.6	1.1	2.2	0.2	0.0	0.5	61.4	60.6	62.3	0.3	0.0	0.8
10	Region 29	0.0	0.0	0.0	1.5	0.4	2.8	0.4	0.1	0.8	60.2	58.1	62.1	0.2	0.0	0.9
10	Region 30	0.0	0.0	0.0	2.3	1.6	3.0	0.6	0.2	2.0	60.2	58.8	61.4	0.5	0.0	1.6
5	Region 31	0.0	0.0	0.0	1.7	0.6	2.7	0.2	0.1	0.4	60.2	57.7	61.9	0.5	0.0	1.6
5	Region 32	0.0	0.0	0.0	1.8	1.4	2.5	0.8	0.1	1.4	59.6	58.3	61.5	0.1	0.0	0.4
8	Region 33	0.0	0.0	0.0	2.5	2.0	2.9	0.2	0.0	0.6	59.7	58.4	60.6	0.4	0.0	1.5
24	Region 34	0.0	0.0	0.0	1.7	0.9	2.8	0.7	0.0	1.7	59.4	56.5	61.6	0.3	0.0	1.6
6	Region 35	0.0	0.0	0.0	1.6	0.2	2.6	0.5	0.0	1.2	60.2	59.3	61.3	0.4	0.0	1.0
5	Region 36	0.0	0.0	0.0	1.9	1.6	2.7	0.1	0.0	0.2	59.6	58.7	60.6	0.0	0.0	0.2
131	Ave. US No.1	0.0			1.9			0.5			59.9			0.4		
	Min. US No.1	0.0			0.2			0.0			56.5			0.0		
	Max. US No.1	0.0			3.0			2.0			63.9			1.9		
GRADE: US No.2																
1	Region 12	0.0	-	-	3.9	-	-	0.3	-	-	59.5	-	-	0.0	-	-
6	Region 13	0.0	0.0	0.0	4.2	3.4	4.9	1.0	0.1	3.0	58.8	55.3	60.7	0.6	0.0	1.0
12	Region 14	0.0	0.0	0.0	3.9	2.4	5.0	0.7	0.1	2.0	58.4	54.6	61.1	0.1	0.0	1.1
1	Region 15	0.0	-	-	3.9	-	-	0.1	-	-	60.2	-	-	0.0	-	-
3	Region 16	0.0	0.0	0.0	3.7	2.7	4.3	1.4	0.2	2.3	57.8	54.5	59.6	0.0	0.0	0.1
4	Region 17	0.0	0.0	0.0	3.1	2.3	3.6	0.8	0.0	2.7	58.9	57.9	60.0	0.7	0.0	1.2
2	Region 18	0.0	0.0	0.0	3.6	3.1	4.1	1.2	1.0	1.3	58.3	57.9	58.7	0.5	0.4	0.6
4	Region 19	0.0	0.0	0.0	3.7	3.2	4.6	0.5	0.3	1.2	59.8	57.2	62.3	0.6	0.0	1.3
5	Region 20	0.0	0.0	0.0	3.7	3.5	4.3	1.1	0.2	2.4	60.2	59.1	61.8	0.5	0.0	1.4
9	Region 21	0.0	0.0	0.2	3.7	2.0	5.0	0.9	0.2	2.2	60.3	58.6	61.5	0.5	0.0	2.0
7	Region 22	0.0	0.0	0.2	4.4	3.9	4.9	0.8	0.2	2.7	58.7	58.2	59.0	0.1	0.0	0.2
4	Region 23	0.0	0.0	0.0	4.3	4.0	4.7	0.4	0.1	0.7	58.1	56.4	60.5	0.5	0.0	1.9
2	Region 24	0.0	0.0	0.0	4.0	4.0	4.1	0.4	0.2	0.5	60.7	60.3	61.0	0.0	0.0	0.0
1	Region 26	0.0	-	-	3.2	-	-	0.6	-	-	64.9	-	-	0.7	-	-
1	Region 27	0.0	-	-	3.1	-	-	0.6	-	-	61.6	-	-	0.0	-	-
2	Region 28	0.0	0.0	0.0	4.0	3.9	4.1	0.2	0.2	0.2	61.6	61.0	62.2	0.4	0.2	0.6
2	Region 29	0.0	0.0	0.0	2.3	1.0	3.6	1.7	0.4	3.0	61.2	60.7	61.7	0.3	0.2	0.4
9	Region 30	0.0	0.0	0.0	3.8	3.1	4.6	0.5	0.0	1.0	59.8	57.2	62.0	0.4	0.0	1.1
1	Region 31	0.0	-	-	4.9	-	-	1.0	-	-	58.7	-	-	0.4	-	-
4	Region 32	0.0	0.0	0.0	4.1	3.1	5.0	0.7	0.1	1.1	59.2	57.5	60.5	0.3	0.0	0.8
8	Region 33	0.0	0.0	0.0	3.6	3.1	4.5	0.2	0.1	0.5	60.2	59.4	62.1	0.1	0.0	1.0

TABLE 8: USA GRADING OF WHITE MAIZE (2018/19) (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.			
6	Region 34	0.0	0.0	0.0	2.7	0.9	4.0	1.0	0.1	2.6	57.5	54.6	60.6	0.5	0.0	1.0			
3	Region 35	0.0	0.0	0.0	4.1	3.6	5.0	1.0	0.2	2.5	58.6	55.6	60.1	0.5	0.0	1.4			
6	Region 36	0.0	0.0	0.0	4.0	3.1	4.9	0.9	0.0	2.3	60.1	57.9	62.3	0.2	0.0	1.1			
103	Ave. US No.2	0.0			3.8			0.8			59.4			0.3					
	Min. US No.2	0.0			0.9			0.0			54.5			0.0					
	Max. US No.2	0.2			5.0			3.0			64.9			2.0					
GRADE: US No.3																			
1	Region 12	0.0	-	-	6.1	-	-	0.0	-	-	60.1	-	-	0.0	-	-			
4	Region 13	0.2	0.0	0.4	4.5	2.1	6.2	1.0	0.4	1.5	59.0	57.4	60.3	0.9	0.4	1.4			
3	Region 14	0.0	0.0	0.0	6.0	5.5	6.7	1.4	0.6	2.2	58.5	57.8	58.9	0.1	0.0	0.2			
1	Region 15	0.0	-	-	7.0	-	-	0.2	-	-	58.4	-	-	0.0	-	-			
3	Region 17	0.0	0.0	0.0	5.9	5.2	6.3	0.7	0.4	1.1	59.8	59.6	60.0	0.8	0.3	1.3			
2	Region 18	0.0	0.0	0.0	3.7	3.1	4.3	3.5	3.2	3.8	59.8	59.1	60.4	0.8	0.0	1.6			
1	Region 19	0.0	-	-	6.7	-	-	0.8	-	-	58.6	-	-	0.4	-	-			
1	Region 20	0.0	-	-	5.4	-	-	0.3	-	-	60.8	-	-	0.8	-	-			
3	Region 21	0.1	0.0	0.4	4.1	3.4	5.1	1.4	0.2	3.3	60.5	58.8	62.5	0.1	0.0	0.3			
11	Region 22	0.0	0.0	0.3	6.1	3.8	6.9	1.1	0.0	3.6	58.8	58.0	60.3	0.5	0.0	1.4			
9	Region 23	0.0	0.0	0.0	5.9	5.2	7.0	0.8	0.2	2.0	59.5	57.2	61.0	0.2	0.0	1.2			
2	Region 24	0.2	0.0	0.4	3.5	1.9	5.2	1.9	0.1	3.8	57.7	56.3	59.0	0.2	0.0	0.5			
1	Region 28	0.0	-	-	6.3	-	-	0.1	-	-	61.1	-	-	0.1	-	-			
1	Region 29	0.0	-	-	5.1	-	-	2.1	-	-	55.8	-	-	0.0	-	-			
1	Region 30	0.0	-	-	5.7	-	-	0.0	-	-	61.2	-	-	0.5	-	-			
1	Region 32	0.0	-	-	5.5	-	-	1.6	-	-	59.3	-	-	0.2	-	-			
2	Region 33	0.0	0.0	0.0	4.9	3.3	6.5	1.9	0.2	3.6	58.8	58.0	59.6	0.1	0.1	0.1			
2	Region 34	0.0	0.0	0.0	6.2	6.1	6.4	0.5	0.5	0.6	59.2	58.9	59.4	0.5	0.4	0.6			
7	Region 36	0.0	0.0	0.0	6.0	5.1	7.0	0.3	0.0	0.9	59.6	57.0	61.8	0.3	0.0	1.0			
56	Ave. US No.3	0.0			5.6			1.0			59.3			0.4					
	Min. US No.3	0.0			1.9			0.0			55.8			0.0					
	Max. US No.3	0.4			7.0			3.8			62.5			1.6					
GRADE: US No.4																			
2	Region 13	0.0	0.0	0.0	6.0	3.1	9.0	2.6	1.0	4.1	57.1	54.7	59.5	0.5	0.0	1.0			
4	Region 14	0.0	0.0	0.0	7.5	7.2	8.0	0.8	0.2	1.9	59.2	58.2	60.1	0.0	0.0	0.2			
1	Region 16	0.0	-	-	8.3	-	-	3.0	-	-	55.5	-	-	1.8	-	-			
1	Region 17	0.0	-	-	7.1	-	-	0.4	-	-	56.8	-	-	0.3	-	-			
1	Region 18	0.7	-	-	2.7	-	-	1.1	-	-	58.9	-	-	0.8	-	-			
1	Region 21	0.0	-	-	7.3	-	-	4.8	-	-	58.4	-	-	0.0	-	-			
6	Region 22	0.1	0.0	0.7	7.8	6.5	8.8	0.9	0.1	2.8	58.5	57.5	60.0	0.5	0.0	1.4			
7	Region 23	0.2	0.0	0.9	7.1	1.7	9.3	1.5	0.2	2.4	58.8	56.7	61.0	0.2	0.0	1.1			
3	Region 24	0.2	0.0	0.7	7.1	5.3	8.4	1.7	0.0	4.9	57.2	52.0	60.5	0.4	0.0	1.1			
2	Region 30	0.0	0.0	0.0	9.4	8.8	10.0	0.2	0.0	0.3	60.9	60.3	61.4	0.1	0.0	0.2			
1	Region 31	0.0	-	-	9.4	-	-	0.2	-	-	58.7	-	-	0.0	-	-			
1	Region 35	0.0	-	-	7.5	-	-	0.7	-	-	60.5	-	-	0.2	-	-			
2	Region 36	0.0	0.0	0.0	7.6	7.5	7.6	0.1	0.0	0.3	59.6	59.3	59.9	0.7	0.4	1.0			
32	Ave. US No.4	0.1			7.4			1.2			58.6			0.4					
	Min. US No.4	0.0			1.7			0.0			52.0			0.0					
	Max. US No.4	0.9			10.0			4.9			61.4			1.8					
GRADE: US No.5																			
2	Region 13	0.9	0.0	1.7	10.3	9.2	11.3	1.0	0.2	1.7	57.7	57.2	58.2	0.7	0.5	1.0			
4	Region 14	0.0	0.0	0.0	11.0	10.1	12.3	0.8	0.1	1.5	56.6	55.0	58.9	0.3	0.0	1.2			
2	Region 16	0.0	0.0	0.0	8.3	4.5	12.1	2.8	0.5	5.1	54.8	52.1	57.5	0.0	0.0	0.0			
2	Region 22	0.0	0.0	0.0	11.8	10.9	12.7	1.2	1.2	1.3	56.8	56.6	57.0	0.2	0.2	0.3			
5	Region 23	0.0	0.0	0.0	13.7	12.7	15.0	1.3	0.3	2.8	58.7	57.2	61.3	0.3	0.0	1.5			

TABLE 8: USA GRADING OF WHITE MAIZE (2018/19) (continue)

Number of samples	Region	Damaged kernels						%			Bushel weight (lbs)			% Other colour		
		%			%			Broken corn and foreign material								
		Heat damaged			Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
2	Region 24	0.5	0.0	1.0	10.6	10.3	10.8	1.0	0.5	1.5	57.9	55.8	60.0	0.5	0.0	1.1
1	Region 26	0.0	-	-	11.4	-	-	0.2	-	-	57.9	-	-	0.4	-	-
1	Region 28	0.0	-	-	10.3	-	-	0.0	-	-	61.0	-	-	0.4	-	-
1	Region 31	0.0	-	-	12.9	-	-	0.0	-	-	53.5	-	-	0.3	-	-
1	Region 33	0.0	-	-	11.6	-	-	0.6	-	-	58.8	-	-	1.7	-	-
1	Region 36	0.0	-	-	14.7	-	-	1.9	-	-	57.3	-	-	1.0	-	-
22	Ave. US No.5	0.1			11.6			1.1			57.4			0.4		
	Min. US No.5		0.0			4.5			0.0			52.1			0.0	
	Max.US No.5			1.7			15.0			5.1			61.3			1.7
GRADE: Sample Grade																
1	Region 12	0.0	-	-	20.8	-	-	1.3	-	-	55.4	-	-	0.0	-	-
1	Region 13	0.0	-	-	26.3	-	-	3.3	-	-	54.9	-	-	13.1	-	-
2	Region 15	0.0	0.0	0.0	27.8	19.3	36.2	0.9	0.4	1.3	56.0	54.6	57.4	0.0	0.0	0.0
4	Region 16	0.0	0.0	0.0	30.6	8.4	83.6	6.1	1.1	9.3	54.0	48.8	58.1	0.5	0.0	1.7
2	Region 17	5.7	0.0	11.5	20.8	16.0	25.7	1.4	1.2	1.6	57.1	54.3	59.8	0.4	0.0	0.8
1	Region 18	36.3	-	-	43.3	-	-	2.3	-	-	57.0	-	-	0.4	-	-
3	Region 19	2.5	0.0	3.8	12.2	9.1	15.4	1.3	0.8	2.3	59.1	58.2	59.7	0.0	0.0	0.0
2	Region 22	0.0	0.0	0.0	44.4	17.7	71.1	1.6	0.4	2.8	54.0	51.8	56.1	0.0	0.0	0.0
13	Region 23	0.1	0.0	0.8	50.5	17.4	90.0	1.3	0.2	7.0	52.8	47.4	58.7	0.0	0.0	0.0
2	Region 24	1.8	0.0	3.6	9.1	6.5	11.6	5.8	0.0	11.5	56.9	54.9	58.9	0.6	0.2	1.1
1	Region 30	0.0	-	-	22.9	-	-	1.7	-	-	57.4	-	-	1.0	-	-
2	Region 33	3.2	0.0	6.4	16.7	14.6	18.7	0.4	0.0	0.8	57.9	56.2	59.5	1.1	0.0	2.2
1	Region 35	93.1	-	-	93.1	-	-	3.8	-	-	59.6	-	-	0.0	-	-
1	Region 36	0.0	-	-	1.6	-	-	11.9	-	-	56.4	-	-	0.2	-	-
36	Ave. Sample Grade	4.4			35.0			2.5			55.1			0.6		
	Min. Sample Grade		0.0			1.6			0.0			47.4			0.0	
	Max. Sample Grade			93.1			93.1			11.9			59.8			13.1
CLASS: Mixed corn																
2	Region 13	0.0	0.0	0.0	1.7	1.6	1.8	1.8	0.6	3.1	59.4	59.0	59.7	3.3	2.4	4.2
1	Region 14	0.0	-	-	5.3	-	-	1.8	-	-	58.5	-	-	2.3	-	-
2	Region 17	0.1	0.0	0.2	4.4	1.8	7.0	2.0	0.4	3.5	60.1	60.1	60.1	2.9	2.9	2.9
2	Region 18	0.0	0.0	0.0	2.1	0.4	3.8	2.9	1.0	4.8	58.8	58.8	58.8	4.2	3.7	4.6
2	Region 19	0.0	0.0	0.0	2.2	1.8	2.6	0.3	0.2	0.3	60.3	59.7	60.8	2.4	2.1	2.6
2	Region 20	0.1	0.0	0.2	3.6	3.3	3.9	1.2	0.1	2.3	60.3	59.8	60.8	2.8	2.8	2.8
1	Region 21	0.0	-	-	2.7	-	-	0.7	-	-	57.8	-	-	3.0	-	-
2	Region 22	0.0	0.0	0.0	11.1	7.8	14.5	3.5	0.6	6.4	57.2	55.5	58.8	2.4	2.2	2.5
1	Region 26	0.0	-	-	11.6	-	-	1.8	-	-	61.8	-	-	4.0	-	-
4	Region 28	0.1	0.0	0.2	4.9	2.6	7.6	0.1	0.0	0.2	59.9	58.4	61.5	3.5	2.3	4.7
2	Region 29	0.0	0.0	0.0	4.0	3.1	4.8	0.5	0.4	0.7	59.5	59.4	59.6	3.0	2.2	3.7
2	Region 30	0.0	0.0	0.0	6.9	4.3	9.5	0.1	0.1	0.1	60.0	59.6	60.4	3.1	2.3	4.0
1	Region 33	0.0	-	-	3.8	-	-	0.7	-	-	59.1	-	-	2.5	-	-
24	Ave. Mixed corn	0.0			4.8			1.2			59.5			3.1		
	Min. Mixed corn		0.0			0.4			0.0			55.5			2.1	
	Max. Mixed corn			0.2			14.5			6.4			61.8			4.7
404	Ave. white maize	0.4			7.0			0.9			59.0			0.5		
	Min. white maize		0.0			0.2			0.0			47.4			0.0	
	Max. white maize			93.1			93.1			11.9			64.9			13.1
808	Ave. maize	0.2			5.4			0.8			59.4			0.4		
	Min. maize		0.0			0.1			0.0			47.4			0.0	
	Max. maize			93.1			93.1			11.9			64.9			13.1

TABLE 9: USA GRADING OF YELLOW MAIZE (2018/19)

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 03	0.0	-	-	0.6	-	-	0.5	-	-	62.9	-	-	0.0	-	-
18	Region 10	0.0	0.0	0.0	1.0	0.1	2.6	0.4	0.1	1.0	62.1	60.8	63.7	0.0	0.0	0.0
15	Region 11	0.0	0.0	0.0	0.9	0.2	1.8	0.4	0.0	1.8	62.7	60.0	64.7	0.0	0.0	0.5
1	Region 12	0.0	-	-	1.7	-	-	0.2	-	-	61.2	-	-	0.0	-	-
2	Region 14	0.0	0.0	0.0	1.5	1.2	1.7	0.6	0.0	1.3	59.2	58.6	59.8	0.1	0.0	0.2
2	Region 15	0.0	0.0	0.0	1.1	0.6	1.7	0.2	0.1	0.4	59.0	57.6	60.3	0.3	0.0	0.5
2	Region 16	0.0	0.0	0.0	1.7	0.8	2.6	0.3	0.0	0.7	59.9	59.6	60.2	0.0	0.0	0.0
1	Region 17	0.0	-	-	1.6	-	-	1.4	-	-	57.0	-	-	0.4	-	-
1	Region 19	0.0	-	-	2.3	-	-	0.4	-	-	60.5	-	-	0.3	-	-
2	Region 20	0.0	0.0	0.0	2.3	2.1	2.4	0.3	0.1	0.5	61.0	60.8	61.1	0.0	0.0	0.0
4	Region 21	0.0	0.0	0.0	2.1	1.6	2.5	0.5	0.0	1.3	60.4	59.4	62.0	0.2	0.0	0.6
1	Region 22	0.0	-	-	1.9	-	-	1.5	-	-	58.4	-	-	0.2	-	-
7	Region 24	0.0	0.0	0.0	1.1	0.3	2.5	0.3	0.0	0.6	59.7	57.1	61.0	0.1	0.0	0.2
6	Region 25	0.0	0.0	0.0	2.1	1.1	2.8	0.3	0.1	0.6	60.5	59.2	61.8	0.0	0.0	0.0
8	Region 26	0.0	0.0	0.0	1.7	0.5	2.8	0.5	0.0	1.4	60.5	59.0	62.3	0.2	0.0	1.9
3	Region 27	0.0	0.0	0.0	1.7	1.3	2.3	0.5	0.2	0.8	59.3	58.6	59.7	0.0	0.0	0.0
18	Region 28	0.0	0.0	0.0	2.0	0.7	3.0	0.4	0.0	1.5	59.8	57.9	62.7	0.0	0.0	0.1
25	Region 29	0.0	0.0	0.0	1.7	0.3	3.0	0.4	0.0	0.9	59.8	57.8	61.9	0.0	0.0	0.3
11	Region 30	0.0	0.0	0.0	2.1	0.8	2.9	0.5	0.2	0.8	59.7	57.2	62.7	0.2	0.0	1.7
19	Region 31	0.0	0.0	0.0	1.8	0.2	2.8	0.5	0.1	1.2	60.1	57.9	63.0	0.0	0.0	0.1
14	Region 32	0.0	0.0	0.0	2.1	0.9	2.9	0.4	0.0	1.3	59.8	57.9	61.5	0.1	0.0	0.7
4	Region 33	0.0	0.0	0.0	2.5	1.9	3.0	0.2	0.0	0.4	60.2	59.8	60.6	0.3	0.0	0.5
16	Region 34	0.0	0.0	0.0	2.1	1.0	3.0	0.7	0.1	2.0	59.1	57.2	61.7	0.2	0.0	1.4
9	Region 35	0.0	0.0	0.0	1.5	0.9	2.2	0.6	0.0	1.9	59.6	57.0	60.9	0.1	0.0	0.6
7	Region 36	0.0	0.0	0.0	2.2	1.7	3.0	0.7	0.1	1.8	60.3	57.7	62.2	0.8	0.0	3.3
197	Ave. US No.1	0.0			1.7			0.5			60.3			0.1		
	Min. US No.1		0.0			0.1			0.0			57.0			0.0	
	Max. US No.1			0.0			3.0			2.0			64.7			3.3
GRADE: US No.2																
1	Region 10	0.0	-	-	3.7	-	-	0.0	-	-	59.8	-	-	0.0	-	-
1	Region 11	0.0	-	-	1.8	-	-	2.6	-	-	61.2	-	-	0.0	-	-
1	Region 13	0.0	-	-	3.4	-	-	0.6	-	-	60.0	-	-	0.0	-	-
3	Region 14	0.0	0.0	0.0	2.7	0.8	3.9	2.1	1.0	2.9	59.3	57.1	61.3	0.3	0.0	0.8
2	Region 16	0.0	0.0	0.0	3.4	3.2	3.6	0.9	0.7	1.0	58.1	56.9	59.3	0.3	0.0	0.5
1	Region 19	0.0	-	-	4.4	-	-	0.2	-	-	59.3	-	-	1.8	-	-
2	Region 21	0.0	0.0	0.0	3.7	3.3	4.1	1.0	0.6	1.4	59.3	58.0	60.5	0.0	0.0	0.0
2	Region 22	0.0	0.0	0.0	4.0	3.5	4.5	1.0	0.4	1.7	59.2	58.5	59.8	0.9	0.8	1.0
2	Region 23	0.0	0.0	0.0	3.4	3.0	3.7	0.5	0.4	0.5	56.6	55.5	57.7	0.4	0.2	0.7
8	Region 24	0.0	0.0	0.0	3.5	2.4	4.5	1.0	0.0	2.2	58.4	55.7	61.8	0.2	0.0	0.9
1	Region 25	0.0	-	-	3.2	-	-	0.3	-	-	59.8	-	-	0.0	-	-
8	Region 26	0.0	0.0	0.0	3.9	3.5	4.4	0.8	0.2	1.5	60.0	58.9	61.2	0.0	0.0	0.0
3	Region 27	0.0	0.0	0.0	3.6	3.1	4.3	0.4	0.1	0.6	60.7	60.0	61.5	0.1	0.0	0.4
16	Region 28	0.0	0.0	0.0	3.9	3.2	5.0	0.5	0.1	1.9	59.7	57.4	61.0	0.0	0.0	0.2
3	Region 29	0.0	0.0	0.0	3.4	3.2	3.6	0.6	0.1	1.3	59.6	58.4	60.8	0.1	0.0	0.3
15	Region 30	0.0	0.0	0.0	3.9	2.9	5.0	0.6	0.0	3.0	60.1	58.9	61.8	0.0	0.0	0.0
9	Region 31	0.0	0.0	0.0	4.0	3.3	5.0	0.3	0.1	1.2	59.6	57.7	62.6	0.0	0.0	0.3
11	Region 32	0.0	0.0	0.0	4.0	3.1	4.9	1.0	0.2	2.9	58.9	58.4	59.4	0.3	0.0	1.5
7	Region 33	0.0	0.0	0.0	4.0	3.2	4.8	0.6	0.2	1.0	59.4	57.4	62.2	0.3	0.0	1.0

TABLE 9: USA GRADING OF YELLOW MAIZE (2018/19) (continue)

Number of samples	Region	Damaged kernels						%			Bushel weight (lbs)			%		
		%			%											
		Heat damaged			Total damaged			Broken corn and foreign material			Other colour					
ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.		
14	Region 34	0.0	0.0	0.0	3.6	1.2	4.9	1.0	0.3	2.9	58.8	56.8	60.8	0.3	0.0	1.2
1	Region 35	0.0	-	-	3.5	-	-	1.3	-	-	58.2	-	-	0.2	-	-
7	Region 36	0.0	0.0	0.0	4.5	3.9	5.0	0.5	0.0	1.5	60.4	58.5	62.0	0.0	0.0	0.0
118	Ave. US No.2	0.0			3.8			0.7			59.4			0.1		
	Min. US No.2	0.0			0.8			0.0			55.5			0.0		
	Max. US No.2	0.0			5.0			3.0			62.6			1.8		
GRADE: US No.3																
1	Region 11	0.0	-	-	2.0	-	-	3.2	-	-	63.4	-	-	0.0	-	-
1	Region 13	0.0	-	-	6.4	-	-	1.5	-	-	60.3	-	-	0.7	-	-
1	Region 14	0.0	-	-	6.0	-	-	0.0	-	-	59.8	-	-	0.0	-	-
1	Region 17	0.0	-	-	6.3	-	-	0.1	-	-	60.4	-	-	0.0	-	-
2	Region 18	0.0	0.0	0.0	5.5	5.4	5.6	0.8	0.5	1.1	60.1	59.3	60.9	0.0	0.0	0.0
1	Region 19	0.0	-	-	5.5	-	-	0.6	-	-	59.6	-	-	0.0	-	-
2	Region 20	0.3	0.3	0.3	3.3	2.4	4.2	1.0	0.3	1.7	60.1	59.8	60.3	0.0	0.0	0.0
1	Region 22	0.0	-	-	5.9	-	-	0.6	-	-	60.4	-	-	4.2	-	-
1	Region 23	0.0	-	-	6.3	-	-	2.6	-	-	60.5	-	-	0.0	-	-
2	Region 26	0.0	0.0	0.0	6.4	6.3	6.6	1.5	0.4	2.7	59.4	59.1	59.6	0.6	0.0	1.2
1	Region 27	0.0	-	-	3.2	-	-	3.5	-	-	60.7	-	-	0.0	-	-
1	Region 28	0.0	-	-	6.9	-	-	0.1	-	-	59.1	-	-	0.0	-	-
7	Region 30	0.0	0.0	0.0	5.9	5.2	6.6	0.1	0.0	0.4	59.9	57.8	62.7	0.1	0.0	0.9
6	Region 31	0.0	0.0	0.0	6.1	5.5	7.0	0.3	0.1	0.6	58.8	56.7	59.9	0.0	0.0	0.0
3	Region 32	0.0	0.0	0.0	5.7	5.5	5.9	0.7	0.2	1.7	58.3	57.7	58.8	0.0	0.0	0.0
4	Region 33	0.0	0.0	0.0	5.5	5.2	5.7	0.5	0.3	1.0	59.0	58.0	60.5	0.1	0.0	0.3
3	Region 34	0.0	0.0	0.0	5.7	5.4	6.2	1.1	0.8	1.3	59.0	58.4	59.5	0.1	0.0	0.2
7	Region 36	0.0	0.0	0.0	6.2	5.7	6.7	0.5	0.0	1.3	60.5	59.0	63.1	0.5	0.0	2.3
45	Ave. US No.3	0.0			5.7			0.7			59.7			0.2		
	Min. US No.3	0.0			2.0			0.0			56.7			0.0		
	Max. US No.3	0.3			7.0			3.5			63.4			4.2		
GRADE: US No.4																
1	Region 16	0.0	-	-	9.6	-	-	2.8	-	-	57.2	-	-	5.0	-	-
1	Region 21	0.7	-	-	2.4	-	-	0.6	-	-	61.6	-	-	0.7	-	-
1	Region 24	0.0	-	-	8.2	-	-	0.6	-	-	59.7	-	-	0.3	-	-
2	Region 26	0.0	0.0	0.0	8.0	7.7	8.3	0.8	0.4	1.1	59.5	59.3	59.7	0.0	0.0	0.0
1	Region 28	0.0	-	-	9.4	-	-	0.4	-	-	58.8	-	-	0.4	-	-
4	Region 36	0.0	0.0	0.0	8.2	7.8	8.5	0.5	0.1	0.8	60.8	59.2	62.5	0.2	0.0	0.7
10	Ave. US No.4	0.1			7.8			0.8			59.9			0.7		
	Min. US No.4	0.0			2.4			0.1			57.2			0.0		
	Max. US No.4	0.7			9.6			2.8			62.5			5.0		
GRADE: US No.5																
1	Region 16	0.0	-	-	10.4	-	-	3.2	-	-	56.7	-	-	0.0	-	-
1	Region 17	0.0	-	-	3.4	-	-	5.1	-	-	59.1	-	-	0.2	-	-
1	Region 20	0.8	-	-	12.6	-	-	1.2	-	-	55.5	-	-	0.2	-	-
2	Region 26	0.0	0.0	0.0	11.2	10.4	11.9	3.5	0.4	6.7	59.4	57.4	61.3	0.8	0.2	1.4
2	Region 27	0.6	0.0	1.1	4.9	3.3	6.5	2.8	0.4	5.2	59.9	59.5	60.2	0.0	0.0	0.0
1	Region 28	0.0	-	-	14.6	-	-	0.5	-	-	55.3	-	-	0.0	-	-
1	Region 32	0.0	-	-	11.4	-	-	1.0	-	-	57.6	-	-	0.0	-	-
9	Ave. US No.5	0.2			9.4			2.6			58.1			0.2		
	Min. US No.5	0.0			3.3			0.4			55.3			0.0		
	Max. US No.5	1.1			14.6			6.7			61.3			1.4		

TABLE 9: USA GRADING OF YELLOW MAIZE (2018/19) (continue)

Number of samples	Region	Damaged kernels						%			Bushel weight (lbs)			% Other colour		
		%			%			Broken corn and foreign material								
		Heat damaged			Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: Sample Grade																
1	Region 13	0.0	-	-	31.4	-	-	0.2	-	-	58.6	-	-	0.5	-	-
1	Region 14	0.0	-	-	19.6	-	-	0.1	-	-	55.4	-	-	0.0	-	-
1	*Region 18	0.0	-	-	4.6	-	-	1.5	-	-	59.1	-	-	0.3	-	-
1	Region 19	0.0	-	-	37.4	-	-	0.2	-	-	56.2	-	-	0.0	-	-
5	Region 26	0.0	0.0	0.0	15.7	3.7	29.2	3.4	0.0	7.9	58.0	57.1	59.1	0.1	0.0	0.4
1	*Region 28	0.0	-	-	5.5	-	-	0.4	-	-	60.3	-	-	0.0	-	-
1	Region 29	0.0	-	-	17.0	-	-	0.6	-	-	53.8	-	-	0.0	-	-
2	*Region 30	0.0	0.0	0.0	9.6	2.8	16.5	0.4	0.4	0.5	60.1	60.1	60.1	0.2	0.0	0.5
2	*Region 32	0.0	0.0	0.0	6.3	4.1	8.5	0.7	0.7	0.8	59.3	58.7	59.8	0.0	0.0	0.0
2	Region 33	0.0	0.0	0.0	18.6	18.5	18.7	0.1	0.1	0.2	57.8	57.5	58.1	0.0	0.0	0.0
4	*Region 34	0.0	0.0	0.0	9.0	2.3	22.7	0.5	0.1	1.0	57.6	53.6	59.1	0.0	0.0	0.0
3	Region 36	0.0	0.0	0.0	15.7	2.4	23.3	3.7	0.2	7.1	58.0	56.1	60.0	0.1	0.0	0.2
24	Ave. Sample Grade	0.0			14.4			1.5			58.0			0.1		
	Min. Sample Grade		0.0			2.3			0.0			53.6			0.0	
	Max. Sample Grade			0.0		37.4			7.9			60.3			0.5	
CLASS: Mixed corn																
1	Region 36	0.0	-	-	7.9	-	-	1.1	-	-	62.7	-	-	7.4	-	-
1	Ave. Mixed corn	0.0			7.9			1.1			62.7			7.4		
	Min. Mixed corn		-			-			-			-			-	
	Max. Mixed corn			-		-			-			-			-	
404	Ave. yellow maize	0.0			3.9			0.7			59.8			0.2		
	Min. yellow maize		0.0			0.1			0.0			53.6			0.0	
	Max. yellow maize			1.1		37.4			7.9			64.7			7.4	
808	Ave. maize	0.2			5.4			0.8			59.4			0.4		
	Min. maize		0.0			0.1			0.0			47.4			0.0	
	Max. maize			93.1		93.1			11.9			64.9			13.1	

*The following yellow maize samples were downgraded to Sample Grade due to the number of poisonous seeds exceeding the maximum allowance

Region	Cocklebur (<i>Xanthium spp.</i>) exceeding 8 seeds
18	24 <i>Xanthium strumarium</i>
28	12 <i>Xanthium strumarium</i>
30	12 <i>Xanthium strumarium</i>
32	12 <i>Xanthium strumarium</i>
32	12 <i>Xanthium strumarium</i>
34	12 <i>Xanthium strumarium</i>
34	12 <i>Xanthium strumarium</i>
34	12 <i>Xanthium strumarium</i>

TABLE 10: 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 specified

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, Government Notice No. R. 473 of 8 May 2009.

TABLE 11: GRADES AND GRADE REQUIREMENTS FOR CLASS WHITE AND YELLOW MAIZE ACCORDING TO USA GRADING REGULATIONS

		Maximum limits of -			
		Damaged kernels			Broken corn and foreign material (percent)
Grades	Minimum test weight per bushel (pounds)		Heat damaged kernels (percent)	Total (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. 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 (<i>Crotalaria spp.</i>), 2 or more castor beans (<i>Ricinus communis L.</i>), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cockleburrs (<i>Xanthium spp.</i>) 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.					
Mixed corn class	When % other colour in yellow maize samples > 5% and white maize samples > 2%				

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

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE [2018/19]

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2019			GYA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		ave.	min.	max.	kernel mass (g)		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.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.													ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.	ave.	min.

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/ht)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2019			GYA							
		ave.	min.	max.	kernel mass (g)			Above 10 mm sieve			Above 8 mm sieve			Below 8 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																																	
5	Region 13	74.7	71.2	76.6	32.9	31.0	35.8	20.3	14.0	25.4	66.8	59.3	71.7	12.9	9.3	16.6	2.6	1.7	3.5	2.2	1.4	3.3	24	13	30	82.0	69.7	91.2	65.2	62.3	67.5		
9	Region 14	74.5	70.3	76.7	31.7	25.2	37.8	22.9	8.3	39.0	61.9	55.9	67.3	15.2	4.7	29.0	2.5	1.0	5.5	1.7	0.9	3.5	21	12	29	80.2	67.1	97.3	64.8	61.6	68.9		
1	Region 15	75.1	-	-	36.6	-	-	34.6	-	-	54.8	-	-	10.6	-	-	2.6	-	-	2.3	-	-	22	-	-	72.8	-	-	63.0	-	-		
1	Region 16	74.0	-	-	31.6	-	-	29.5	-	-	63.3	-	-	7.2	-	-	2.7	-	-	2.5	-	-	20	-	-	78.6	-	-	64.4	-	-		
4	Region 17	76.2	73.1	77.4	31.9	31.4	32.6	20.6	12.3	29.5	64.6	57.5	69.1	14.8	11.4	18.6	1.2	0.8	1.7	1.0	0.7	1.5	12	7	18	77.4	72.5	82.8	64.1	63.0	65.5		
6	Region 18	75.8	74.6	77.8	32.1	30.7	33.3	18.2	8.0	23.0	64.8	63.1	67.5	17.0	13.4	25.4	1.7	0.2	3.0	1.2	0.2	1.9	17	9	24	78.2	73.5	83.6	64.4	63.2	65.6		
1	Region 19	76.9	-	-	35.0	-	-	40.8	-	-	53.9	-	-	5.3	-	-	0.7	-	-	0.4	-	-	20	-	-	88.0	-	-	66.7	-	-		
3	Region 20	77.5	76.1	78.2	38.0	36.4	41.0	32.1	19.8	46.2	58.3	49.9	65.9	9.6	3.9	14.3	2.9	0.6	6.0	2.3	0.6	4.5	19	5	32	82.9	77.5	86.1	65.5	64.2	66.3		
2	Region 21	79.9	79.2	80.5	33.8	32.0	35.6	30.2	22.6	37.8	61.7	57.3	66.1	8.1	4.9	11.3	0.4	0.4	0.4	0.4	0.3	0.4	6	5	7	90.0	88.4	91.5	67.2	66.8	67.6		
16	Region 22	75.5	74.0	77.6	36.0	29.6	39.4	38.1	14.3	61.5	54.4	35.0	70.2	7.4	0.5	18.7	1.4	0.1	3.0	0.9	0.0	2.2	16	6	33	76.0	62.0	87.4	63.8	60.4	66.5		
12	Region 23	76.6	73.0	78.5	36.5	32.8	38.1	38.8	22.0	45.4	56.0	48.9	69.6	5.3	2.8	10.0	2.4	1.1	5.5	1.7	0.8	3.4	22	11	42	79.8	68.4	94.5	64.7	61.9	68.3		
5	Region 24	74.0	70.7	77.9	34.6	29.2	38.4	32.3	9.6	42.5	59.7	53.8	72.0	8.0	3.7	18.4	3.1	1.5	7.0	2.1	1.0	4.0	22	10	47	73.0	64.1	76.8	63.1	60.9	64.0		
2	Region 26	79.1	74.6	83.6	35.2	34.1	36.2	16.6	10.9	22.3	73.0	69.7	76.2	10.5	8.0	12.9	1.0	0.4	1.5	0.7	0.1	1.3	13	6	19	87.3	63.9	110.8	66.5	60.8	72.3		
5	Region 28	77.4	75.1	79.2	33.1	28.7	36.7	22.5	6.9	36.5	65.5	59.0	71.7	11.9	4.5	21.4	1.0	0.2	1.4	0.8	0.0	1.1	14	11	19	76.6	62.0	84.8	64.0	60.4	66.0		
2	Region 29	74.3	71.8	76.7	26.8	24.7	28.9	14.3	13.1	15.5	68.3	67.4	69.2	17.4	15.3	19.5	1.6	1.2	2.0	1.1	0.6	1.6	14	12	16	81.0	79.0	83.1	65.0	64.5	65.5		
4	Region 30	77.9	77.1	79.0	32.7	29.8	35.0	22.3	12.6	30.4	67.7	61.0	73.1	10.1	5.9	14.3	0.7	0.3	0.9	0.5	0.3	0.7	13	8	17	81.7	75.4	90.5	65.2	63.6	67.3		
2	Region 31	72.3	68.9	75.6	35.2	32.3	38.0	44.6	30.8	58.4	48.6	38.0	59.1	6.9	3.6	10.1	2.3	2.1	2.5	1.7	1.4	2.0	23	21	24	76.1	74.7	77.6	63.8	63.5	64.1		
2	Region 32	75.8	75.2	76.3	31.2	30.8	31.6	17.5	13.2	21.7	66.9	63.5	70.2	15.7	14.8	16.6	0.9	0.7	1.1	0.6	0.6	0.6	21	18	24	74.5	71.0	78.1	63.4	62.6	64.3		
3	Region 33	75.7	74.7	76.8	32.1	31.1	33.9	22.9	16.9	32.2	63.3	57.2	73.2	13.9	9.9	21.1	1.0	0.8	1.1	0.7	0.6	1.0	16	13	20	75.8	73.5	78.8	63.7	63.2	64.5		
2	Region 34	75.9	75.4	76.4	30.1	29.5	30.7	12.3	8.9	15.6	69.7	66.8	72.6	18.1	17.6	18.5	0.3	0.1	0.6	0.2	0.0	0.5	8	6	10	78.8	71.7	85.8	64.5	62.8	66.2		
5	Region 36	75.6	73.4	77.1	34.5	33.1	37.0	19.4	7.9	29.3	68.8	61.3	78.3	11.7	7.4	15.1	2.3	1.1	3.5	1.7	0.9	2.5	21	4	33	82.6	74.8	86.7	65.4	63.5	66.4		
92	Ave. WM2	75.8			33.9			28.0			61.2			10.8			1.8			1.3			18			78.9			64.5				
	Min. WM2			68.9		24.7		6.9			35.0			78.3			0.1			0.0			4			62.0			60.4				
	Max. WM2			83.6		41.0				61.5						29.0			7.0			4.5			47			110.8			72.3		

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/ht)		100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2019			GYA						
		ave.	min.	max.	kernel mass (g)			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.									
GRADE: WM3																															
1	Region 12	71.3	-	-	25.5	-	-	6.4	-	-	59.0	-	-	34.6	-	-	4.8	-	-	3.8	-	-	34	-	-	79.7	-	-	64.7	-	-
2	Region 13	75.3	73.7	76.9	40.8	36.2	45.3	29.8	27.3	32.2	65.1	60.3	69.9	5.2	2.8	7.5	1.8	1.7	1.9	1.4	1.4	1.4	18	10	25	77.8	75.6	80.0	64.2	63.7	64.7
3	Region 14	74.1	70.8	78.2	29.7	25.7	34.8	19.5	9.1	28.3	67.2	64.4	72.1	13.3	7.3	18.8	3.0	1.6	4.0	2.3	1.3	3.3	23	16	28	77.1	67.6	90.7	64.0	61.8	67.4
1	Region 15	73.9	-	-	32.4	-	-	34.0	-	-	60.4	-	-	5.6	-	-	2.2	-	-	1.9	-	-	27	-	-	70.4	-	-	62.4	-	-
3	Region 16	71.4	67.0	74.8	29.5	21.8	34.0	23.9	14.0	33.6	64.8	58.4	70.0	11.3	8.0	16.0	4.8	4.0	5.2	3.7	3.5	3.8	32	30	33	71.1	56.8	82.3	62.6	59.1	65.3
3	Region 19	75.7	74.9	76.6	34.0	30.0	36.2	26.4	15.2	32.7	65.4	59.2	72.6	8.2	4.2	12.2	1.0	0.6	1.2	0.6	0.3	0.9	20	10	28	87.2	81.6	91.7	66.5	65.2	67.6
1	Region 21	75.2	-	-	31.3	-	-	32.1	-	-	57.6	-	-	10.3	-	-	4.2	-	-	2.9	-	-	32	-	-	73.8	-	-	63.2	-	-
4	Region 22	73.3	72.2	74.7	32.1	30.0	33.3	32.2	27.8	38.8	59.3	55.7	62.9	8.5	5.5	10.9	2.9	2.1	3.3	2.2	1.9	2.6	25	15	31	63.7	53.7	70.7	60.8	58.4	62.5
14	Region 23	73.9	69.1	78.9	32.9	27.1	36.4	36.8	21.5	52.5	55.4	43.4	66.1	7.7	4.1	15.5	2.8	1.0	4.8	2.0	0.7	3.7	21	13	32	68.2	52.4	85.5	61.9	58.0	66.1
1	Region 24	75.9	-	-	31.6	-	-	25.9	-	-	68.4	-	-	5.7	-	-	3.9	-	-	3.2	-	-	38	-	-	88.6	-	-	66.9	-	-
1	Region 26	79.5	-	-	38.5	-	-	26.8	-	-	66.6	-	-	6.6	-	-	1.9	-	-	1.2	-	-	33	-	-	105.1	-	-	70.8	-	-
1	Region 30	73.9	-	-	31.8	-	-	17.0	-	-	68.8	-	-	14.2	-	-	3.0	-	-	2.5	-	-	24	-	-	79.2	-	-	64.6	-	-
2	Region 33	74.5	72.4	76.6	27.9	24.5	31.3	8.7	4.4	13.0	62.6	60.1	65.1	28.7	21.9	35.5	1.7	1.5	1.9	1.0	1.0	1.0	20	19	21	75.5	66.4	84.6	63.6	61.4	65.9
2	Region 34	76.9	76.9	76.9	34.3	31.4	37.1	22.5	14.9	30.1	68.7	63.9	73.5	8.8	6.0	11.6	1.0	0.4	1.5	0.7	0.2	1.2	14	11	16	77.9	72.6	83.2	64.2	62.9	65.6
2	Region 35	77.6	77.3	77.9	36.7	35.1	38.3	17.5	4.3	30.7	69.5	62.1	76.8	13.1	7.2	18.9	1.4	1.0	1.7	1.0	0.8	1.2	28	22	34	91.5	86.2	96.8	67.6	66.3	68.8
1	Region 36	73.8	-	-	31.0	-	-	9.1	-	-	75.6	-	-	15.3	-	-	1.7	-	-	1.5	-	-	6	-	-	78.2	-	-	64.3	-	-
42	Ave. WM3	74.4			32.6			27.7			61.8			10.6			2.6			2.0			23			74.7			63.5		
	Min. WM3		67.0	79.5		21.8	45.3					43.4	76.8		2.8	35.5		0.4	5.2		0.2	3.8		6	38		52.4	105.1	58.0	70.8	
	Max. WM3																														
CLASS: COM																															
3	Region 13	71.7	70.4	73.9	28.9	24.1	35.9	26.2	16.4	43.6	63.1	51.9	69.6	10.8	4.5	14.0	3.7	1.5	7.9	2.2	0.9	4.5	28	15	43	73.5	66.5	79.6	63.2	61.4	64.6
5	Region 14	76.4	75.9	77.4	36.6	33.7	40.2	42.5	30.8	60.1	52.6	39.1	59.7	4.8	0.8	9.5	1.9	0.9	3.3	1.5	0.8	2.4	16	12	22	79.9	69.9	85.5	64.7	62.3	66.1
1	Region 15	70.2	-	-	31.4	-	-	28.5	-	-	62.6	-	-	8.9	-	-	5.4	-	-	4.3	-	-	33	-	-	61.1	-	-	60.1	-	-
3	Region 16	67.5	62.9	71.5	26.5	18.7	33.1	16.9	5.6	29.5	60.7	47.6	71.9	22.4	7.8	46.8	6.3	5.7	7.5	4.4	4.0	4.7	37	35	39	67.3	44.9	89.0	61.7	56.1	67.0
2	Region 17	73.5	69.9	77.0	32.1	30.1	34.1	26.1	18.7	33.5	63.2	61.2	65.2	10.7	5.3	16.1	2.2	2.0	2.3	1.6	1.4	1.7	21	12	29	70.6	63.1	78.1	62.4	60.6	64.3
1	Region 18	73.3	-	-	34.4	-	-	10.9	-	-	74.3	-	-	14.8	-	-	1.9	-	-	1.5	-	-	25	-	-	64.0	-	-	60.8	-	-
1	Region 19	77.6	-	-	33.4	-	-	22.9	-	-	64.8	-	-	12.3	-	-	0.3	-	-	0.1	-	-	8	-	-	93.9	-	-	68.1	-	-
1	Region 21	78.5	-	-	38.8	-	-	43.5	-	-	53.0	-	-	3.5	-	-	0.8	-	-	0.7	-	-	4	-	-	81.1	-	-	65.0	-	-
3	Region 22	71.2	66.7	75.4	31.4	26.2	38.1	29.0	23.4	35.6	63.9	61.3	67.7	7.1	1.7	10.6	4.0	0.4	7.6	2.6	0.3	4.3	32	15	41	66.0	53.1	73.7	61.3	58.1	63.2

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2019			GYA					
		ave.	min.	max.	ave.	min.	max.	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.									
CLASS: COM																															
8	Region 23	65.4	61.0	75.4	27.7	23.3	36.4	36.0	14.5	49.5	55.4	45.5	74.4	8.6	5.0	11.7	5.7	2.0	7.7	3.9	1.5	5.6	34	18	52	42.4	26.1	71.3	55.5	51.5	62.6
1	Region 24	67.0	-	-	28.1	-	-	13.7	-	-	77.5	-	-	8.8	-	-	5.5	-	-	3.0	-	-	58	-	-	69.3	-	-	62.2	-	-
1	Region 31	75.6	-	-	31.7	-	-	11.0	-	-	71.5	-	-	17.5	-	-	0.8	-	-	0.7	-	-	10	-	-	72.0	-	-	62.8	-	-
1	Region 32	77.9	-	-	33.7	-	-	31.8	-	-	61.2	-	-	7.0	-	-	0.2	-	-	0.2	-	-	7	-	-	74.1	-	-	63.3	-	-
2	Region 34	75.4	74.5	76.2	31.0	27.9	34.0	10.3	7.6	12.9	72.3	68.4	76.2	17.5	16.2	18.7	0.6	0.4	0.7	0.4	0.3	0.5	17	4	30	78.5	72.5	84.4	64.4	63.0	65.9
2	Region 35	76.7	76.5	76.8	37.6	36.8	38.4	10.6	5.8	15.4	75.7	74.7	76.6	13.8	9.9	17.6	2.3	1.6	2.9	2.0	1.3	2.6	26	20	32	91.3	87.1	95.6	67.5	66.5	68.6
2	Region 36	74.6	72.6	76.6	31.0	28.3	33.7	19.0	17.0	20.9	60.1	54.2	65.9	21.0	13.2	28.8	1.3	0.7	1.9	1.0	0.6	1.4	17	11	22	87.2	83.6	90.7	66.5	65.6	67.4
37	Ave. COM	71.8	61.0	78.5	31.3	18.7	40.2	27.3	5.6	60.1	61.5	39.1	77.5	11.1	0.8	46.8	3.4	0.2	7.9	2.3	0.1	5.6	26	4	58	68.4	26.1	95.6	61.9	51.5	68.6
404 Ave. white maize		75.9	61.0	83.6	33.4	18.7	51.1	24.6	0.0	93.8	63.4	5.8	79.9	12.0	0.4	46.8	1.6	0.0	7.9	1.2	0.0	5.6	17	1	58	78.7	26.1	111.4	64.4	51.5	72.4
Min. white maize																															
Max. white maize																															
808	Ave. maize	76.4	61.0	83.6	32.0	18.7	51.1	16.4	0.0	93.8	64.9	5.8	85.2	18.7	0.4	74.5	1.3	0.0	7.9	0.9	0.0	5.6	15	1	58	79.1	26.1	111.4	64.5	51.5	72.4
Min. maize																															
Max. maize																															

TABLE 13: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE (2018/19)

Number of samples	Region	Test weight (kg/ht)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2019			GYA					
		ave.	min.	max.	kernel mass (g)			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																															
4	Region 11	81.7	81.0	82.2	34.4	32.1	36.2	1.7	0.8	3.7				31.7	25.1	36.1	0.4	0.2	0.6	0.2	0.0	0.4	11	8	16	89.3	86.8	94.4	67.0	66.4	68.3
10	Region 12	77.1	71.3	79.2	36.4	25.5	45.1	33.1	6.4	63.8				10.0	1.0	34.6	1.7	0.4	4.8	1.4	0.3	3.8	15	6	34	90.3	76.4	111.4	67.3	63.9	72.4
17	Region 13	75.1	70.4	78.1	33.1	24.1	45.3	22.9	13.5	43.6				11.5	2.8	20.2	2.4	0.6	7.9	1.8	0.6	4.5	21	10	43	80.8	66.5	92.0	65.0	61.4	67.7
30	Region 14	75.5	70.3	78.9	33.7	25.2	41.1	30.6	8.3	60.1				10.0	0.8	29.0	2.1	0.5	5.5	1.6	0.4	3.5	20	8	33	80.7	67.1	97.3	64.9	61.6	68.9
5	Region 15	73.9	70.2	77.5	34.3	31.4	36.6	31.8	26.9	35.1				8.1	5.6	10.6	3.0	0.9	5.4	2.5	0.8	4.3	23	13	33	72.6	61.1	81.8	62.9	60.1	65.2
11	Region 16	71.8	62.9	76.7	30.9	18.7	37.2	21.9	5.6	33.6				14.3	7.2	46.8	4.0	0.8	7.5	3.1	0.7	4.7	27	9	39	75.7	44.9	105.7	63.7	56.1	71.0
16	Region 17	76.0	69.9	77.9	33.6	30.1	37.9	23.6	10.9	40.4				11.0	5.3	18.6	1.1	0.2	2.3	0.9	0.2	1.7	11	2	29	77.6	63.1	85.5	64.2	60.6	66.1
11	Region 18	75.8	73.3	77.8	32.6	30.7	34.6	19.5	8.0	38.2				15.2	5.2	25.4	1.5	0.2	3.0	1.0	0.2	1.9	16	7	25	78.7	64.0	93.3	64.5	60.8	68.0
14	Region 19	76.8	73.6	80.2	32.7	24.1	36.5	23.4	12.1	40.8				11.2	4.2	22.2	0.9	0.1	2.4	0.7	0.0	2.2	13	4	28	84.5	72.1	98.5	65.9	62.9	69.3
13	Region 20	76.8	73.3	79.5	34.3	27.9	41.0	26.4	16.6	46.2				11.4	3.9	26.2	1.0	0.0	6.0	0.8	0.0	4.5	11	4	32	79.7	66.1	93.8	64.7	61.4	68.1
20	Region 21	77.4	74.4	80.5	35.2	30.5	39.2	28.6	4.0	45.7				9.7	3.4	25.7	1.3	0.2	4.2	1.0	0.2	2.9	12	4	32	83.5	69.7	93.7	65.6	62.3	68.1
31	Region 22	74.9	66.7	77.6	35.2	26.2	40.1	36.4	14.3	61.5				7.3	0.5	18.7	1.9	0.1	7.6	1.3	0.0	4.3	19	6	41	72.7	53.1	87.4	63.0	58.1	66.5
41	Region 23	73.3	61.0	78.9	33.4	23.3	38.9	36.8	14.5	52.5				6.8	2.8	15.5	3.0	1.0	7.7	2.2	0.7	5.6	23	11	52	67.6	26.1	94.5	61.7	51.5	68.3
13	Region 24	75.3	67.0	80.0	33.6	28.1	38.4	27.4	9.6	42.5				8.8	3.7	18.4	2.6	0.3	7.0	1.8	0.3	4.0	25	8	58	79.8	64.1	95.9	64.7	60.9	68.6
7	Region 26	78.3	74.6	83.6	35.6	33.8	38.5	18.1	10.9	26.8				12.0	6.6	18.9	1.4	0.4	1.9	1.0	0.1	1.4	18	6	33	85.0	63.9	110.8	66.0	60.8	72.3
2	Region 27	76.8	74.3	79.3	33.5	31.1	35.8	28.4	23.0	33.8				8.3	6.7	9.9	1.1	0.8	1.4	0.9	0.5	1.2	15	8	22	71.8	65.2	78.3	62.8	61.2	64.4
14	Region 28	78.4	75.1	80.2	31.8	25.4	36.7	17.1	6.7	36.5				14.1	4.5	26.8	0.8	0.1	1.9	0.5	0.0	1.3	13	3	37	80.7	62.0	93.4	65.0	60.4	68.1
15	Region 29	77.1	71.8	79.9	30.7	23.0	41.4	17.4	8.9	42.0				14.5	6.9	21.3	0.9	0.2	2.0	0.6	0.0	1.6	13	1	23	81.5	63.4	93.1	65.2	60.8	68.0
25	Region 30	77.3	73.6	79.8	33.8	27.9	40.5	19.4	2.1	32.3				12.3	5.7	29.9	0.8	0.1	3.0	0.6	0.0	2.5	14	2	32	79.9	69.2	94.7	64.8	62.2	68.3
8	Region 31	76.0	68.9	79.7	32.4	25.7	38.0	19.8	3.5	58.4				16.2	3.6	33.7	1.2	0.5	2.5	0.9	0.4	2.0	12	4	24	78.9	71.4	86.2	64.5	62.7	66.2
10	Region 32	76.5	74.0	79.1	31.6	27.1	35.7	21.3	11.2	44.1				14.0	3.7	19.5	0.7	0.0	2.5	0.5	0.0	1.4	13	2	31	77.1	57.5	84.1	64.1	59.3	65.8
22	Region 33	76.7	72.4	79.9	32.1	24.5	36.3	16.3	4.0	32.2				17.0	9.1	35.5	0.8	0.1	1.9	0.5	0.0	1.1	13	4	27	77.3	66.4	89.9	64.1	61.4	67.2
32	Region 34	76.0	70.3	79.3	31.3	27.6	37.8	19.1	4.4	38.0				14.6	5.0	32.3	0.7	0.1	1.5	0.5	0.0	1.2	12	3	30	76.2	62.6	85.8	63.8	60.6	66.2
11	Region 35	76.9	71.6	78.9	36.8	32.6	51.1	19.2	1.9	93.8				15.5	0.4	27.7	1.4	0.2	2.9	1.1	0.1	2.6	20	3	34	88.0	79.0	96.8	66.7	64.5	68.8
22	Region 36	76.6	72.6	80.2	33.3	24.7	37.8	15.2	0.0	29.3				16.3	6.2	45.9	1.4	0.2	3.5	1.0	0.0	2.5	17	1	38	85.4	74.8	91.1	66.1	63.5	67.5
404	Ave. white	75.9			33.4			24.6			63.4			12.0			1.6			1.2			17			78.7			64.4		
	Min. white	61.0			18.7			0.0			5.8			0.4			0.0			0.0			1			26.1			51.5		
	Max. white	83.6			51.1			93.8			79.9			46.8			7.9			7.9			58			111.4			72.4		

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW/ MAIZE ACCORDING TO GRADE (2018/19)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2019			GYA					
		ave.	min.	max.	kernel mass (g)			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.									
GRADE: YM1																															
1	Region 03	80.9	-	-	30.0	-	-	2.8	-	-	60.9	-	-	36.3	-	-	0.6	-	-	0.5	-	-	6	-	-	90.5	-	67.3	-	-	
19	Region 10	79.8	76.9	82.0	35.2	31.1	39.5	4.4	1.0	10.1	70.3	58.5	77.1	25.4	17.6	39.9	0.5	0.0	1.8	0.4	0.0	1.6	15	4	34	80.7	64.3	92.4	65.0	61.0	67.8
15	Region 11	80.7	77.2	83.3	34.8	30.8	37.4	4.7	1.4	9.4	72.2	63.8	81.7	23.1	11.8	33.0	0.5	0.2	1.0	0.4	0.0	0.9	8	2	15	80.7	68.3	91.4	64.9	61.9	67.5
1	Region 12	78.8	-	-	31.7	-	-	10.3	-	-	69.4	-	-	20.3	-	-	1.2	-	-	1.1	-	-	21	-	-	99.4	-	69.5	-	-	
1	Region 13	77.2	-	-	27.2	-	-	7.4	-	-	61.0	-	-	31.6	-	-	1.8	-	-	1.5	-	-	19	-	-	84.7	-	65.9	-	-	
3	Region 14	76.4	75.5	76.9	31.6	30.9	32.2	9.0	6.6	10.3	68.8	62.4	74.6	22.2	15.4	31.0	1.5	1.0	1.9	1.2	0.8	1.6	16	15	19	86.1	81.3	93.2	66.2	65.1	67.9
2	Region 15	75.9	74.1	77.6	30.2	30.0	30.4	5.1	0.9	9.2	67.2	66.4	67.9	27.8	22.9	32.7	2.3	2.0	2.5	1.8	1.7	1.8	19	14	23	71.1	64.7	77.4	62.6	61.0	64.1
4	Region 16	75.9	73.2	77.5	29.5	27.0	31.2	7.6	3.4	14.7	67.4	61.5	75.1	25.0	15.2	35.1	1.6	0.9	2.7	1.3	0.8	2.0	13	7	20	81.0	73.1	87.7	65.0	63.1	66.6
1	Region 17	77.8	-	-	32.9	-	-	4.9	-	-	78.4	-	-	16.7	-	-	1.1	-	-	0.9	-	-	11	-	-	84.4	-	65.8	-	-	
1	Region 18	78.4	-	-	29.8	-	-	9.8	-	-	63.0	-	-	27.2	-	-	0.7	-	-	0.5	-	-	11	-	-	93.9	-	68.1	-	-	
3	Region 19	77.0	76.3	77.9	31.2	29.9	33.3	10.4	8.7	12.8	69.0	66.4	74.0	20.6	13.2	24.8	0.9	0.5	1.4	0.6	0.3	1.2	12	5	19	86.5	78.4	91.9	66.3	64.4	67.6
3	Region 20	78.2	77.7	78.7	28.7	28.0	30.0	4.1	3.3	4.5	65.6	64.4	66.6	30.3	28.9	31.2	1.6	0.6	3.4	1.1	0.5	2.3	15	5	30	83.1	78.7	85.9	65.5	64.4	66.2
7	Region 21	77.6	74.7	79.9	30.3	24.5	35.8	7.9	4.3	12.8	66.3	58.6	71.6	25.8	18.1	33.6	0.9	0.4	1.5	0.6	0.2	1.0	11	5	14	80.4	66.1	93.8	64.8	61.4	68.1
1	Region 22	75.3	-	-	30.3	-	-	9.9	-	-	66.8	-	-	23.3	-	-	0.9	-	-	0.7	-	-	16	-	-	74.0	-	63.3	-	-	
2	Region 23	72.9	71.5	74.2	30.6	29.5	31.7	13.4	11.6	15.1	71.5	71.3	71.7	15.2	13.2	17.1	1.4	1.1	1.7	0.9	0.8	1.0	13	10	15	69.2	60.3	78.0	62.1	60.0	64.3
11	Region 24	76.4	71.8	79.6	31.9	26.5	38.5	7.0	0.8	12.3	70.2	56.7	81.7	22.8	7.8	41.5	1.1	0.3	1.9	0.8	0.2	1.6	14	5	24	83.2	72.9	101.3	65.5	63.0	70.0
6	Region 25	78.0	76.2	79.5	30.3	28.4	31.0	7.2	3.2	12.4	63.7	57.5	68.4	29.2	19.9	38.3	0.4	0.2	0.8	0.3	0.2	0.4	8	4	12	74.6	64.1	82.7	63.4	60.9	65.4
15	Region 26	77.5	75.9	80.2	31.3	27.8	34.7	7.4	3.4	16.7	66.5	59.4	74.9	26.0	8.4	32.9	0.7	0.3	1.6	0.5	0.1	1.2	13	3	27	78.9	65.7	107.1	64.5	61.3	71.4
7	Region 27	77.1	75.4	79.1	30.2	26.7	32.1	10.5	4.7	31.9	64.7	55.5	74.0	24.7	11.7	39.8	1.2	0.3	2.8	0.8	0.2	2.2	16	6	25	82.5	69.3	87.7	65.3	62.2	66.6
28	Region 28	76.9	73.9	80.8	30.7	26.0	38.3	8.4	2.0	23.2	67.5	55.4	75.2	24.1	7.2	40.9	0.7	0.0	2.2	0.5	0.0	1.7	11	2	26	79.9	71.7	96.0	64.7	62.8	68.7
26	Region 29	77.0	75.1	79.7	26.7	19.6	31.3	6.8	1.3	16.8	63.6	50.4	85.2	29.6	9.0	46.3	0.8	0.2	1.9	0.6	0.2	1.2	14	4	22	82.9	70.3	93.2	65.5	62.4	68.0
33	Region 30	77.2	73.7	80.8	32.0	25.7	41.4	13.1	0.9	29.4	68.0	61.4	74.1	18.9	4.7	31.8	0.6	0.0	1.8	0.4	0.0	0.8	14	6	39	78.1	43.6	91.1	64.3	56.0	67.5
31	Region 31	77.1	73.0	81.1	29.9	22.6	34.8	8.9	2.0	18.6	65.5	48.5	74.7	25.5	14.6	48.5	0.6	0.1	1.6	0.4	0.0	1.2	10	3	27	79.2	67.0	91.2	64.5	61.6	67.5
26	Region 32	76.4	74.2	79.1	30.8	26.0	34.8	9.4	4.2	16.0	68.1	57.4	77.1	22.5	14.4	34.8	0.7	0.1	1.3	0.5	0.0	0.9	11	3	20	76.4	62.1	85.6	63.9	60.4	66.1
15	Region 33	76.6	73.9	80.0	28.7	23.3	36.3	6.2	0.6	20.0	61.5	44.8	78.6	32.4	16.8	54.6	0.8	0.0	1.8	0.5	0.0	1.1	14	7	32	72.9	53.6	85.4	63.0	58.3	66.1
21	Region 34	76.2	73.1	79.4	28.9	21.6	35.6	9.1	2.9	20.7	66.5	46.9	76.0	24.3	8.4	49.2	1.0	0.2	3.0	0.7	0.1	2.0	16	5	35	79.8	65.9	90.0	64.7	61.3	67.2
9	Region 35	76.3	73.4	78.3	32.9	30.5	39.0	15.1	3.2	33.2	64.3	52.1	73.7	20.6	6.0	32.7	0.8	0.2	1.7	0.6	0.1	1.3	9	4	16	79.7	63.3	95.4	64.7	60.7	68.5
17	Region 36	77.7	72.3	81.2	33.3	26.8	39.0	7.0	0.0	20.6	65.0	53.5	75.6	27.9	9.6	45.6	1.2	0.5	3.2	0.8	0.4	1.7	12	3	37	77.1	57.6	106.5	64.1	59.4	71.2
309	Ave. YM1	77.3			30.9			8.4			66.8			24.8			0.8			0.6			12			79.4		64.6			
	Min. YM1	71.5			19.6			0.0			44.8			4.7			0.0			0.0			2			43.6		56.0			
	Max. YM1	83.3			41.4			33.2			85.2			54.6			3.4			2.3			39			107.1		71.4			

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2019			GYA					
		ave.	min.	max.	kernel mass (g)			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																															
1	Region 13	77.7	-	-	28.9	-	-	6.8	-	-	67.4	-	-	25.8	-	-	1.1	-	-	0.9	-	-	13	-	-	99.9	-	-	69.5	-	-
3	Region 14	73.9	71.3	76.8	28.4	27.4	28.9	7.9	5.1	10.7	69.7	67.9	70.7	22.4	21.4	24.4	2.7	1.4	5.2	2.1	1.2	3.5	19	12	29	84.5	79.6	93.1	65.8	64.6	67.9
2	Region 16	73.3	72.9	73.6	25.1	22.1	28.0	4.6	3.0	6.2	63.6	50.9	76.2	31.9	17.6	46.1	5.3	4.1	6.5	3.5	3.0	3.9	26	23	28	85.6	82.8	88.4	66.1	65.4	66.8
1	Region 17	76.1	-	-	28.0	-	-	6.3	-	-	77.1	-	-	16.6	-	-	0.8	-	-	0.5	-	-	4	-	-	97.1	-	-	68.9	-	-
1	Region 18	76.3	-	-	28.6	-	-	6.5	-	-	69.6	-	-	23.9	-	-	1.1	-	-	1.0	-	-	12	-	-	78.8	-	-	64.5	-	-
1	Region 20	77.0	-	-	29.3	-	-	0.6	-	-	44.3	-	-	55.1	-	-	3.2	-	-	2.4	-	-	26	-	-	78.8	-	-	64.5	-	-
1	Region 22	77.8	-	-	30.1	-	-	10.6	-	-	68.9	-	-	20.5	-	-	1.6	-	-	1.3	-	-	18	-	-	90.1	-	-	67.2	-	-
1	Region 23	77.9	-	-	29.9	-	-	4.4	-	-	57.5	-	-	38.1	-	-	1.7	-	-	1.0	-	-	16	-	-	89.6	-	-	67.1	-	-
1	Region 24	76.9	-	-	30.1	-	-	6.3	-	-	68.5	-	-	25.2	-	-	2.7	-	-	2.0	-	-	20	-	-	87.7	-	-	66.6	-	-
6	Region 26	76.7	75.2	78.9	30.3	28.5	31.8	6.3	2.3	7.9	63.0	57.9	67.1	30.8	25.6	34.9	0.9	0.5	1.2	0.6	0.4	1.0	10	4	14	80.7	72.3	93.9	64.9	62.9	68.1
2	Region 27	77.8	77.5	78.1	29.9	29.7	30.0	7.1	4.0	10.1	62.0	57.4	66.5	31.0	29.5	32.5	1.0	0.7	1.3	0.8	0.5	1.0	10	7	12	88.4	82.0	94.9	66.8	65.2	68.4
5	Region 28	75.6	71.1	77.3	27.2	22.5	33.0	5.3	1.3	8.9	55.1	24.2	69.7	39.5	25.4	74.5	1.2	1.0	1.9	1.0	0.6	1.6	12	4	20	74.2	57.4	81.4	63.4	59.2	65.1
3	Region 29	73.4	69.2	76.6	24.3	19.5	32.3	7.8	2.9	12.8	62.3	44.2	72.2	29.9	15.0	52.9	2.5	0.3	4.2	1.4	0.2	2.5	26	15	38	77.0	63.4	89.0	64.0	60.7	66.9
1	Region 30	77.4	-	-	28.8	-	-	8.2	-	-	56.1	-	-	35.7	-	-	0.9	-	-	0.6	-	-	7	-	-	73.0	-	-	63.0	-	-
2	Region 31	75.7	74.2	77.1	31.6	30.3	32.9	8.5	6.7	10.3	74.3	72.9	75.6	17.3	16.8	17.7	1.3	0.7	1.9	1.0	0.6	1.3	20	10	30	82.4	81.6	83.2	65.3	65.1	65.5
1	Region 32	74.1	-	-	30.4	-	-	19.7	-	-	68.8	-	-	11.5	-	-	0.9	-	-	0.6	-	-	20	-	-	76.1	-	-	63.8	-	-
2	Region 33	74.4	74.0	74.8	29.7	27.0	32.3	3.8	0.0	7.5	65.9	62.3	69.4	30.4	23.1	37.7	1.6	1.2	2.0	1.3	1.0	1.5	22	16	28	63.3	57.0	69.6	60.6	59.1	62.2
7	Region 34	75.0	73.6	76.1	28.2	26.6	30.0	6.7	2.1	9.5	67.8	62.7	74.0	25.5	17.1	35.2	1.0	0.6	1.3	0.6	0.2	0.9	16	8	33	77.9	70.7	83.6	64.2	62.5	65.6
6	Region 36	77.2	76.2	80.4	33.7	31.5	36.2	12.9	2.5	26.3	68.0	61.5	75.4	19.2	9.6	28.7	1.3	0.7	1.8	0.9	0.5	1.4	15	7	31	83.8	75.0	92.0	65.7	63.5	67.7
47	Ave. YM2	75.8	69.2	80.4	29.2	19.5	36.2	7.5	0.0	26.3	64.7	24.2	77.1	27.8	9.6	74.5	1.6	0.3	6.5	1.1	0.2	3.9	16	4	38	80.8	57.0	99.9	64.9	59.1	69.5

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/ht)		100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2019			GYA						
		ave.	min.	max.	kernel mass (g)			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.									
GRADE: YM3																															
1	Region 11	78.8	-	-	33.0	-	-	7.5	-	-	68.5	-	-	24.0	-	-	1.3	-	-	1.1	-	-	17	-	-	78.1	-	-	64.3	-	-
1	Region 17	73.4	-	-	30.4	-	-	9.3	-	-	73.3	-	-	17.4	-	-	2.3	-	-	2.0	-	-	18	-	-	74.9	-	-	63.5	-	-
1	Region 20	71.5	-	-	29.1	-	-	8.3	-	-	68.5	-	-	23.2	-	-	1.1	-	-	0.9	-	-	12	-	-	51.8	-	-	57.9	-	-
1	Region 22	75.1	-	-	28.2	-	-	5.5	-	-	69.9	-	-	24.6	-	-	1.9	-	-	1.2	-	-	21	-	-	82.1	-	-	65.3	-	-
1	Region 24	76.4	-	-	34.5	-	-	6.4	-	-	70.9	-	-	22.7	-	-	1.0	-	-	0.9	-	-	13	-	-	82.1	-	-	65.3	-	-
1	Region 28	78.6	-	-	31.0	-	-	4.1	-	-	69.4	-	-	26.5	-	-	1.0	-	-	0.7	-	-	16	-	-	83.2	-	-	65.5	-	-
1	Region 32	75.1	-	-	29.5	-	-	2.1	-	-	66.7	-	-	31.2	-	-	1.0	-	-	0.6	-	-	9	-	-	80.5	-	-	64.8	-	-
2	Region 34	73.7	69.0	78.3	28.7	27.1	30.3	14.5	10.4	18.5	71.6	69.2	73.9	14.0	12.3	15.7	1.2	0.7	1.6	0.6	0.4	0.9	14	8	20	75.8	59.2	92.4	63.7	59.6	67.8
1	Region 35	78.4	-	-	33.1	-	-	7.6	-	-	64.2	-	-	28.2	-	-	0.7	-	-	0.5	-	-	12	-	-	90.9	-	-	67.4	-	-
3	Region 36	76.5	72.2	80.0	33.9	32.6	34.6	10.1	3.0	15.4	69.2	66.1	74.0	20.7	18.5	23.0	1.9	1.5	2.7	1.4	1.1	1.9	26	20	32	82.0	80.6	84.3	65.2	64.9	65.8
13	Ave. YM3	75.7			31.4			8.5			69.4			22.1			1.4			1.0			17			78.5			64.4		
	Min. YM3	69.0			27.1			2.1			64.2			12.3			0.7			0.4			8			51.8			57.9		
	Max. YM3	80.0			34.6			18.5			74.0			31.2			2.7			2.0			32			92.4			67.8		
CLASS: COM																															
1	Region 11	81.6	-	-	34.8	-	-	6.0	-	-	72.3	-	-	21.7	-	-	0.9	-	-	0.6	-	-	11	-	-	85.5	-	-	66.1	-	-
1	Region 13	74.9	-	-	25.2	-	-	2.5	-	-	68.1	-	-	29.4	-	-	2.2	-	-	1.8	-	-	17	-	-	76.5	-	-	63.8	-	-
1	Region 14	78.9	-	-	27.5	-	-	3.2	-	-	58.9	-	-	37.9	-	-	1.4	-	-	1.1	-	-	13	-	-	92.0	-	-	67.6	-	-
1	Region 18	76.1	-	-	33.0	-	-	11.5	-	-	68.0	-	-	20.5	-	-	1.8	-	-	1.3	-	-	8	-	-	87.0	-	-	66.5	-	-
1	Region 19	72.3	-	-	22.2	-	-	0.9	-	-	60.2	-	-	38.9	-	-	4.0	-	-	2.3	-	-	29	-	-	71.3	-	-	62.6	-	-
1	Region 22	76.9	-	-	30.8	-	-	6.7	-	-	64.1	-	-	29.2	-	-	0.9	-	-	0.8	-	-	17	-	-	86.8	-	-	66.4	-	-
3	Region 24	74.0	71.7	77.7	33.7	31.2	35.5	2.5	1.0	4.5	64.3	57.7	68.1	33.2	28.4	41.3	1.8	1.0	2.5	1.5	0.7	2.2	19	14	25	82.2	80.8	83.0	65.3	65.0	65.5
1	Region 25	76.3	-	-	27.9	-	-	8.0	-	-	65.6	-	-	26.4	-	-	0.7	-	-	0.5	-	-	11	-	-	72.7	-	-	63.0	-	-
6	Region 26	75.0	73.5	78.1	31.0	25.3	34.7	5.9	0.5	12.7	64.1	39.0	74.1	30.0	13.6	60.5	1.6	0.3	3.5	1.0	0.1	2.4	22	13	33	74.9	60.3	86.9	63.5	59.9	66.4
4	Region 28	75.7	73.2	77.6	30.9	30.1	31.6	12.2	7.3	14.6	68.1	67.8	68.4	19.7	17.1	24.7	0.7	0.3	1.1	0.5	0.2	0.7	15	6	31	81.6	80.4	83.3	65.2	64.9	65.6
1	Region 30	77.4	-	-	28.5	-	-	15.1	-	-	61.5	-	-	23.4	-	-	0.4	-	-	0.2	-	-	9	-	-	75.7	-	-	63.7	-	-
1	Region 31	75.4	-	-	30.2	-	-	9.0	-	-	73.0	-	-	18.0	-	-	0.2	-	-	0.2	-	-	8	-	-	79.8	-	-	64.7	-	-
3	Region 32	76.1	75.6	77.0	27.8	23.7	30.0	10.6	2.9	16.0	62.1	44.8	72.1	27.3	11.9	52.3	0.8	0.7	1.0	0.6	0.4	0.8	17	12	26	74.3	70.8	77.4	63.3	62.5	64.1

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2019			GYA					
		ave.	min.	max.	ave.	min.	max.	Above 10 mm sieve	ave.	min.	max.	Above 8 mm sieve	ave.	min.	max.	Below 8 mm sieve	ave.	min.	max.	< 6.35 mm sieve	ave.	min.	max.	< 4.75 mm sieve	ave.	min.	max.	ave.	min.	max.	
CLASS: COM																															
7	Region 34	75.4	73.9	76.1	28.1	22.1	34.1	9.8	2.0	17.1	61.6	52.6	67.1	28.5	15.8	45.4	1.2	0.4	4.2	0.6	0.1	2.2	13	5	27	76.0	65.8	83.9	63.8	61.3	65.7
	Region 36	77.6	74.6	80.8	30.8	26.1	35.0	9.8	7.0	11.7	61.9	56.7	68.9	28.2	19.4	36.3	1.3	1.1	1.4	0.9	0.7	1.1	12	6	20	80.5	79.1	81.5	64.9	64.6	65.1
35	Ave. COM	75.8			29.8			8.1			64.1			27.7			1.3			0.9			16			78.5			64.4		
	Min. COM		71.7		22.1			0.5			39.0			11.9			0.2			0.1			5			60.3			59.9		
	Max. COM		81.6		35.5			17.1			74.1			60.5			4.2			2.4			33			92.0			67.6		
404	Ave. yellow	76.9			30.6			8.3			66.4			25.3			1.0			0.7			13			79.5			64.6		
	Min. yellow maize		69.0		19.5			0.0			24.2			4.7			0.0			0.0			2			43.6			56.0		
	Max. yellow maize		83.3		41.4			33.2			85.2			74.5			6.5			3.9			39			107.1			71.4		
808	Ave. maize	76.4			32.0			16.4			64.9			18.7			1.3			0.9			15			79.1			64.5		
	Min. maize		61.0		18.7			0.0			5.8			0.4			0.0			0.0			1			26.1			51.5		
	Max. maize		83.6		51.1			93.8			85.2			74.5			7.9			5.6			58			111.4			72.4		

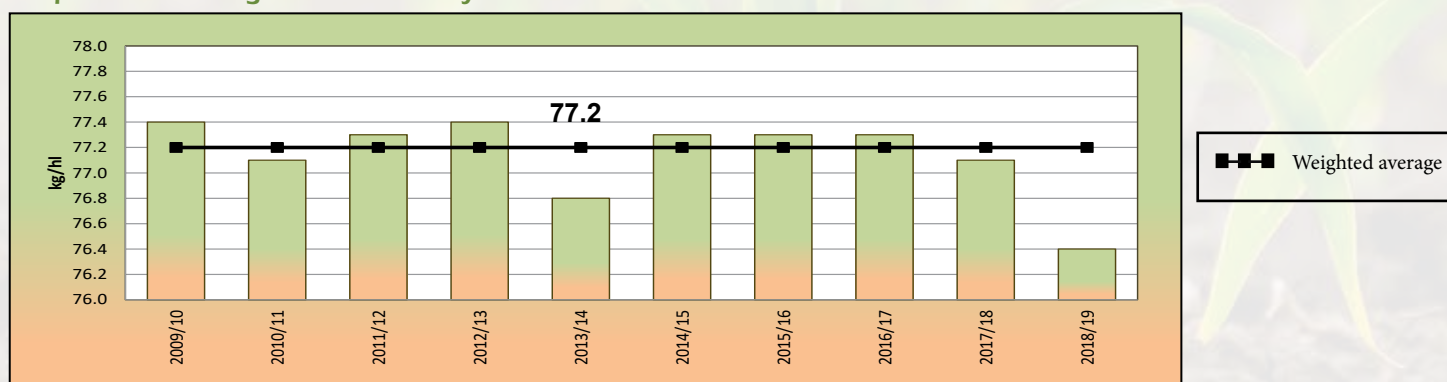
TABLE 15: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE (2018/19)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2019			GYA					
		ave.	min.	max.	kernel mass (g)			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 03	80.9	-	-	30.0	-	-	2.8	-	-	60.9	-	-	36.3	-	-	0.6	-	-	0.5	-	-	6	-	-	90.5	-	-	67.3	-	-
19	Region 10	79.8	76.9	82.0	35.2	31.1	39.5	4.4	1.0	10.1	70.3	58.5	77.1	25.4	17.6	39.9	0.5	0.0	1.8	0.4	0.0	1.6	15	4	34	80.7	64.3	92.4	65.0	61.0	67.8
17	Region 11	80.6	77.2	83.3	34.7	30.8	37.4	5.0	1.4	9.4	72.0	63.8	81.7	23.1	11.8	33.0	0.6	0.2	1.3	0.4	0.0	1.1	9	2	17	80.9	68.3	91.4	65.0	61.9	67.5
1	Region 12	78.8	-	-	31.7	-	-	10.3	-	-	69.4	-	-	20.3	-	-	1.2	-	-	1.1	-	-	21	-	-	99.4	-	-	69.5	-	-
3	Region 13	76.6	74.9	77.7	27.1	25.2	28.9	5.6	2.5	7.4	65.5	61.0	68.1	28.9	25.8	31.6	1.7	1.1	2.2	1.4	0.9	1.8	16	13	19	87.0	76.5	99.9	66.4	63.8	69.5
7	Region 14	75.7	71.3	78.9	29.6	27.4	32.2	7.7	3.2	10.7	67.8	58.9	74.6	24.6	15.4	37.9	2.0	1.0	5.2	1.6	0.8	3.5	17	12	29	86.2	79.6	93.2	66.2	64.6	67.9
2	Region 15	75.9	74.1	77.6	30.2	30.0	30.4	5.1	0.9	9.2	67.2	66.4	67.9	27.8	22.9	32.7	2.3	2.0	2.5	1.8	1.7	1.8	19	14	23	71.1	64.7	77.4	62.6	61.0	64.1
6	Region 16	75.0	72.9	77.5	28.0	22.1	31.2	6.6	3.0	14.7	66.1	50.9	76.2	27.3	15.2	46.1	2.8	0.9	6.5	2.0	0.8	3.9	17	7	28	82.5	73.1	88.4	65.4	63.1	66.8
3	Region 17	75.8	73.4	77.8	30.4	28.0	32.9	6.8	4.9	9.3	76.3	73.3	78.4	16.9	16.6	17.4	1.4	0.8	2.3	1.1	0.5	2.0	11	4	18	85.5	74.9	97.1	66.1	63.5	68.9
3	Region 18	76.9	76.1	78.4	30.5	28.6	33.0	9.3	6.5	11.5	66.9	63.0	69.6	23.9	20.5	27.2	1.2	0.7	1.8	0.9	0.5	1.3	10	8	12	86.6	78.8	93.9	66.4	64.5	68.1
4	Region 19	75.8	72.3	77.9	29.0	22.2	33.3	8.1	0.9	12.8	66.8	60.2	74.0	25.2	13.2	38.9	1.7	0.5	4.0	1.1	0.3	2.3	17	5	29	82.7	71.3	91.9	65.4	62.6	67.6
5	Region 20	76.6	71.5	78.7	28.9	28.0	30.0	4.2	0.6	8.3	61.9	44.3	68.5	33.9	23.2	55.1	1.8	0.6	3.4	1.3	0.5	2.4	17	5	30	76.0	51.8	85.9	63.8	57.9	66.2
7	Region 21	77.6	74.7	79.9	30.3	24.5	35.8	7.9	4.3	12.8	66.3	58.6	71.6	25.8	18.1	33.6	0.9	0.4	1.5	0.6	0.2	1.0	11	5	14	80.4	66.1	93.8	64.8	61.4	68.1
4	Region 22	76.3	75.1	77.8	29.9	28.2	30.8	8.2	5.5	10.6	67.4	64.1	69.9	24.4	20.5	29.2	1.3	0.9	1.9	1.0	0.7	1.3	18	16	21	83.2	74.0	90.1	65.5	63.3	67.2
3	Region 23	74.5	71.5	77.9	30.4	29.5	31.7	10.4	4.4	15.1	66.8	57.5	71.7	22.8	13.2	38.1	1.5	1.1	1.7	0.9	0.8	1.0	14	10	16	76.0	60.3	89.6	63.8	60.0	67.1
16	Region 24	76.0	71.7	79.6	32.3	26.5	38.5	6.1	0.8	12.3	69.0	56.7	81.7	24.9	7.8	41.5	1.3	0.3	2.7	1.0	0.2	2.2	15	5	25	83.3	72.9	101.3	65.6	63.0	70.0
7	Region 25	77.8	76.2	79.5	29.9	27.9	31.0	7.3	3.2	12.4	63.9	57.5	68.4	28.8	19.9	38.3	0.4	0.2	0.8	0.3	0.2	0.5	8	4	12	74.3	64.1	82.7	63.4	60.9	65.4
27	Region 26	76.7	73.5	80.2	31.0	25.3	34.7	6.8	0.5	16.7	65.2	39.0	74.9	28.0	8.4	60.5	0.9	0.3	3.5	0.6	0.1	2.4	14	3	33	78.4	60.3	107.1	64.3	59.9	71.4
9	Region 27	77.3	75.4	79.1	30.2	26.7	32.1	9.8	4.0	31.9	64.1	55.5	74.0	26.1	11.7	39.8	1.1	0.3	2.8	0.8	0.2	2.2	14	6	25	83.8	69.3	94.9	65.7	62.2	68.4
38	Region 28	76.7	71.1	80.8	30.3	22.5	38.3	8.3	1.3	23.2	66.0	24.2	75.2	25.7	7.2	74.5	0.8	0.0	2.2	0.6	0.0	1.7	12	2	31	79.4	57.4	96.0	64.6	59.2	68.7
29	Region 29	76.6	69.2	79.7	26.5	19.5	32.3	6.9	1.3	16.8	63.5	44.2	85.2	29.7	9.0	52.9	1.0	0.2	4.2	0.7	0.2	2.5	15	4	38	82.3	63.4	93.2	65.3	60.7	68.0
35	Region 30	77.2	73.7	80.8	31.8	25.7	41.4	13.0	0.9	29.4	67.5	56.1	74.1	19.5	4.7	35.7	0.6	0.0	1.8	0.4	0.0	0.8	14	6	39	77.9	43.6	91.1	64.2	56.0	67.5
34	Region 31	76.9	73.0	81.1	30.0	22.6	34.8	8.9	2.0	18.6	66.3	48.5	75.6	24.8	14.6	48.5	0.6	0.1	1.9	0.4	0.0	1.3	10	3	30	79.4	67.0	91.2	64.6	61.6	67.5
31	Region 32	76.2	74.1	79.1	30.5	23.7	34.8	9.6	2.1	19.7	67.5	44.8	77.1	22.9	11.5	52.3	0.7	0.1	1.3	0.5	0.0	0.9	12	3	26	76.3	62.1	85.6	63.9	60.4	66.1
17	Region 33	76.3	73.9	80.0	28.8	23.3	36.3	5.9	0.0	20.0	62.0	44.8	78.6	32.1	16.8	54.6	0.9	0.0	2.0	0.6	0.0	1.5	15	7	32	71.8	53.6	85.4	62.7	58.3	66.1
37	Region 34	75.7	69.0	79.4	28.6	21.6	35.6	9.1	2.0	20.7	66.1	46.9	76.0	24.8	8.4	49.2	1.1	0.2	4.2	0.7	0.1	2.2	15	5	35	78.5	59.2	92.4	64.4	59.6	67.8
10	Region 35	76.5	73.4	78.4	33.0	30.5	39.0	14.3	3.2	33.2	64.3	52.1	73.7	21.4	6.0	32.7	0.8	0.2	1.7	0.6	0.1	1.3	9	4	16	80.8	63.3	95.4	65.0	60.7	68.5
29	Region 36	77.5	72.2	81.2	33.2	26.1	39.0	8.9	0.0	26.3	65.7	53.5	75.6	25.4	9.6	45.6	1.3	0.5	3.2	0.9	0.4	1.9	14	3	37	79.3	57.6	106.5	64.6	59.4	71.2
404	Ave. yellow	76.9	69.0	83.3	30.6	19.5	41.4	8.3	0.0	33.2	66.4	24.2	85.2	25.3	4.7	74.5	1.0	0.0	6.5	0.7	0.0	3.9	13	2	39	79.5	43.6	107.1	64.6	56.0	71.4
	Min. yellow																														
	Max. yellow																														

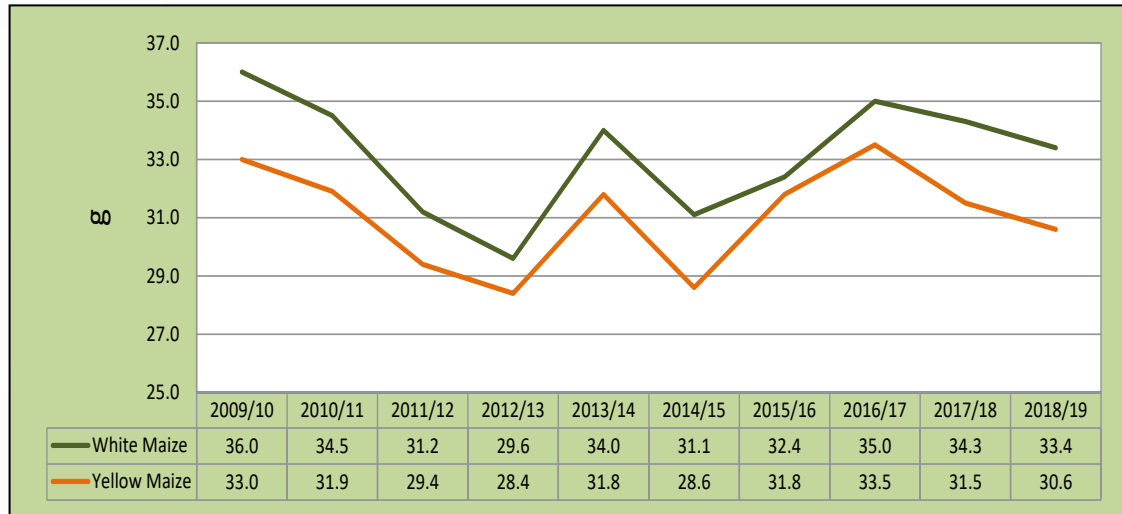
**TABLE 16: PHYSICAL QUALITY CHARACTERISTICS OF WHITE AND YELLOW MAIZE
2009/10 - 2018/19**

Season	Number of samples	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)												Breakage susceptibility (%)						Stress cracks (%)		
		ave.	min.	max.	ave.	min.	max.	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.
White Maize																												
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			
2016/17	549	77.7	70.0	81.8	35.0	22.8	43.8	22.1	1.8	64.2	64.1	13.6	82.4	13.7	0.7	62.6	1.2	0.0	9.9	0.8	0.0	9.0	8	0	42			
2017/18	451	77.0	63.4	81.7	34.3	18.3	45.8	26.2	1.5	58.7	62.8	39.8	83.7	11.0	1.5	32.1	1.0	0.0	3.8	0.7	0.0	2.7	11	1	30			
2018/19	404	75.9	61.0	83.6	33.4	18.7	51.1	24.6	0.0	93.8	63.4	5.8	79.9	12.0	0.4	46.8	1.6	0.0	7.9	1.2	0.0	5.6	17	1	58			
Weighted Average		77.7			33.1			21.2			64.4			14.4			1.2			0.8			7					
Minimum		60.2			17.4			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																												
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			
2016/17	451	76.9	67.6	82.4	33.5	18.4	43.3	11.4	0.0	71.9	65.6	13.0	90.9	23.0	1.6	69.7	1.1	0.1	8.6	0.8	0.0	5.3	8	0	50			
2017/18	449	77.2	59.6	82.5	31.5	15.6	40.7	11.1	0.0	72.4	66.7	24.2	82.2	22.2	2.5	62.0	0.9	0.0	4.7	0.7	0.0	3.3	9	1	38			
2018/19	404	76.9	69.0	83.3	30.6	19.5	41.4	8.3	0.0	33.2	66.4	24.2	85.2	25.3	4.7	74.5	1.0	0.0	6.5	0.7	0.0	3.9	13	2	39			
Weighted Average		76.6			30.9			11.4			65.6			22.9			1.4			1.0			6.8					
Minimum		56.6			14.5			0.0			9.2			0.2			0.0			0.0			0					
Maximum		83.3			43.3			72.4			93.6			90.4			15.6			9.9			56					
White & Yellow Maize																												
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			
2016/17	1000	77.3	67.6	82.4	34.3	18.4	43.8	17.3	0.0	71.9	64.8	13.0	90.9	17.9	0.7	69.7	1.2	0.0	9.9	0.8	0.0	9.0	11	0	40			
2017/18	900	77.1	59.6	82.5	32.9	15.6	45.8	18.7	0.0	72.4	64.7	24.2	83.7	16.6	1.5	62.0	1.0	0.0	4.7	0.7	0.0	3.3	10	1	38			
2018/19	808	76.4	61.0	83.6	32.0	18.7	51.1	16.4	0.0	93.8	64.9	5.8	85.2	18.7	0.4	74.5	1.3	0.0	7.9	0.9	0.0	5.6	15	1	58			
Weighted Average		77.2			32.0			16.5			65.0			18.5			1.3			0.9			7					
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					

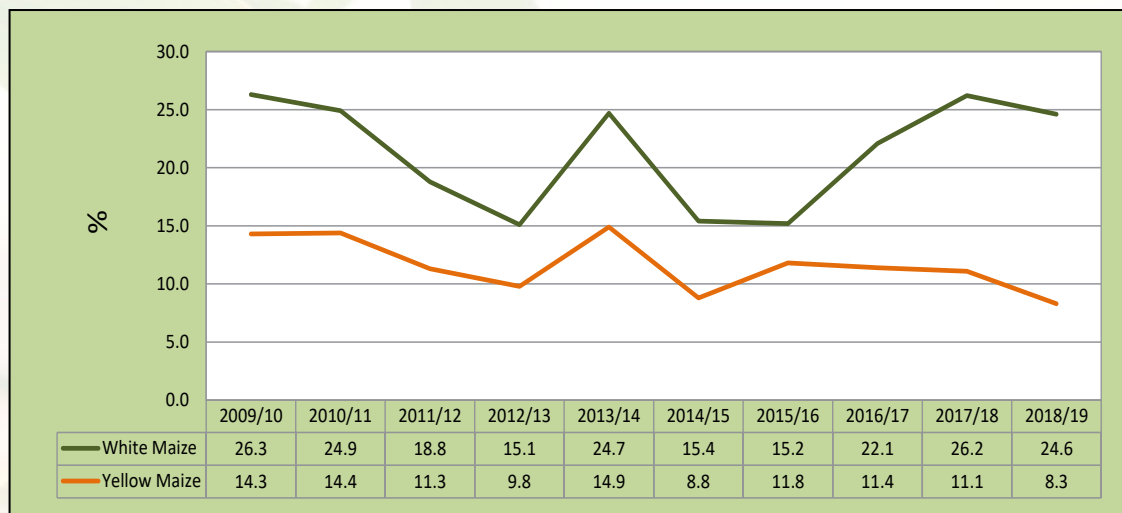
Graph 35: Test weight of white and yellow maize over 10 seasons



Graph 36: 100 Kernel mass over 10 seasons



Graph 37: Kernel size above 10 mm sieve over 10 seasons



Graph 38: Kernel size below 8 mm sieve over 10 seasons

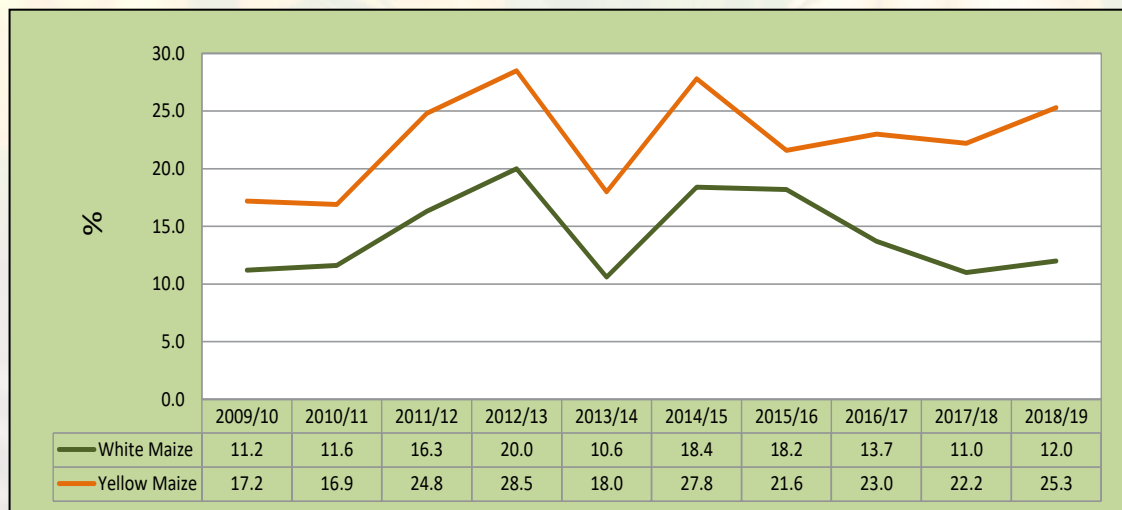


TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2018/19)

Number of samples	Region	Roff Milling																		Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			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																									
4	Region 11	12.6	12.2	12.9	10.3	10.2	10.4	20.0	18.3	23.1	34.2	31.4	35.2	22.9	21.8	23.5	77.1	76.5	78.2	30.5	29.9	31.3	21.5	21.4	21.8
9	Region 12	11.6	7.7	14.2	10.6	8.6	11.8	20.6	17.0	23.5	33.2	29.8	36.5	24.0	22.0	30.2	76.0	69.8	78.0	29.6	23.1	34.3	20.7	12.8	27.9
7	Region 13	12.4	11.6	13.0	10.6	10.4	10.9	20.2	19.0	20.9	32.9	32.0	34.1	23.8	22.5	24.8	76.2	75.2	77.5	28.5	26.0	32.9	18.7	14.8	22.2
13	Region 14	13.0	10.7	15.9	11.2	10.3	12.2	21.7	18.7	24.5	30.4	23.1	35.4	23.7	21.1	26.4	76.3	73.6	78.9	32.2	21.5	36.3	22.4	13.9	29.2
2	Region 15	14.2	13.1	15.3	11.1	10.9	11.3	22.4	21.9	22.9	27.6	26.3	29.0	24.7	24.1	25.2	75.3	74.8	75.9	31.9	30.5	33.3	21.9	21.5	22.3
4	Region 16	13.1	10.7	15.4	11.5	10.6	12.7	21.8	21.1	22.3	29.7	26.7	33.4	24.0	21.2	25.8	76.0	74.2	78.8	32.5	28.2	37.0	25.7	17.6	36.6
10	Region 17	13.2	12.2	14.8	11.0	10.5	11.7	20.0	17.1	25.7	31.8	26.9	33.4	24.1	20.9	27.7	75.9	72.3	79.1	29.6	26.4	32.3	19.4	15.1	21.5
4	Region 18	12.6	10.6	13.5	10.7	10.2	11.1	20.8	18.8	22.5	31.8	29.2	35.7	24.0	23.1	24.9	76.0	75.1	76.9	29.7	28.1	32.0	19.2	17.4	20.5
9	Region 19	12.5	10.1	14.4	11.1	9.8	13.4	20.1	18.7	21.2	32.3	29.9	36.1	24.1	21.9	27.3	75.9	72.7	78.1	30.0	23.5	33.6	20.1	12.5	23.6
10	Region 20	13.5	12.0	14.9	11.1	9.8	11.8	20.5	19.2	23.5	30.9	27.9	33.1	24.0	22.7	24.9	76.0	75.1	77.3	31.8	28.2	36.3	22.2	16.4	25.9
16	Region 21	12.8	10.3	15.7	10.7	9.3	11.7	21.6	18.2	24.3	31.1	27.6	36.4	23.8	20.4	25.9	76.2	74.1	79.6	28.7	21.9	34.2	18.9	10.9	27.6
8	Region 22	13.9	13.5	14.3	11.4	11.2	11.5	21.3	19.3	22.5	29.6	27.4	32.8	23.8	22.6	25.0	76.2	75.0	77.4	33.9	31.0	36.6	23.8	21.0	28.1
7	Region 23	13.9	13.0	14.7	11.3	11.1	11.5	21.2	19.0	24.3	30.0	27.8	33.2	23.5	21.9	24.9	76.5	75.1	78.1	33.0	29.7	36.0	22.6	18.7	26.4
6	Region 24	12.5	10.4	13.5	10.6	9.3	11.3	22.7	21.2	24.3	31.2	29.5	34.1	23.0	21.0	24.6	77.0	75.4	79.0	28.2	19.8	32.5	17.6	7.4	23.1
4	Region 26	12.8	11.5	14.0	10.4	10.0	10.9	20.3	18.6	22.2	31.6	28.8	34.3	24.9	23.7	25.5	75.1	74.5	76.3	26.3	21.5	30.8	18.0	11.4	23.2
2	Region 27	14.3	12.8	15.7	11.1	11.0	11.2	19.1	17.8	20.3	30.2	26.2	34.3	25.3	21.5	29.1	74.7	70.9	78.5	32.8	32.1	33.4	23.2	22.4	24.0
9	Region 28	12.9	11.8	15.8	10.8	9.9	11.8	23.3	21.2	25.4	31.5	28.7	34.7	21.4	20.3	23.3	78.6	76.7	79.7	28.6	24.9	31.5	19.5	15.0	24.0
13	Region 29	12.3	10.5	16.3	10.3	9.5	11.2	22.9	20.3	24.3	31.1	27.5	33.9	23.4	21.2	25.4	76.6	74.6	78.8	28.8	22.3	37.8	19.7	11.7	28.1
20	Region 30	12.9	11.4	15.2	10.6	9.5	11.3	21.7	17.4	23.5	31.0	27.2	35.2	23.9	21.6	26.9	76.1	73.1	78.4	28.2	21.8	34.0	18.2	11.0	25.6
5	Region 31	11.6	10.8	13.1	10.6	10.3	11.1	22.1	17.8	25.2	31.6	25.8	35.3	24.2	22.7	25.4	75.8	74.6	77.3	28.4	25.7	31.9	18.1	13.5	22.7
7	Region 32	13.4	11.1	16.3	11.0	9.9	12.8	21.9	18.4	24.5	29.0	25.8	33.0	24.7	23.2	26.2	75.3	73.8	76.8	32.9	28.7	39.6	23.8	20.0	31.2
17	Region 33	13.5	12.0	15.2	10.8	10.1	11.4	21.5	17.3	25.1	30.7	25.7	34.5	23.5	21.7	26.2	76.5	73.8	78.3	29.7	24.1	34.4	20.2	14.9	25.2
26	Region 34	13.9	11.2	18.3	10.8	9.7	12.9	21.3	17.2	24.3	30.4	26.3	34.9	23.5	21.6	25.6	76.5	74.4	78.4	32.3	24.3	38.5	22.0	11.8	31.4
7	Region 35	12.0	9.1	14.5	10.7	9.6	11.7	21.9	17.6	24.3	31.6	29.1	36.4	23.7	21.4	29.6	76.3	70.4	78.6	28.0	22.3	32.7	18.2	13.0	21.9
14	Region 36	12.5	10.7	13.6	10.3	9.4	11.0	22.8	21.3	23.9	30.8	28.5	33.9	23.6	19.5	25.6	76.4	74.4	80.5	28.7	25.2	34.1	18.7	14.8	24.4
233	Ave. WM1	13.0	7.7	18.3	10.8	8.6	13.4	21.5	17.0	25.7	31.0	23.1	36.5	23.7	19.5	30.2	76.3	69.8	80.5	30.1	19.8	39.6	20.4	7.4	36.6
	Min. WM1																								
	Max. WM1																								

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (continue)

Number of samples	Region	Roff Milling																		Whiteness Index						
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			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																										
5	Region 13	12.2	11.0	14.3	10.8	10.5	11.1	19.6	17.0	20.6	32.0	28.9	34.3	25.4	23.4	28.7	74.6	71.3	76.6	28.4	24.4	32.4	18.3	16.0	23.3	
9	Region 14	12.8	10.9	14.7	11.1	10.4	11.8	20.9	19.0	23.4	31.3	27.6	34.6	24.0	22.6	26.1	76.0	73.9	77.4	33.0	30.2	35.5	23.8	21.2	25.3	
1	Region 15	13.6	-	-	11.0	-	-	22.4	-	-	28.4	-	-	24.6	-	-	75.4	-	-	31.3	-	-	22.9	-	-	
1	Region 16	13.4	-	-	12.2	-	-	22.9	-	-	29.5	-	-	22.0	-	-	78.0	-	-	35.5	-	-	26.6	-	-	
4	Region 17	13.2	11.7	14.6	10.9	10.6	11.8	21.5	19.5	23.4	30.7	29.7	32.1	23.7	21.9	26.1	76.3	73.9	78.1	29.8	27.2	34.0	18.7	14.1	25.1	
6	Region 18	13.0	11.2	14.6	10.7	10.2	11.1	20.6	18.8	23.0	31.3	26.2	33.8	24.4	22.6	26.8	75.6	73.2	77.4	27.6	25.8	29.4	17.6	15.5	20.4	
1	Region 19	13.1	-	-	10.7	-	-	19.8	-	-	32.8	-	-	23.6	23.6	23.6	76.4	-	-	33.6	-	-	23.4	-	-	
3	Region 20	12.1	11.0	13.0	11.5	11.1	11.8	22.5	20.6	23.5	30.6	28.8	32.4	23.3	23.1	23.5	76.7	76.5	76.9	31.3	28.3	33.8	20.7	14.4	25.3	
2	Region 21	12.2	11.7	12.8	10.2	9.7	10.7	21.1	18.9	23.3	33.3	33.3	33.4	23.1	21.9	24.3	76.9	75.7	78.1	27.5	25.9	29.1	18.5	18.1	19.0	
16	Region 22	13.4	12.4	15.5	11.4	11.1	11.8	21.5	19.4	23.3	29.5	26.3	32.5	24.2	22.8	26.0	75.8	74.0	77.2	34.6	32.0	40.1	24.3	20.7	27.3	
12	Region 23	13.0	10.7	14.8	11.3	9.4	12.6	22.3	20.1	23.8	30.2	26.6	33.4	23.2	21.5	24.9	76.8	75.1	78.5	31.9	25.7	34.1	22.2	20.3	24.5	
5	Region 24	14.8	13.6	16.6	11.4	11.1	12.2	20.5	19.8	21.1	28.3	25.1	30.4	24.9	23.8	26.8	75.1	73.2	76.2	29.4	27.2	32.1	19.4	16.7	23.5	
2	Region 26	11.4	7.6	15.3	10.2	8.9	11.6	20.2	18.8	21.6	35.3	30.1	40.4	22.9	21.6	24.1	77.1	75.9	78.4	22.3	18.0	26.6	11.8	7.8	15.7	
5	Region 28	13.4	11.2	15.0	10.7	10.5	11.0	22.5	21.4	24.0	30.0	28.5	31.9	23.4	21.4	25.2	76.6	74.8	78.6	25.1	20.5	29.4	14.4	11.9	18.0	
2	Region 29	13.5	12.6	14.5	10.6	10.3	10.9	23.5	23.4	23.6	27.6	27.4	27.8	24.8	23.9	25.8	75.2	74.2	76.1	27.4	25.5	29.3	18.1	16.2	20.0	
4	Region 30	13.5	11.4	15.3	10.8	10.4	11.2	23.9	23.2	24.8	29.9	28.1	31.2	21.9	20.7	22.5	78.1	77.5	79.3	23.3	10.0	30.1	12.0	-1.7	17.8	
2	Region 31	13.1	12.6	13.5	10.6	10.1	11.0	20.4	18.8	22.0	29.0	26.9	31.1	26.9	22.3	31.6	73.1	68.4	77.7	28.5	25.1	31.8	19.2	16.1	22.3	
2	Region 32	14.0	13.9	14.0	10.9	10.7	11.1	22.1	20.7	23.5	29.2	28.0	30.4	23.8	23.8	23.9	76.2	76.1	76.2	29.5	29.0	30.0	19.0	18.2	19.8	
3	Region 33	14.3	13.4	15.9	11.2	10.7	11.8	23.6	22.4	24.2	27.5	25.8	28.5	23.3	22.2	25.3	76.7	74.7	77.8	29.0	23.5	32.4	16.3	9.7	20.6	
2	Region 34	12.9	11.4	14.4	10.6	10.6	10.7	20.5	19.2	21.9	31.5	28.7	34.2	24.5	24.4	24.5	75.5	75.5	75.6	32.9	30.0	35.7	22.5	20.8	24.2	
5	Region 36	12.9	10.9	14.1	10.8	10.1	11.3	22.3	21.7	22.8	30.2	28.4	33.3	23.8	23.2	25.0	76.2	75.0	76.8	27.6	26.2	30.1	17.9	14.9	21.5	
92	Ave. WM2	13.2			11.0			21.6			30.3			23.9			76.1			30.2			20.1			
	Min. WM2		7.6			8.9		17.0		24.8		25.1	40.4		20.7		68.4		79.3	10.0		40.1	-1.7		27.3	
	Max. WM2			16.6			12.6								31.6											

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (continue)

Number of samples	Region	Roff Milling																		Whiteness Index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			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																									
1	Region 12	11.9	-	-	10.8	-	-	18.7	-	-	32.2	-	-	26.4	-	-	73.6	-	-	34.4	-	-	25.8	-	-
2	Region 13	11.8	9.8	13.9	10.9	10.3	11.5	19.1	18.5	19.7	33.2	29.9	36.6	24.9	23.7	26.2	75.1	73.8	76.3	26.1	23.0	29.2	14.5	12.7	16.3
3	Region 14	12.5	11.5	13.2	10.8	10.6	10.9	19.2	18.2	19.9	32.1	30.5	34.3	25.4	24.1	27.2	74.6	72.8	75.9	32.8	28.3	35.2	22.8	18.6	25.1
1	Region 15	14.5	-	-	11.3	-	-	23.3	-	-	27.3	-	-	23.6	-	-	76.4	-	-	31.5	-	-	21.4	-	-
3	Region 16	13.8	11.4	16.4	11.2	10.6	11.6	21.3	20.8	22.3	28.3	22.6	33.7	25.4	23.4	28.9	74.6	71.1	76.6	33.1	30.3	35.0	23.8	21.1	26.9
3	Region 19	11.5	10.5	13.4	10.7	9.8	11.4	19.6	19.4	19.8	33.1	30.3	34.7	25.2	24.5	25.8	74.8	74.2	75.5	28.3	25.3	30.1	19.1	16.8	20.7
1	Region 21	13.5	-	-	11.7	-	-	22.8	22.8	22.8	29.0	-	-	23.1	-	-	76.9	-	-	36.6	-	-	25.2	-	-
4	Region 22	14.9	14.3	15.8	12.0	11.3	12.4	21.6	20.9	22.1	26.5	25.7	28.3	25.0	24.1	25.7	75.0	74.3	75.9	35.8	33.8	38.7	25.5	22.0	28.7
14	Region 23	14.5	13.1	15.8	11.7	10.9	12.7	22.0	17.6	24.7	27.9	24.2	31.4	24.0	21.0	26.0	76.0	74.0	79.0	32.7	25.1	36.4	23.2	16.4	27.0
1	Region 24	12.3	-	-	11.0	-	-	22.4	-	-	30.4	-	-	24.0	-	-	76.0	-	-	32.6	-	-	22.7	-	-
1	Region 26	9.9	-	-	10.0	-	-	22.8	-	-	34.5	-	-	22.8	-	-	77.2	-	-	11.0	-	-	-0.3	-	-
1	Region 30	14.5	-	-	11.2	-	-	22.7	-	-	29.1	-	-	22.5	-	-	77.5	-	-	21.2	-	-	7.7	-	-
2	Region 33	13.3	12.5	14.0	10.5	10.4	10.6	23.0	22.7	23.3	28.2	26.6	29.9	25.0	24.5	25.5	75.0	74.5	75.5	22.5	16.8	28.2	11.9	6.1	17.7
2	Region 34	12.7	11.0	14.4	11.1	11.1	11.1	19.0	18.7	19.2	32.7	31.2	34.3	24.5	24.1	24.9	75.5	75.1	75.9	30.7	27.7	33.8	21.9	17.3	26.6
2	Region 35	11.8	10.9	12.7	11.0	10.6	11.4	20.9	20.0	21.8	33.1	32.3	34.0	23.1	22.7	23.6	76.9	76.4	77.3	28.4	27.3	29.5	19.9	19.6	20.1
1	Region 36	14.0	-	-	10.4	-	-	22.2	-	-	28.1	-	-	25.2	-	-	74.8	-	-	25.4	-	-	12.2	-	-
42	Ave. WM3	13.5	9.8	16.4	11.3	9.8	12.7	21.3	17.6	24.7	29.6	22.6	36.6	24.4	21.0	28.9	75.6	71.1	79.0	30.8	11.0	38.7	20.8	-0.3	28.7
Min. WM3																									
Max. WM3																									
CLASS: COM																									
3	Region 13	13.5	12.8	13.9	11.0	10.7	11.5	18.5	17.5	19.8	30.1	28.5	32.2	27.0	26.3	28.3	73.0	71.7	73.7	24.2	8.4	32.6	12.7	-5.2	22.5
5	Region 14	12.9	11.3	14.0	11.2	10.5	11.9	20.4	18.8	21.5	31.7	29.0	34.3	23.9	22.2	27.6	76.1	72.4	77.8	32.4	29.3	36.3	23.9	20.8	29.3
1	Region 15	14.0	-	-	11.5	-	-	22.0	-	-	26.4	-	-	26.0	-	-	74.0	-	-	31.6	-	-	20.3	-	-
3	Region 16	14.3	10.4	17.1	12.0	11.5	12.8	20.9	19.4	22.6	26.5	21.1	32.8	26.3	21.3	30.7	73.7	69.3	78.7	35.1	31.8	38.9	23.5	20.7	26.3
2	Region 17	13.3	12.6	13.9	11.2	11.0	11.3	19.6	19.4	19.8	29.6	29.2	30.0	26.4	25.3	27.6	73.6	72.4	74.7	21.2	19.9	22.5	12.4	12.2	12.6
1	Region 18	13.6	-	-	10.8	-	-	17.2	-	-	32.5	-	-	25.9	-	-	74.1	-	-	6.3	-	-	-3.6	-	-
1	Region 19	10.1	-	-	10.2	-	-	20.6	-	-	35.5	-	-	23.5	-	-	76.5	-	-	25.6	-	-	14.9	-	-
1	Region 21	13.1	-	-	10.7	-	-	22.2	-	-	29.3	-	-	24.7	-	-	75.3	-	-	33.5	-	-	26.0	-	-
3	Region 22	15.4	14.2	16.4	11.8	11.4	12.1	22.2	21.1	23.1	26.3	24.2	28.6	24.4	22.8	27.0	75.6	73.0	77.2	32.9	27.0	37.6	21.3	16.4	25.4
8	Region 23	15.7	14.6	16.9	12.0	11.3	12.8	19.7	18.4	21.7	23.6	20.1	28.4	29.1	23.9	32.3	70.9	67.7	76.1	35.0	32.4	39.1	24.1	21.7	27.2

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (continue)

Number of samples	Region	Roff Milling															Whiteness index								
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			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.
CLASS: COM																									
1	Region 24	15.8	-	-	12.0	-	-	20.6	-	-	24.8	-	-	26.9	-	-	73.1	-	-	29.7	-	-	20.2	-	-
1	Region 31	13.6	-	-	11.2	-	-	19.9	-	-	31.3	-	-	24.0	-	-	76.0	-	-	30.7	-	-	19.7	-	-
1	Region 32	13.8	-	-	11.4	-	-	20.0	-	-	31.3	-	-	23.6	-	-	76.4	-	-	32.8	-	-	24.2	-	-
2	Region 34	12.6	10.6	14.6	10.4	10.2	10.6	20.9	17.6	24.3	31.1	30.9	31.2	25.0	24.0	26.0	75.0	74.0	76.0	31.7	28.2	35.2	18.6	15.8	21.4
2	Region 35	11.2	10.3	12.2	10.1	10.0	10.1	21.8	21.0	22.7	33.4	31.9	34.8	23.5	23.2	23.8	76.5	76.2	76.8	17.5	3.0	32.0	5.0	-7.7	17.6
2	Region 36	12.7	12.3	13.0	10.8	10.8	10.9	20.8	19.6	22.0	32.9	31.9	33.8	22.8	22.8	22.8	77.2	77.2	77.2	31.1	30.6	31.6	22.1	22.0	22.2
37	Ave. COM	13.9	10.1	17.1	11.3	10.0	12.8	20.3	17.2	24.3	28.6	20.1	35.5	25.8	21.3	32.3	74.2	67.7	78.7	30.1	3.0	39.1	19.5	-7.7	29.3
404 Ave. white maize																									
	Min. white maize	13.2	7.6	18.3	10.9	8.6	13.4	21.4	17.0	25.7	30.5	20.1	40.4	24.0	19.5	32.3	76.0	67.7	80.5	30.2	3.0	40.1	20.3	-7.7	36.6
	Max. white maize																								

TABLE 18: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE (2018/19)

Number of samples	Region	Roff Milling																		Whiteness Index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			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																									
4	Region 11	12.6	12.2	12.9	10.3	10.2	10.4	20.0	18.3	23.1	34.2	31.4	35.2	22.9	21.8	23.5	77.1	76.5	78.2	30.5	29.9	31.3	21.5	21.4	21.8
10	Region 12	11.6	7.7	14.2	10.6	8.6	11.8	20.4	17.0	23.5	33.1	29.8	36.5	24.3	22.0	30.2	75.7	69.8	78.0	30.1	23.1	34.4	21.2	12.8	27.9
17	Region 13	12.5	9.8	14.3	10.8	10.3	11.5	19.6	17.0	20.9	32.2	28.5	36.6	25.0	22.5	28.7	75.0	71.3	77.5	27.4	8.4	32.9	17.0	-5.2	23.3
30	Region 14	12.9	10.7	15.9	11.1	10.3	12.2	21.0	18.2	24.5	31.1	23.1	35.4	24.0	21.1	27.6	76.0	72.4	78.9	32.5	21.5	36.3	23.1	13.9	29.3
5	Region 15	14.1	13.1	15.3	11.2	10.9	11.5	22.5	21.9	23.3	27.5	26.3	29.0	24.7	23.6	26.0	75.3	74.0	76.4	31.6	30.5	33.3	21.7	20.3	22.9
11	Region 16	13.7	10.4	17.1	11.6	10.6	12.8	21.5	19.4	22.9	28.4	21.1	33.7	24.8	21.2	30.7	75.2	69.3	78.8	33.7	28.2	38.9	24.7	17.6	36.6
16	Region 17	13.2	11.7	14.8	11.0	10.5	11.8	20.3	17.1	25.7	31.2	26.9	33.4	24.3	20.9	27.7	75.7	72.3	79.1	28.6	19.9	34.0	18.4	12.2	25.1
11	Region 18	12.9	10.6	14.6	10.7	10.2	11.1	20.4	17.2	23.0	31.6	26.2	35.7	24.4	22.6	26.8	75.6	73.2	77.4	26.5	6.3	32.0	16.3	-3.6	20.5
14	Region 19	12.1	10.1	14.4	10.9	9.8	13.4	20.0	18.7	21.2	32.7	29.9	36.1	24.3	21.9	27.3	75.7	72.7	78.1	29.6	23.5	33.6	19.8	12.5	23.6
13	Region 20	13.2	11.0	14.9	11.2	9.8	11.8	20.9	19.2	23.5	30.8	27.9	33.1	23.9	22.7	24.9	76.1	75.1	77.3	31.7	28.2	36.3	21.8	14.4	25.9
20	Region 21	12.8	10.3	15.7	10.7	9.3	11.7	21.6	18.2	24.3	31.2	27.6	36.4	23.7	20.4	25.9	76.3	74.1	79.6	29.2	21.9	36.6	19.6	10.9	27.6
31	Region 22	13.9	12.4	16.4	11.5	11.1	12.4	21.5	19.3	23.3	28.8	24.2	32.8	24.2	22.6	27.0	75.8	73.0	77.4	34.4	27.0	40.1	24.0	16.4	28.7
41	Region 23	14.2	10.7	16.9	11.6	9.4	12.8	21.5	17.6	24.7	28.1	20.1	33.4	24.7	21.0	32.3	75.3	67.7	79.0	33.0	25.1	39.1	23.0	16.4	27.2
13	Region 24	13.6	10.4	16.6	11.0	9.3	12.2	21.7	19.8	24.3	29.5	24.8	34.1	24.1	21.0	26.9	75.9	73.1	79.0	29.1	19.8	32.6	18.9	7.4	23.5
7	Region 26	12.0	7.6	15.3	10.3	8.9	11.6	20.6	18.6	22.8	33.1	28.8	40.4	24.0	21.6	25.5	76.0	74.5	78.4	23.0	11.0	30.8	13.6	-0.3	23.2
2	Region 27	14.3	12.8	15.7	11.1	11.0	11.2	19.1	17.8	20.3	30.2	26.2	34.3	25.3	21.5	29.1	74.7	70.9	78.5	32.8	32.1	33.4	23.2	22.4	24.0
14	Region 28	13.1	11.2	15.8	10.8	9.9	11.8	23.0	21.2	25.4	30.9	28.5	34.7	22.1	20.3	25.2	77.9	74.8	79.7	27.3	20.5	31.5	17.7	11.9	24.0
15	Region 29	12.5	10.5	16.3	10.3	9.5	11.2	23.0	20.3	24.3	30.7	27.4	33.9	23.6	21.2	25.8	76.4	74.2	78.8	28.6	22.3	37.8	19.5	11.7	28.1
25	Region 30	13.0	11.4	15.3	10.7	9.5	11.3	22.1	17.4	24.8	30.7	27.2	35.2	23.5	20.7	26.9	76.5	73.1	79.3	27.2	10.0	34.0	16.8	-1.7	25.6
8	Region 31	12.2	10.8	13.6	10.6	10.1	11.2	21.4	17.8	25.2	30.9	25.8	35.3	24.9	22.3	31.6	75.1	68.4	77.7	28.7	25.1	31.9	18.6	13.5	22.7
10	Region 32	13.5	11.1	16.3	11.0	9.9	12.8	21.7	18.4	24.5	29.3	25.8	33.0	24.4	23.2	26.2	75.6	73.8	76.8	32.2	28.7	39.6	22.9	18.2	31.2
22	Region 33	13.6	12.0	15.9	10.8	10.1	11.8	21.9	17.3	25.1	30.0	25.7	34.5	23.6	21.7	26.2	76.4	73.8	78.3	28.9	16.8	34.4	18.9	6.1	25.2
32	Region 34	13.7	10.6	18.3	10.8	9.7	12.9	21.1	17.2	24.3	30.7	26.3	34.9	23.7	21.6	26.0	76.3	74.0	78.4	32.2	24.3	38.5	21.8	11.8	31.4
11	Region 35	11.8	9.1	14.5	10.6	9.6	11.7	21.7	17.6	24.3	32.2	29.1	36.4	23.6	21.4	29.6	76.4	70.4	78.6	26.2	3.0	32.7	16.1	-7.7	21.9
22	Region 36	12.6	10.7	14.1	10.5	9.4	11.3	22.5	19.6	23.9	30.7	28.1	33.9	23.7	19.5	25.6	76.3	74.4	80.5	28.5	25.2	34.1	18.5	12.2	24.4
404	Ave. white	13.2	7.6	18.3	10.9	8.6	13.4	21.4	17.0	25.7	30.5	20.1	40.4	24.0	19.5	32.3	76.0	67.7	80.5	30.2	3.0	40.1	20.3	-7.7	36.6
	Min. white																								
	Max. white																								

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2018/19)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)													
Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)			Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		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														GRADE: YM1													
-	Region 03	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 03	3.7	-	-	8.7	-	-	74.5	-	-	1.8	-	-
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	-	19	Region 10	3.7	3.3	4.2	8.4	7.9	9.1	74.3	73.5	75.2	1.7	1.6	1.9
4	Region 11	3.8	3.8	3.9	8.8	8.6	8.9	74.7	74.4	74.9	1.8	1.8	1.8	15	Region 11	3.6	3.4	3.9	8.6	8.1	9.2	74.4	73.4	75.2	1.8	1.7	2.0
9	Region 12	4.3	4.0	5.3	9.7	8.2	12.3	73.1	69.7	74.8	1.9	1.8	2.1	1	Region 12	4.4	-	-	10.8	-	-	72.1	-	-	1.9	-	-
7	Region 13	4.2	4.0	4.5	9.5	9.1	10.3	73.6	72.5	74.3	2.0	1.9	2.1	1	Region 13	4.2	-	-	9.5	-	-	72.6	-	-	2.0	-	-
13	Region 14	4.0	3.6	4.5	9.1	8.6	10.5	73.6	71.5	75.2	1.9	1.8	2.1	3	Region 14	4.1	4.0	4.2	9.7	8.9	10.2	72.1	71.9	72.3	2.0	2.0	2.1
2	Region 15	4.4	3.7	5.1	8.7	8.5	8.8	74.3	74.1	74.6	1.9	1.8	2.0	2	Region 15	3.7	3.6	3.7	9.6	8.8	10.5	72.9	72.3	73.5	2.0	2.0	2.0
4	Region 16	4.6	4.3	5.2	8.6	7.5	9.3	74.2	73.3	75.3	1.9	1.8	2.0	4	Region 16	3.9	3.8	4.0	9.0	8.5	9.4	73.5	72.7	74.0	1.9	1.9	2.0
10	Region 17	4.0	3.9	4.1	8.7	8.1	9.3	74.2	73.3	74.9	1.8	1.8	1.9	1	Region 17	4.0	-	-	9.5	-	-	72.7	-	-	2.0	-	-
4	Region 18	4.2	4.0	4.4	8.9	8.6	9.3	73.8	72.2	74.7	1.8	1.8	1.9	1	Region 18	4.4	-	-	9.4	-	-	72.0	-	-	1.9	-	-
9	Region 19	4.1	3.8	4.5	9.0	8.4	10.0	73.7	73.1	74.3	1.9	1.8	2.0	3	Region 19	4.1	3.9	4.2	9.3	9.2	9.5	72.9	72.5	73.2	1.9	1.8	1.9
10	Region 20	3.9	3.6	4.3	8.9	8.3	9.5	74.0	72.6	74.8	1.9	1.8	2.1	3	Region 20	4.0	3.8	4.2	8.9	8.7	9.3	73.3	72.9	73.9	1.9	1.9	2.0
16	Region 21	4.1	3.6	4.8	9.1	8.3	9.9	73.6	72.4	75.0	1.9	1.9	2.0	7	Region 21	4.0	3.6	4.3	9.4	8.9	10.3	72.5	71.6	73.9	2.0	1.8	2.1
8	Region 22	3.9	3.7	4.0	8.7	8.4	8.9	74.2	73.2	74.9	2.0	1.9	2.0	1	Region 22	3.9	-	-	10.2	-	-	72.1	-	-	2.1	-	-
7	Region 23	3.8	3.6	3.9	8.7	7.6	9.5	74.3	74.0	74.6	1.9	1.9	2.0	2	Region 23	3.8	3.7	4.0	9.2	9.1	9.3	72.5	72.4	72.5	2.0	1.9	2.1
6	Region 24	4.0	4.0	4.3	9.1	8.7	9.8	73.8	73.2	74.3	1.9	1.9	2.0	11	Region 24	4.1	3.8	4.5	9.6	8.7	11.4	72.4	70.7	74.0	2.0	1.8	2.2
-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-	6	Region 25	3.9	3.7	4.1	9.1	7.7	10.6	72.7	71.3	74.1	1.9	1.9	2.0
4	Region 26	4.3	3.9	4.5	8.6	8.1	8.9	73.9	73.2	74.4	1.9	1.8	2.0	15	Region 26	4.0	3.6	4.8	9.5	8.8	11.0	72.2	70.2	73.0	2.0	1.9	2.1
2	Region 27	3.8	3.7	3.8	8.1	7.9	8.4	74.3	74.1	74.4	1.9	1.9	2.0	7	Region 27	4.0	3.8	4.2	9.1	8.5	10.3	73.0	71.2	73.6	1.9	1.9	2.0
9	Region 28	4.0	3.7	4.4	8.8	8.0	9.8	74.0	73.0	75.1	1.9	1.8	2.0	28	Region 28	4.0	3.6	4.4	9.5	8.7	10.4	72.4	70.6	73.7	1.9	1.9	2.1
13	Region 29	3.9	3.6	4.3	9.4	7.9	10.6	73.2	71.6	75.1	1.9	1.8	2.0	26	Region 29	4.0	3.7	4.3	9.7	8.1	10.7	72.2	70.9	73.9	2.0	1.8	2.1
20	Region 30	3.9	3.7	4.5	8.8	8.1	9.4	73.6	72.5	74.3	1.9	1.8	1.9	33	Region 30	4.0	3.6	4.9	9.0	6.7	10.7	72.6	70.8	73.7	2.0	1.8	2.1
5	Region 31	3.9	3.7	4.0	9.6	9.4	10.1	72.4	72.1	73.0	1.9	1.8	2.1	31	Region 31	3.9	3.5	4.5	9.3	7.9	10.5	72.6	71.3	74.5	2.0	1.8	2.0
7	Region 32	3.7	3.5	3.8	8.7	8.2	9.4	74.0	73.5	74.8	1.9	1.8	2.0	26	Region 32	4.0	3.5	4.5	9.3	8.7	10.0	72.4	71.5	74.8	2.0	1.9	2.2
17	Region 33	4.0	3.7	4.2	8.6	7.8	9.1	73.9	72.8	75.4	1.9	1.8	2.0	15	Region 33	3.8	3.4	4.3	8.5	6.8	9.4	73.1	71.6	74.4	2.0	1.9	2.1
26	Region 34	3.8	3.6	4.4	8.7	7.4	9.7	73.9	72.5	74.8	1.9	1.8	2.0	21	Region 34	3.9	3.4	4.5	9.2	8.2	10.4	72.8	71.5	74.2	2.0	1.9	2.1
7	Region 35	4.2	3.8	4.5	9.1	8.2	10.8	73.6	70.5	74.7	1.9	1.8	2.0	9	Region 35	4.2	3.8	5.0	9.7	8.4	10.5	71.9	70.2	73.7	2.0	1.9	2.2
14	Region 36	3.9	3.6	4.6	8.9	8.2	9.9	74.0	72.5	75.1	1.8	1.7	2.0	17	Region 36	4.0	3.5	4.6	8.6	7.3	9.6	73.3	71.8	74.3	1.9	1.9	2.1
233	Ave. WM1	4.0			8.9			73.8			1.9			309	Ave. YM1	3.9			9.2			72.8			1.9		
	Min. WM1														Min. YM1												
	Max. WM1		3.5	5.3	7.4	12.3		69.7		75.4	1.7		2.1		Max. YM1		3.3	5.0	6.7		11.4	70.2		75.2	1.6		2.2

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2018/19) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (continue)																	
Number of samples		Region		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)			Number of samples		Region		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
				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														GRADE: YM2																	
5		Region 13	4.4	4.2	4.6	9.5	8.6	10.2	73.3	72.2	74.2	2.0	2.0	2.1	1		Region 13	4.1	-	-	10.2	-	-	73.3	-	-	1.9	-	-		
9		Region 14	4.0	3.7	4.1	9.1	8.5	10.1	73.6	71.3	74.7	2.0	1.9	2.1	3		Region 14	4.1	4.1	4.2	10.0	9.5	10.7	71.5	70.4	72.7	2.0	1.9	2.2		
1		Region 15	3.9	-	-	9.2	-	-	73.5	-	-	1.9	-	-	-		Region 15	-	-	-	-	-	-	-	-	-	-	-	-		
1		Region 16	3.9	-	-	8.4	-	-	74.4	-	-	2.0	-	-	2		Region 16	4.2	4.1	4.3	9.4	8.8	10.0	72.5	71.5	73.4	2.1	2.1	2.1		
4		Region 17	4.0	3.9	4.2	9.0	8.0	9.9	73.8	71.8	74.7	1.9	1.8	2.0	1		Region 17	4.3	-	-	10.1	-	-	72.4	-	-	1.9	-	-		
6		Region 18	4.3	4.0	4.9	8.7	7.7	9.9	73.6	71.0	74.5	1.9	1.8	2.0	1		Region 18	4.1	-	-	8.9	-	-	72.7	-	-	2.0	-	-		
1		Region 19	3.7	-	-	8.4	-	-	74.7	-	-	1.8	-	-	-		Region 19	-	-	-	-	-	-	-	-	-	-	-	-		
3		Region 20	3.9	3.9	3.9	9.1	8.7	9.5	74.1	73.5	74.7	1.9	1.9	2.0	1		Region 20	4.0	-	-	8.9	-	-	73.6	-	-	2.1	-	-		
2		Region 21	4.3	4.2	4.3	9.2	9.1	9.2	73.7	73.3	74.1	2.0	1.9	2.0	-		Region 21	-	-	-	-	-	-	-	-	-	-	-	-		
16		Region 22	3.9	3.6	4.2	8.7	8.4	9.1	73.9	72.8	74.3	1.9	1.8	2.0	1		Region 22	4.2	-	-	9.1	-	-	73.8	-	-	1.9	-	-		
12		Region 23	3.9	3.7	4.2	9.1	8.3	10.5	73.8	71.9	74.7	2.0	1.9	2.1	1		Region 23	3.8	-	-	10.3	-	-	72.2	-	-	2.0	-	-		
5		Region 24	4.1	3.5	5.0	8.5	8.0	8.7	73.4	72.4	74.6	2.0	1.9	2.1	1		Region 24	4.1	-	-	10.8	-	-	70.8	-	-	2.1	-	-		
2		Region 26	4.4	3.8	5.0	10.1	8.4	11.7	71.9	69.7	74.1	2.0	2.0	2.0	6		Region 26	4.0	3.9	4.1	9.9	9.2	11.3	71.7	70.6	72.6	2.0	1.9	2.2		
-		Region 27	-	-	-	-	-	-	-	-	-	-	-	-	2		Region 27	4.0	3.8	4.2	9.3	8.8	9.7	72.5	72.0	73.0	1.9	1.9	1.9		
5		Region 28	3.9	3.7	4.2	9.0	8.1	9.6	73.5	73.1	74.4	1.9	1.8	2.0	5		Region 28	3.9	3.7	4.3	9.2	8.2	10.3	72.9	70.9	74.0	2.0	1.9	2.2		
2		Region 29	3.9	3.8	4.0	9.3	8.8	9.9	73.4	72.4	74.4	1.9	1.8	2.1	3		Region 29	3.8	3.6	4.0	9.7	8.9	10.8	72.2	71.3	72.9	2.0	2.0	2.2		
4		Region 30	4.0	3.6	4.3	8.6	8.2	9.0	74.1	73.2	75.1	1.9	1.8	2.0	1		Region 30	4.0	-	-	9.3	-	-	72.2	-	-	2.0	-	-		
2		Region 31	4.0	3.9	4.2	9.1	8.3	9.9	73.1	72.5	73.7	2.0	1.9	2.1	2		Region 31	3.9	3.7	4.0	9.6	9.0	10.2	72.4	71.8	73.0	2.0	1.9	2.0		
2		Region 32	3.8	3.8	3.9	8.7	8.6	8.8	73.5	73.1	73.8	1.9	1.9	2.0	1		Region 32	4.2	-	-	9.4	-	-	71.8	-	-	2.1	-	-		
3		Region 33	3.8	3.7	3.9	8.5	7.9	9.0	74.6	74.1	75.2	1.9	1.8	2.0	2		Region 33	3.6	3.4	3.7	8.7	8.6	8.7	73.0	72.8	73.2	2.1	2.1	2.2		
2		Region 34	3.8	3.7	3.9	9.2	8.3	10.0	73.3	72.2	74.5	1.9	1.8	1.9	7		Region 34	3.8	3.5	4.2	9.1	8.7	9.6	72.8	72.1	73.6	2.0	1.9	2.0		
5		Region 36	3.8	3.6	4.1	8.5	8.0	9.2	74.1	73.5	74.5	1.9	1.8	2.0	6		Region 36	3.9	3.6	4.3	8.8	8.3	9.4	73.5	72.6	74.5	1.9	1.8	2.0		
92		Ave. WM2	4.0	3.5	5.0	8.9	7.7	11.7	73.7	69.7	75.2	1.9	1.8	2.1	47		Ave. YM2	4.0	3.4	4.3	9.4	8.2	11.3	72.6	70.4	74.5	2.0	1.8	2.2		
		Min. WM2															Min. YM2														
		Max. WM2															Max. YM2														

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (continue)													
Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2													
1	Region 13	4.1	-	-	10.2	-	-	73.3	-	-	1.9	-	-
3	Region 14	4.1	4.1	4.2	10.0	9.5	10.7	71.5	70.4	72.7	2.0	1.9	2.2
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 16	4.2	4.1	4.3	9.4	8.8	10.0	72.5	71.5	73.4	2.1	2.1	2.1
1	Region 17	4.3	-	-	10.1	-	-	72.4	-	-	1.9	-	-
1	Region 18	4.1	-	-	8.9	-	-	72.7	-	-	2.0	-	-
-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 20	4.0	-	-	8.9	-	-	73.6	-	-	2.1	-	-
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	4.2	-	-	9.1	-	-	73.8	-	-	1.9	-	-
1	Region 23	3.8	-	-	10.3	-	-	72.2	-	-	2.0	-	-
1	Region 24	4.1	-	-	10.8	-	-	70.8	-	-	2.1	-	-
6	Region 26	4.0	3.9	4.1	9.9	9.2	11.3	71.7	70.6	72.6	2.0	1.9	2.2
2	Region 27	4.0	3.8	4.2	9.3	8.8	9.7	72.5	72.0	73.0	1.9	1.9	1.9
5	Region 28	3.9	3.7	4.3	9.2	8.2	10.3	72.9	70.9	74.0	2.0	1.9	2.2
3	Region 29	3.8	3.6	4.0	9.7	8.9	10.8	72.2	71.3	72.9	2.0	2.0	2.2
1	Region 30	4.0	-	-	9.3	-	-	72.2	-	-	2.0	-	-
2	Region 31	3.9	3.7	4.0	9.6	9.0	10.2	72.4	71.8	73.0	2.0	1.9	2.0
1	Region 32	4.2	-	-	9.4	-	-	71.8	-	-	2.1	-	-
2	Region 33	3.6	3.4	3.7	8.7	8.6	8.7	73.0	72.8	73.2	2.1	2.1	2.2
7	Region 34	3.8	3.5	4.2	9.1	8.7	9.6	72.8	72.1	73.6	2.0	1.9	2.0
6	Region 36	3.9	3.6	4.3	8.8	8.3	9.4	73.5	72.6	74.5	1.9	1.8	2.0
47	Ave. YM2	4.0	3.4	4.3	9.4	8.2	11.3	72.6	70.4	74.5	2.0	1.8	2.2
	Min. YM2												
	Max. YM2												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2018/19)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)													
(continue)														(continue)													
Number of samples		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)			Number of samples		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		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																											
-	Region 11	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 11	3.8	-	-	8.7	-	-	73.8	-	-	1.9	-	-
1	Region 12	4.3	-	-	10.4	-	-	71.6	-	-	2.2	-	-	-	Region 12	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 13	4.1	4.0	4.2	10.0	9.0	11.0	72.4	71.5	73.3	2.0	2.0	2.0	-	Region 13	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 14	4.4	3.9	4.8	9.5	9.4	9.6	72.8	72.6	73.0	2.1	2.0	2.1	-	Region 14	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 15	3.6	-	-	8.8	-	-	73.4	-	-	2.1	-	-	-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 16	4.1	3.8	4.7	8.9	8.4	9.8	73.0	72.6	73.5	2.1	2.0	2.2	-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 17	4.1	-	-	9.4	-	-	72.6	-	-	1.9	-	-
3	Region 19	4.1	3.8	4.5	9.4	8.8	10.3	72.9	71.6	73.8	1.9	1.8	2.0	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 20	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 20	3.8	-	-	8.6	-	-	72.9	-	-	2.1	-	-
1	Region 21	3.8	-	-	8.5	-	-	74.7	-	-	2.0	-	-	-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
4	Region 22	3.8	3.7	4.0	8.7	8.4	9.1	73.7	72.5	74.5	2.0	1.9	2.1	1	Region 22	3.9	-	-	8.8	-	-	74.0	-	-	1.9	-	-
14	Region 23	3.8	3.6	4.1	8.8	8.2	9.3	73.7	72.6	75.0	2.1	1.9	2.4	-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 24	3.9	-	-	8.9	-	-	74.5	-	-	1.9	-	-	1	Region 24	4.1	-	-	9.3	-	-	72.6	-	-	2.0	-	-
1	Region 26	4.2	-	-	9.9	-	-	73.6	-	-	2.0	-	-	-	Region 26	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 28	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 28	3.9	-	-	10.0	-	-	72.4	-	-	2.0	-	-
1	Region 30	3.7	-	-	8.3	-	-	74.7	-	-	1.9	-	-	1	Region 32	3.6	-	-	8.7	-	-	74.7	-	-	1.9	-	-
2	Region 33	3.7	3.4	4.0	9.1	8.7	9.4	73.7	73.1	74.3	2.0	1.9	2.1	-	Region 33	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 34	3.8	3.6	4.0	8.9	8.9	8.9	73.6	73.1	74.1	1.8	1.7	1.9	2	Region 34	3.9	3.5	4.3	9.1	8.9	9.3	72.6	72.5	72.6	2.1	2.0	2.3
2	Region 35	4.0	3.9	4.1	9.3	8.7	10.0	73.6	73.4	73.8	1.9	1.8	1.9	1	Region 35	3.4	-	-	9.6	-	-	73.9	-	-	1.8	-	-
1	Region 36	3.9	-	-	8.8	-	-	73.6	-	-	2.0	-	-	3	Region 36	3.9	3.5	4.2	9.0	7.7	9.7	72.9	72.0	74.4	2.0	1.8	2.1
42	Ave. WM3	3.9	3.4	4.8	9.1	8.2	11.0	73.5	71.5	75.0	2.0	1.7	2.4	13	Ave. YM3	3.8	3.4	4.3	9.1	7.7	10.0	73.1	72.0	74.7	2.0	1.8	2.3
	Min. WM3														Min. YM3												
	Max. WM3														Max. YM3												

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (continue)													
Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3													
1	Region 11	3.8	-	-	8.7	-	-	73.8	-	-	1.9	-	-
-	Region 12	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 13	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 14	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 17	4.1	-	-	9.4	-	-	72.6	-	-	1.9	-	-
-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 20	3.8	-	-	8.6	-	-	72.9	-	-	2.1	-	-
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	3.9	-	-	8.8	-	-	74.0	-	-	1.9	-	-
-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 24	4.1	-	-	9.3	-	-	72.6	-	-	2.0	-	-
-	Region 26	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 28	3.9	-	-	10.0	-	-	72.4	-	-	2.0	-	-
1	Region 32	3.6	-	-	8.7	-	-	74.7	-	-	1.9	-	-
-	Region 33	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 34	3.9	3.5	4.3	9.1	8.9	9.3	72.6	72.5	72.6	2.1	2.0	2.3
1	Region 35	3.4	-	-	9.6	-	-	73.9	-	-	1.8	-	-
3	Region 36	3.9	3.5	4.2	9.0	7.7	9.7	72.9	72.0	74.4	2.0	1.8	2.1
13	Ave. YM3	3.8	3.4	4.3	9.1	7.7	10.0	73.1	72.0	74.7	2.0	1.8	2.3
	Min. YM3												
	Max. YM3												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2018/19)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19)													
(continue)														(continue)													
Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)			Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.			ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM														CLASS: COM													
-	Region 11	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 11	3.8	-	-	9.2	-	-	73.3	-	-	1.8	-	-
3	Region 13	4.2	3.8	4.6	9.1	8.6	9.7	72.4	71.3	73.0	2.1	2.0	2.2	1	Region 13	3.9	-	-	8.3	-	-	73.0	-	-	2.1	-	-
5	Region 14	4.0	3.7	4.3	9.2	8.8	9.6	73.7	72.7	74.2	2.0	2.0	2.1	1	Region 14	4.2	-	-	9.6	-	-	72.2	-	-	2.0	-	-
1	Region 15	3.5	-	-	9.1	-	-	72.3	-	-	2.3	-	-	-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 16	4.0	3.7	4.2	9.5	8.4	10.3	72.8	70.9	73.9	2.2	2.0	2.4	-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 17	4.0	3.7	4.3	9.6	8.7	10.5	71.6	70.3	72.9	2.1	1.9	2.2	-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 18	3.6	-	-	8.3	-	-	73.2	-	-	2.3	-	-	1	Region 18	4.2	-	-	8.8	-	-	73.1	-	-	1.9	-	-
1	Region 19	4.5	-	-	10.0	-	-	72.6	-	-	1.9	-	-	1	Region 19	4.1	-	-	9.3	-	-	72.4	-	-	2.2	-	-
1	Region 21	4.1	-	-	8.8	-	-	74.3	-	-	2.0	-	-	-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 22	3.8	3.4	4.2	8.9	8.8	9.1	73.4	72.2	74.2	2.1	2.0	2.4	1	Region 22	4.0	-	-	9.5	-	-	72.2	-	-	1.9	-	-
8	Region 23	3.3	3.0	3.7	9.3	8.6	10.1	72.0	70.1	74.4	2.4	1.9	2.8	-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 24	4.1	-	-	8.1	-	-	74.6	-	-	1.8	-	-	3	Region 24	4.0	3.9	4.1	9.1	9.0	9.3	72.8	72.5	73.0	2.0	2.0	2.0
-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 25	3.9	-	-	8.6	-	-	72.8	-	-	1.9	-	-
-	Region 26	-	-	-	-	-	-	-	-	-	-	-	-	6	Region 26	4.1	3.9	4.2	9.6	8.9	11.0	72.1	70.8	72.8	2.1	1.9	2.3
-	Region 28	-	-	-	-	-	-	-	-	-	-	-	-	4	Region 28	4.3	4.2	4.4	9.9	9.7	10.1	71.3	71.0	71.8	2.0	2.0	2.1
-	Region 30	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 30	4.0	-	-	9.3	-	-	72.6	-	-	1.9	-	-
1	Region 31	3.8	-	-	8.8	-	-	73.5	-	-	1.9	-	-	1	Region 31	4.1	-	-	8.4	-	-	73.3	-	-	2.0	-	-
1	Region 32	3.8	-	-	8.5	-	-	74.0	-	-	2.0	-	-	3	Region 32	3.9	3.8	4.0	8.9	8.6	9.0	72.6	72.3	73.1	2.0	1.9	2.1
2	Region 34	3.8	3.7	3.8	9.3	8.6	10.1	73.3	72.4	74.2	1.9	1.8	2.0	7	Region 34	3.9	3.7	4.3	8.8	8.4	9.0	73.1	72.2	73.9	2.0	1.9	2.0
2	Region 35	4.1	4.0	4.3	9.4	8.6	10.2	72.6	72.4	72.9	1.9	1.7	2.0	-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 36	3.9	3.8	4.0	8.6	8.5	8.7	73.8	73.3	74.4	1.8	1.7	2.0	3	Region 36	3.8	3.7	4.0	8.8	8.2	9.4	73.6	72.5	74.2	1.9	1.9	1.9
37	Ave. COM	3.8			9.1			72.9			2.1			35	Ave. COM	4.0			9.1			72.6			2.0		
	Min. COM		3.0			8.1		70.1			1.7				Min. COM	3.7			8.2			70.8			1.8		
	Max. COM			4.6		10.5		74.6			2.8				Max. COM	4.4			11.0			74.2			2.3		
404	Ave. White	4.0			9.0			73.6			1.9			404	Min. Yellow	4.0			9.2			72.7			2.0		
	Min. White		3.0			7.4		69.7			1.7				Min. Yellow	3.3			6.7			70.2			1.6		
	Max. White			5.3		12.3		75.4			2.8				Max. Yellow	5.0			11.4			75.2			2.3		
808	Ave. Maize	4.0			9.1			73.2			1.9			808	Ave. Maize	4.0			9.1			73.2			1.9		
	Min. Maize		3.0			6.7		69.7			1.6				Min. Maize	3.0			6.7			69.7			1.6		
	Max. Maize			5.3		12.3		75.4			2.8				Max. Maize	5.3			12.3			75.4			2.8		

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2018/19) (continue)													
Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM													
1	Region 11	3.8	-	-	9.2	-	-	73.3	-	-	1.8	-	-
1	Region 13	3.9	-	-	8.3	-	-	73.0	-	-	2.1	-	-
1	Region 14	4.2	-	-	9.6	-	-	72.2	-	-	2.0	-	-
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 18	4.2	-	-	8.8	-	-	73.1	-	-	1.9	-	-
1	Region 19	4.1	-	-	9.3	-	-	72.4	-	-	2.2	-	-
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	4.0	-	-	9.5	-	-	72.2	-	-	1.9	-	-
-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 24	4.0	3.9	4.1	9.1	9.0	9.3	72.8	72.5	73.0	2.0	2.0	2.0
1	Region 25	3.9	-	-	8.6	-	-	72.8	-	-	1.9	-	-
6	Region 26	4.1	3.9	4.2	9.6	8.9	11.0	72.1	70.8	72.8	2.1	1.9	2.3
4	Region 28	4.3	4.2	4.4	9.9	9.7	10.1	71.3	71.0	71.8	2.0	2.0	2.1
1	Region 30	4.0	-	-	9.3	-	-	72.6	-	-	1.9	-	-
1	Region 31	4.1	-	-	8.4	-	-	73.3	-	-	2.0	-	-
3	Region 32	3.9	3.8	4.0	8.9	8.6	9.0	72.6	72.3	73.1	2.0	1.9	2.1
7	Region 34	3.9	3.7	4.3	8.8	8.4	9.0	73.1	72.2	73.9	2.0	1.9	2.0
-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 36	3.8	3.7	4.0	8.8	8.2	9.4	73.6	72.5	74.2	1.9	1.9	1.9
35	Ave. COM	4.0			9.1			72.6			2.0		
	Min. COM		3.7			8.2		70.8			1.8		
	Max. COM			4.4		11.0		74.2			2.3		
404	Min. Yellow	4.0			9.2			72.7			2.0		
	Min. Yellow		3.3			6.7		70.2			1.6		
	Max. Yellow			5.0		11.4		75.2			2.3		
808	Ave. Maize	4.0			9.1			73.2			1.9		
	Min. Maize		3.0			6.7		69.7			1.6		
	Max. Maize			5.3		12.3		75.4			2.8		

**TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW
MAIZE (2018/19)**

Number of samples Region		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
WHITE													
4	Region 11	3.8	3.8	3.9	8.8	8.6	8.9	74.7	74.4	74.9	1.8	1.8	1.8
10	Region 12	4.3	4.0	5.3	9.8	8.2	12.3	72.9	69.7	74.8	1.9	1.8	2.2
17	Region 13	4.2	3.8	4.6	9.5	8.6	11.0	73.2	71.3	74.3	2.0	1.9	2.2
30	Region 14	4.0	3.6	4.8	9.2	8.5	10.5	73.5	71.3	75.2	2.0	1.8	2.1
5	Region 15	4.0	3.5	5.1	8.9	8.5	9.2	73.6	72.3	74.6	2.0	1.8	2.3
11	Region 16	4.2	3.7	5.2	8.9	7.5	10.3	73.5	70.9	75.3	2.0	1.8	2.4
16	Region 17	4.0	3.7	4.3	8.9	8.0	10.5	73.8	70.3	74.9	1.9	1.8	2.2
11	Region 18	4.2	3.6	4.9	8.7	7.7	9.9	73.6	71.0	74.7	1.9	1.8	2.3
14	Region 19	4.1	3.7	4.5	9.1	8.4	10.3	73.5	71.6	74.7	1.9	1.8	2.0
13	Region 20	3.9	3.6	4.3	9.0	8.3	9.5	74.0	72.6	74.8	1.9	1.8	2.1
20	Region 21	4.1	3.6	4.8	9.1	8.3	9.9	73.7	72.4	75.0	1.9	1.9	2.0
31	Region 22	3.8	3.4	4.2	8.7	8.4	9.1	73.9	72.2	74.9	2.0	1.8	2.4
41	Region 23	3.7	3.0	4.2	9.0	7.6	10.5	73.5	70.1	75.0	2.1	1.9	2.8
13	Region 24	4.1	3.5	5.0	8.7	8.0	9.8	73.8	72.4	74.6	1.9	1.8	2.1
7	Region 26	4.3	3.8	5.0	9.2	8.1	11.7	73.3	69.7	74.4	1.9	1.8	2.0
2	Region 27	3.8	3.7	3.8	8.1	7.9	8.4	74.3	74.1	74.4	1.9	1.9	2.0
14	Region 28	4.0	3.7	4.4	8.9	8.0	9.8	73.8	73.0	75.1	1.9	1.8	2.0
15	Region 29	3.9	3.6	4.3	9.4	7.9	10.6	73.3	71.6	75.1	1.9	1.8	2.1
25	Region 30	3.9	3.6	4.5	8.7	8.1	9.4	73.8	72.5	75.1	1.9	1.8	2.0
8	Region 31	3.9	3.7	4.2	9.4	8.3	10.1	72.7	72.1	73.7	1.9	1.8	2.1
10	Region 32	3.7	3.5	3.9	8.7	8.2	9.4	73.9	73.1	74.8	1.9	1.8	2.0
22	Region 33	3.9	3.4	4.2	8.6	7.8	9.4	73.9	72.8	75.4	1.9	1.8	2.1
32	Region 34	3.8	3.6	4.4	8.8	7.4	10.1	73.8	72.2	74.8	1.9	1.7	2.0
11	Region 35	4.1	3.8	4.5	9.2	8.2	10.8	73.4	70.5	74.7	1.9	1.7	2.0
22	Region 36	3.9	3.6	4.6	8.8	8.0	9.9	74.0	72.5	75.1	1.9	1.7	2.0
404	Ave. white	4.0			9.0			73.6			1.9		
	Min. white	3.0			7.4			69.7			1.7		
	Max. white	5.3			12.3			75.4			2.8		
YELLOW													
1	Region 03	3.7	-	-	8.7	-	-	74.5	-	-	1.8	-	-
19	Region 10	3.7	3.3	4.2	8.4	7.9	9.1	74.3	73.5	75.2	1.7	1.6	1.9
17	Region 11	3.6	3.4	3.9	8.6	8.1	9.2	74.3	73.3	75.2	1.8	1.7	2.0
1	Region 12	4.4	-	-	10.8	-	-	72.1	-	-	1.9	-	-
3	Region 13	4.1	3.9	4.2	9.3	8.3	10.2	73.0	72.6	73.3	2.0	1.9	2.1
7	Region 14	4.1	4.0	4.2	9.8	8.9	10.7	71.9	70.4	72.7	2.0	1.9	2.2
2	Region 15	3.7	3.6	3.7	9.6	8.8	10.5	72.9	72.3	73.5	2.0	2.0	2.0
6	Region 16	4.0	3.8	4.3	9.1	8.5	10.0	73.2	71.5	74.0	2.0	1.9	2.1
3	Region 17	4.1	4.0	4.3	9.7	9.4	10.1	72.6	72.4	72.7	1.9	1.9	2.0
3	Region 18	4.2	4.1	4.4	9.0	8.8	9.4	72.6	72.0	73.1	1.9	1.9	2.0
4	Region 19	4.1	3.9	4.2	9.3	9.2	9.5	72.8	72.4	73.2	2.0	1.8	2.2
5	Region 20	4.0	3.8	4.2	8.9	8.6	9.3	73.3	72.9	73.9	2.0	1.9	2.1
7	Region 21	4.0	3.6	4.3	9.4	8.9	10.3	72.5	71.6	73.9	2.0	1.8	2.1
4	Region 22	4.0	3.9	4.2	9.4	8.8	10.2	73.0	72.1	74.0	1.9	1.9	2.1
3	Region 23	3.8	3.7	4.0	9.6	9.1	10.3	72.4	72.2	72.5	2.0	1.9	2.1
16	Region 24	4.1	3.8	4.5	9.6	8.7	11.4	72.4	70.7	74.0	2.0	1.8	2.2
7	Region 25	3.9	3.7	4.1	9.0	7.7	10.6	72.7	71.3	74.1	1.9	1.9	2.0

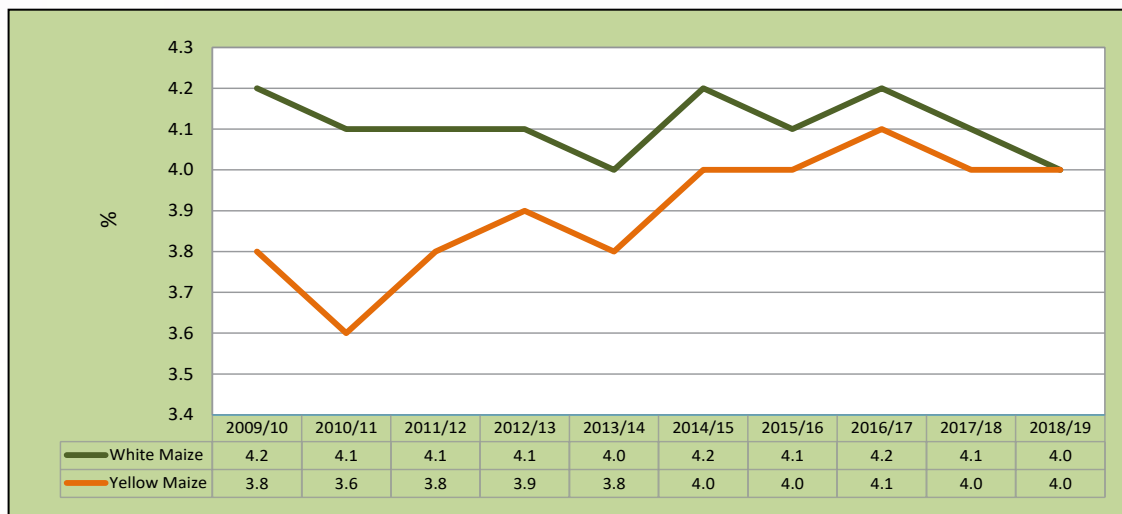
**TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW
MAIZE (2018/19) (continue)**

Number of samples Region		Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
YELLOW													
27	Region 26	4.0	3.6	4.8	9.6	8.8	11.3	72.1	70.2	73.0	2.0	1.9	2.3
9	Region 27	4.0	3.8	4.2	9.2	8.5	10.3	72.8	71.2	73.6	1.9	1.9	2.0
38	Region 28	4.0	3.6	4.4	9.5	8.2	10.4	72.3	70.6	74.0	2.0	1.9	2.2
29	Region 29	4.0	3.6	4.3	9.7	8.1	10.8	72.2	70.9	73.9	2.0	1.8	2.2
35	Region 30	4.0	3.6	4.9	9.1	6.7	10.7	72.6	70.8	73.7	2.0	1.8	2.1
34	Region 31	3.9	3.5	4.5	9.3	7.9	10.5	72.6	71.3	74.5	2.0	1.8	2.0
31	Region 32	4.0	3.5	4.5	9.2	8.6	10.0	72.4	71.5	74.8	2.0	1.9	2.2
17	Region 33	3.8	3.4	4.3	8.5	6.8	9.4	73.1	71.6	74.4	2.0	1.9	2.2
37	Region 34	3.9	3.4	4.5	9.1	8.2	10.4	72.9	71.5	74.2	2.0	1.9	2.3
10	Region 35	4.2	3.4	5.0	9.6	8.4	10.5	72.1	70.2	73.9	2.0	1.8	2.2
29	Region 36	3.9	3.5	4.6	8.7	7.3	9.7	73.4	71.8	74.5	1.9	1.8	2.1
404	Ave. yellow	4.0			9.2			72.7			2.0		
	Min. yellow	3.3			6.7			70.2			1.6		
	Max. yellow	5.0			11.4			75.2			2.3		
WHITE AND YELLOW													
1	Region 03	3.7	-	-	8.7	-	-	74.5	-	-	1.8	-	-
19	Region 10	3.7	3.3	4.2	8.4	7.9	9.1	74.3	73.5	75.2	1.7	1.6	1.9
21	Region 11	3.7	3.4	3.9	8.6	8.1	9.2	74.4	73.3	75.2	1.8	1.7	2.0
11	Region 12	4.3	4.0	5.3	9.9	8.2	12.3	72.8	69.7	74.8	1.9	1.8	2.2
20	Region 13	4.2	3.8	4.6	9.5	8.3	11.0	73.1	71.3	74.3	2.0	1.9	2.2
37	Region 14	4.1	3.6	4.8	9.3	8.5	10.7	73.2	70.4	75.2	2.0	1.8	2.2
7	Region 15	3.9	3.5	5.1	9.1	8.5	10.5	73.4	72.3	74.6	2.0	1.8	2.3
17	Region 16	4.2	3.7	5.2	9.0	7.5	10.3	73.4	70.9	75.3	2.0	1.8	2.4
19	Region 17	4.0	3.7	4.3	9.0	8.0	10.5	73.6	70.3	74.9	1.9	1.8	2.2
14	Region 18	4.2	3.6	4.9	8.8	7.7	9.9	73.4	71.0	74.7	1.9	1.8	2.3
18	Region 19	4.1	3.7	4.5	9.2	8.4	10.3	73.3	71.6	74.7	1.9	1.8	2.2
18	Region 20	3.9	3.6	4.3	8.9	8.3	9.5	73.8	72.6	74.8	1.9	1.8	2.1
27	Region 21	4.1	3.6	4.8	9.2	8.3	10.3	73.4	71.6	75.0	1.9	1.8	2.1
35	Region 22	3.9	3.4	4.2	8.8	8.4	10.2	73.8	72.1	74.9	2.0	1.8	2.4
44	Region 23	3.7	3.0	4.2	9.0	7.6	10.5	73.4	70.1	75.0	2.1	1.9	2.8
29	Region 24	4.1	3.5	5.0	9.2	8.0	11.4	73.0	70.7	74.6	2.0	1.8	2.2
7	Region 25	3.9	3.7	4.1	9.0	7.7	10.6	72.7	71.3	74.1	1.9	1.9	2.0
34	Region 26	4.1	3.6	5.0	9.5	8.1	11.7	72.3	69.7	74.4	2.0	1.8	2.3
11	Region 27	3.9	3.7	4.2	9.0	7.9	10.3	73.1	71.2	74.4	1.9	1.9	2.0
52	Region 28	4.0	3.6	4.4	9.4	8.0	10.4	72.7	70.6	75.1	1.9	1.8	2.2
44	Region 29	3.9	3.6	4.3	9.6	7.9	10.8	72.6	70.9	75.1	1.9	1.8	2.2
60	Region 30	4.0	3.6	4.9	8.9	6.7	10.7	73.1	70.8	75.1	1.9	1.8	2.1
42	Region 31	3.9	3.5	4.5	9.3	7.9	10.5	72.6	71.3	74.5	1.9	1.8	2.1
41	Region 32	3.9	3.5	4.5	9.1	8.2	10.0	72.8	71.5	74.8	2.0	1.8	2.2
39	Region 33	3.9	3.4	4.3	8.6	6.8	9.4	73.6	71.6	75.4	1.9	1.8	2.2
69	Region 34	3.9	3.4	4.5	9.0	7.4	10.4	73.3	71.5	74.8	1.9	1.7	2.3
21	Region 35	4.1	3.4	5.0	9.4	8.2	10.8	72.8	70.2	74.7	1.9	1.7	2.2
51	Region 36	3.9	3.5	4.6	8.7	7.3	9.9	73.6	71.8	75.1	1.9	1.7	2.1
808	Ave. white & yellow	4.0			9.1			73.2			1.9		
	Min. white & yellow	3.0			6.7			69.7			1.6		
	Max. white & yellow	5.3			12.3			75.4			2.8		

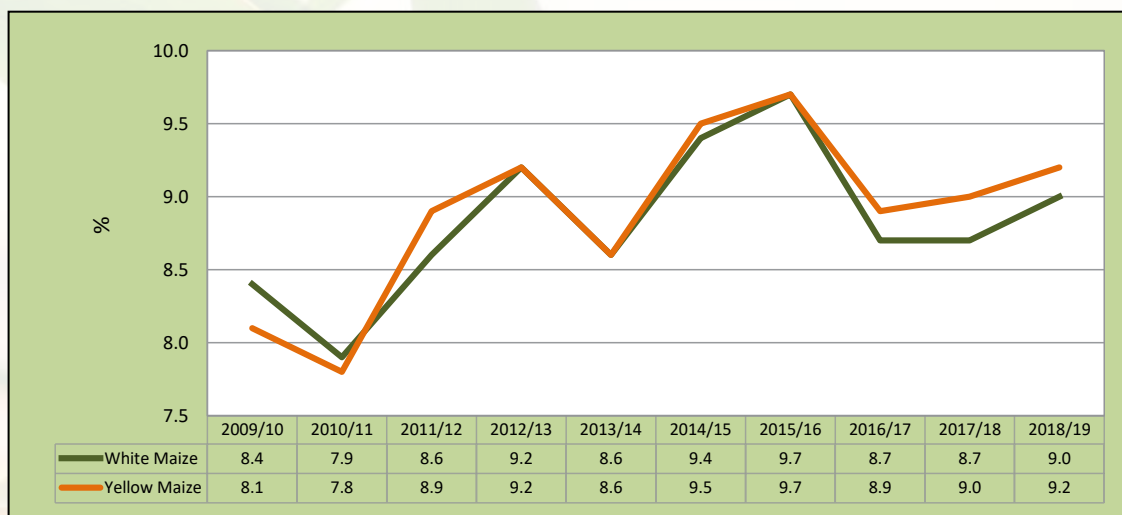
**TABLE 22: NUTRITIONAL VALUES OF SOUTH AFRICAN WHITE AND
YELLOW MAIZE 2009/10 - 2018/19**

Season	Number of samples	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize													
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	-	-	-
2016/17	549	4.2	3.4	5.3	8.7	6.8	11.5	74.1	69.8	75.9	-	-	-
2017/18	451	4.1	3.4	5.0	8.7	6.8	11.2	73.2	69.4	74.8	-	-	-
2018/19	404	4.0	3.0	5.3	9.0	7.4	12.3	73.6	69.7	75.4	1.9	1.7	2.8
Weighted Average		4.1			8.8			72.9			1.9		
Minimum		2.8			6.1			68.5			1.7		
Maximum		5.8			12.3			77.0			2.8		
Yellow Maize													
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	-	-	-
2016/17	451	4.1	3.3	5.1	8.9	7.1	10.8	73.7	71.3	76.2	-	-	-
2017/18	449	4.0	3.2	5.0	9.0	6.7	11.3	72.0	68.5	74.6	-	-	-
2018/19	404	4.0	3.3	5.0	9.2	6.7	11.4	72.7	70.2	75.2	2.0	1.6	2.3
Weighted Average		3.9			9.0			72.8			2.0		
Minimum		2.8			6.0			68.5			1.6		
Maximum		5.1			12.8			76.2			2.3		
White and Yellow Maize													
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	-	-	-
2016/17	1000	4.1	3.3	5.3	8.8	6.8	11.5	73.9	69.8	76.2	-	-	-
2017/18	900	4.0	3.2	5.0	8.8	6.7	11.3	72.6	68.5	74.8	-	-	-
2018/19	808	4.0	3.0	5.3	9.1	6.7	12.3	73.2	69.7	75.4	1.9	1.6	2.8
Weighted Average		4.0			8.9			72.9			1.9		
Minimum		2.8			6.0			68.5			1.6		
Maximum		5.8			12.8			77.0			2.8		

Graph 39: Fat content of white and yellow maize over 10 seasons



Graph 40: Protein content of white and yellow maize over 10 seasons



Graph 41: Starch content of white and yellow maize over 10 seasons

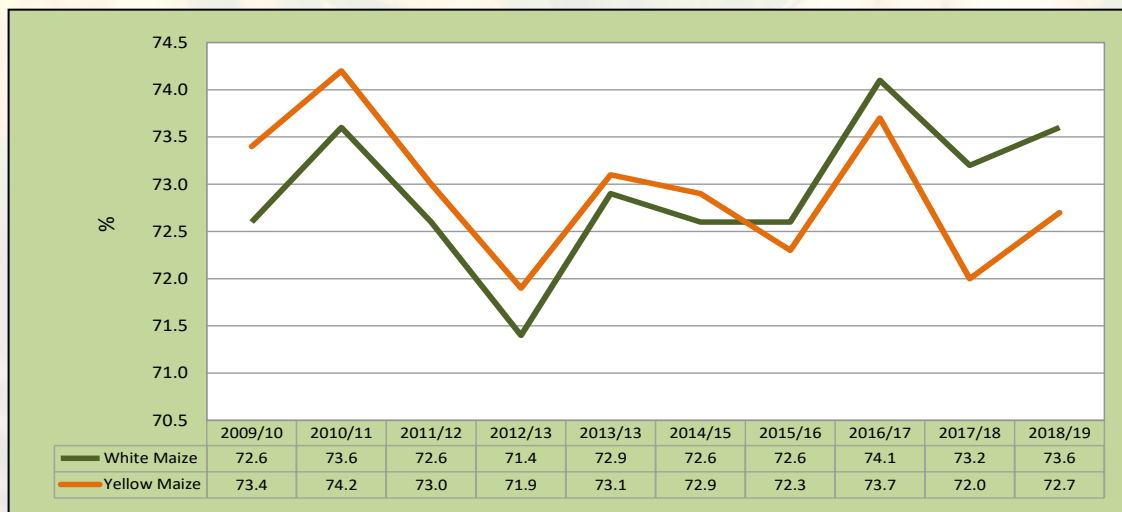


TABLE 23: PRESENCE OF GENETICALLY MODIFIED MAIZE (2018/19)

REGION	W/Y	Cry1Ab % (LOD: 0.4%)	Cry2Ab % (LOD: 0.5%)	CP4 EPSPS % (LOD: 0.25%)	REGION	W/Y	Cry1Ab % (LOD: 0.4%)	Cry2Ab % (LOD: 0.5%)	CP4 EPSPS % (LOD: 0.25%)	REGION	W/Y	Cry1Ab % (LOD: 0.4%)	Cry2Ab % (LOD: 0.5%)	CP4 EPSPS % (LOD: 0.25%)
3	Y	>5.0	<0.5	>5.0	22	W	>5.0	>5.0	4.6	30	Y	>5.0	4.3	>5.0
10	Y	>5.0	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	31	Y	>5.0	>5.0	>5.0
11	Y	>5.0	0.58	>5.0	23	Y	>5.0	>5.0	>5.0	31	Y	>5.0	<0.5	>5.0
11	W	>5.0	<5.0	>5.0	23	W	>5.0	>5.0	>5.0	31	W	<0.4	<0.5	1.8
12	Y	>5.0	>5.0	>5.0	24	Y	>5.0	>5.0	>5.0	31	W	2.1	3.8	>5.0
12	W	>5.0	>5.0	>5.0	24	W	>5.0	>5.0	>5.0	32	Y	<0.4	5.0	<0.25
13	Y	>5.0	>5.0	4.3	25	Y	>5.0	0.61	>5.0	32	W	<0.4	<0.5	0.50
13	W	>5.0	>5.0	>5.0	26	W	>5.0	>5.0	>5.0	32	W	<0.4	<0.5	0.84
14	Y	>5.0	>5.0	>5.0	26	Y	<0.4	0.88	1.7	33	Y	>5.0	>5.0	>5.0
14	W	>5.0	>5.0	>5.0	27	Y	>5.0	5.0	>5.0	33	W	>5.0	>5.0	>5.0
15	W	>5.0	>5.0	>5.0	27	W	0.90	<0.5	1.9	34	Y	0.70	1.1	0.66
16	W	>5.0	>5.0	>5.0	28	W	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
16	Y	>5.0	4.7	>5.0	28	Y	>5.0	>5.0	>5.0	34	Y	<0.4	<0.5	<0.25
17	Y	>5.0	>5.0	4.4	28	W	0.81	1.0	1.4	34	Y	>5.0	>5.0	>5.0
17	W	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
18	W	>5.0	>5.0	>5.0	29	Y	>5.0	3.8	>5.0	34	W	>5.0	>5.0	>5.0
18	Y	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	35	W	0.8	<0.5	>5.0
19	Y	>5.0	>5.0	>5.0	29	W	>5.0	>5.0	>5.0	35	Y	>5.0	>5.0	>5.0
19	W	>5.0	>5.0	>5.0	29	W	>5.0	>5.0	>5.0	36	Y	>5.0	<0.5	>5.0
20	Y	>5.0	>5.0	>5.0	30	Y	>5.0	>5.0	>5.0	36	Y	1.3	2.3	3.4
20	W	>5.0	>5.0	>5.0	30	W	>5.0	<0.5	<0.25	36	W	>5.0	1.2	>5.0
21	W	>5.0	>5.0	>5.0	30	W	>5.0	>5.0	>5.0	36	W	>5.0	>5.0	>5.0
21	Y	>5.0	>5.0	>5.0	30	W	>5.0	<0.5	>5.0					
22	Y	>5.0	4.6	4.5	30	Y	>5.0	>5.0	>5.0					
n	Season	% Samples positive for Cry1Ab			n	Season	% Samples positive for Cry2Ab			n	Season	% Samples positive for CP4 EPSPS		
70	2018/19	91			70	2018/19	83			70	2018/19	96		
100	2017/18	91			100	2017/18	83			100	2017/18	100		
100	2016/17	98			100	2016/17	84			100	2016/17	100		
100	2015/16	94			100	2015/16	78			100	2015/16	99		
100	2014/15	94			100	2014/15	81			100	2014/15	98		

LOD: Limit of Detection

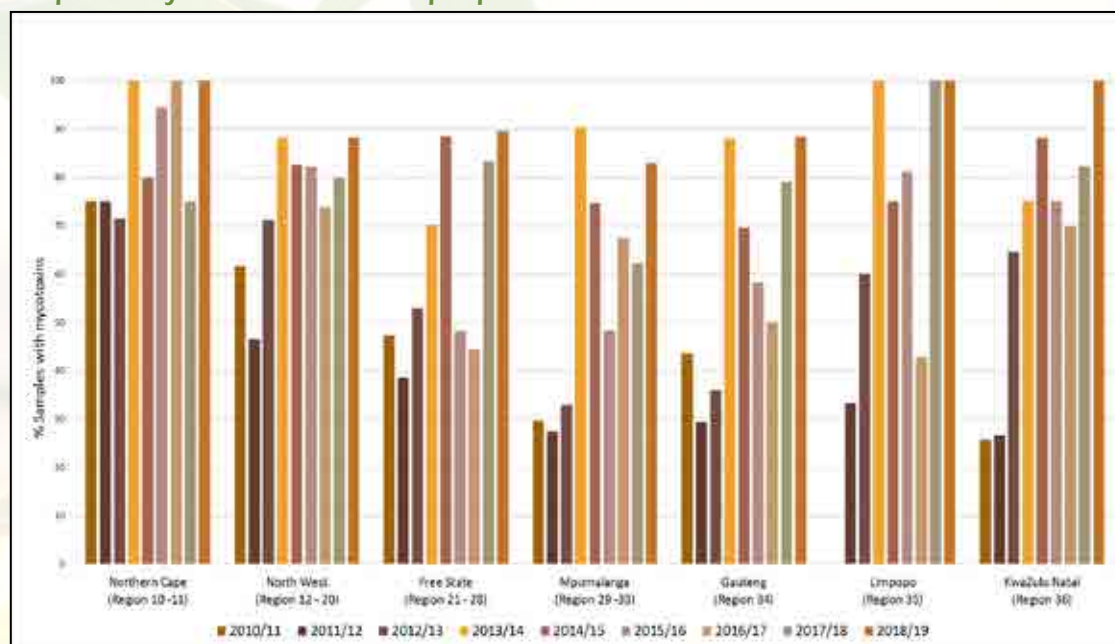
MYCOTOXINS

Approximately 43% (350 samples) of all the 2018/19 maize samples were selected to represent white and yellow maize from all the production regions for the analyses of 13 mycotoxins. The 13 mycotoxins analysed with the LC-MS/MS instrument include Aflatoxin B₁, B₂, G₁ and G₂, Fumonisin (FUM) B₁, B₂ and B₃, Deoxynivalenol (DON), 15-acetyl-deoxynivalenol (15-ADON), Ochratoxin A, T2-toxin, H-T2 toxin and Zearalenone (ZON). The occurrence of these mycotoxins was monitored in the South African maize crop at harvest over the past nine seasons and notable trends are observed.

Three hundred and twelve or 89% of the samples contained one or more mycotoxins, an increase of 14% compared to the previous season (2017/18) and a 27% increase compared to the 62% of the 2016/17 season's maize samples tested. The maize samples contained mainly deoxynivalenol (68%), fumonisins (43%) and zearalenone (10%). The presence of deoxynivalenol and zearalenone increased over the past three seasons, but the fumonisin prevalence stayed constant over the same period, approximately 44% of the samples contained fumonisins.

An increase in the mycotoxin occurrence was observed in all seven major maize production provinces in South Africa this season. The occurrence in the samples selected for mycotoxin analyses over the past nine seasons is illustrated in Graph 42.

Graph 42: Mycotoxin occurrence per province over nine seasons



The percentage samples with one or more mycotoxin present in the different provinces, showed notable differences and the trends in occurrence confirmed that mycotoxin risk varies significantly between production regions, production seasons and maize class. The following results and notable trends were observed this season:

- **Aflatoxins**

This was only the second season that aflatoxins were found. One white maize sample collected in the Free State, in Region 23, was contaminated with 48 µg/kg Aflatoxin B₁ and 95 µg/kg Aflatoxin G₁ (143 µg/kg total aflatoxins). In the 2014/15 season, aflatoxins were found in three white maize samples originating from the North West province.

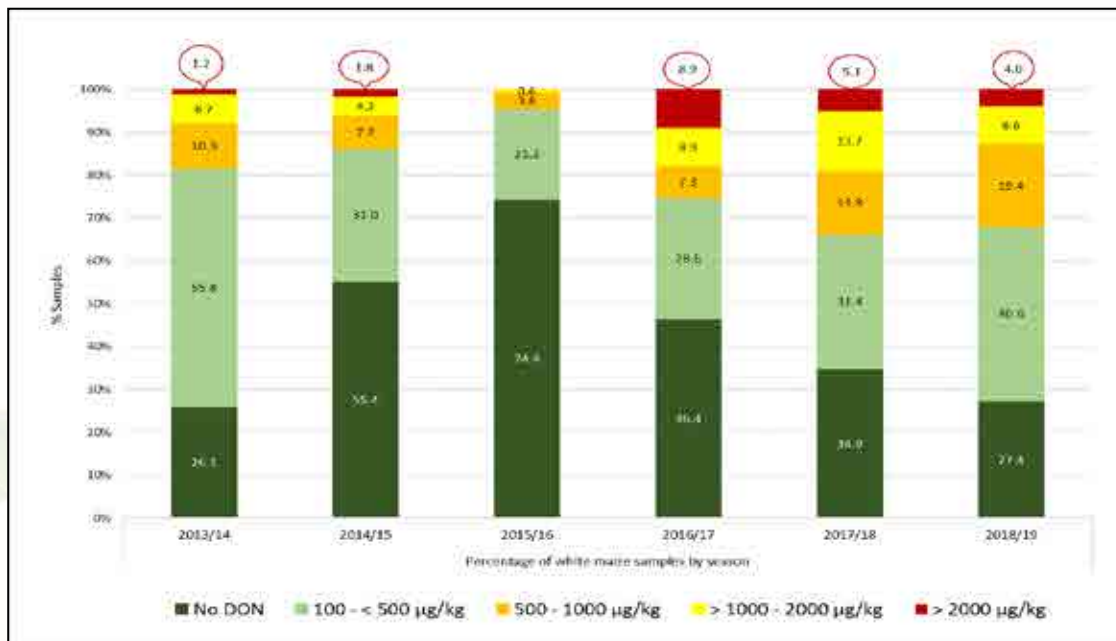
- **Ochratoxin A, T2-toxin and HT-2 toxin**

None have been reported in South African produced commercial maize since the survey began in 2010/11.

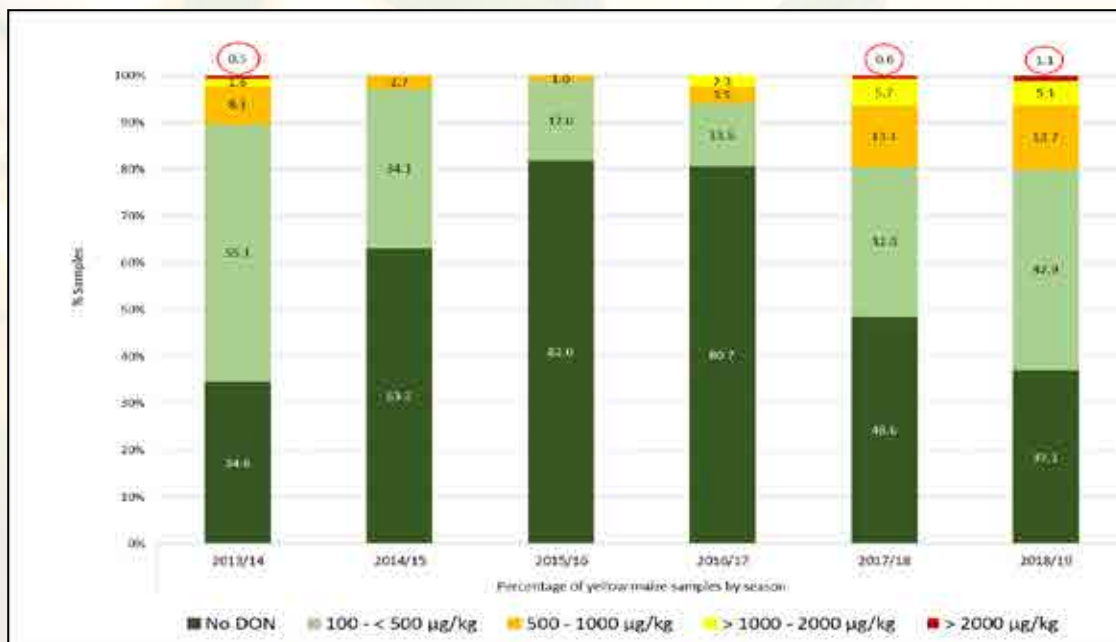
- **DON and 15-ADON**

The number of white and yellow maize samples containing DON increased, compared to the previous three seasons. However, only 4% white maize samples and 1% yellow maize samples contained more than 2 000 µg/kg DON (2 000 µg/kg is the SA regulated maximum allowable level in unprocessed maize for human consumption). The concentration ranges of the 68% samples containing DON, are summarised in Graph 43 (white maize) and Graph 44 (yellow maize).

Graph 43: DON concentration range in white maize samples over six seasons



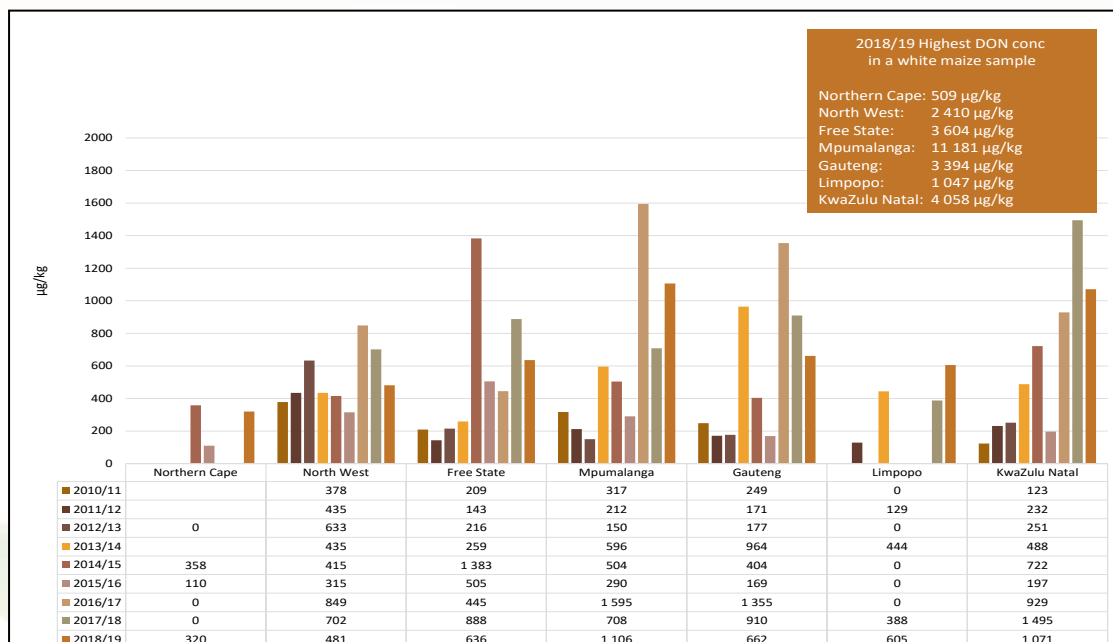
Graph 44: DON concentration range in yellow maize samples over six seasons



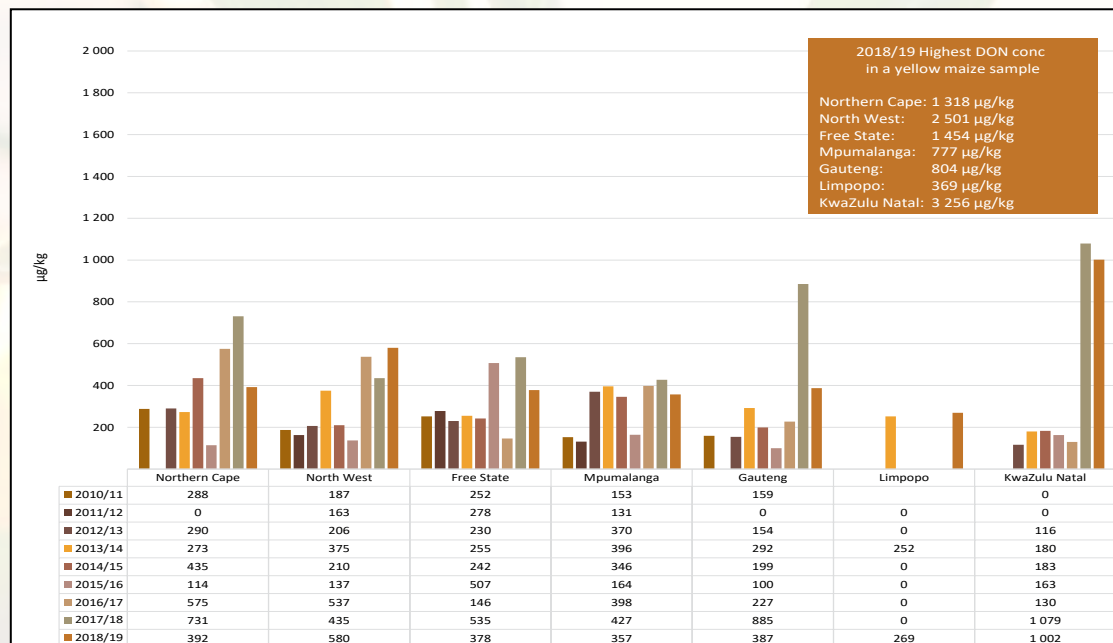
- The highest DON concentrations ever reported on the maize crop over the past nine seasons, were found in a white as well as a yellow maize sample this season. The white maize sample, collected in Mpumalanga, contained 11 181 µg/kg DON and the yellow maize sample from KwaZulu Natal was contaminated with 3 256 µg/kg DON.

- The annual mean DON concentrations in the seven provinces ranged from 320 µg/kg to 1 106 µg/kg in white maize and from 269 µg/kg to 1 002 µg/kg in yellow maize. The nine-year variations in the seven provinces are illustrated in Graphs 45 (white maize) and 46 (yellow maize).

Graphs 45: White maize DON mean concentration (µg/kg) per province over nine seasons



Graph 46: Yellow maize DON mean concentration (µg/kg) per province over nine seasons

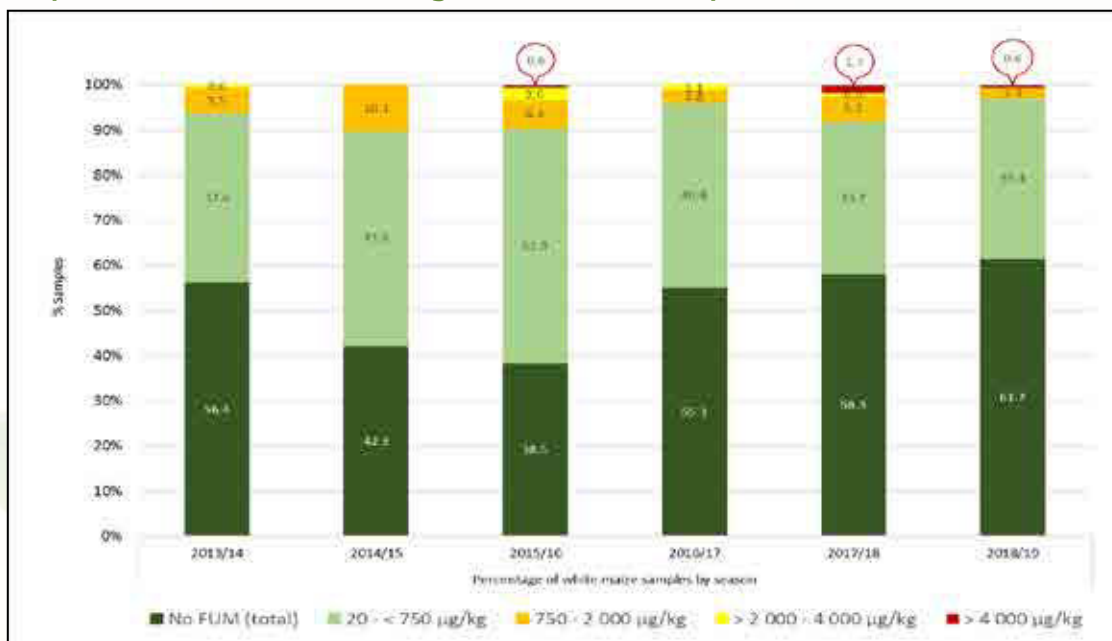


- 15-ADON is always only present in samples that contain DON, mostly when the DON concentration is more than 500 µg/kg. In this season, only 17.7% of the 350 samples tested contained 15-ADON, with a mean concentration of 218 µg/kg.

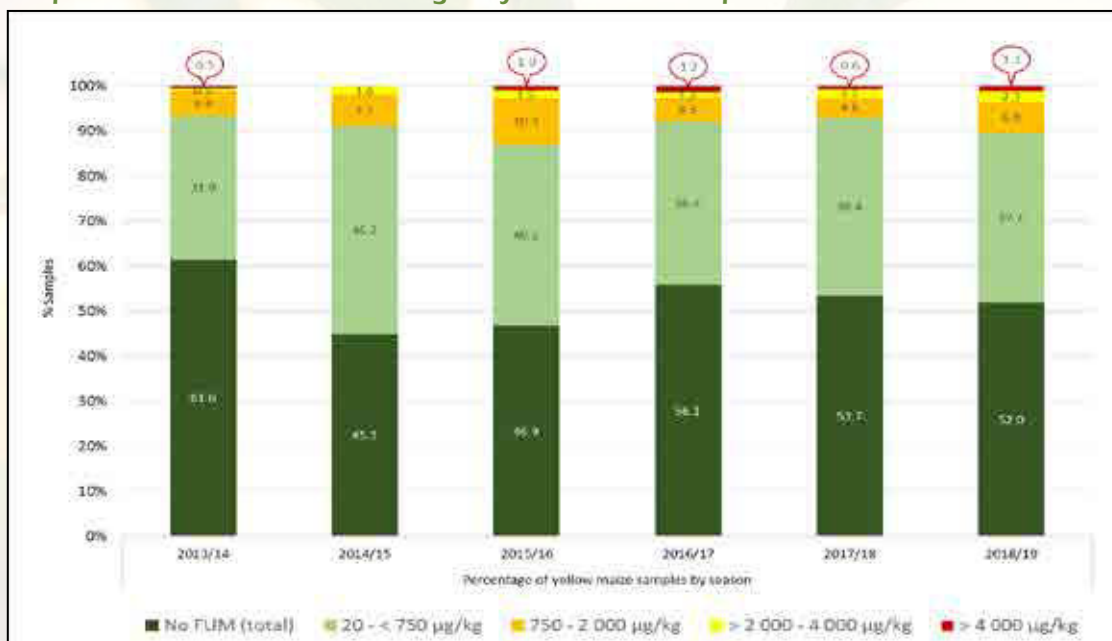
Fumonisin ($FUM\ Total = FB_1 + FB_2 + FB_3$)

- Slightly more yellow maize (48%) than white maize samples (38%) contained fumonisins this season, similar to the previous two seasons. Only 0.6% white and 1.1% yellow maize samples were contaminated with more than 4 000 µg/kg FUM (4 000 µg/kg is the SA regulated maximum allowable level in unprocessed maize for human consumption). The concentration ranges of the samples with fumonisins over the past six seasons are summarised in Graph 47 (white maize) and Graph 48 (yellow maize).

Graph 47: FUM concentration range in white maize samples over six seasons

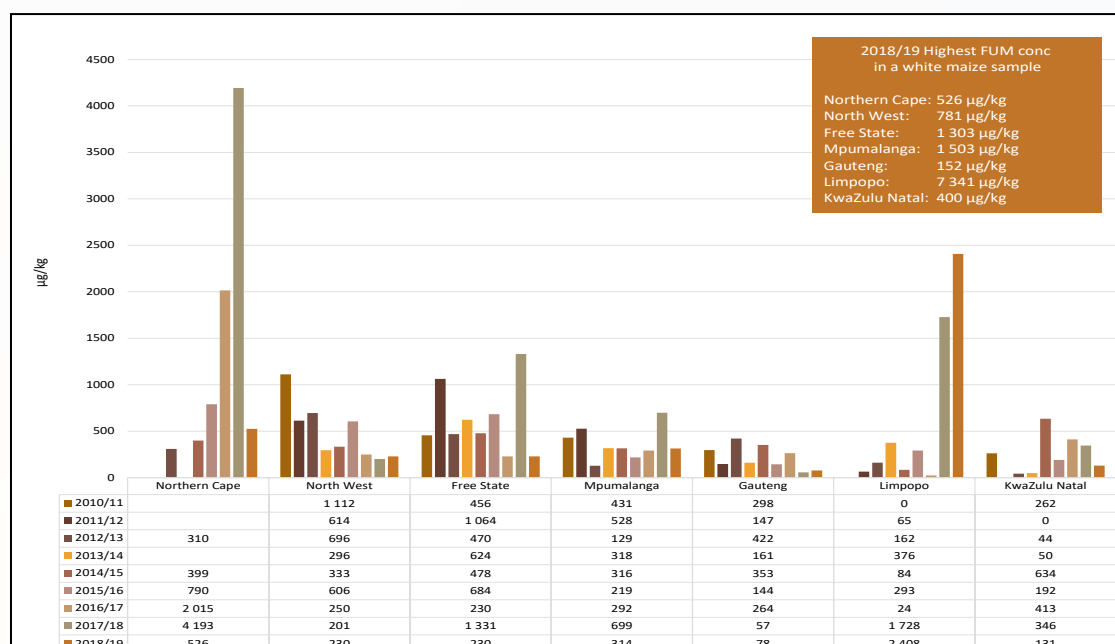


Graph 48: FUM concentration range in yellow maize samples over six seasons



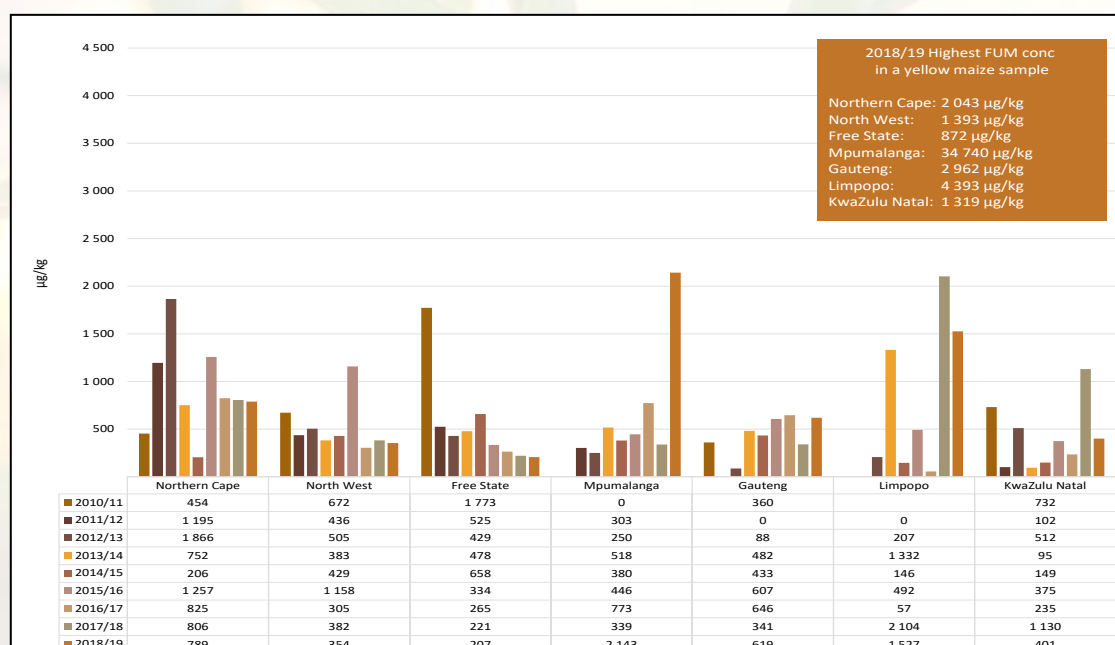
- A decrease was observed in the white maize mean FUM concentration in four of the seven production provinces compared to the previous production season. This season's mean FUM concentration in white maize in the Limpopo province increased to 2 408 µg/kg (39% increase) because of the high FUM concentration found in one of the samples (7 341 µg/kg). The nine-year FUM mean concentration variations in white maize in the seven provinces are illustrated in Graph 49.

Graph 49: White maize FUM (total) mean concentration (µg/kg) per province over nine seasons



- The highest concentration fumonisin ever reported in this survey was found this season in yellow maize collected in Mpumalanga (34 740 µg/kg FUM total). This concentration is eight times more than the second highest FUM concentration reported in an individual yellow maize sample this season.
- The mean FUM concentration in yellow maize ranged from 207 µg/kg in the Free State to 2 143 µg/kg in Mpumalanga and only increased in two provinces, namely Mpumalanga and Gauteng. These trends are illustrated in Graph 50.

Graph 50: Yellow maize FUM (total) mean concentration (µg/kg) per province over nine seasons

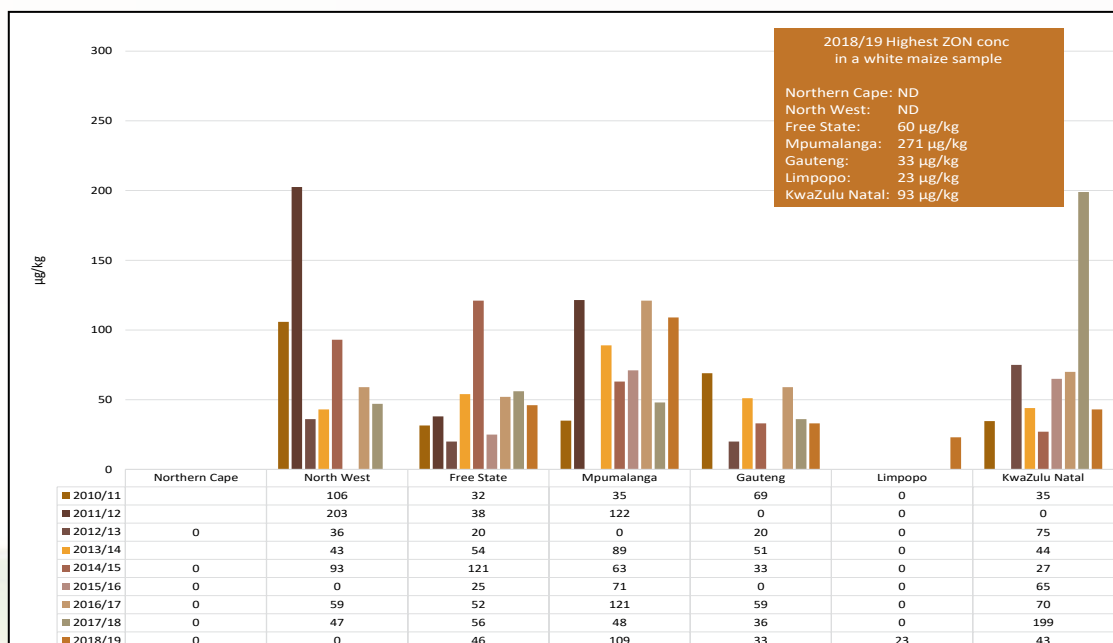


Zearalenone

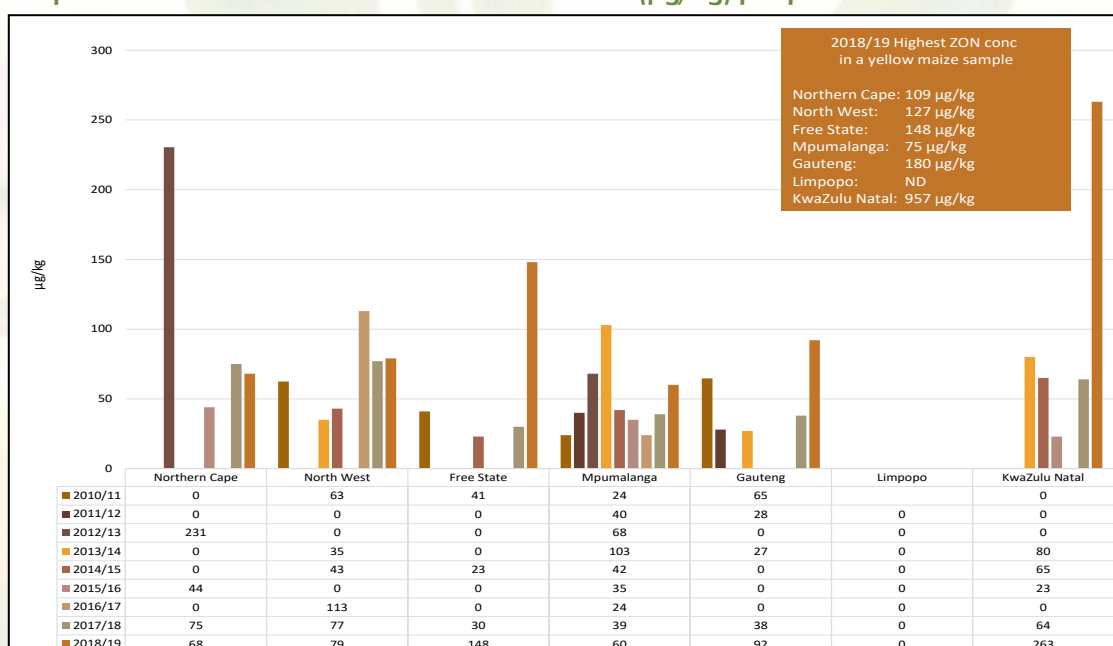
- Zearalenone was for the first time since this survey started nine years ago, found in the Limpopo province, 33 µg/kg in one white maize sample. The ZON occurrences in the seven provinces are illustrated in Graphs 51 (white maize) and 52 (yellow maize) by reporting the mean ZON concentrations found in white and yellow maize.

- The highest concentration ZON in an individual sample (957 µg/kg), since the survey commenced in 2010/11, was reported this season in yellow maize from KwaZulu Natal.

Graph 51: White maize ZON mean concentration (µg/kg) per province over nine seasons



Graph 52: Yellow maize ZON mean concentration (µg/kg) per province over nine seasons



INTERNATIONAL MYCOTOXIN REGULATIONS

Information with regards to mycotoxin regulations per region and country, can be obtained from the Mycotoxins.info webpage supported by Biomin (<http://www.mycotoxins.info/regulations>).

NATIONAL MYCOTOXIN REGULATIONS

According to the Foodstuffs, Cosmetics and Disinfectants Act (Act 54 of 1972) and regulations published in 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 B₁ may not exceed 5 µg/kg.

Amendments to Government Notice No. R. 1145, dated 8 October 2004, published in 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 2 000 µg/kg of Deoxynivalenol.
- Flour, meal, semolina and flakes derived from wheat, maize or barley, ready for human consumption, may not contain more than 1 000 µg/kg of Deoxynivalenol.
- Raw maize grain, intended for further processing, may not contain more than 4 000 µg/kg of Fumonisin (B₁ + B₂), the whole commodity.
- Maize flour and maize meal, ready for human consumption, may not contain more than 2 000 µg/kg of Fumonisin (B₁ + B₂), 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) as well as amendments published in Government Notices No. R. 70 of 12 February 2010 and R. 789 of 10 September 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 exception 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	0.3	300
	supplement/concentrates 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 to 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

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19

Region	Grade	Aflatoxin µg/kg				Fumonisin µg/kg				DON µg/kg LOQ: 100 µg/kg	15-ADON µg/kg LOQ: 100 µg/kg	Ochratoxin A µg/kg LOQ: 5 µg/kg	Zearalenone µg/kg LOQ: 20 µg/kg	HT-2 µg/kg LOD: 20 µg/kg	T-2 µg/kg LOQ: 20 µg/kg
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg						
3	YM1	ND	ND	ND	ND	ND	30	ND	ND	30	<100	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	1 365	257	81	1 703	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	388	55	22	465	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	899	198	72	1 169	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	958	237	68	1 263	<100	ND	26	ND	ND
10	YM1	ND	ND	ND	ND	ND	ND	ND	ND	338	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	1 502	398	143	2 043	166	ND	<20	ND	ND
10	YM1	ND	ND	ND	ND	ND	ND	ND	ND	365	<100	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	642	197	57	896	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	116	32	ND	148	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	120	37	ND	157	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	184	57	<20	241	152	ND	109	ND	ND
11	YM1	ND	ND	ND	ND	ND	268	65	24	357	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	ND	ND	ND	112	ND	ND	ND	ND	ND
11	WM1	ND	ND	ND	ND	ND	368	124	34	526	194	ND	ND	ND	ND
11	YM3	ND	ND	ND	ND	ND	340	118	ND	458	ND	ND	<20	ND	ND
11	YM1	ND	ND	ND	ND	ND	439	104	25	568	ND	ND	ND	ND	ND
11	WM1	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<20	ND	ND
12	YM1	ND	ND	ND	ND	ND	197	54	<20	251	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	150	43	23	216	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	30	ND	ND	30	282	ND	ND	ND	ND
12	WM3	ND	ND	ND	ND	ND	247	76	23	346	133	ND	ND	ND	ND
13	COM	ND	ND	ND	ND	ND	22	ND	ND	22	2 410	467	ND	ND	ND
13	YM2	ND	ND	ND	ND	ND	67	<20	ND	67	<100	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	ND	ND	ND	196	ND	ND	ND	ND	ND
13	YM1	ND	ND	ND	ND	ND	ND	ND	ND	469	<100	ND	ND	ND	ND
13	COM	ND	ND	ND	ND	ND	359	129	32	520	593	ND	70	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total							
13	WM2	ND	ND	ND	ND	ND	29	ND	ND	ND	237	ND	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	23	ND	ND	ND	113	ND	ND	ND	ND	ND	ND
13	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	YM2	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	168	ND	ND	ND	ND	ND	ND
14	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	349	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	680	145	ND	ND	ND	ND	ND
14	WM2	ND	ND	ND	ND	ND	25	ND	ND	25	<100	ND	ND	ND	ND	ND	ND
14	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	323	<100	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	756	163	ND	ND	ND	ND	ND
14	YM2	ND	ND	ND	ND	ND	529	165	ND	694	196	ND	ND	ND	ND	ND	ND
14	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	384	ND	ND	ND	ND	ND	ND
14	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	COM	ND	ND	ND	ND	ND	28	ND	ND	28	594	129	ND	ND	ND	ND	ND
14	WM3	ND	ND	ND	ND	ND	49	<20	ND	49	<100	ND	ND	ND	ND	ND	ND
14	COM	ND	ND	ND	ND	ND	315	121	43	479	126	ND	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	155	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	402	163	24	589	<100	ND	ND	ND	ND	ND	ND
15	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	222	ND	ND	ND	ND	ND	ND
15	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 538	191	ND	<20	ND	ND	ND
15	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	691	142	ND	ND	ND	ND	ND
16	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	727	168	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	207	<100	ND	ND	ND	ND	ND
16	YM1	ND	ND	ND	ND	ND	24	ND	ND	24	242	<100	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	624	132	25	781	600	<100	ND	ND	ND	ND	ND
16	YM2	ND	ND	ND	ND	ND	104	25	ND	129	909	126	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (continue)

Region	Grade	Aflatoxin µg/kg						Fumonisin µg/kg				DON µg/kg LOQ: 100 µg/kg	15-ADON µg/kg LOQ: 100 µg/kg	Ochratoxin A µg/kg LOQ: 5 µg/kg	Zearalenone µg/kg LOQ: 20 µg/kg	HT-2 µg/kg LOD: 20 µg/kg	T-2 µg/kg LOQ: 20 µg/kg
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total							
16	YM1	ND	ND	ND	ND	ND	172	42	<20	214	ND	ND	ND	ND	ND	ND	ND
17	WM1	ND	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	495	ND	ND	ND	127	ND	ND
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	181	<100	ND	ND	ND	ND	ND
17	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	63	<20	ND	63	1 766	318	ND	ND	ND	ND	ND
17	WM3	ND	ND	ND	ND	ND	91	36	ND	127	144	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
17	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	275	<100	ND	ND	ND	ND	ND
18	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
18	WM1	ND	ND	ND	ND	ND	102	23	<20	125	623	<100	ND	ND	ND	ND	ND
18	YM2	ND	ND	ND	ND	ND	28	<20	ND	28	154	ND	ND	ND	ND	ND	ND
18	WM2	ND	ND	ND	ND	ND	147	39	23	209	517	ND	ND	ND	ND	ND	ND
18	YM1	ND	ND	ND	ND	ND	716	197	55	968	524	<100	ND	ND	41	ND	ND
18	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	327	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	195	82	25	302	<100	ND	ND	ND	ND	ND	ND
19	WM3	ND	ND	ND	ND	ND	100	21	ND	121	288	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	65	<20	ND	65	469	101	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	63	<20	ND	63	193	ND	ND	ND	ND	ND	ND
19	COM	ND	ND	ND	ND	ND	<20	ND	ND	ND	537	121	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	WM3	ND	ND	ND	ND	ND	23	ND	ND	23	464	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	768	175	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	202	38	<20	240	388	ND	ND	ND	ND	ND	ND
20	YM2	ND	ND	ND	ND	ND	930	328	135	1 393	ND	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	504	104	58	666	ND	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	151	37	<20	188	1 474	199	ND	ND	<20	ND	ND
20	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	549	<100	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁	B ₂	G ₁	G 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: 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	WM2	ND	ND	ND	ND	ND	ND	218	57	26	301	ND	ND	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	ND	49	<20	ND	49	<100	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	455	184	33	672	271	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	226	ND	ND	ND	ND	ND
20	YM3	ND	ND	ND	ND	ND	ND	166	57	<20	223	507	271	ND	<20	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	124	ND	ND	ND	ND	ND
21	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	198	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	235	ND	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	369	ND	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	76	26	ND	102	153	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	193	<100	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	785	114	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	106	26	ND	132	<100	ND	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	285	ND	ND	ND	ND	ND
21	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	279	<100	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	349	ND	ND	ND	ND	ND
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	620	<100	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	215	ND	ND	ND	ND	ND
22	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	371	ND	ND	ND	ND	ND
22	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	621	139	ND	ND	ND	ND
22	COM	ND	ND	ND	ND	ND	ND	212	47	ND	259	1 082	294	ND	ND	ND	ND
22	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	379	ND	ND	ND	ND	ND
22	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	427	<100	ND	ND	ND	ND
22	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	808	133	ND	ND	ND	ND
22	YM3	ND	ND	ND	ND	ND	ND	42	ND	ND	42	914	191	ND	ND	ND	ND
22	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	316	ND	ND	ND	ND	ND
22	WM2	ND	ND	ND	ND	ND	ND	179	65	ND	244	<100	ND	ND	ND	ND	ND
22	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	914	254	ND	ND	ND	ND
22	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 007	242	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁	B ₂	G ₁	G 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: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 20 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
22	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	303	<100	ND	ND	ND	ND	ND
22	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	332	ND	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	528	<100	ND	<20	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	39	619	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 307	168	ND	ND	ND	ND	ND
23	WM2	48	<5	95	<5	143	970	259	74	1 303	274	ND	ND	ND	ND	ND	ND
23	WM3	ND	ND	ND	ND	ND	65	<20	ND	65	1 265	330	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	596	106	ND	ND	ND	ND	ND
23	YM2	ND	ND	ND	ND	ND	58	23	ND	81	113	ND	ND	ND	ND	ND	ND
23	YM1	ND	ND	ND	ND	ND	60	<20	ND	60	529	ND	ND	<20	ND	ND	ND
23	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	801	112	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 092	132	ND	ND	ND	ND	ND
23	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	577	<100	ND	ND	ND	ND	ND
23	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	539	131	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	31	ND	ND	31	294	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	160	49	<20	209	152	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	168	ND	ND	ND	ND	ND	ND
24	WM3	ND	ND	ND	ND	ND	111	22	ND	133	288	<100	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	197	68	<20	265	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 299	226	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 604	593	ND	31	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	25	ND	ND	25	104	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	224	61	<20	285	ND	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	371	<100	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	90	32	ND	122	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	57	<20	ND	57	<100	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total							
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM1	ND	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	273	ND	ND	ND	ND	ND	ND
26	COM	ND	ND	ND	ND	ND	248	86	22	356	280	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	23	30	ND	53	355	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	52	<20	ND	52	263	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	555	<100	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	350	ND	ND	ND	ND	ND	ND
27	YM2	ND	ND	ND	ND	ND	655	217	<20	872	118	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	191	54	ND	245	452	<100	ND	148	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	267	ND	ND	ND	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	254	83	21	358	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	104	26	ND	130	<100	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	145	38	<20	183	103	ND	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	411	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 454	160	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	467	<100	ND	ND	ND	ND	ND
28	YM1	ND	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	1 117	253	ND	60	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	333	<100	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	318	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	113	31	ND	144	284	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	201	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	187	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁	B ₂	G ₁	G 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: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 20 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	LOQ: 20 µg/kg
28	YM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	124	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	838	111	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	ND	195	53	<20	248	742	<100	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	459	<100	ND	ND	ND	ND
28	COM	ND	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	142	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	595	<100	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	466	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	123	<100	ND	ND	ND	ND
28	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	134	ND	ND	ND	ND	ND
29	YM1	ND	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	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	391	<100	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	35	ND	ND	35	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	81	<20	ND	81	ND	ND	ND	ND	ND	ND
29	WM1	ND	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	<100	ND	ND	ND	ND	ND
29	WM1	ND	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	281	72	28	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	599	<100	ND	ND	ND	ND
29	WM2	ND	ND	ND	ND	ND	ND	236	59	33	328	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	364	<100	ND	ND	ND	ND
29	YM1	ND	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	ND
29	WM1	ND	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	598	121	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁	B ₂	G ₁	G 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: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 20 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	LOQ: 20 µg/kg
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	122	<100	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	279	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	146	ND	ND	ND	ND	ND	ND
30	YM1	ND	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	100	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	166	<100	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 085	104	ND	ND	ND	ND	ND
30	YM1	ND	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	567	<100	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	607	114	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	244	<100	ND	ND	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 235	194	ND	34	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	256	<100	ND	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	191	<100	ND	<20	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 815	326	ND	271	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	777	<100	ND	44	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	6 510	504	ND	213	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	620	ND	ND	21	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	261	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	407	101	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	595	193	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	657	113	ND	ND	ND	ND	ND
30	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
30	YM1	ND	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	167	217	ND	ND	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	874	1 188	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total							
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	433	85	20	538	423	<100	ND	ND	ND	ND	ND
31	WM2	ND	ND	ND	ND	ND	457	192	62	711	1 773	220	ND	104	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	WM2	ND	ND	ND	ND	ND	397	127	57	581	373	ND	ND	<20	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	267	43	22	332	<100	ND	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	696	107	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	152	51	ND	203	<100	ND	ND	ND	ND	ND	ND
31	COM	ND	ND	ND	ND	ND	30	ND	ND	30	182	ND	ND	<20	ND	ND	ND
31	YM1	ND	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	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	140	37	ND	177	ND	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	298	ND	ND	ND	ND	ND	ND
32	YM1	ND	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	192	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	765	315	131	1 211	296	ND	ND	75	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	255	75	<20	330	<100	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	781	241	79	1 101	366	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	843	281	79	1 203	155	ND	ND	ND	ND	ND	ND
32	WM2	ND	ND	ND	ND	ND	111	27	<20	138	641	<100	ND	115	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	119	ND	ND	ND	ND	ND	ND
32	WM2	ND	ND	ND	ND	ND	1 043	339	121	1 503	541	ND	ND	42	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	105	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	76	<20	ND	76	<100	ND	ND	ND	ND	ND	ND
32	COM	ND	ND	ND	ND	ND	32	ND	ND	32	545	147	ND	ND	ND	ND	ND
32	YM3	ND	ND	ND	ND	ND	212	85	<20	297	145	<100	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	112	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	353	131	22	506	178	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁	B ₂	G ₁	G 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: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOQ: 20 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	LOQ: 20 µg/kg
33	WM3	ND	ND	ND	ND	ND	ND	61	<20	ND	61	737	ND	176	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	50	<20	ND	50	ND	ND	ND	ND	ND	ND
33	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	212	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	77	<20	ND	77	ND	ND	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	ND	103	25	<20	128	<100	<20	ND	ND	ND	ND
33	WM2	ND	ND	ND	ND	ND	ND	40	<20	ND	40	<100	<100	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	184	46	<20	230	ND	ND	ND	ND	ND	ND
33	WM3	ND	ND	ND	ND	ND	ND	247	61	27	335	<100	57	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	ND	20 820	9 369	4 551	34 740	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	1 615	648	155	2 418	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	60	ND	ND	60	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	<20	ND	ND	ND	<100	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	354	70	<20	424	131	60	ND	ND	ND	ND
33	WM1	ND	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	ND	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	31	<20	ND	31	ND	ND	ND	ND	ND	ND
34	YM1	ND	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	ND
34	YM1	ND	ND	ND	ND	ND	ND	23	ND	ND	23	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	50	ND	ND	50	ND	ND	ND	ND	ND	ND
34	YM2	ND	ND	ND	ND	ND	ND	252	114	<20	366	154	69	ND	ND	ND	ND
34	YM2	ND	ND	ND	ND	ND	ND	95	27	ND	122	ND	28	ND	ND	ND	ND
34	COM	ND	ND	ND	ND	ND	ND	155	34	ND	189	<100	ND	ND	ND	ND	ND
34	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	YM3	ND	ND	ND	ND	ND	ND	2 121	666	175	2 962	ND	180	ND	ND	ND	ND
34	WM1	ND	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	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (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
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total							
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	141	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	29	ND	ND	ND	495	131	ND	ND	ND	ND	ND
34	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 394	554	ND	33	ND	ND	ND
34	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	360	ND	ND	<20	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	116	36	ND	152	<100	ND	ND	ND	ND	ND	ND
34	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	249	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	512	97	34	643	ND	ND	ND	ND	ND	ND	ND
34	YM1	ND	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	213	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	193	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	529	<100	ND	ND	ND	ND	ND
35	COM	ND	ND	ND	ND	ND	<20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	432	<100	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	316	90	<20	406	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	1 277	544	80	1 901	ND	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	359	67	25	451	ND	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	3 340	814	239	4 393	ND	ND	ND	ND	ND	ND	ND
35	WM3	ND	ND	ND	ND	ND	5 224	1 816	301	7 341	ND	ND	ND	ND	ND	ND	ND
35	YM3	ND	ND	ND	ND	ND	2 601	549	204	3 354	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 047	123	ND	23	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	180	49	37	266	840	<100	ND	<20	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	94	28	ND	122	ND	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	148	36	ND	184	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	283	88	<20	371	369	<100	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	169	ND	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	<20	ND	ND	ND	1 735	195	ND	<20	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	42	<20	ND	42	206	ND	ND	<20	ND	ND	ND
36	YM2	ND	ND	ND	ND	ND	84	<20	<20	84	1 137	<100	ND	957	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2018/19 (continue)

Region	Grade	Aflatoxin µg/kg				Fumonisin µg/kg				DON µg/kg LOQ: 100 µg/kg	15-ADON µg/kg LOQ: 100 µg/kg	Ochratoxin A µg/kg LOQ: 5 µg/kg	Zearalenone µg/kg LOQ: 20 µg/kg	HT-2 µg/kg LOD: 20 µg/kg	T-2 µg/kg LOQ: 20 µg/kg
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg						
36	WM2	ND	ND	ND	ND	ND	38	ND	ND	780	ND	ND	70	ND	ND
36	COM	ND	ND	ND	ND	ND	304	108	20	162	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	667	<100	ND	24	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	760	<100	ND	<20	ND	ND
36	YM1	ND	ND	ND	ND	ND	350	129	41	1 712	182	ND	36	ND	ND
36	YM3	ND	ND	ND	ND	ND	206	52	21	<100	ND	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	4 058	694	ND	28	ND	ND
36	YM2	ND	ND	ND	ND	ND	23	<20	ND	299	<100	ND	ND	ND	ND
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	3 256	331	ND	21	ND	ND
36	WM3	ND	ND	ND	ND	ND	ND	ND	ND	1 627	110	ND	93	ND	ND
36	WM2	ND	ND	ND	ND	ND	30	ND	ND	535	ND	ND	26	ND	ND
36	YM1	ND	ND	ND	ND	ND	549	132	59	482	<100	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	309	91	<20	916	ND	ND	35	ND	ND
36	YM2	ND	ND	ND	ND	ND	68	30	ND	175	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	86	31	ND	1 016	112	ND	38	ND	ND
36	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 723	227	ND	ND	ND	ND
36	WM1	ND	ND	ND	ND	ND	103	40	ND	1 021	136	ND	25	ND	ND
36	YM3	ND	ND	ND	ND	ND	906	287	126	213	ND	ND	ND	ND	ND
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	141	ND	ND	ND	ND	ND
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	119	ND	ND	ND	ND	ND
Total number of samples		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	206	69	23	424	<100	0	<20	0	0
Number of positive results		1	0	1	0	1	151	106	53	237	62	0	36	0	0
Average of positive results		48	-	95	-	143	478	226	151	627	218	-	98	-	-
Maximum of positive results		48	0	95	0	143	20 820	9 369	4 551	11 181	737	0	957	0	0

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 25: MYCOTOXIN RESULTS - SUMMARY OF SEASONS 2009/10 TO 2018/19

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.
**2009/10	800	90	0	0	0	251	0	4 035	206	0	1 845	0	0	0	0	0	0	0	0	0
**2010/11	693	325	0	0	0	468	0	7 048	165	0	1 835	33	0	270	0	0	0	0	0	0
**2011/12	1 000	350	0	0	0	383	0	11 297	146	0	911	33	0	297	0	0	0	0	0	0
**2012/13	1 000	350	0	0	0	530	0	11 243	186	0	1 175	30	0	426	0	0	0	2	0	232
**2013/14	930	350	0	0	0	451	0	5 357	243	0	6 134	38	0	445	0	0	0	0	0	0
**2014/15	1 000	350	2	0	48	357	0	3 382	397	0	9 736	36	0	337	0	0	0	0	0	0
**2015/16	920	350	0	0	0	444	0	11 347	175	0	1 585	16	0	127	0	0	0	0	0	0
**2016/17	1 000	350	0	0	0	471	0	6 059	513	0	7 698	36	0	399	0	0	0	0	0	0
**2017/18	900	350	0	0	0	991	0	8 356	656	0	3 510	51	0	361	0	0	0	0	0	0
**2018/19	808	350	10	0	143	666	0	34 740	550	0	11 181	64	0	957	0	0	0	0	0	0
Total	9 051	3 215																		
	Min.			0			0			0			0			0			0	
	Max.				143			34 740			11 181			957			0			232

* Sum of Aflatoxin (B₁; B₂; G₁; G₂) and sum of Fumonisin (B₁; B₂)

** Sum of Aflatoxin (B₁; B₂; G₁; G₂) and sum of Fumonisin (B₁; B₂; B₃)

■ RSA averages calculated from averages per province.

Mycotoxin methodology

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 B ₁	5	2.5
Aflatoxin B ₂	5	2.5
Aflatoxin G ₁	5	2.5
Aflatoxin G 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.

Once grading has been completed, 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 content of each container was divided 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 was more than one container per class and grade per silo bin, the combined contents of the containers were mixed thoroughly before dividing it with a multi slot divider to obtain the required 3 kg sample.

The samples were 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 were 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, Government Notice No. R. 473 of 8 May 2009 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 endosperm 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 pinked kernels in 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.

All samples were also inspected for the visual symptoms of *Diplodia* and *Fusarium* infection, which were 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.

The % Cobrot reported, represents the percentage maize kernels that are both *Fusarium* and *Diplodia* infected.

USA GRADING

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

The US grading system makes provision for three classes of maize/corn based on colour, namely Class White corn, Class Yellow corn and Class Mixed corn. Each class is divided into five U.S. numerical grades (Nos. 1 to 5) and U.S. Sample Grade. US No.1 is the most desirable grade followed by No. 2 down to sample 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 discoloured and damaged by heat, including material discolouration 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 according to procedures prescribed in Federal Grain Inspection Service (FGIS) instructions.

Foreign material is all matter that passes readily through a 6/64-inch round-hole sieve and all matter other than corn that remains on top of the 12/64-inch round-hole sieve after sieving according to procedures prescribed in FGIS instructions.

Broken corn and foreign material is all matter that passes readily through a 12/64-inch round-hole sieve and all matter other than corn that remains in the sieved sample after sieving according to procedures prescribed in FGIS instructions.

Bushel weight

The specific mass (or grain density) of maize/corn (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.

Test weight is the weight per Winchester bushel (2,150.42 cubic inches) as determined using an approved device according to procedures prescribed in FGIS instructions.

Other colour

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

PHYSICAL CHARACTERISTICS

Test weight

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.

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.

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. The results are reported on an "as is" basis.

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, routinely 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 (e.g. 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 fractions below the 6.35 mm and 4.75 mm sieves were collected and the percentages broken kernels smaller than (<) 6.35 mm and < 4.75 mm 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 a model developed on the Foss NIT Infratec 1241- Generation 3 Standard Version Grain Analyser where the NIT spectra were modelled against the Roff milling fractions. In the previous seasons (until 2015/16) the Milling index of the samples were determined with the calibration model developed by the Grain Crops Institute of the ARC. With this model, the average milling index of a sample with good milling characteristics is about 95 with a variation of about 55 (low milling quality) to

about 115 (very good milling quality).

The SAGL was tasked by the Maize Trust to develop a new model for Milling Index using samples from maize cultivar trials supplied by the ARC-GCI and by commercial seed breeders over four seasons (from 2012/13 onward). The trials included a range of hardness levels. The New Milling Index (NMI) that was developed is similar to the original ARC formula but on a 14% moisture basis, and with the constants removed. The NMI model has improved precision compared to the older version, due to the almost tenfold increase in the number of samples used to build the calibration model.

During the fifth year, samples of commercial hybrids, selected imported maize samples and outlier samples from the 2014/15 and 2015/16 seasons were included to develop a robust model with the assistance of Foss to produce accurate results. The latest version of the improved new model, SAGL Milling Index 2019, includes two parameters, SAGL Milling Index (SAGL MI) as well as Grit Yield All (GYA).

SAGL MI indicates the relative ratio of total hard endosperm products (B2 grits, B3 fine grits and B3 coarse grits) to offal products (B1 fine flour and total chop/bran) as determined on a Roff mill and used for calibration of the NIT. It is expressed as a dimensionless index value according to the following scale:

SAGL MI	<40	40-60	60-80	80-100	>100
Description	Soft	Medium	Moderately hard	Hard	Very hard

GYA is defined as the sum of the mass fractions of the Roff B2 grits, B3 fine grits and B3 coarse grits fractions expressed as a mass percentage of the total mass of the whole maize before milling. GYA is linearly correlated with the SAGL MI and indicates the true amount of total hard endosperm that can be extracted from the maize during Roff milling. The NIT calibration value for GYA provides this estimate directly from the whole maize without need for further milling tests. GYA is also reported on a 14% moisture base.

The 2018/19 season maize samples were measured with the NIT on the SAGL Milling Index 2019 model.

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 chop, 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 percentages: Break 1 meal, Break 2 meal, Break 3 meal and Break 3 grits. Break 1, 2 and 3 chop are combined and then weighed for determination of % Chop. Break 3 grits are weighed for determination of % Grits. The percentage extraction total meal is determined as the sum of the percentages Break 1, 2 and 3 meal as well as the % Grits.

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.

NUTRITIONAL VALUES

The moisture, fat, protein, starch and crude fibre 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. The results are reported on a dry (moisture free) basis.

With the assistance of Foss, a calibration for crude fibre content was developed during the previous season. The calibration on the Infratec 1241 Grain Analyser (NIT), is updated annually by Foss using NIT spectra and international primary chemical method results of maize crop quality samples from the specific season under discussion, provided by SAGL.

The chemical methods used to check the calibration were:

- Moisture on whole maize kernels: Sample is dried in an oven for 72 hours at 103 °C (AACCI 44-15.02)
- Moisture on milled maize: Sample is dried in an oven for 1 hour at 130 °C (AACCI 44-15.02)
- Crude fat: Petroleum ether extraction (Soxhlet) method (In house method 024)
- Crude protein: Dumas (Leco) method (AACCI 46-30.01)
- Starch: Hydrochloric Acid dissolution method (Polarimeter) (In house method 019)
- Crude fibre: Loss on ignition of the dried residue after digestion of the sample with dilute and acid and alkali (In house method 020)

The results obtained by the Infratec 1241 Grain Analyser (NIT) on the 2018/19 season's samples, were checked by analysing every tenth sample by means of the primary methods.

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 808 maize crop samples were tested for Aflatoxin B₁, B₂, G₁, G₂, Fumonisin B₁, B₂ and B₃, 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 precision 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, latest edition was followed. Results were scanned and interpreted quantitatively with the EnviroLogix QuickScan system.

70 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).

Cry1Ab	MON810	Trade name / Brand
Cry1Ab	MON810 Cry1A.105 Bt11	YieldGard®
Cry2Ab	MON89034	<i>in</i> SmartStax™
CP4 EPSPS	NK603	Roundup Ready®

Maize

Exports and Imports

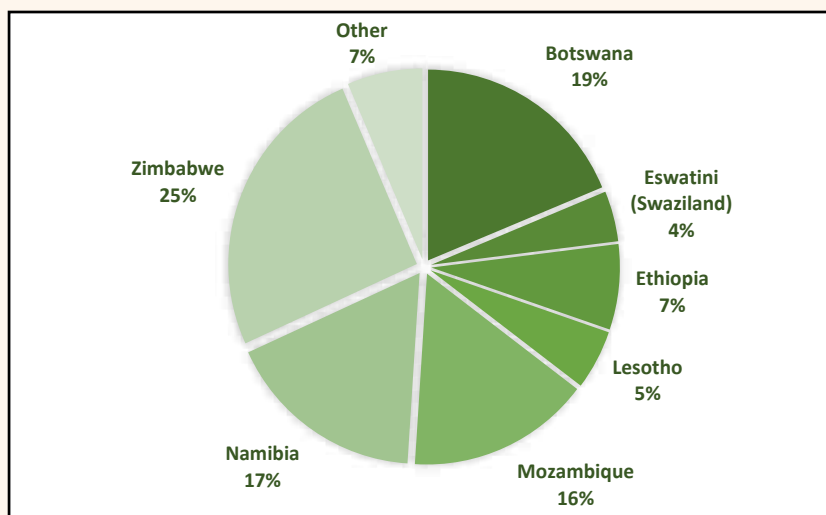


WHITE MAIZE EXPORTS/IMPORTS

2019/20 MARKETING SEASON (27 April 2019 - 24 April 2020)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons	Harbour	Tons
Botswana	191 573	-	-	-	-	-	-	-	-	Durban	202 313
Eswatini (Swaziland)	43 761	-	-	-	-	-	-	-	-	-	-
Ethiopia	74 021	-	-	-	-	-	-	-	-	-	-
Lesotho	51 771	-	-	-	-	-	-	-	-	-	-
Mozambique	160 427	-	-	-	-	-	-	-	-	-	-
Namibia	175 285	-	-	-	-	-	-	-	-	-	-
Somalia	22 900	-	-	-	-	-	-	-	-	-	-
Tanzania	23 082	-	-	-	-	-	-	-	-	-	-
Uganda	20 000	-	-	-	-	-	-	-	-	-	-
Zimbabwe	259 321	-	-	-	-	-	-	-	-	-	-
Total	1 022 141	Total	0	Total	0	Total	0	Total	0	Total	202 313

Graph 53: Major destinations for RSA white maize exported during the 2019/20 marketing season



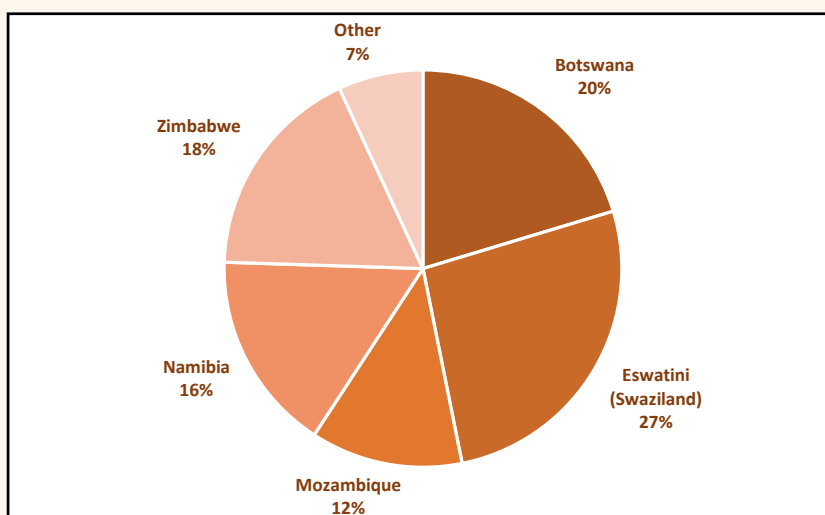
YELLOW MAIZE EXPORTS/IMPORTS

2019/20 MARKETING SEASON (27 April 2019 - 24 April 2020)

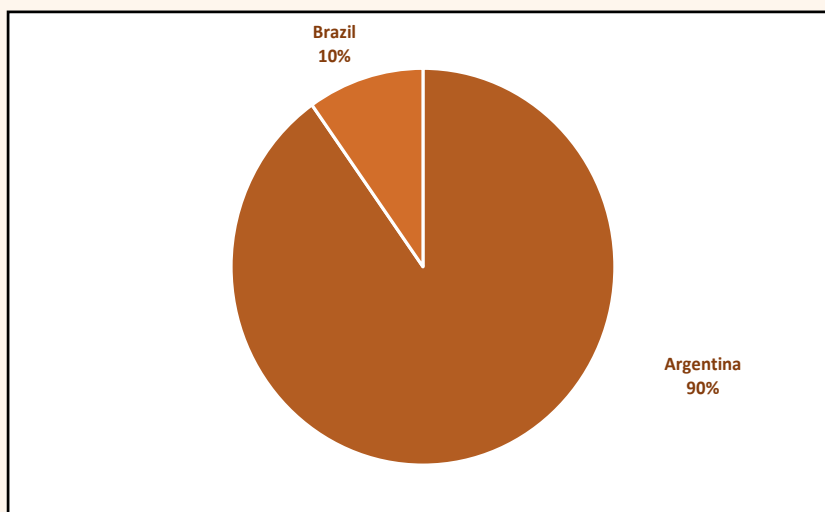
RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
To Country	Tons	From Country	Tons	From Country	Tons	To Country	Tons	Harbour	Tons	Harbour	Tons
Angola	481	Argentina	459 615	-	-	-	-	Cape Town	509 684	Durban	15 134
Botswana	81 808	Brazil	50 069	-	-	-	-	-	-	-	-
Eswatini (Swaziland)	106 678	-	-	-	-	-	-	-	-	-	-
Korea, Dem People's Rep	8 304	-	-	-	-	-	-	-	-	-	-
Korea, Rep of	6 349	-	-	-	-	-	-	-	-	-	-
Lesotho	12 664	-	-	-	-	-	-	-	-	-	-
Mozambique	49 762	-	-	-	-	-	-	-	-	-	-
Namibia	65 595	-	-	-	-	-	-	-	-	-	-
Zimbabwe	70 732	-	-	-	-	-	-	-	-	-	-
Total	402 373	Total	509 684	Total	0	Total	0	Total*	509 684	Total	15 134

*Includes imports for RSA and Other Countries.

Graph 54: Major destinations for RSA yellow maize exported during the 2019/20 marketing season



Graph 55: Country of origin for yellow maize imports for local use during the 2019/20 marketing season



Maize Imports and Exports during the 2019/20 marketing season - summary of results

A total of 509 684 tons of yellow maize was imported from Argentina and Brazil for local use during the period 27 April 2019 to 24 April 2020. No white maize was imported during this period. Forty-two samples, 37 representing imported Argentinian maize and five representing imported Brazilian maize, were received at the SAGL for quality analyses purposes. Ten samples in total were graded YM2 and one Class Other Maize (COM), the rest were all graded YM1 according to South African grading regulations.

The results of the quality analyses performed on the imported maize are compared to those of the local maize crop of the corresponding grade and period (2018/19 production season). Please see the summary of results on pages 106 and 107.

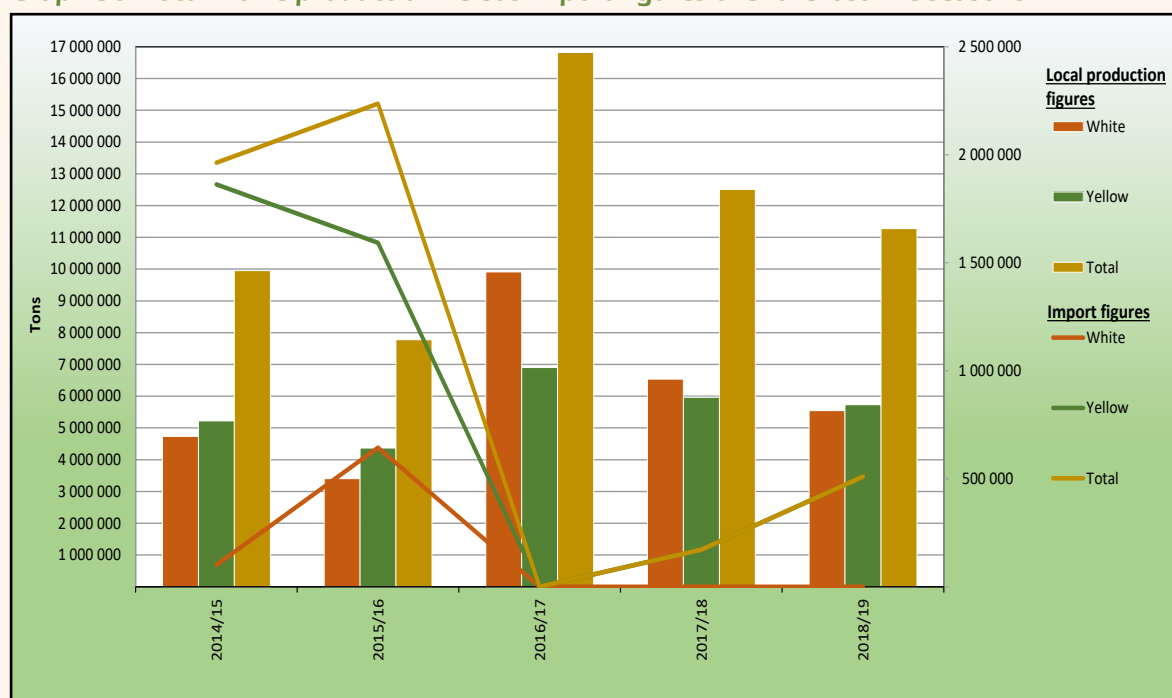
The average percentages defective kernels above the 6.35 mm sieve for YM1 maize was higher on the imported samples, but lower than that of local maize for YM2 and COM. The average percentages defective kernels below the 6.35 mm sieve was higher than that of local maize. The 100 kernel mass of the imported maize was in contrast to previous seasons, higher than South African maize. Test weight values of the imported maize were lower on average than local maize as observed during the previous season. The difference in the percentage stress cracks between imported and local maize was smaller than in previous seasons, given the increase in stress cracks on local maize this season. The kernel sizes of the imported maize were smaller than South African maize as in previous seasons, values above the 10 mm sieve were on average 3 – 5% lower. The average protein content of the imported maize was approximately 1.0% lower than that of the RSA maize, while the average fat content was 0.3% higher. The starch content of the Argentinean maize compared well with local maize, the Brazilian starch content was on average 0.5% higher. Crude fibre values were almost identical.

Multi-mycotoxin analyses were done on nine Argentinean and one Brazilian composite sample per shipment. The mycotoxin results did not raise any major concerns. The fumonisin and DON residues on all but one sample from Argentina, were well below the national maximum Fumonisin ($B_1 + B_2$) level for cereal grains and raw maize intended for further processing.

During the season under review, 1 022 141 tons of local white maize and 402 373 tons of local yellow maize were exported to countries in Africa and overseas. Zimbabwe was the largest importer of South African white maize, while Eswatini (Swaziland) was the largest importer of yellow maize. Please see tables and graphs on pages 103 and 104 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 56: Local maize production versus import figures over the last five seasons



IMPORTED MAIZE QUALITY Quality of maize imported from 27 April 2019 to 1 May 2020 compared to RSA crop quality 2018/19								
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, %	3.6	3.0	2.9	3.3	2.7	6.8	7.1	3.7
Defective kernels below 6.35 mm sieve, %	2.3	4.8	3.5	3.0	1.4	2.9	2.8	1.7
Total defective kernels, %	5.8	7.9	6.4	6.4	4.1	9.7	10.0	5.4
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	0.0	0.1	0.0	0.1	0.7	0.1
Combined deviations, %	5.9	8.0	6.4	6.5	4.2	10.3	11.1	5.7
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	32.0	30.9	32.5	31.8	30.9	29.2	29.8	30.6
Stress cracks, %	15	15	7	14	12	16	16	13
Milling Index	75.9	74.7	60.8	73.6	79.4	80.8	78.5	79.5
Test weight, kg/hl	75.7	75.4	73.6	75.3	77.3	75.8	75.8	76.9
Kernel Size								
% above 10 mm sieve	3.5	3.2	2.4	3.3	8.4	7.5	8.1	8.3
% above 8 mm sieve	62.1	58.3	62.4	61.2	66.8	64.7	64.1	66.4
% below 8 mm sieve	34.4	38.4	35.2	35.5	24.8	27.8	27.7	25.3
Breakage susceptibility								
% Below 6.35 mm sieve	0.2	0.2	0.1	0.2	0.8	1.6	1.3	1.0
% Below 4.75 mm sieve	0.3	0.3	0.4	0.3	0.6	1.1	0.9	0.7
Nutritional Factors								
Protein, % (db)	8.2	8.3	8.3	8.2	9.2	9.4	9.1	9.2
Fat, % (db)	4.3	4.4	4.3	4.3	3.9	4.0	4.0	4.0
Starch, % (db)	72.1	72.9	73.9	72.5	72.8	72.6	72.6	72.7
Crude fibre, % (db)	2.1	2.1	2.0	2.1	1.9	2.0	2.0	2.0
Number of samples	23	9	5	37	309	47	35	404
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]	1 355 [3 150]				165 [3 340]	884 [20 820]	105 [359]	309
Fum B ₂ (µg/kg) [max. value]	548 [1 460]				43 [814]	377 [9 369]	31 [129]	105
Fum B ₃ (µg/kg) [max. value]	156 [361]				<20 [239]	169 [4 551]	<20 [32]	39
Deoxynivalenol (µg/kg) [max. value]	281 [1 017]				238 [1 735]	394 [1 723]	736 [3 256]	303
15-ADON [max. value]	0 [<100]				<100 [195]	<100 [227]	124 [593]	<100
Ochratoxin A (µg/kg) [max. value]	0 [0]				0 [0]	0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	39 [129]				<20 [148]	43 [957]	<20 [70]	<20
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	9				124	29	13	175
GMO								
Cry1Ab, % [max value]	>5.0 [>5.0]				4.5 [>5.0]	4.0 [>5.0]	>5.0 [>5.0]	3.9
Cry2Ab, % [max value]	>5.0 [>5.0]				3.7 [>5.0]	3.6 [>5.0]	4.8 [>5.0]	3.8
CP4 EPSPS, % [max value]	>5.0 [>5.0]				4.4 [>5.0]	4.2 [>5.0]	>5.0 [>5.0]	4.0
Number of samples	9				18	10	3	35

IMPORTED MAIZE QUALITY Quality of maize imported from 27 April 2019 to 1 May 2020 compared to RSA crop quality 2018/19						
Country of origin	Brazil			RSA Crop Average		
Class and grade yellow maize	YM1	YM2	Average	YM1	YM2	Average
RSA Grading						
Defective kernels above 6.35 mm sieve, %	3.0	2.2	2.8	2.7	6.8	3.7
Defective kernels below 6.35 mm sieve, %	2.9	4.1	3.1	1.4	2.9	1.7
Total defective kernels, %	5.9	6.3	5.9	4.1	9.7	5.4
Other colour maize kernels, %	0.1	0.0	0.0	0.1	0.4	0.2
Foreign matter, %	0.1	0.1	0.1	0.0	0.1	0.1
Combined deviations, %	6.0	6.4	6.0	4.2	10.3	5.7
Pinked maize kernels, %	0.0	0.0	0.0	0.0	0.0	0.0
Physical Factors						
100 Kernel mass, g	33.0	31.2	32.6	30.9	29.2	30.6
Stress cracks, %	15	12	14	12	16	13
Milling Index	83.3	76.2	81.9	79.4	80.8	79.5
Test weight, kg/hl	76.0	75.4	75.9	77.3	75.8	76.9
Kernel Size						
% above 10 mm sieve	5.4	4.2	5.2	8.4	7.5	8.3
% above 8 mm sieve	68.1	64.9	67.5	66.8	64.7	66.4
% below 8 mm sieve	26.5	30.9	27.4	24.8	27.8	25.3
Breakage susceptibility						
% Below 6.35 mm sieve	0.4	0.0	0.3	0.8	1.6	1.0
% Below 4.75 mm sieve	0.6	0.2	0.5	0.6	1.1	0.7
Nutritional Factors						
Protein, % (db)	8.4	8.2	8.4	9.2	9.4	9.2
Fat, % (db)	4.3	4.4	4.3	3.9	4.0	4.0
Starch, % (db)	73.3	73.1	73.3	72.8	72.6	72.7
Crude fibre, % (db)	2.0	1.9	2.0	1.9	2.0	2.0
Number of samples	4	1	5	309	47	404
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]	170 [170]			165 [3 340]	884 [20 820]	309
Fum B ₂ (µg/kg) [max. value]	77 [77]			43 [814]	377 [9 369]	105
Fum B ₃ (µg/kg) [max. value]	24 [24]			<20 [239]	169 [4 551]	39
Deoxynivalenol (µg/kg) [max. value]	0 [0]			238 [1 735]	394 [1 723]	303
15-ADON [max. value]	0 [0]			<100 [195]	<100 [227]	<100
Ochratoxin A (µg/kg) [max. value]	0 [0]			0 [0]	0 [0]	0
Zearalenone (µg/kg) [max. value]	0 [0]			<20 [148]	43 [957]	<20
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	1			124	29	175
GMO						
Cry1Ab, % [max value]	>5.0 [>5.0]			4.5 [>5.0]	4.0 [>5.0]	3.9
Cry2Ab, % [max value]	>5.0 [>5.0]			3.7 [>5.0]	3.6 [>5.0]	3.8
CP4 EPSPS, % [max value]	>5.0 [>5.0]			4.4 [>5.0]	4.2 [>5.0]	4.0
Number of samples	1			18	10	35



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 facility
provided that all 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 17025:2017

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

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



Mr R Josias
Chief Executive Officer

Effective Date: 01 November 2019
Certificate Expires: 31 October 2024



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 excl. In-house method 029)
Ms M Bothma (All Chemical Methods)
Ms M Hammes (All Chemical Methods)
Ms A de Jager (Nutrients & Contaminants Methods)
Ms W Louw (In-house Methods 001, 002, 003, 010 & 026)
Ms D Moleke (Rheological Methods)
Ms I Terblanche (Rheological Methods)
Mrs H Meyer (All Chemical, Nutrients and Contaminants & Grading Methods)
Ms J Kruger (All Chemical Methods)
Ms M Motlanthe (In-house Methods 001, 003 & 026)
Mr B van Der Linde (Grading)
Ms M Ramare (All Chemical Methods Excl. In-House Method 012 and SOP MC23)
Ms Z Skhosana (In-house Method 026)
Ms T de Beer (Rheological Methods)

Postal Address:

Postnet Suite # 391
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Nominated Representative:

Mrs H Meyer

Issue No.: 29

Date of Issue: 14 October 2019

Expiry Date: 31 October 2024

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)

Facility Number: T0116

are sugar coated)		(72 hour; 103°C)
Maize Grits	Moisture (Oven Method)	Analytical EBC Method 6.2.2, latest edition (4 hours, 130°C)
Animal feed, Plant tissue and Sunflower (Milled)	Moisture (Oven Method)	AgriLASA 2.1, Latest Edition (5 hours, 105°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
Yeast and Bread	Vitamin D ₂ (HPLC)	In-House method 029

Facility Number: T0116

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
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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

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 ($\pm 0,05$ 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 600cm² and a maximum of 750cm²; 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 7700/1 based 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**

Deviation/Afwyking	Maximum permissible deviation/ Maksimum toelaatbare 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]/ <i>Gebrekkige mieliepitte, bo en onder die 6,35 mm-rondegatsif [regulasies 16]</i>	7%	13%	30%	*	*	*
3. Defective maize kernels that can pass through the 6,35 mm round-hole sieve [regulation 16(c)]/ <i>Gebrekkige mieliepitte wat deur die 6,35 mm rondegatsif kan gaan [regulasie 16(c)]</i>	*	*	*	4%	10%	30%
4. Defective maize kernels that can not pass through the 6,35 mm round-hole sieve [regulation 16(e)]/ <i>Gebrekkige mieliepitte wat nie deur die 6,35 mm-rondegatsif kan gaan nie [regulasie 16(e)]</i>	*	*	*	9%	20%	30%
5. Other colour maize kernels [regulation 17]/ <i>Mieliepitte van 'n ander kleur [regulasie 17]</i>	3%	6%	10%	2%	5%	5%
6. Deviations referred to in items 1, 3, 4 and 5 individually within the specified limits/ <i>Afwykinge in items 1, 3, 4 en 5 bedoel, gesamentlik: met dien verstande dat die afwykinge individueel binne die gespesifiseerde perke is</i>	8%	16%	30%	9%	20%	30%
7. Pinked maize kernels [regulation 18]/ <i>Verrooide mieliepitte [regulasie 18]</i>	12%	12%	12%	*	*	*

* Not specified/Nie gespesifiseer nie.



agriculture, forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

(42)

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SERIAL NO:

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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

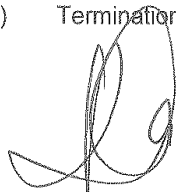
STANDARDS FOR GRADES OF CLASS WHITE MAIZE AND CLASS YELLOW MAIZE/
STANDAARDE VIR GRADE VAN KLAS WITMIELIES EN KLAS GEELMIELIES

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/Afwykinge in items 1, 2, 3, 4 en 5 bedoel, gesamentlik: Met dien verstande dat die afwykinge 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

