



South African Maize Crop

Quality Report
2019/2020 Season





Index

	Page
Introduction	1 - 2
Provincial contribution to the production of the 2019/20 crop (Graph 1)	1
Production	3 - 6
Maize production in RSA from 2009/10 to 2019/20 (Graph 2)	3
Total RSA area utilised for maize production from 2009/10 to 2019/20 (Graph 3)	3
RSA maize yield from 2009/10 to 2019/20 (Graph 4)	4
Maize production overview, dryland vs irrigation - 2019/20 season (Table 1)	4
Area utilised for maize production per province over three seasons (Graph 5)	5
Maize production per province over three seasons (Graph 6)	5
Maize yield per province over three seasons (Graph 7)	5
Area utilised for maize production in the Free State, Mpumalanga and North West since 2009/10 (Graphs 8, 10 and 12)	6
Maize production in the Free State, Mpumalanga and North West since 2009/10 (Graphs 9, 11 and 13)	6
Supply and Demand	7
Maize supply and demand overview 2020/21 marketing season (Graph 14)	7
SAGIS Total Maize Supply and Demand Figures	8
Total Maize: Supply and demand graphs over 10 marketing seasons (Graphs 15 - 18)	9
SAGIS White Maize Supply and Demand Figures	10
White Maize: Supply and demand graphs over 10 marketing seasons (Graphs 19 - 22)	11
SAGIS Yellow Maize Supply and Demand Figures	12
Yellow Maize: Supply and demand graphs over 10 marketing seasons (Graphs 23 - 26)	13
SAGIS White Maize Exports/Imports figures per country and harbour 2020/21 marketing season	14
Major destinations for RSA white maize exports 2020/21 season (Graph 27)	14
SAGIS Yellow Maize Exports/Imports figures per country and harbour 2020/21 marketing season	15
Major destinations for RSA yellow maize exports 2020/21 season (Graph 28)	15
SAGIS Total Whole Maize Processed per Province	16

SAGIS Whole White Maize Processed per Province	17
SAGIS Whole Yellow Maize Processed per Province	18
SAGIS Maize Product Information	19
White and yellow maize products manufactured from May 2020 to March 2021 (Graphs 29 – 32)	19
SAGIS Maize Products Manufactured per Marketing Year	20
SAGIS Maize Products Imported per Marketing Year	21
SAGIS Maize Products Exported per Marketing Year	22
Maize Crop Quality 2019/20 - summary of results	23 - 25
Percentage samples graded as Grade 1 over seasons (Graph 33)	23
South African maize crop quality 2019/20 (weighted averages) (Table 2)	26
RSA Production Regions	27
RSA Provinces (Figure 1)	27
RSA Crop Production Regions (Figure 2)	28
List of grain production regions with silo/intake stands and type of storage structure	29 - 32
Main maize producing provinces – comparison of results	33
RSA grading of white maize according to grade (Table 3)	34 - 38
RSA grading of white maize (Table 4)	39
RSA grading of yellow maize according to grade (Table 5)	40 - 43
RSA grading of yellow maize (Table 6)	44
Grading quality over 10 seasons (Table 7)	45
Percentage Defective kernels and Combined deviations over 10 seasons (Graphs 34 - 36)	46
USA grading of white maize (Table 8)	47 - 50
USA grading of yellow maize (Table 9)	51 - 53
RSA and USA Grading Regulations tables (Tables 10 and 11)	54
Physical quality characteristics of white maize according to grade (Table 12)	55 - 58
Physical quality characteristics of white maize (Table 13)	59
Physical quality characteristics of yellow maize according to grade (Table 14)	60 - 63
Physical quality characteristics of yellow maize (Table 15)	64
Physical quality characteristics over 10 seasons (Table 16)	65
Test weight (kg/hl) over 10 seasons (Graph 37)	65
100 Kernel mass and kernel size over 10 seasons (Graphs 38 - 40)	66

Roff milling and whiteness index of white maize according to grade (Table 17)	67 - 70
Roff milling and whiteness index of white maize (Table 18)	71
Roff milling fractions and total meal extraction (Graphs 41 – 46)	72
Nutritional values of white (Table 19) and yellow maize (Table 20) according to grade	73 - 76
Nutritional values of white and yellow maize (Table 21)	77 - 78
Nutritional values over 10 seasons (Table 22)	79
Fat, protein and starch content over 10 seasons (Graphs 47 - 49)	80
Presence of Genetically Modified Maize (Table 23)	81
Mycotoxin results discussion (Graphs 50 - 60)	82 - 87
International Mycotoxin Regulations	87
National Mycotoxin Regulations	88
Mycotoxin results for the 2019/20 season (Table 24)	89 - 100
Mycotoxin results summary from 2010/11 to 2019/20 (Table 25)	101
Methods	102 - 106
SANAS Certificate and Schedule of Accreditation	107 - 110
Grading Regulations for Maize, Government Notice No. R.473 of 8 May 2009	111 - 119
Industry-wide Dispensation REF NO: 20/4/14/1 of 15 April 2010	120 - 121

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Acknowledgments

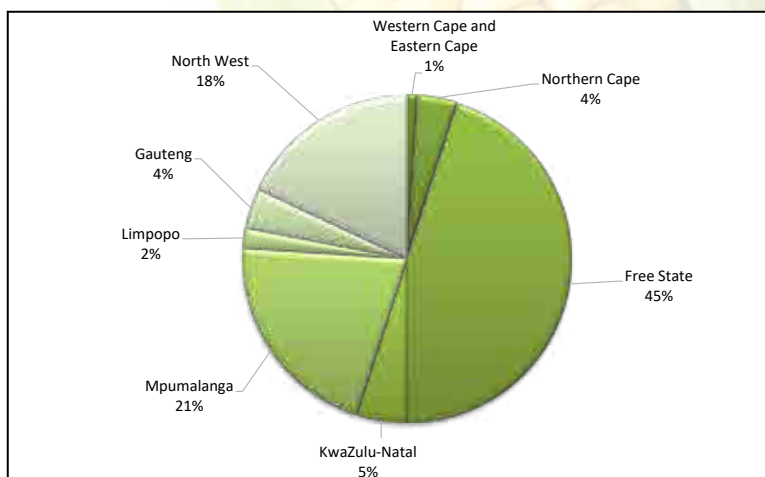
With gratitude to:

- 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 (DALLRD) 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 2020 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 102. A total of 890 composite samples, representing white and yellow maize of each production region, were received and analysed to determine the quality. The samples consisted of 516 white and 374 yellow maize samples.

Graph 1: Provincial contribution to the production of the 2019/20 maize crop



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 102 - 106 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 23rd survey, as well as previous years' surveys are available on the SAGL website (www.sagl.co.za). The report, in an easy to page format, is also available on the website. Hard copy reports are distributed to industry stakeholders and interested parties.

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 111 to 121.

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. 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. A number of data mining as well as quality related investigation/research projects have been based on results obtained from this valuable data base.

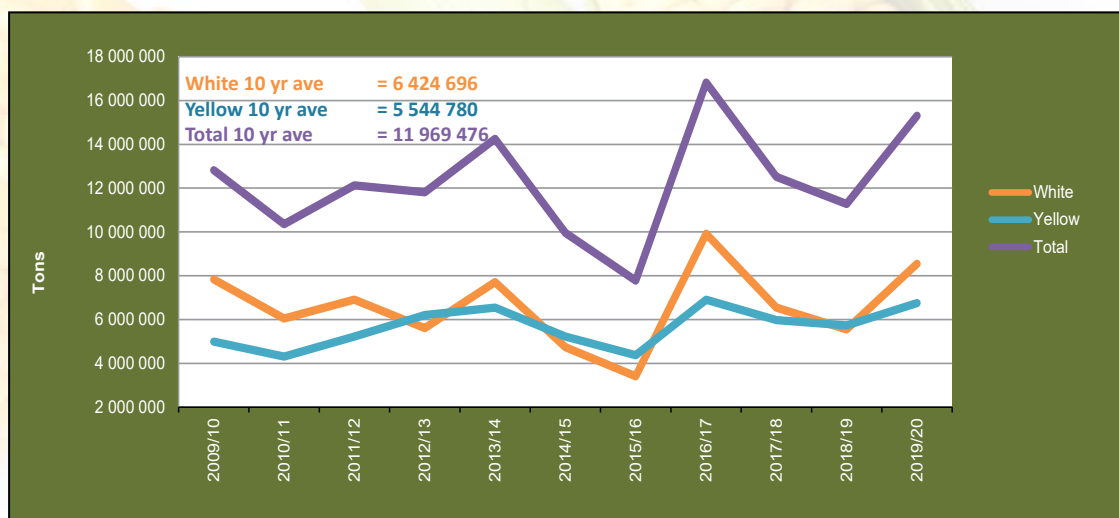
As part of the project, the possibility was explored to develop a Geographic Information System (GIS) map system, where grain production regions (with the boundaries illustrated) are presented on a map of South Africa. SIQ (with additional data from Agbiz Grain on the regional boundary specifications) 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 and can be optimised based on specific requirements.

Production

The final figure for the 2019/20 season's commercial maize crop as overseen by the National Crop Estimates Liaison Committee (CELC) is 15 300 million tons. This figure represents a year on year increase of 35.7% and is also 27.8% higher than the previous 10-year crop average (11 969 million tons). White maize's contribution to the total production was 8 548 million tons (55.9%) and that of yellow maize 6 753 million tons (44.1%).

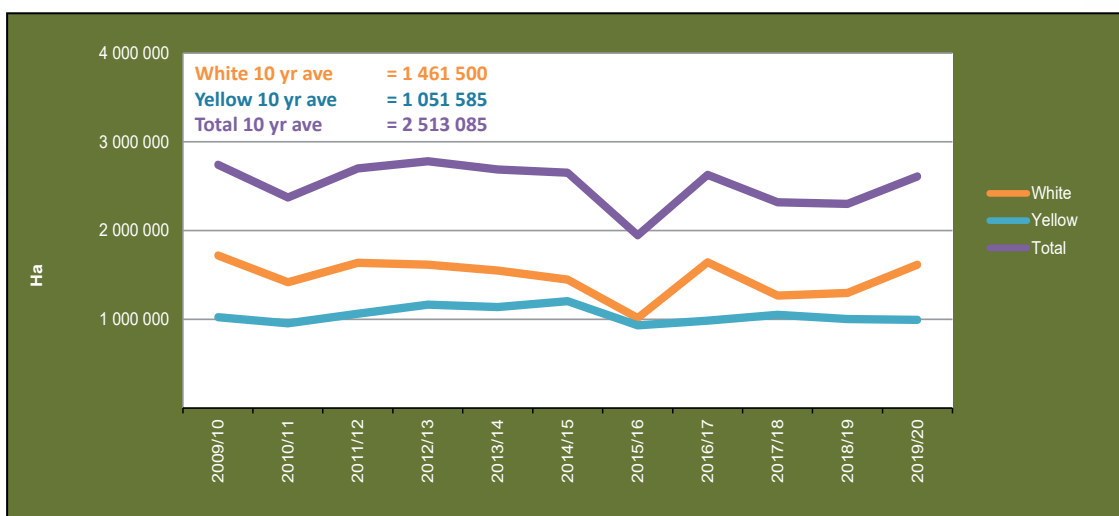
The national Crop Estimates Committee's (CEC) estimated total production figures were revised, using the South African Grain Information Services' (SAGIS) published figures of actual deliveries as basis for the calculations. Figures from the maize utilisation survey, conducted by the Department of Agriculture, Land Reform and Rural Development (DALLRD) 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 2009/10 to 2019/20



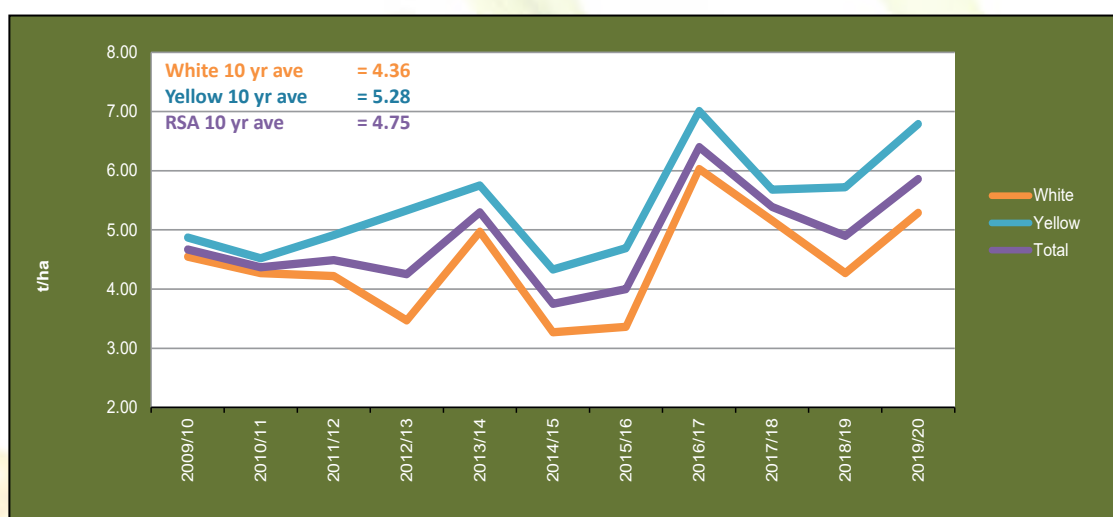
The total area utilised for maize production in the 2019/20 season was 2 610 800 hectares, representing an increase of 13.5% compared to the previous season and which is also 3.9% higher than the previous 10-year average. White maize was planted on 1 616 300 hectares and yellow maize on 994 500 hectares (1 298 400 and 1 002 100 hectares respectively in the 2018/19 season).

Graph 3: Total RSA area utilised for maize production from 2009/10 to 2019/20



The maize yield of 5.86 tons per hectare (t/ha) this season, was 0.96 t/ha higher than the previous season. The previous 10-year average is 4.75 t/ha. White maize yielded 5.29 t/ha and yellow maize 6.79 t/ha (4.27 t/ha and 5.72 t/ha respectively last season).

Graph 4: RSA Maize yield from 2009/10 to 2019/20



The maize area planted in the non-commercial agricultural sector is estimated at 297 460 ha, a slight increase of 0.49% compared to the 296 000 ha of the previous season. The expected maize crop is 543 545 tons for this sector, which is 1.03% less than last season. Approximately 40% of non-commercial maize is produced in the Eastern Cape, followed by KwaZulu-Natal with 27%.

Table 1: Maize production overview - 2019/20 season

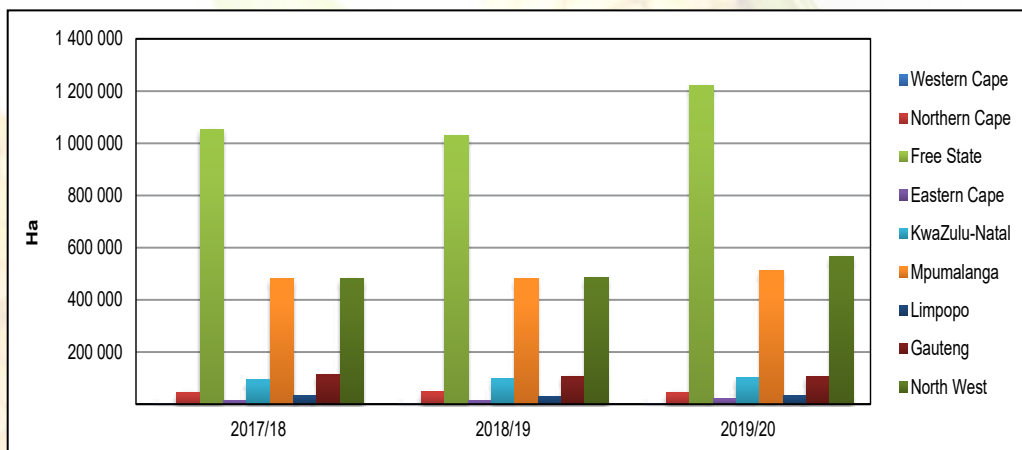
Province	Type of production	White			Yellow		
		Hectares planted, ha	Production, tons	Yield, t/ha	Hectares planted, ha	Production, tons	Yield, t/ha
Western Cape	Dryland	-	-	-	-	-	-
	Irrigation	400	3 600	9.00	3 400	30 600	9.00
	Total	400	3 600	9.00	3 400	30 600	9.00
Northern Cape	Dryland	-	-	-	-	-	-
	Irrigation	3 400	40 300	11.85	43 100	633 900	14.71
	Total	3 400	40 300	11.85	43 100	633 900	14.71
Free State	Dryland	832 800	4 462 000	5.36	337 000	1 867 500	5.54
	Irrigation	22 200	238 000	10.72	28 000	341 500	12.20
	Total	855 000	4 700 000	5.50	365 000	2 209 000	6.05
Eastern Cape	Dryland	3 850	16 300	4.23	11 900	56 000	4.71
	Irrigation	1 650	18 900	11.45	5 100	63 000	12.35
	Total	5 500	35 200	6.40	17 000	119 000	7.00
KwaZulu-Natal	Dryland	39 000	214 000	5.49	31 000	188 500	6.08
	Irrigation	8 000	84 400	10.55	24 000	246 000	10.25
	Total	47 000	298 400	6.35	55 000	434 500	7.90
Mpumalanga	Dryland	152 000	794 000	5.22	334 000	2 162 250	6.47
	Irrigation	8 000	78 000	9.75	19 000	185 250	9.75
	Total	160 000	872 000	5.45	353 000	2 347 500	6.65
Limpopo	Dryland	6 000	19 500	3.25	8 000	26 000	3.25
	Irrigation	9 000	85 500	9.50	10 000	100 000	10.00
	Total	15 000	105 000	7.00	18 000	126 000	7.00
Gauteng	Dryland	52 000	268 000	5.15	42 500	249 000	5.86
	Irrigation	3 000	29 000	9.67	7 500	81 000	10.80
	Total	55 000	297 000	5.40	50 000	330 000	6.60
North West	Dryland	457 000	2 038 000	4.46	75 000	360 000	4.80
	Irrigation	18 000	158 000	8.78	15 000	162 000	10.80
	Total	475 000	2 196 000	4.62	90 000	522 000	5.80
RSA	Dryland	1 542 650	7 811 800	5.06	839 400	4 909 250	5.85
	Irrigation	73 650	735 700	9.99	155 100	1 843 250	11.88
	Total	1 616 300	8 547 500	5.29	994 500	6 752 500	6.79

Figures provided by the CEC.

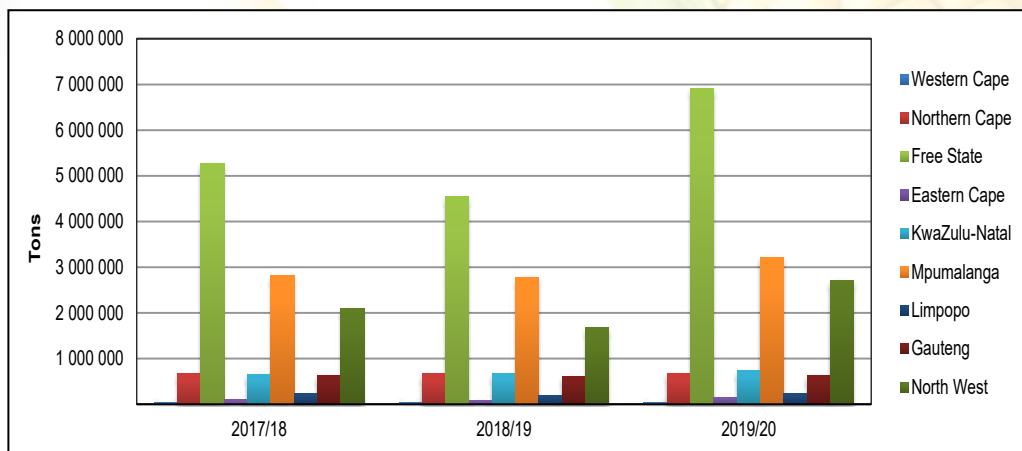
The major commercial maize-producing provinces are the Free State, Mpumalanga and North West, contributing 84% of the total maize production in the RSA. The Free State produced 6 909 000 tons of maize on 1 220 000 hectares with a yield of 5.66 t/ha. Mpumalanga produced 3 219 500 tons of maize on 513 000 hectares with a yield of 6.28 t/ha and North West harvested 2 718 000 tons of maize on 565 000 hectares yielding 4.81 t/ha. Yellow maize contributed 73% of the total maize production in Mpumalanga while the majority of maize produced in the Free State (68%) and North West (81%) was white.

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

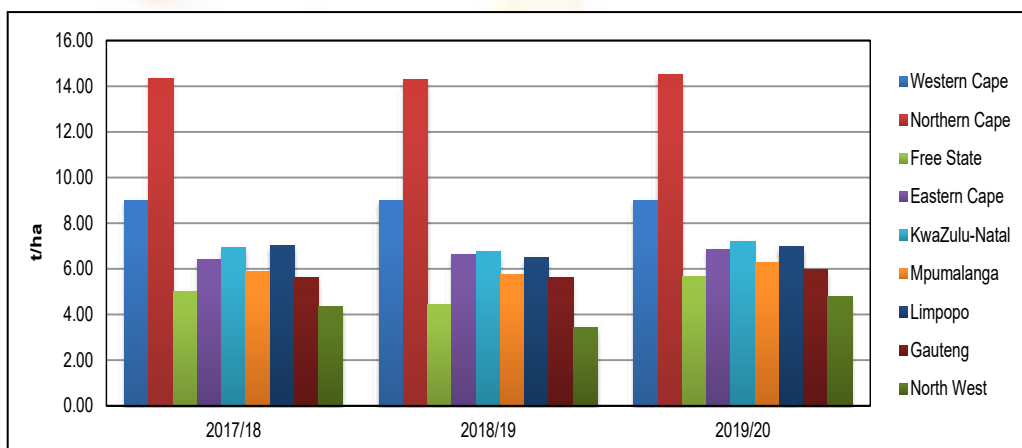
Graph 5: Area utilised for maize production per province over three seasons



Graph 6: Maize production per province over three seasons



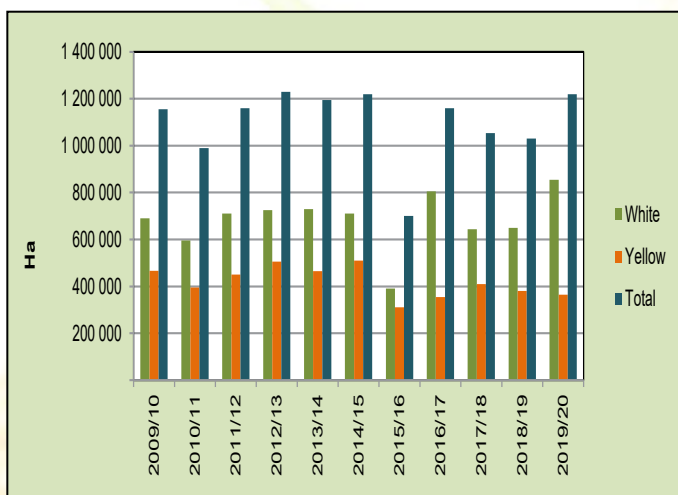
Graph 7: Maize yield per province over three seasons



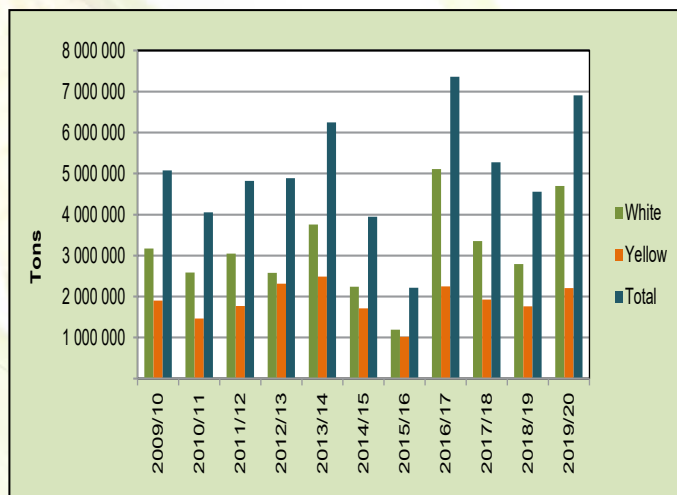
Figures provided by the CEC.

Graphs 8 to 13 provide an overview of the area planted and production figures for the Free State, Mpumalanga and North West from the 2009/10 to 2019/20 seasons.

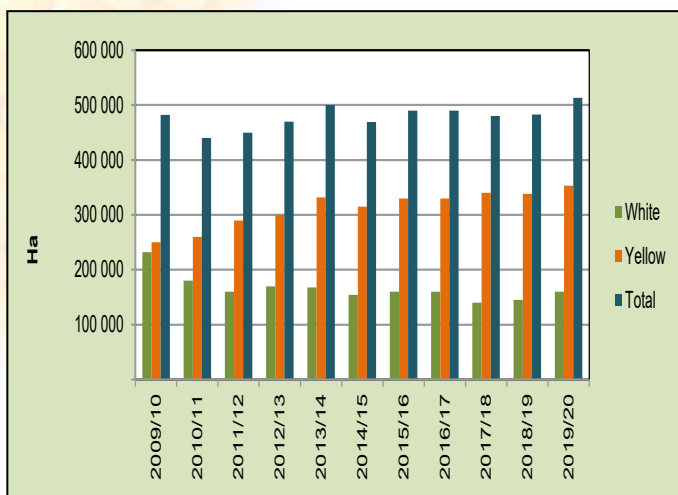
Graph 8: Area utilised for maize production in the Free State since 2009/10



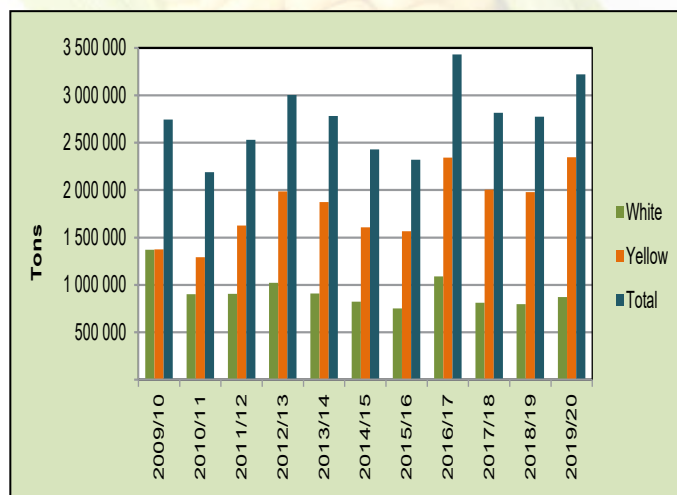
Graph 9: Maize production in the Free State since 2009/10



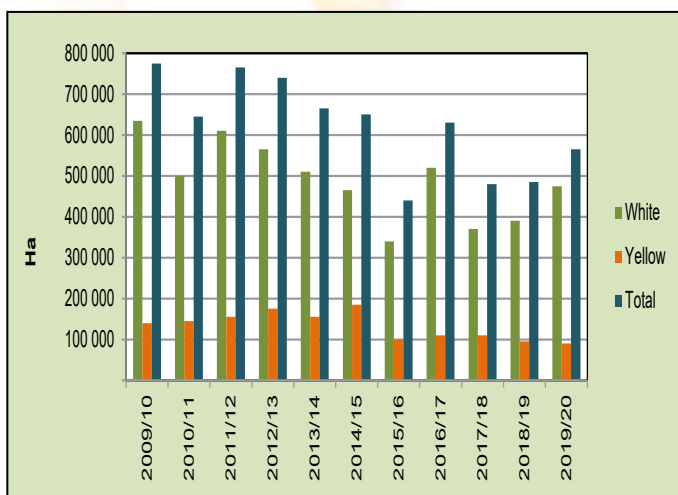
Graph 10: Area utilised for maize production in Mpumalanga since 2009/10



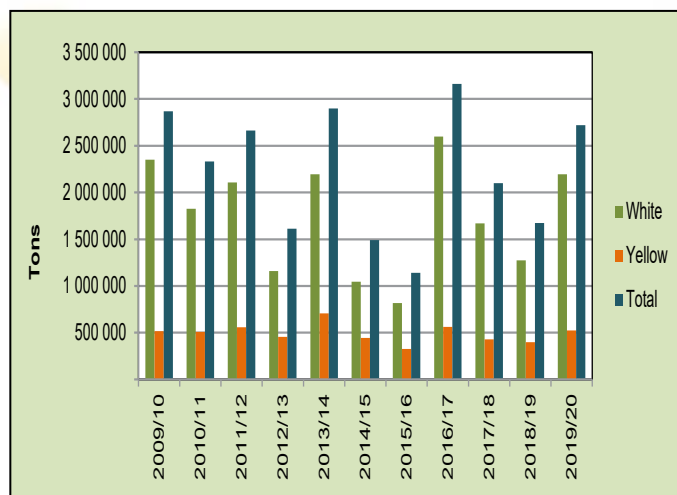
Graph 11: Maize production in Mpumalanga since 2009/10



Graph 12: Area utilised for maize production in North West since 2009/10



Graph 13: Maize production in North West since 2009/10



Figures provided by the CEC.

Supply and Demand

World maize production for the 2019/20 season was estimated at 1 124.8 million tons according to the International Grains Council Grain Market Report GMR 520 – 29 April 2021, 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 129.2, 293.4 and 692.2 million tons respectively for food, industrial and feed purposes. World production for the 2020/21 season is forecasted at 1 140.1 million tons and the 2021/22 figure is projected to be 1 192.3 million tons.

According to The Bureau for Food and Agricultural Policy (BFAP) Baseline, Agricultural Outlook 2020 – 2029, demand growth prospects for different summer crops differs substantially over the next decade, as a result of the differences in use and the underlying consumption trends related to these different products. While staple grains such as white maize and sorghum is predominantly consumed as food, the bulk of yellow maize is consumed as primary energy source in most animal feed rations.

Over the next decade, per capita consumption of white maize is projected to increase by 0.5% per annum, having declined by an annual average of 0.7% per annum over the past 10 years. This increase, in conjunction with a growing population, supports growth of 14% in white maize for human consumption by 2029 relative to the 2017-2019 base period. Relative prices dictate that a smaller share of white maize will be consumed as animal feed by 2029, compared to the base period.

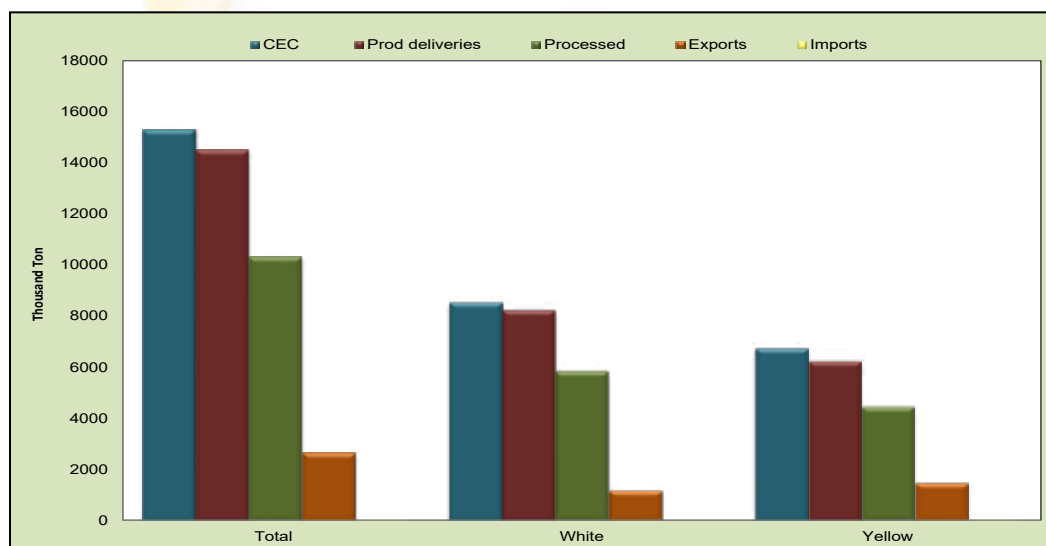
Despite slower growth demand for animal protein in South Africa, the commitments made by the poultry Masterplan, which underpins the projected decline in the share of imported products in domestic consumption, combined with export led expansion in the beef sector, still imply substantial growth in the demand for animal feed over the coming decade. Consequently, yellow maize consumption as animal feed is projected to rise by 22% over the next 10 years.

Area trends over the coming decade also reflect the demand prospects. White maize area continues to decline, contracting 12% by 2029 relative to the 2017-2019 base period. By contrast, the area cultivated to yellow maize continues to increase, expanding by 9% over the 10-year period to 2029.

Fairly consistent yield growth is expected for the major summer crops, based on the assumption of stable rainfall and continuous improvements of cultivars. The largest gain in yield is projected for white maize, where area is expected to contract further. With less marginal land in production as a result of the removal of a further 230 000 hectares of marginal area in the western production regions, yield gains of 25% over the same period is sufficient to meet projected demand growth. This, together with further gains in technology, enables a higher national average yield level. For crops like yellow maize and soybeans where area expands, the yield gains at national level are more subdued.

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 2020/21 marketing season



Information provided by SAGIS.

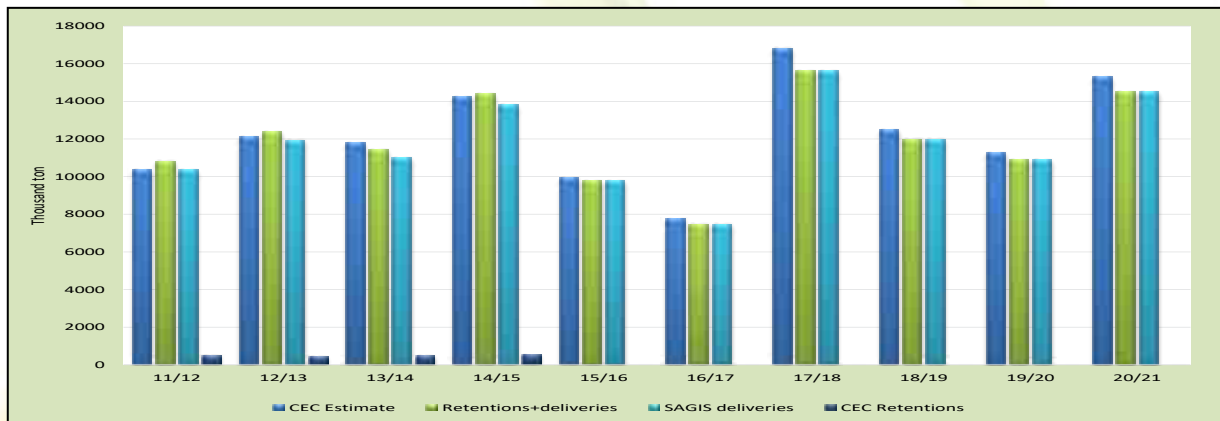
TOTAL MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2021-04-28

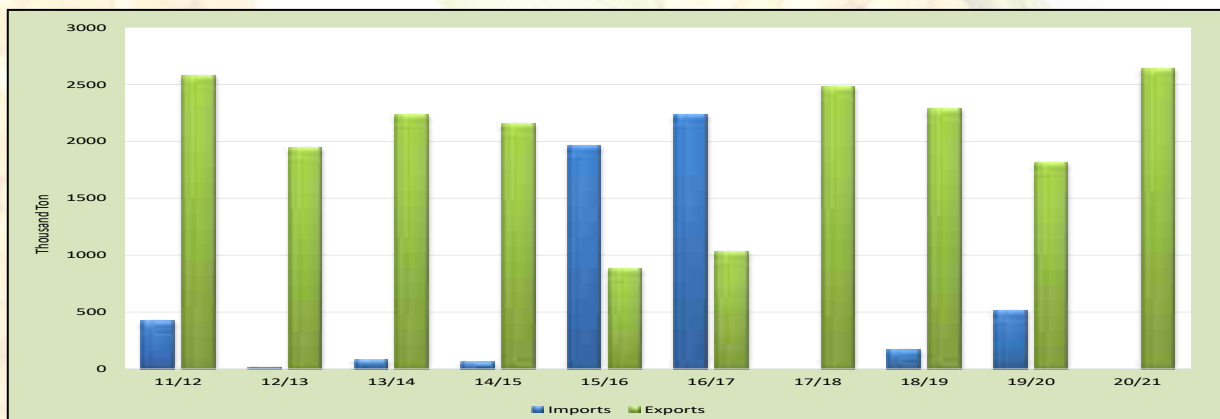
Season	Marketing Season (May - Apr)																		Current	
																			Season	
																			May - Mar	
02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	2010/11- 2019/20	
CEC (Crop Estimate)	9 732 000	9 332 000	9 482 000	11 450 000	6 618 000	7 125 000	12 700 000	12 050 000	12 815 000	10 360 000	12 120 656	11 810 600	14 250 000	9 955 000	7 778 500	16 820 000	12 510 000	11 275 000	15 300 000	11 969 476
CEC (Retention)	462 000	386 000	410 000	754 000	480 000	337 000	554 000	388 000	527 000	474 000	433 000	457 810	550 000	0	0	0	0	0	0	244 181
SUPPLY																				
Opening stock (1 May)	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	984 000	1 417 393	589 028	2 073 635	2 471 067	1 094 638	3 689 476	2 663 086	1 000 601	1 945 932
Prod deliveries*	9 310 000	8 409 000	9 093 000	10 055 000	6 707 000	6 882 000	11 899 000	11 629 000	12 016 000	10 340 000	11 929 000	10 991 995	13 827 632	9 794 332	7 469 600	15 628 682	11 983 862	10 887 053	14 511 915	11 486 815
Imports	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	463	545 859
Surplus	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	22 336	20 699	51 027
Total Supply	11 437 000	11 600 000	11 936 000	13 563 000	10 539 000	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	14 087 764	15 533 678	14 030 184
DEMAND																				
Processed	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	11 106 412	10 297 788	9 819 286
-human	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	4 489 000	4 582 310	4 840 021	4 698 482	4 809 221	4 993 476	5 160 772	5 387 572	5 211 693	4 799 585
-animal/industrial	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	5 698 317	5 071 593	4 977 294
-gristling	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	20 523	14 502	42 416
-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	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	57 104	33 155	121 653
Released to end-consumers	206 000	224 000	351 000	340 000	235 000	230 000	220 000	378 000	528 000	484 000	478 000	280 432	205 577	186 296	157 460	180 544	151 643	99 815	63 792	274 977
Net receipts(-)/disp(+)	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	8 654	8 813	22 378
Deficit	14 000	0	49 000	12 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	1 188 000	1 185 000	832 000	2 237 000	597 000	534 000	2 269 000	1 796 000	2 194 000	2 575 000	1 946 000	2 232 596	2 155 724	879 811	1 026 302	2 481 708	2 284 098	1 809 573	2 641 326	1 958 477
Products	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	360 812	277 431	190 807
African Countries	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	320 754	241 542	138 358
Other Countries	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	40 058	35 889	52 449
Whole maize	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	1 448 761	2 363 895	1 767 670
Border Posts	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	1 230 762	1 282 337	738 130
Harbours	37 000	146 000	141 000	832 000	60 000		830 000	967 000	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	217 999	1 081 558	1 029 369
Total Demand	8 727 000	8 976 000	8 788 000	10 394 000	8 769 000	9 052 000	11 424 000	11 174 000	11 888 000	12 157 000	11 559 000	12 022 650	12 434 428	11 413 440	11 127 189	13 089 501	13 204 037	13 087 163	13 044 874	12 197 341
Ending Stock (30 Apr)	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	1 000 601	2 488 804	1 832 853
- processed p/month	581 900	603 600	606 900	621 800	638 300	669 100	717 800	721 500	738 100	745 100	744 583	779 056	827 210	854 083	819 682	858 307	880 915	925 534	936 163	818 278
- months' stock	4.7	4.3	5.2	5.1	3.2	1.6	2.2	3.0	3.2	1.3	1.9	.8	2.5	2.9	1.3	4.3	3.0	1.1	2.7	2.2
Note: "" Figures for current season up to date																				

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

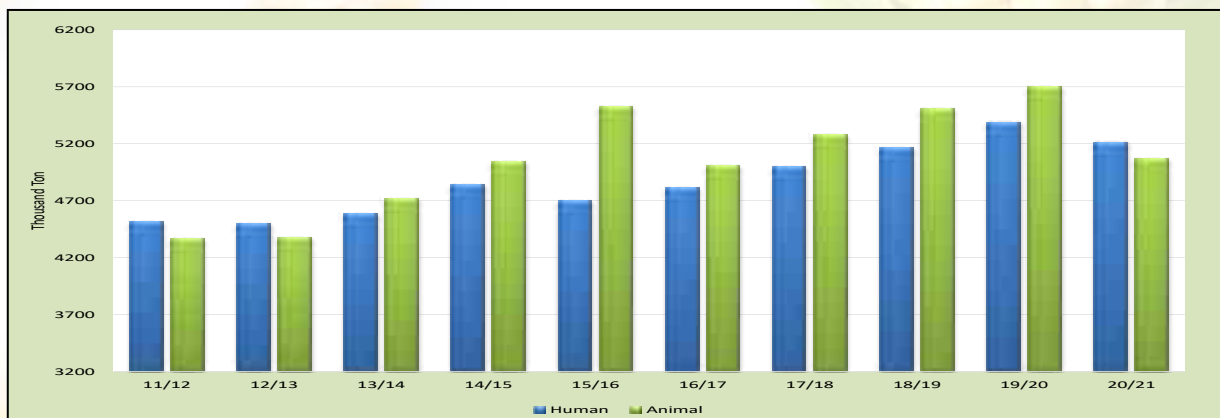
Graph 15: Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



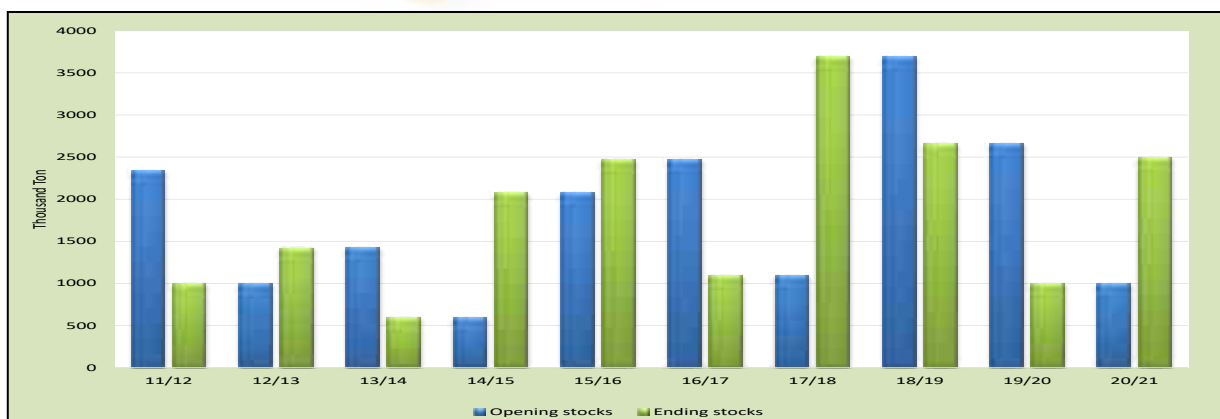
Graph 16: Maize: Imports and exports over 10 marketing seasons



Graph 17: Maize: RSA consumption over 10 marketing seasons



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



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

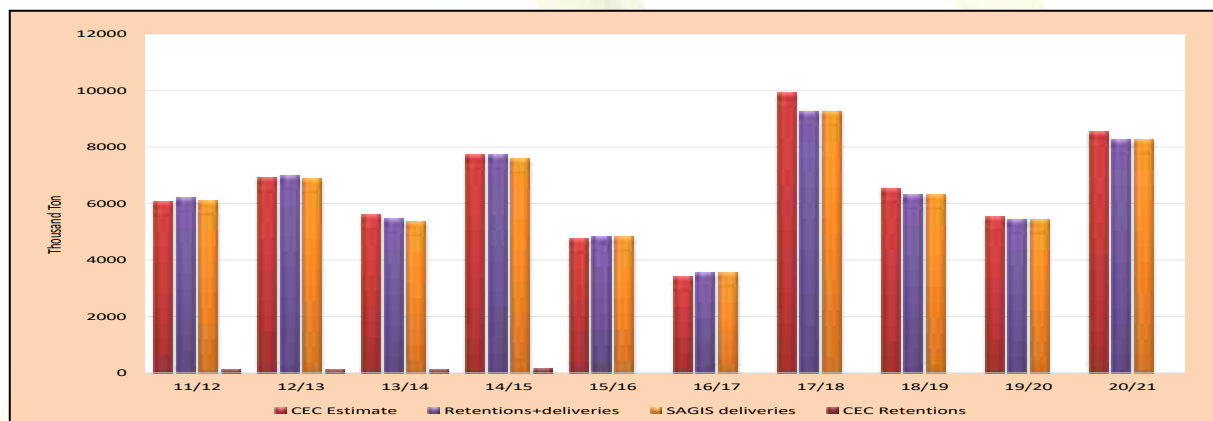
Publication date: 2021-04-28

Season	Marketing Season (May - Apr)															Current		10 Year average		
																Season				
																May - Mar				
Season	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	20/21	2010/11-2019/20

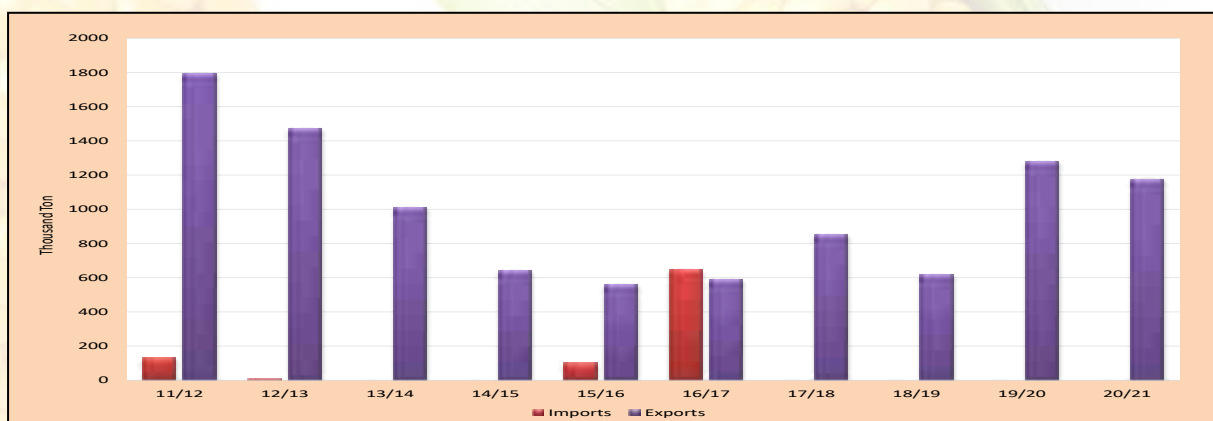
																			11	
CEC (Crop Estimate)	5 538 000	6 398 000	5 805 000	6 541 000	4 187 000	4 315 000	7 480 000	6 775 000	7 830 000	6 052 000	6 903 656	5 606 800	7 710 000	4 735 000	3 408 500	9 916 000	6 540 000	5 545 000	8 947 500	6 424 896
CEC (Retention)	139 000	116 000	113 000	184 000	144 000	11 000	120 000	83 000	119 000	100 000	114 000	110 910	150 000	0	0	0	0	0	0	59 391
SUPPLY																				
Opening stock (1 May)	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	473 964	1 193 647
Prod deliveries*	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	5 942 204	7 592 893	4 809 279	3 551 922	9 298 593	6 308 941	5 442 474	8 255 944	6 281 821
Imports	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	0	88 895
Surplus	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	0	4 846	23 629
Total Supply	6 409 000	7 638 000	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	7 241 472	8 734 754	7 587 991
DEMAND																				
Processed	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	5 449 415	5 847 684	5 388 130
-human	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	4 809 569	4 662 088	4 312 959
-animal/industrial	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	1 489 002	118 522	86 153	2 061 649	1 677 236	629 076	1 175 627	1 045 756
-gristing	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	10 770	9 969	29 415
-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	144 000	144 000	107 000	101 000	112 000	107 000	111 000	81 000	108 000	46 000	36 000	32 409	38 940	13 385	14 083	35 885	12 844	13 111	9 269	34 866
Released to end-consumers	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	17 649	5 422	58 230
Net receipts(-)/dispt(+)	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	6 282	2 672	8 755
Deficit	0	0	38 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5 605	0	561
Total Exports	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	1 275 446	1 175 008	992 628
Products	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	236 537	161 048	85 672
African Countries	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	236 162	160 521	77 218
Other Countries	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	375	527	8 454
Whole maize	744 000	1 004 000	668 000	1 786 000	460 000	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	1 038 909	1 013 960	906 957
Border Posts	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	836 596	876 695	532 132
Harbours	7 000	123 000	141 000	576 000	60 000	0	666 000	842 000	540 000	1 295 000	938 000	198 057	9 372	0	26 181	392 604	146 714	202 313	135 265	374 824
Total Demand	4 691 000	5 519 000	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	6 893 438	4 901 270	4 937 990	7 459 528	6 939 999	6 767 508	7 040 055	6 483 169
Ending Stock (30 Apr)	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	897 837	2 428 653	1 798 998	473 964	1 684 699	1 104 822
- processed p/month	306 600	351 000	359 400	348 800	385 400	395 900	410 200	379 600	489 300	447 800	420 583	400 723	488 537	359 975	360 982	544 497	523 610	454 118	531 608	449 013
- months' stock	5.6	6.0	6.7	6.6	4.5	1.6	1.9	3.6	3.3	1.2	1.8	0.7	2.6	3.6	1.7	4.5	3.4	1.0	3.2	2.4
Note: *** Figures for current season up to date																				

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

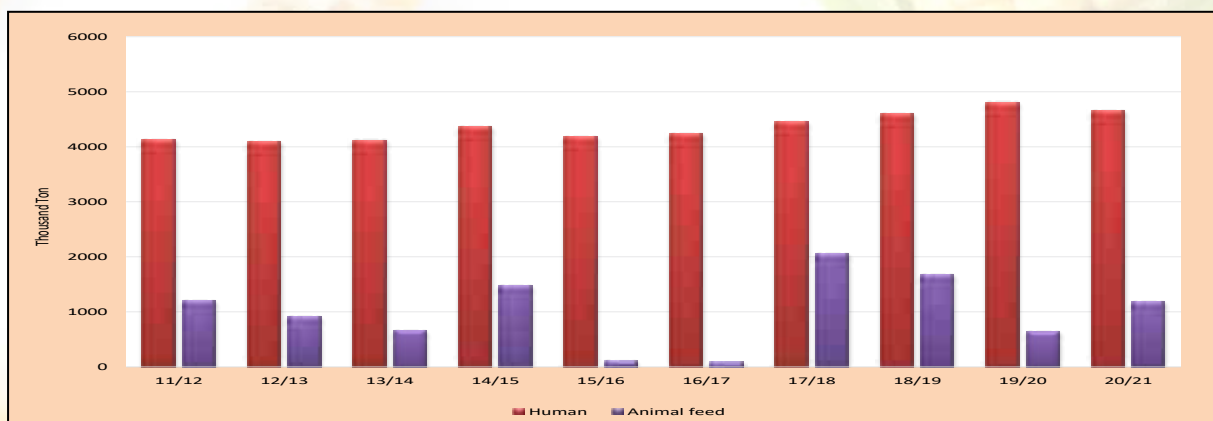
Graph 19: White Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



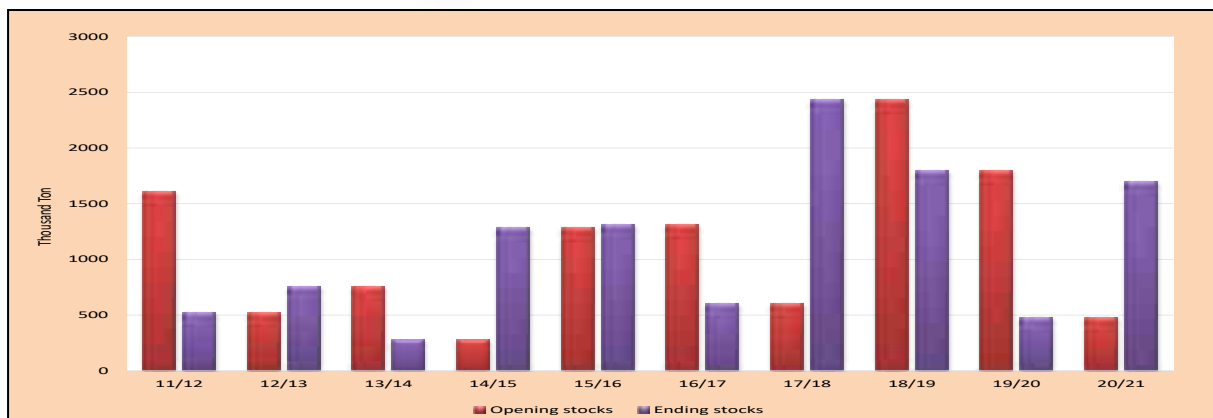
Graph 20: White Maize: Imports and exports over 10 marketing seasons



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.

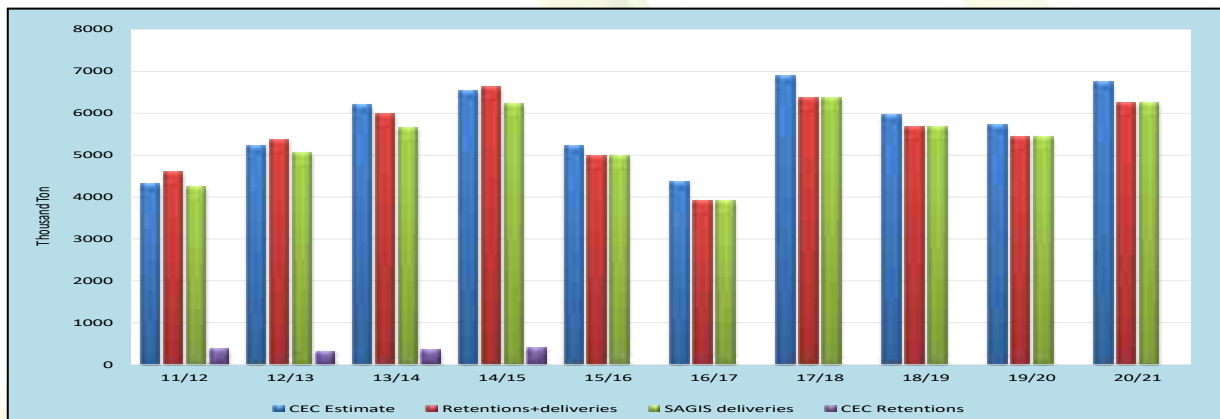
YELLOW MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2021-04-29

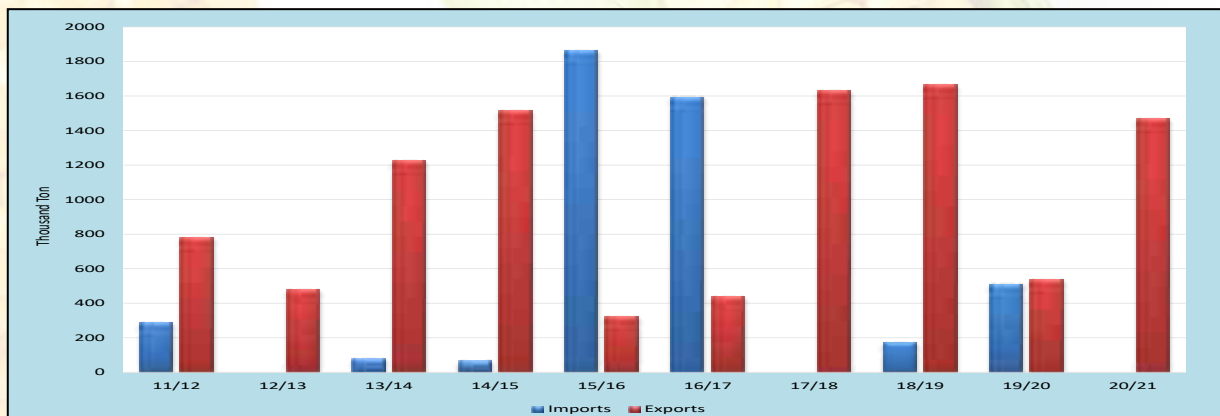
Season	Marketing Season (May - Apr)																Current			10 Year average
																	Season	May-Mar		
	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	
CEC (Crop Estimate)	4 194 000	3 026 000	3 677 000	4 909 000	2 431 000	2 810 000	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	6 752 500	5 544 780
CEC (Retention)	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	0	0	184 790
SUPPLY																				
Opening stock (1 May)	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	526 637	752 286
Prod deliveries*	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	5 444 579	6 255 971	5 204 994
Imports	651 000	408 000	219 000	360 000	930 000	1 074 000	27 000	27 000	0	288 000	0	79 682	65 250	1 862 807	1 592 599	0	171 622	509 684	463	456 964
Surplus	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	27 941	15 853	27 959
Total Supply	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	6 846 292	6 798 924	6 442 203
DEMAND																				
Processed	3 304 000	3 031 000	2 970 000	3 276 000	3 275 000	3 276 000	3 891 000	4 103 000	2 986 000	3 567 000	3 888 000	4 539 996	4 064 081	5 929 297	5 506 922	3 765 714	4 407 657	5 656 997	4 450 104	4 431 166
-human	249 000	245 000	262 000	266 000	290 000	257 000	326 000	346 000	356 000	393 000	404 000	463 862	478 726	515 415	576 638	533 972	566 649	578 003	549 605	486 627
-animal/industrial	3 050 000	2 775 000	2 694 000	2 994 000	2 976 000	3 015 000	3 568 000	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	5 069 241	3 895 966	3 931 538
-gristing	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	9 753	4 533	13 002
-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	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	43 993	23 886	86 787
Released to end-consumers	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	82 166	58 370	216 747
Net receipts(-)/disp(+)	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	2 372	6 141	13 623
Deficit	14 000	0	11 000	16 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports	371 000	116 000	120 000	393 000	117 000	103 000	303 000	319 000	1 068 000	781 000	478 000	1 223 673	1 514 917	322 748	438 879	1 629 739	1 667 407	534 127	1 466 318	965 849
Products	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	124 275	116 383	105 135
African Countries	24 000	12 000	25 000	5 000	14 000	11 000	10 000	29 000	22 000	39 000	39 000	51 008	59 812	59 839	107 656	77 102	71 391	84 592	81 021	61 140
Other Countries	21 000	12 000	31 000	31 000	15 000	20 000	28 000	28 000	29 000	30 000	26 000	43 093	45 200	42 908	40 414	73 734	69 921	39 683	35 362	43 995
Whole maize	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	1 526 095	409 852	1 349 935	860 714
Border Posts	296 000	69 000	64 000	101 000	88 000	72 000	91 000	137 000	120 000	145 000	151 000	193 465	153 531	211 407	284 122	174 365	232 915	394 166	403 642	205 997
Harbours	30 000	23 000	0	256 000	0	0	174 000	125 000	897 000	567 000	262 000	936 107	1 254 954	8 594	6 687	1 304 538	1 293 180	15 686	946 293	654 575
Total Demand	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	6 319 655	6 004 819	5 714 172
Ending Stock (30 Apr)	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	864 688	526 637	794 105	728 031
- processed p/month	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	471 416	404 555	369 266
- months' stock	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	1.1	2.0	2.1
Note: *** Figures for current season up to date																				

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

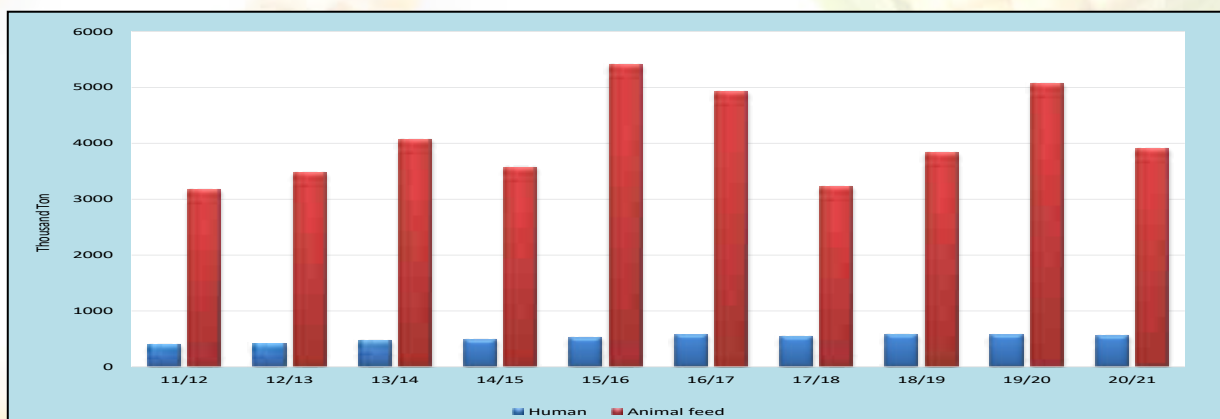
Graph 23: Yellow Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



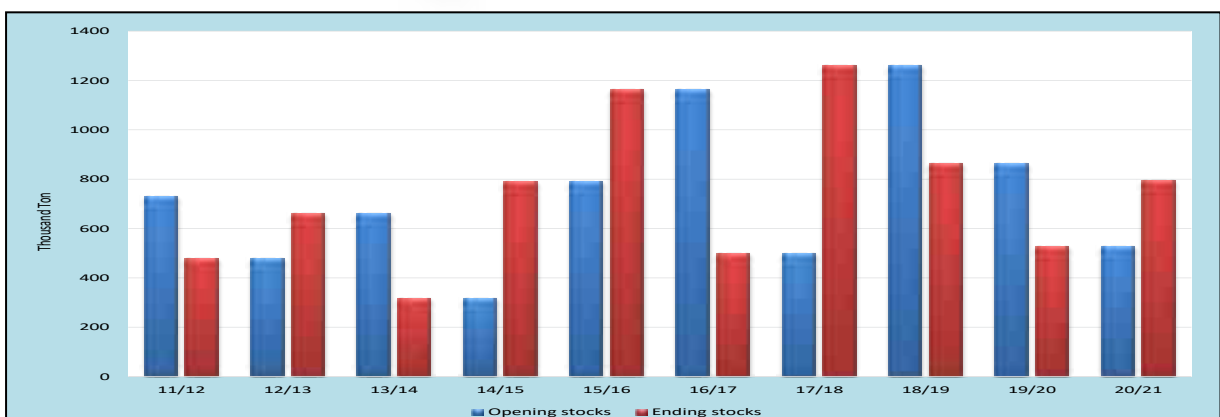
Graph 24: Yellow Maize: Imports and exports over 10 marketing seasons



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



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



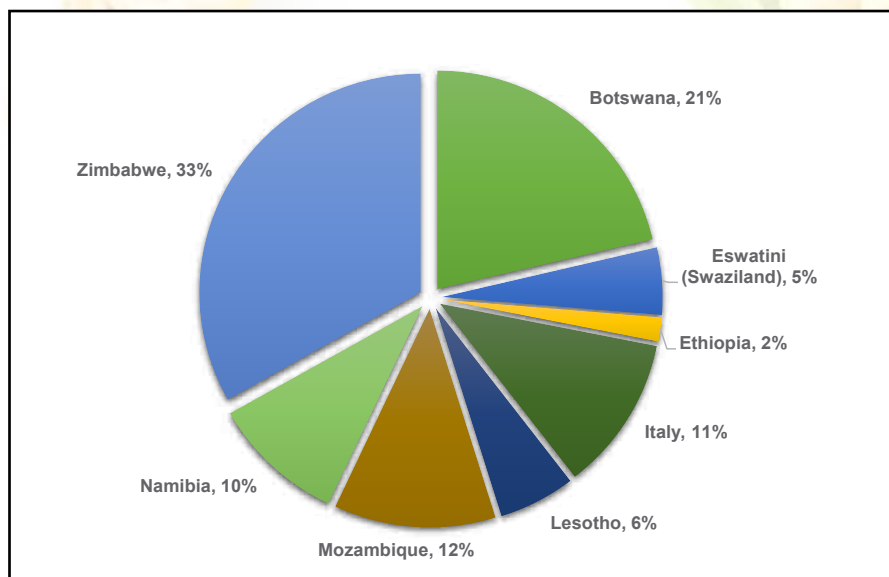
Information provided by SAGIS.

WHITE MAIZE EXPORTS/IMPORTS

2020/21 MARKETING SEASON (25 April 2020 - 30 April 2021)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
Botswana	238 341	-	-	-	-	-	-	-	-	Durban	167 915
Eswatini (Swaziland)	55 613	-	-	-	-	-	-	-	-	-	-
Ethiopia	20 014	-	-	-	-	-	-	-	-	-	-
Italy	127 901	-	-	-	-	-	-	-	-	-	-
Lesotho	62 804	-	-	-	-	-	-	-	-	-	-
Mozambique	132 094	-	-	-	-	-	-	-	-	-	-
Namibia	109 752	-	-	-	-	-	-	-	-	-	-
Zimbabwe	370 554	-	-	-	-	-	-	-	-	-	-
Total	1 117 073	Total	0	Total	0	Total	0	Total	0	Total	167 915

Graph 27: Major destinations for RSA white maize exported during the 2020/21 marketing season



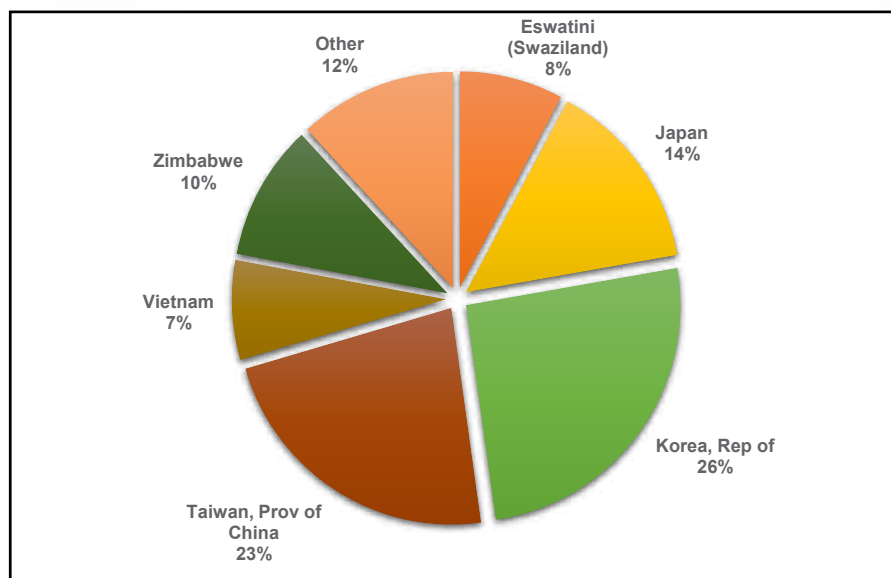
YELLOW MAIZE EXPORTS/IMPORTS

2020/21 MARKETING SEASON (25 April 2020 - 30 April 2021)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
Botswana	46 086	Ukraine	463	-	-	-	-	Durban	463	Durban	998 933
Eswatini (Swaziland)	111 534	-	-	-	-	-	-	-	-	-	-
Japan	205 250	-	-	-	-	-	-	-	-	-	-
Korea, Rep of	363 625	-	-	-	-	-	-	-	-	-	-
Lesotho	9 452	-	-	-	-	-	-	-	-	-	-
Mozambique	50 274	-	-	-	-	-	-	-	-	-	-
Namibia	63 010	-	-	-	-	-	-	-	-	-	-
Palau	21	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	780	-	-	-	-	-	-	-	-	-	-
Taiwan, Prov of China	323 189	-	-	-	-	-	-	-	-	-	-
Vietnam	106 068	-	-	-	-	-	-	-	-	-	-
Zimbabwe	144 804	-	-	-	-	-	-	-	-	-	-
Total	1 424 093	Total	463	Total	0	Total	0	Total*	463	Total	998 933

* Includes imports for RSA and Other Countries

Graph 28: Major destinations for RSA yellow maize exported during the 2020/21 marketing season



TOTAL WHOLE MAIZE PROCESSED PER PROVINCE

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 (Full 2017/18 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 (Full 2018/19 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 (Full 2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	257 441	1 872 605	338 758	748 908	399 058	911 924	1 161 924	5 690 618
Animal Feed and Industrial	1 533 217	760 770	498 222	792 017	131 238	1 437 789	623 353	5 776 606
	1 790 658	2 633 375	836 980	1 540 925	530 296	2 349 713	1 785 277	11 467 224

PROGRESSIVE: May 2020 to April 2021 (2020/21 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	194 501	1 534 165	304 307	581 548	308 764	676 108	883 564	4 482 957
Animal Feed and Industrial	1 062 568	549 699	377 352	630 120	105 415	1 057 248	441 223	4 223 625
	1 257 069	2 083 864	681 659	1 211 668	414 179	1 733 356	1 324 787	8 706 582

* Please note that included are the products destined for exports

WHOLE WHITE MAIZE PROCESSED PER PROVINCE

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 (Full 2017/18 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 (Full 2018/19 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 (Full 2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	235 250	1 589 290	292 091	602 276	399 058	806 144	1 132 767	5 056 876
Animal Feed and Industrial	266 750	124 731	1 514	2 498	1 924	27 978	203 681	629 076
	502 000	1 714 021	293 605	604 774	400 982	834 122	1 336 448	5 685 952

PROGRESSIVE: May 2020 to April 2021 (2020/21 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	180 304	1 316 248	268 582	450 004	308 764	581 519	870 433	3 975 854
Animal Feed and Industrial	485 136	127 191	3 030	4 426	4 163	133 832	211 378	969 156
	665 440	1 443 439	271 612	454 430	312 927	715 351	1 081 811	4 945 010

* Please note that included are the products destined for exports

WHOLE YELLOW MAIZE PROCESSED PER PROVINCE

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 (Full 2017/18 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 (Full 2018/19 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 (Full 2019/20 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	22 191	283 315	46 667	146 632		105 780	29 157	633 742
Animal Feed and Industrial	1 266 467	636 039	496 708	789 519	129 314	1 409 811	419 672	5 147 530
	1 288 658	919 354	543 375	936 151	129 314	1 515 591	448 829	5 781 272

PROGRESSIVE: May 2020 to April 2021 (2020/21 Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	14 197	217 917	35 725	131 544		94 589	13 131	507 103
Animal Feed and Industrial	577 432	422 508	374 322	625 694	101 252	923 416	229 845	3 254 469
	591 629	640 425	410 047	757 238	101 252	1 018 005	242 976	3 761 572

* Please note that included are the products destined for exports

SAGIS Maize Product Information

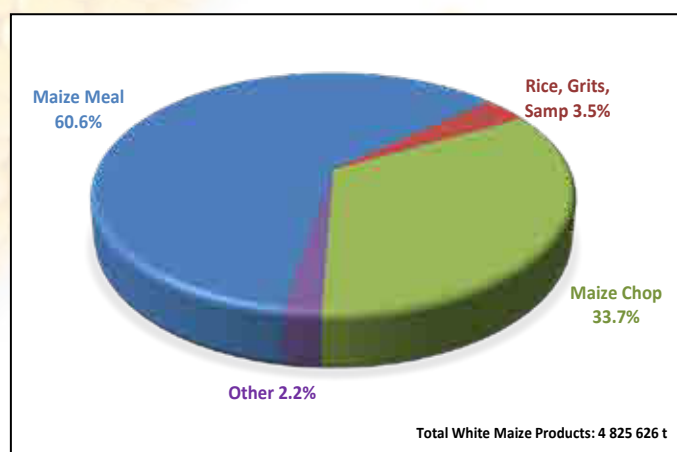
On 14 November 2014, the Minister of Agriculture, Forestry & Fisheries announced statutory measures for the manufacturing of maize & wheaten products.

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.

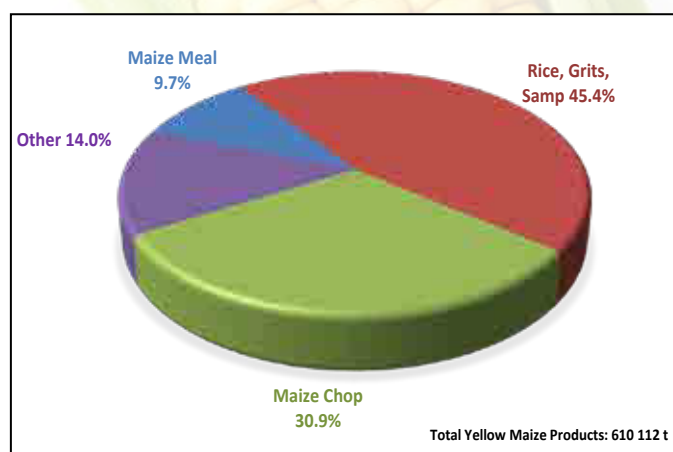
The Minister approved the proposed continuation and amendment of statutory measures, namely registration and the keeping of information and submitting monthly returns in respect of maize products manufactured, processed, imported and/or exported, to SAGIS, for a further period of four years, to lapse on 14 November 2022.

Please see graphs 29 to 32 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 20 to 22 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 2020 to March 2021).

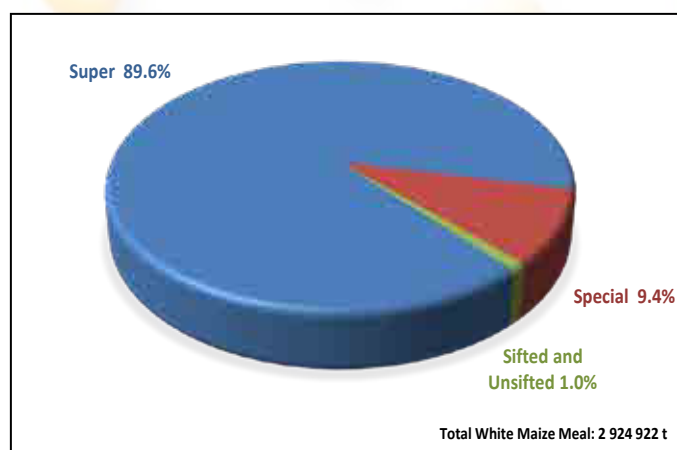
Graph 29: White maize products manufactured from May 2020 to March 2021



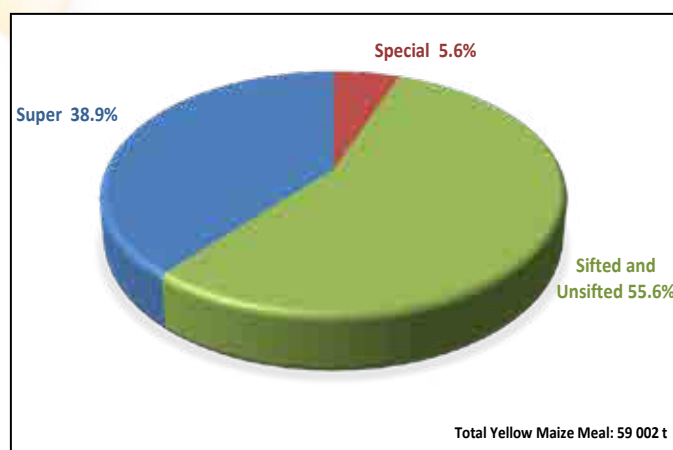
Graph 30: Yellow maize products manufactured from May 2020 to March 2021



Graph 31: White maize meal manufactured from May 2020 to March 2021



Graph 32: Yellow maize meal manufactured from May 2020 to March 2021



SAGiS South African Grain Information Service NPC Suid Afrikaanse Graaininligtingsdiens NWAM Reg no. 1997/019196/08 MAIZE PRODUCTS MANUFACTURED PER MARKETING YEAR Date Published: 2021/05/07													
	Marketing year: May 2018 - Apr 2019 Manufactured Tons Progressive: 12 Months				Marketing year: May 2019 - Apr 2020 Manufactured Tons Progressive: 12 Months				Marketing year: May 2020 - Apr 2021 Manufactured Tons Progressive: 11 Months (May - Mar)				
	White Maize	Yellow Maize	Total Maize		White Maize	Yellow Maize	Total Maize		White Maize	Yellow Maize	Total Maize		
	1 491 097	176 241	1 667 338		1 635 434	188 380	1 823 814		1 625 960	188 314	1 814 274		
	8 228	*	8 228		8 476	*	8 476		6 661	*	6 661		
	62 964	*	62 964		68 251	*	68 251		61 489	*	61 489		
	118 545	*	118 545		117 573	*	117 573		102 782	*	102 782		
	-	268 369	268 369		-	290 205	290 205		-	277 111	277 111		
	28 439	22 252	50 691		22 100	30 105	52 205		20 401	32 774	53 175		
	371 301	10 734	382 035		371 313	4 443	375 756		275 018	3 281	278 299		
	2 495 637	29 187	2 524 824		2 725 436	28 056	2 753 492		2 620 262	22 939	2 643 201		
Unsifted Maize Meal	8 568	6	8 574		12 540	5	12 545		9 241	8	9 249		
Other maize products intended for Human consumption	109 299	88 803	198 102		123 704	78 202	201 906		103 812	85 685	189 497		
Total	4 694 078	595 592	5 289 670		5 084 827	619 396	5 704 223		4 825 626	610 112	5 435 738		

* Included total for yellow rice, grits and samp

SAGIS South African Grain Information Service NPC Suid Afrikaanse Graaninligtingsdiens NWMA Reg no. 1997/019186/08 MAIZE PRODUCTS IMPORTED PER MARKETING YEAR Date Published: 2021/05/07									
	Marketing year: May 2018 - Apr 2019 Progressive: 12 Months			Marketing year: May 2019 - Apr 2020 Progressive: 12 Months			Marketing year: May 2020 - Apr 2021 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	1 123	0	1 123	8 861	0	8 861	5 801	0	5 801
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	-	0	0	-	0	0	-	0	0
Sifted Maize Meal	5 768	0	5 768	2 869	0	2 869	4 326	0	4 326
Special Maize Meal	0	0	0	0	0	0	0	0	0
Super Maize Meal	3	0	3	11	0	11	0	0	0
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	6 894	0	6 894	11 741	0	11 741	10 127	0	10 127

* Included total for yellow rice, grits and sample

SAGIS South African Grain Information Service NPC Suid Afrikaanse Graaninligtingsdiens NWMA Reg no. 1997/019186/08 MAIZE PRODUCTS EXPORTED PER MARKETING YEAR Date Published: 2021/05/07										
	Marketing year: May 2018 - Apr 2019 Exported Tons Progressive: 12 Months				Marketing year: May 2019 - Apr 2020 Exported Tons Progressive: 12 Months			Marketing year: May 2020 - Apr 2021 Exported Tons Progressive: 11 Months (May - Mar)		
	White Maize	Yellow Maize	Total Maize		White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize
	40	0	40		631	0	631	375	0	375
	8	*	8		72	*	72	8	*	8
	0	*	0		253	*	253	0	*	0
	836	*	836		1 322	*	1 322	1 004	*	1 004
	-	14 264	14 264		-	16 230	16 230	-	26 700	26 700
	0	4 240	4 240		0	9 696	9 696	0	9 988	9 988
	17 325	3 292	20 617		36 695	817	37 512	15 542	0	15 542
	25 858	1 349	27 207		92 288	8 410	100 698	81 010	6 602	87 612
Unsifted Maize Meal	0	0	0		580	0	580	0	0	0
Other maize products intended for Human consumption	11 539	2 417	13 956		44 814	858	45 672	28 015	8 015	36 030
Total	55 606	25 562	81 168		176 655	36 011	212 666	125 954	51 305	177 259

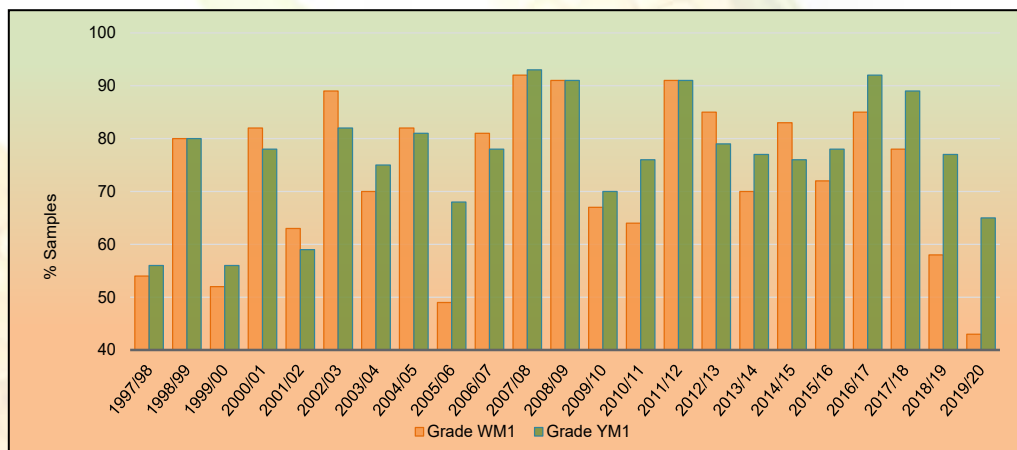
* Included total for yellow rice, grits and samp

Maize Crop Quality 2019/20 - summary of results

RSA Grading

The maize crop, although the second largest in history, was of below average quality for the second consecutive season. Only 43% of white maize was graded as maize grade one, last season this figure was 58%. 65% of yellow maize was graded as grade one, compared to the 77% of the previous season. Please see Graph 33 for the percentages of samples (white and yellow) per season graded as grade 1, since commencement of the annual maize crop quality survey in 1998.

Graph 33: Percentage samples graded as Grade 1 over seasons



The percentage total defective kernels above and below the 6.35 mm sieve, 10.1% for white and 6.6% for yellow maize, was respectively 1.4% and 1.2% 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 6.8% last season to 8.1% this season. The percentage defective kernels below the 6.35 mm sieve for white maize increased from 1.8% to 2.0% and that of yellow maize from 1.7% to 2.3%. The average percentage Diplodia infected kernels in white maize decreased from 0.4% to 0% this season and in yellow maize from 0.9% to 0%. Fusarium infected kernels increased for both white and yellow maize compared to the previous season, from 0.3% in both white and yellow maize to 0.8% and 0.7% respectively.

The number of white maize samples that were downgraded to class other maize as a result of the percentage foreign matter exceeding 0.75%, increased from 23 samples to 38 samples this season. The number for yellow maize decreased from 18 samples to 14 samples this season. Two white and three 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 10.7% compared to the 9.3% of the 2018/19 season and that of yellow maize 6.9% compared to 5.7% previously.

Please refer to Tables 3 to 7 and Graphs 34 to 36 on pages 34 to 46.

USA Grading

Of the 890 maize samples graded according to USA grading regulations, 30% were graded US1, 25% US2, 16% US3, 11% US4, 7% US5, while sample grade and class mixed corn represented 9% and 2% respectively. The percentage samples graded as US1 varies substantially over seasons, varying from 41% to 51%, 71%, 58% and 64% over the previous five seasons. The percentage samples graded as US2 compared well with the 27% and 29% of the previous two seasons respectively. 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 47 to 53.

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 for stock verification purposes. White maize had an average test weight of 75.6 kg/hl compared to the 76.3 kg/hl of yellow maize. White and yellow maize's average test weight was respectively 0.3 kg/hl and 0.6 kg/hl lower than in the previous season. The test weight in total varied from 63.4 kg/hl to 82.4 kg/hl.

64 samples reported Bushel weight values below the minimum requirement (56.0 lbs or 72.1 kg/hl) for USA grade 1 maize, 20 of these samples were from the North West production regions, 36 from the Free State, seven from Mpumalanga and one from KwaZulu-Natal.

The 100 kernel mass ("as is" basis) of white maize was 34.9 g (33.4 g in 2018/19) and averaged higher than yellow maize (30.4 g, last season 30.6 g) as in previous seasons. The percentage white maize kernels above the 10 mm sieve increased by 3.2% compared to the previous season. The percentage yellow maize kernels above the 10 mm sieve was similar to last season, increasing from 8.3% to 8.4%. The percentage yellow maize kernels above the 10 mm sieve was on average 19.4% lower than white kernels and the percentage yellow kernels below the 8 mm sieve 16.3% higher than that of white maize.

White maize was slightly less susceptible to breakage than during the previous season. The percentage yellow maize below the 6.35 mm and 4.75 mm sieves were equal to the previous season. The percentage stress cracks observed varied overall from 2 to 58% and averaged 16% for white and 13% for yellow maize, previously 17 % and 13% respectively. The average stress crack percentages over the last two seasons 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 55 to 65 and Graphs 37 to 40 on pages 65 and 66.

The milling index obtained from the SAGL Milling Index 2020 model, varied from an average of 73 (79 in 2018/19) for white maize to 77 (80 previously) for yellow maize. Grit Yield All (GYA) values averaged 63 for white maize and 64 for yellow maize (64 and 65 respectively in 2018/19).

Roff milling and whiteness index (WI)

The average % extraction of total meal in white maize obtained with the Roff mill, averaged 76.2% (0.2% higher than the previous season) and varied from 65.3% to 80.4%. Please see Graphs 41 to 46 on page 72 for a comparison of the different fractions percentages as well as the percentage total meal extraction obtained on the Roff mill since 2012/13.

The whiteness index averaged 31.8 for unsifted and 21.8 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 30.2 and 20.3 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 -19.06 and -17.02, also had the highest percentages other colour maize, namely 18.3% and 13.5% respectively. Please see Tables 17 and 18 on pages 67 to 71.

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 2017/18 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 the previous season. Yellow maize averaged 3.9%, 0.1% lower than the previous two seasons. The 10-year average fat content of white maize is 4.1% and that of yellow maize 3.9%. The average protein content of yellow maize was 9.0%, while white maize averaged 8.4%, the lowest since the 2010/11 season. The 10-year average for yellow and white maize respectively is 9.0% and 8.8%.

The average starch contents of both white maize (73.2%) and yellow maize (72.3%) was 0.4% lower than in the previous season. Ten-year averages for white and yellow maize are 73.0% and 72.8% respectively. The average crude fibre content of white maize was equal to last season's 1.9% and that of yellow maize was 0.1% lower at 1.9%.

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

Please refer to Tables 19 to 22 on pages 73 to 79 and Graphs 47 to 49 on page 80.

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). 86% of the samples tested positive for the Cry1Ab trait, 97% for Cry2Ab and 91% 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 81 for the results obtained as well as page 106 for a summary of the Events and Trade names/Brands represented by these three traits.

Mycotoxins

Aflatoxin (B₁) residues were found on a yellow maize sample from region 12. This is only the third season that Aflatoxin residues are detected by SAGL on maize crop samples since the implementation of the UPLC-MS/MS technique in 2010. Last season, Aflatoxin B₁ and G₁ residues were found on a white maize sample from region 23. 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 143 µg/kg (ppb), compared to the previous season's average of 298 µg/kg. Levels ranged from not detected (ND) to 5 928 µg/kg. Of the 350 samples tested, 121 samples (35%) tested positive for fumonisin levels and the average of these positive results was 413 µg/kg. The previous season, 43% of the samples tested positive, with an average of 689 µg/kg.

The highest Deoxynivalenol (DON) level detected this season was 7 700 µg/kg, compared to the 11 181 µg/kg of last season. The average level of all samples tested this season was 656 µg/kg, 424 µg/kg the previous season. Both the percentage of positive results as well as the average of the positive results increased this season. 68% of the samples tested positive for DON last season with the average of the positive results 627 µg/kg. This season, 85% of the samples tested positive with an average of 768 µg/kg.

34% of the samples tested positive for 15-acetyl-deoxynivalenol (15-ADON) residues, double that of the previous season. The average of the positive results was 238 µg/kg compared to 218 µg/kg in the previous season.

Zearalenone residues were found in 13% of the samples, 10% during the previous season. Values ranged from ND to 539 µg/kg. The average of the positive samples was 70 µg/kg compared to the 98 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 89 to 100.

TABLE 2: SOUTH AFRICAN MAIZE CROP QUALITY 2019/20 (Weighted Averages)

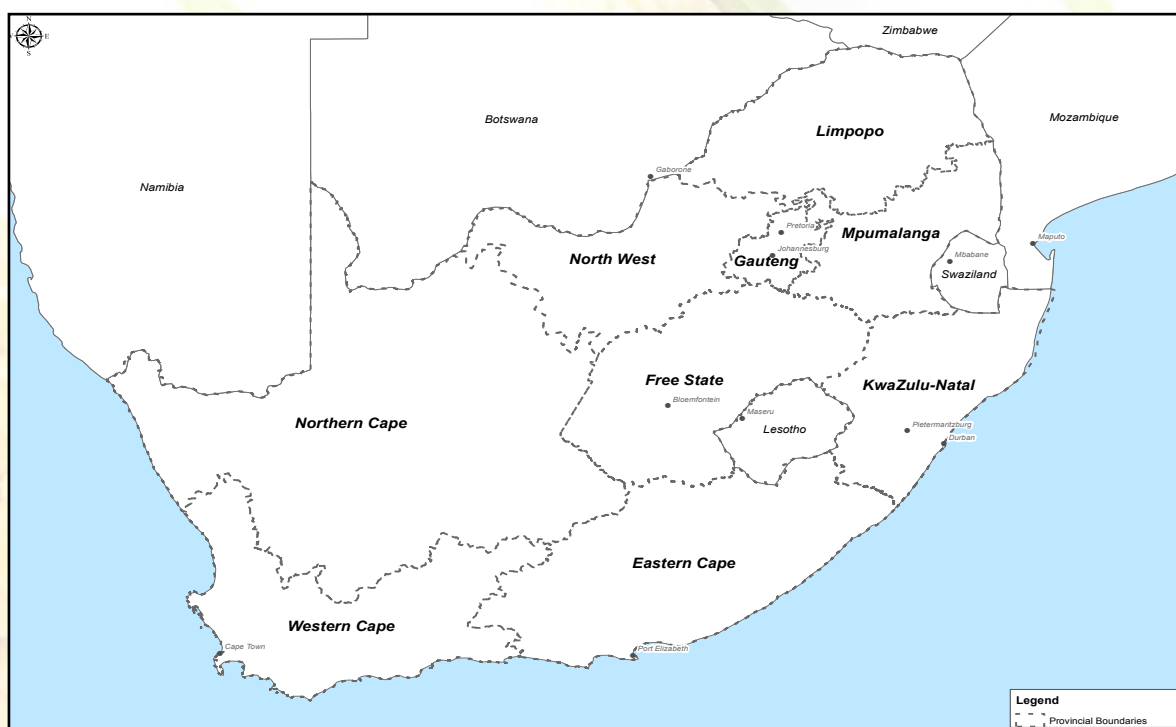
Class and grade of maize	WM1	WM2	WM3	WCOM	YM1	YM2	YM3	YCOM	Weighted Ave.
RSA Grading									
Defective kernels above 6.35 mm sieve, %	3.2	6.7	13.0	22.3	2.6	5.6	4.4	12.5	6.5
Defective kernels below 6.35 mm sieve, %	1.3	2.1	2.7	2.9	1.7	3.4	4.4	2.8	2.1
Total defective kernels, %	4.5	8.8	15.7	25.2	4.3	9	8.8	15.3	8.6
Other colour maize kernels, %	0.2	0.3	0.7	0.7	0.1	0.4	0.1	0.9	0.3
Foreign matter, %	0.0	0.2	0.3	0.9	0.0	0.1	0.5	0.7	0.2
Combined deviation, %	4.8	9.2	16.7	26.8	4.4	9.6	9.5	17.0	9.1
Pinked maize kernels, %	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Physical Factors									
Test weight, kg/hl	76.5	75.7	74.2	73.7	77.0	75.4	74.6	74.7	75.9
100 Kernel mass, g	34.7	35.6	34.5	34.3	31.0	28.9	27.6	30.4	33.0
Stress cracks, %	12	17	21	21	12	17	13	18	15
Milling Index	76.1	72.9	67.2	68.7	78.0	76.5	72.4	72.5	75
Grit Yield	63.8	63.1	61.6	62.0	64.3	63.9	62.9	62.9	63
Kernel Size									
% on top 10 mm	24.3	29.9	31.8	30.4	8.9	7.4	6.2	8.2	19.7
% on top 8 mm	64.1	60.8	59.5	60.3	66.2	61.8	61.2	66.6	63.3
% through 8 mm	11.7	9.3	8.7	9.4	25.0	30.7	32.6	25.2	17.1
Breakage susceptibility									
% Below 6.35 mm sieve	0.8	1.1	1.6	1.6	0.8	1.4	1.0	1.6	1.1
% Below 4.75 mm sieve	0.5	0.8	1.2	1.2	0.6	0.9	0.7	1.1	0.8
Nutritional Values									
Fat, % (db)	4.1	4.0	4.0	4.0	3.9	3.9	4.0	3.9	4.0
Protein, %	8.4	8.3	8.3	8.5	9.0	9.1	9.0	8.9	8.7
Starch, % (db)	73.3	73.4	73.2	72.9	72.4	72.1	72.0	72.2	72.8
Crude fibre, % (db)	1.9	1.9	2.0	2.0	1.9	2.0	2.0	2.0	1.9
Number of samples	221	155	71	69	244	79	13	38	890
Mycotoxins									
Total Aflatoxin, µg/kg (ppb) [max. value]	0 [0]	0 [0]	0 [0]	0 [0]	0 [10]	0 [0]	0 [0]	0 [0]	0 [10]
Total Fumonisin, µg/kg (ppb) [max. value]	54 [638]	58 [612]	191 [3 911]	76 [1 314]	184 [2 702]	338 [5 928]	97 [466]	201 [2 375]	143 [5 928]
Deoxynivalenol, µg/kg (ppb) [max. value]	333 [2 096]	659 [3 302]	1804 [7 700]	758 [3 975]	470 [2 002]	817 [5 060]	368 [993]	523 [3 748]	656 [7 700]
15-ADON, µg/kg (ppb) [max. value]	25 [433]	84 [501]	270 [1 173]	89 [592]	55 [301]	105 [768]	38 [121]	67 [514]	82 [1 173]
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]	3 [78]	6 [60]	42 [539]	5 [124]	4 [79]	8 [85]	7 [40]	17 [243]	9 [539]
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	81	61	31	28	79	43	6	21	350
GMO									
Cry1Ab, % Samples positive (>LOQ of 0.4%)	76	93	100	100	79	86	100	100	86
Cry2Ab, % Samples positive (>LOQ of 0.5%)	94	100	100	100	95	100	100	100	97
CP4 EPSPS, % Samples positive (>LOQ of 0.25%)	88	93	100	100	89	86	100	100	91
Number of samples	17	14	8	1	19	7	1	3	70

Note: Not detected mycotoxin results are reported as 0, see LOQ in Table 24 page 89.

RSA Production Regions

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

Figure 1: RSA Provinces



Provincial map with gratitude to SiQ.

The 9 provinces are divided into 36 grain production regions.

The regions are distributed as follows:

Region 1: Namakwaland

Regions 2 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

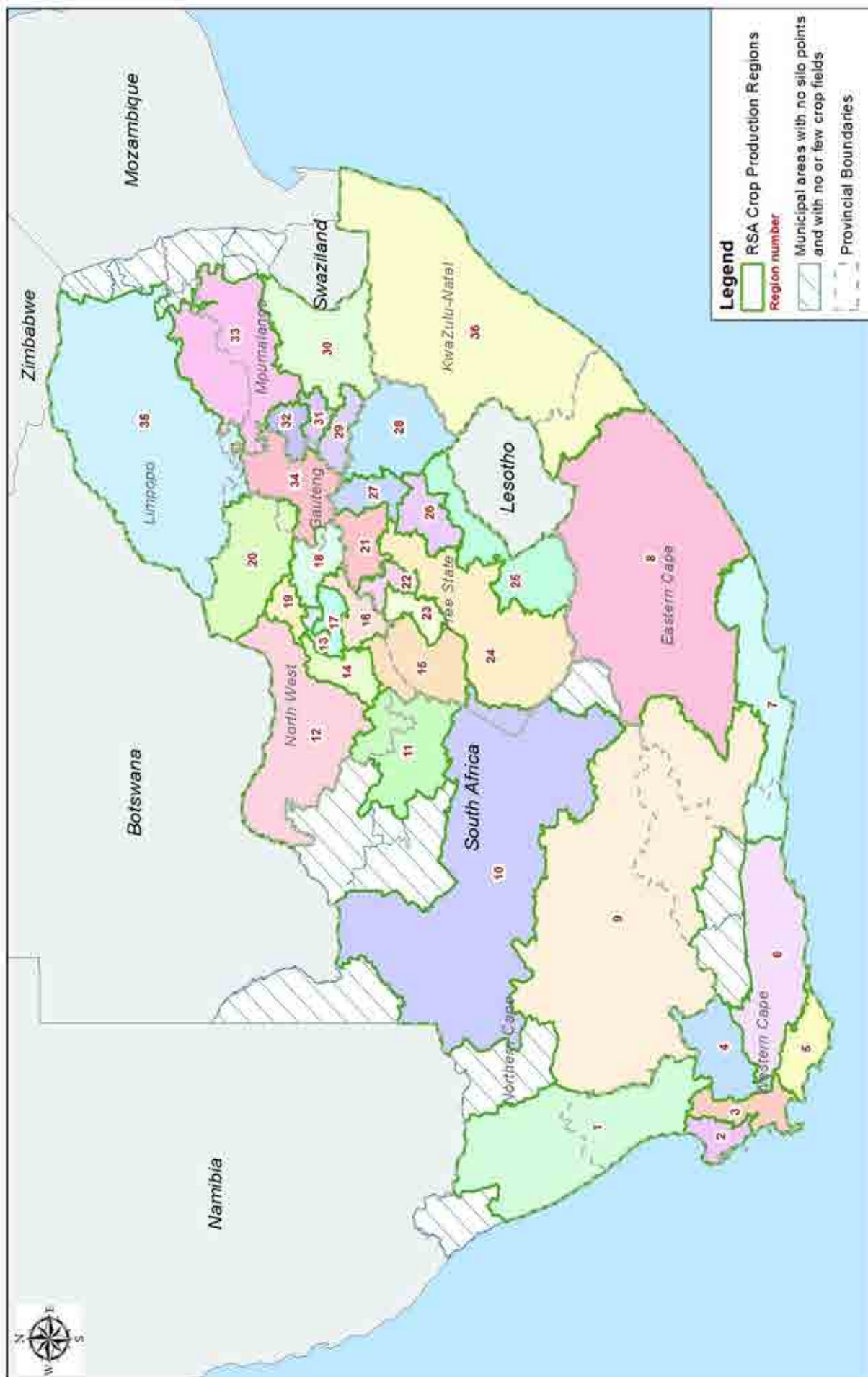
Please see the Crop Production Regions map on the next page.

The production regions from which maize samples have been received for the crop quality survey of the 2019/20 production season, are named and described on pages 29 to 32. 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 8: Eastern Cape Northern Region

OVK	Cradock (Bins/Bunkers)	OVK	Mortimer (Bins/Bunkers)
OVK	Elliot (Bins)		

Region 10: Griqualand West Region

GWK	Douglas (Bags/Bins)	GWK	Trans Oranje (Bags/Bins/Bunkers)
GWK	Luckhoff (Bins)	OVK	Havenga Brug (Bins)
GWK	Marydale (Bins)	OVK	Morgenzon (Bins)
GWK	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 Landbou	Kameel (Bins)
NWK	Kameel (Bins)	Suidwes Landbou	Vryburg (Bins)

Region 13: North West Central Region (Sannieshof)

NWK	Biesiesvlei (Bins)	NWK	Oppaslaagte (Bins)
NWK	Bossies (Bins)	NWK	Sannieshof (Bins)
NWK	Gerdau (Bins)		

Region 14: North West Southern Region

NWK	Barberspan (Bins)	NWK	Taaibospan (Bins)
NWK	Delareyville (Bins)	Suidwes Landbou	Amalia (Bins)
NWK	Excelsior (Bins)	Suidwes Landbou	Hallatshope (Bins)
NWK	Geysdorp (Bins)	Suidwes Landbou	Migdol (Bins)
NWK	Migdol (Bins)	Suidwes Landbou	Schweizer-Reneke (Bins)
NWK	Nooitgedacht (Bins)		

Region 15: North West South-Eastern Region

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

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)	Suidwes Landbou	Zesto (Bunkers)

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

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

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

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	Derby (Bins)
Afgri	Beestekraal (Bunkers)	NWK	Koster (Bins)
Afgri	Brits (Bins)	NWK	Swaruggens (Bins)
NWK	Boons (Bins)	NWK	Syferbult (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	Schuttendraai (Bins)
Senwes	Mirage (Bins)	Suidwes Landbou	Misgunst (Bunkers)
Senwes	Odendaalsrus (Bins)		

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

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

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)

Grain Production Regions

Silo/Intake stands per region indicating type of storage structure

Region 25: Free State South-Western Region

Afgri	Bethlehem (Bins)	OVK	Marseilles (Bins)
Afgri	Slabberts (Bins)	OVK	Modderpoort (Bins)
OVK	Clocolan (Bins)	OVK	Tweespruit (Bins)
OVK	Ficksburg (Bins)	OVK	Westminster (Bins)
OVK	Fouriesburg (Bins)	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	Vaaldrift (Bunkers)
Afgri	Holmdene (Bins)	Afgri	Val (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	Delmas (Bunkers)	Afgri	Kendal (Bins)
Afgri	Dryden (Bins)	Afgri	Ogies (Bins)
Afgri	Eloff (Bins)	Afgri	Vlakfontein (Bunkers)
Afgri	Endicott (Bins)		

Region 33: Mpumalanga Northern Region

Afgri	Arnot (Bins)	Afgri	Middelburg (Bins)
Afgri	Driefontein (Bins)	Afgri	Pan (Bins)
Afgri	Lydenburg (Bins)	Afgri	Stoffberg (Bins)
Afgri	Marble Hall (Bins)	Afgri	Wonderfontein (Bins)

Region 34: Gauteng Region

Afgri	Bloekomspruit (Bins)	Afgri	Nigel (Bins)
Afgri	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	Mizpah (Bins)
Afgri	Chelmsford Dam (Bunkers)	Afgri	Paulpietersburg (Bins)
Afgri	Bloedrivier (Bins)	Afgri	Pietermaritzburg (Bins)
Afgri	Dannhauser (Bins)	Afgri	Vryheid (Bins)
Afgri	Dundee (Bins)	Afgri	Winterton (Bins/Bunkers)

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 74.8 in North West, 75.3 in the Free State and 76.8 in Mpumalanga. Yellow maize varied from 75.1 kg/hl in the Free State to 76.2 kg/hl in Mpumalanga and 77.2 kg/hl in North West. The white maize 100 kernel mass values ranged from 32.6 g in Mpumalanga to 35.6 g in North West, the Free State averaged 35.1 g. Yellow maize kernels had the highest average 100 kernel mass in North West with 30.8 g, followed by 29.7 g in Mpumalanga and 29.2 g in the Free State.

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 North West (30.6%), closely followed by the Free State (30.5%). Mpumalanga had the smallest white kernel sizes (18.8%) on average. Mpumalanga however had the largest yellow maize kernels, averaging 10.4% kernels above the 10 mm sieve, followed by North West with 8.0% and the Free State with 6.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.9% for both white and yellow maize passing through the 6.35 mm sieve. North West averaged 1.1% for both white and yellow maize and the Free State averaged 1.2% also for both white and yellow maize. The percentage stress cracks on white maize ranged from 13% in Mpumalanga to 17% in North West and the Free State. Stress cracks on yellow maize varied between 12% in Mpumalanga, 13% in North West and 16% in the Free State. These values are very close to that of the previous season when the highest percentages of the last 20 seasons for which stress crack results are available, were reported.

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 5.6% in Mpumalanga to a high of 13.0% in the Free State. North West averaged 9.9%. The highest percentage total defective kernels on yellow maize (10.4%) was found in the Free State, followed by North West with 5.9% and Mpumalanga with 5.0%. Please see page 102 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: Mpumalanga averaged 77 (78), the Free State 72 (73) and North West 70 (81). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from Mpumalanga (76.8%), followed by North West with 76.0% and the Free State with 75.9%.

The meal obtained from the white maize in North West gave an average whiteness index of 33.6 (unsifted) and 23.4 (sifted). The Free State had an average of 31.7 (unsifted) and 22.3 (sifted) and Mpumalanga 30.5 (unsifted) and 19.6 (sifted).

The nutritional component analyses namely crude fat, crude protein, crude fibre and total starch compared well between the three provinces. North West and the Free State both averaged 4.1% fat on white maize, Mpumalanga averaged 3.9%. The average fat content of yellow maize ranged from 3.9% in both Mpumalanga and the Free State to 4.0% in North West. The lowest average protein content on white maize was found in North West with 8.1%, the Free State averaged 8.4% and Mpumalanga 8.8%. The protein content of yellow maize varied from 8.5% in North West to 9.1% in Mpumalanga and 9.2% in the Free State. Crude fibre on white maize averaged 1.9% in all three of these provinces. In yellow maize, both North West and Mpumalanga averaged 1.9%, the Free State averaged 2.0%. North West had the highest average starch content on white maize, namely 73.4%, followed by the Free State and Mpumalanga both with 73.2%. The yellow maize starch content ranged from a low of 71.8% in the Free State to a high of 73.0% in North West. Mpumalanga averaged 72.2%. These values are all reported on a dry basis.

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2019/20)

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: WM1																															
1	Region 11	2.8	-	-	1.9	-	-	4.7	-	-	0.0	-	-	4.7	-	-	0.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
8	Region 12	2.9	1.3	5.5	1.0	0.1	2.4	4.0	2.0	6.8	0.0	0.0	0.3	0.0	0.0	0.0	4.0	2.0	6.8	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.9	0.2	0.0	0.9
9	Region 13	4.0	2.1	5.5	1.4	0.7	2.4	5.3	4.1	6.9	0.1	0.0	0.3	0.0	0.0	0.2	5.4	4.1	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	1.9	0.9	0.2	1.9
19	Region 14	2.9	1.1	5.6	1.3	0.0	2.5	4.1	2.0	6.9	0.0	0.0	0.3	0.0	0.0	0.3	4.2	2.0	6.9	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	1.1	0.4	0.0	1.1
8	Region 15	4.0	1.6	6.1	1.3	0.5	3.7	5.3	2.5	6.8	0.0	0.0	0.1	0.0	0.0	0.3	5.4	2.5	6.8	0.1	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.6	0.3	0.0	0.6
14	Region 16	2.7	0.7	4.4	1.4	0.2	2.4	4.0	1.0	6.3	0.0	0.0	0.1	0.0	0.0	0.0	4.1	1.0	6.3	0.1	0.0	0.5	0.1	0.0	0.5	0.4	0.0	1.1	0.5	0.0	1.1
10	Region 17	3.5	0.7	4.7	1.7	0.4	3.3	5.2	1.0	6.9	0.0	0.0	0.1	0.1	0.0	0.5	5.3	1.0	7.4	0.1	0.0	0.9	0.0	0.0	0.0	0.7	0.0	1.8	0.7	0.0	1.8
7	Region 18	3.9	2.4	5.4	1.3	0.6	2.2	5.2	4.6	7.0	0.0	0.0	0.0	0.3	0.0	0.7	5.4	4.6	7.0	0.1	0.0	0.8	0.0	0.0	0.3	0.7	0.3	1.5	0.7	0.3	1.5
8	Region 19	3.1	2.1	4.9	1.4	0.4	2.8	4.5	3.0	6.3	0.0	0.0	0.1	0.0	0.0	0.0	4.6	3.0	6.4	0.1	0.0	0.3	0.0	0.0	0.0	0.5	0.0	1.7	0.5	0.0	1.7
7	Region 20	4.1	2.3	5.0	1.3	0.8	2.3	5.4	3.4	7.0	0.0	0.0	0.1	0.4	0.0	1.6	5.8	3.5	7.9	0.0	0.0	0.2	0.0	0.0	0.0	0.9	0.2	1.7	0.9	0.2	1.7
8	Region 21	3.9	1.7	6.1	1.1	0.1	1.7	5.0	3.2	6.8	0.1	0.0	0.3	0.1	0.0	0.2	5.1	3.3	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.4	0.5	0.0	1.4
7	Region 22	4.0	2.3	5.2	1.1	0.5	1.7	5.0	3.5	6.9	0.1	0.0	0.3	0.0	0.0	0.3	5.1	3.5	6.9	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.1	1.3	0.5	0.1	1.3
13	Region 23	4.4	2.8	6.3	1.2	0.6	2.2	5.6	4.5	7.0	0.0	0.0	0.2	0.1	0.0	0.8	5.7	4.5	7.2	0.1	0.0	0.5	0.1	0.0	1.1	0.6	0.0	1.6	0.7	0.0	2.7
7	Region 24	4.0	1.7	5.7	1.8	1.2	3.2	5.8	3.2	7.0	0.1	0.0	0.3	0.1	0.0	0.4	6.1	3.7	7.5	0.1	0.0	0.2	0.1	0.0	0.8	0.7	0.0	1.7	0.9	0.0	1.7
2	Region 26	4.2	4.2	4.3	1.1	0.2	2.0	5.4	4.5	6.2	0.1	0.0	0.1	0.8	0.0	1.7	6.3	6.2	6.3	0.3	0.3	0.4	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.2
3	Region 27	2.9	1.0	5.3	2.0	0.9	3.4	4.9	2.9	6.2	0.0	0.0	0.1	0.6	0.2	1.1	5.6	3.4	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.9	0.3	0.0	0.9
13	Region 28	3.0	0.9	4.6	0.9	0.2	3.7	3.8	1.2	6.5	0.1	0.0	0.3	0.2	0.0	0.7	4.1	1.2	7.4	0.1	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.6	0.2	0.0	0.6
10	Region 29	2.4	0.5	5.8	1.6	0.0	3.1	3.9	1.7	7.0	0.0	0.0	0.0	0.4	0.0	1.1	4.4	2.1	7.0	0.1	0.0	0.7	0.0	0.0	0.0	0.5	0.0	2.3	0.5	0.0	2.3
9	Region 30	2.2	0.3	5.3	1.9	0.2	3.4	4.1	2.7	6.4	0.0	0.0	0.1	0.1	0.0	0.4	4.2	2.7	6.9	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.8	0.3	0.0	0.8
11	Region 31	2.4	1.3	5.8	1.6	0.8	3.1	4.0	2.5	6.7	0.1	0.0	0.2	0.4	0.0	1.8	4.5	2.5	7.2	0.1	0.0	0.4	0.0	0.0	0.0	0.4	0.0	0.8	0.4	0.0	0.8
12	Region 32	2.7	1.4	4.1	1.4	0.6	2.8	4.1	1.9	6.1	0.1	0.0	0.3	0.5	0.0	1.9	4.7	2.8	7.7	0.1	0.0	0.6	0.0	0.0	0.0	0.6	0.0	1.9	0.6	0.0	1.9
10	Region 33	2.7	0.5	5.7	0.8	0.4	1.4	3.5	0.9	6.2	0.0	0.0	0.1	0.3	0.0	1.0	3.9	1.1	6.5	0.1	0.0	0.4	0.0	0.0	0.0	0.5	0.0	1.0	0.5	0.0	1.0
11	Region 34	3.1	0.5	5.4	1.3	0.2	2.6	4.4	0.8	6.7	0.0	0.0	0.3	0.4	0.0	2.4	4.9	0.8	7.1	0.2	0.0	1.7	0.0	0.0	0.0	1.0	0.0	2.5	1.0	0.0	2.5
3	Region 35	2.4	1.6	4.1	0.8	0.1	1.2	3.2	1.8	5.2	0.0	0.0	0.1	0.0	0.0	0.0	3.3	1.8	5.3	0.0	0.0	0.0	0.2	0.0	0.4	0.0	0.0	0.4	0.2	0.0	0.4
11	Region 36	3.2	0.3	5.8	1.4	0.8	3.5	4.7	1.9	6.8	0.0	0.0	0.1	0.6	0.0	2.8	5.3	2.5	7.6	0.2	0.0	1.5	0.0	0.0	0.0	1.0	0.0	2.4	1.0	0.0	2.4
221	Ave. WM1	3.2			1.3			4.5			0.0			0.2			4.8			0.1			0.0			0.6			0.6		
	Min. WM1		0.3			0.0			0.8		0.0		0.3		0.0			0.8			0.0			0.0			0.0		0.0		
	Max. WM1			6.3			3.7	7.0						2.8			7.9			1.7			1.1			2.5			2.7		

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (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.
GRADE: WM2																						
1	Region 10	10.1	-	-	2.0	-	-	12.1	-	-	0.1	-	-	12.4	-	-	0.0	-	-	0.3	-	-
1	Region 11	3.1	-	-	5.2	-	-	8.3	-	-	0.3	-	-	8.9	-	-	3.9	-	-	0.7	-	-
2	Region 12	5.7	2.8	8.6	1.5	0.8	2.3	7.2	5.1	9.3	0.2	0.0	0.5	7.7	5.6	9.9	0.0	0.0	0.0	0.2	0.0	0.4
4	Region 13	7.0	6.3	8.7	3.5	1.1	6.5	10.6	7.8	12.9	0.3	0.1	0.5	11.4	8.2	13.3	0.0	0.0	0.0	1.8	0.6	2.6
5	Region 14	6.0	3.8	8.1	1.8	1.3	2.1	7.8	5.1	10.2	0.4	0.4	0.5	8.2	5.6	10.5	0.0	0.0	0.0	0.6	0.2	0.8
14	Region 15	7.4	2.4	11.8	1.9	0.5	4.7	9.3	5.3	12.7	0.1	0.0	0.5	9.4	5.8	12.8	0.3	0.0	0.0	0.5	0.0	1.5
9	Region 16	7.7	5.9	9.9	1.7	0.2	4.5	9.3	7.6	11.1	0.1	0.0	0.4	9.7	7.6	12.9	0.0	0.0	0.2	1.8	0.3	6.6
8	Region 17	6.5	2.3	10.1	2.3	0.8	6.8	8.8	7.5	11.3	0.1	0.0	0.2	8.9	7.6	11.6	0.1	0.0	0.4	0.7	0.0	2.4
4	Region 18	8.2	5.0	11.1	2.0	1.1	3.5	10.2	7.1	12.3	0.2	0.0	0.5	10.4	7.3	12.5	0.0	0.0	0.0	0.3	0.0	1.0
4	Region 19	4.5	2.4	7.2	3.7	1.6	7.8	8.2	4.0	10.5	0.4	0.1	0.5	8.8	4.4	11.0	0.3	0.0	1.0	0.5	0.3	0.7
7	Region 20	7.6	3.8	10.4	1.4	0.8	2.6	9.0	6.4	12.1	0.2	0.0	0.5	9.6	6.9	13.6	0.2	0.0	1.2	1.1	0.0	2.5
13	Region 21	6.5	1.8	10.2	2.2	0.7	4.2	8.7	3.4	11.9	0.1	0.0	0.4	9.1	3.9	12.7	0.1	0.0	0.4	1.0	0.3	1.9
15	Region 22	6.9	4.8	10.5	1.8	0.8	2.8	8.6	7.2	11.4	0.1	0.0	0.4	8.8	7.3	11.5	0.0	0.0	0.2	0.9	0.0	1.6
25	Region 23	7.3	2.2	10.0	2.1	0.7	5.6	9.3	3.6	12.1	0.2	0.0	0.5	9.6	4.0	12.3	0.1	0.0	0.6	0.6	0.0	1.9
6	Region 24	5.6	3.0	6.8	1.5	0.5	2.6	7.1	3.5	8.5	0.2	0.0	0.5	7.4	4.0	8.8	0.2	0.0	0.8	0.7	0.2	1.4
1	Region 25	8.8	-	-	1.9	-	-	10.8	-	-	0.0	-	-	12.4	-	-	0.0	-	-	0.5	-	-
6	Region 26	6.3	0.7	11.8	1.6	0.1	3.8	7.8	1.7	12.1	0.2	0.0	0.4	9.0	3.4	12.1	0.2	0.0	0.5	0.3	0.0	0.7
4	Region 27	5.6	3.4	8.9	3.7	1.8	6.6	9.3	7.2	11.5	0.1	0.0	0.4	10.6	8.7	12.1	0.1	0.0	0.2	1.3	0.4	2.9
1	Region 28	7.3	-	-	1.8	-	-	9.1	-	-	0.0	-	-	9.3	-	-	0.0	-	-	0.9	-	-
6	Region 29	7.8	2.0	10.6	1.7	0.3	4.6	9.6	6.6	12.0	0.3	0.0	0.5	10.0	7.3	12.2	0.0	0.0	0.0	1.0	0.0	3.6
1	Region 30	6.7	-	-	1.5	-	-	8.3	-	-	0.0	-	-	8.3	-	-	0.0	-	-	1.7	-	-
3	Region 31	5.7	3.9	7.5	3.4	2.0	4.9	9.1	7.1	12.4	0.3	0.0	0.4	9.7	7.5	13.5	0.0	0.0	0.0	1.5	0.4	2.3
2	Region 32	5.4	5.1	5.7	2.8	2.5	3.1	8.2	8.1	8.2	0.2	0.0	0.4	8.8	8.4	9.1	0.0	0.0	0.0	1.1	1.0	1.3
2	Region 33	3.4	1.5	5.2	1.3	1.3	1.3	4.7	2.9	6.5	0.4	0.4	0.4	5.2	3.3	7.1	0.3	0.0	0.6	0.5	0.0	1.0
4	Region 34	5.1	3.4	8.2	1.6	0.6	4.4	6.7	4.1	9.4	0.1	0.0	0.4	8.0	4.5	9.7	0.0	0.0	0.2	0.8	0.2	1.7
7	Region 36	4.8	0.8	8.0	2.8	0.6	5.2	7.6	2.8	9.9	0.1	0.0	0.4	9.2	6.6	11.0	0.0	0.0	0.1	1.0	0.0	2.5
155	Ave. WM2	6.7	0.7	11.8	2.1	0.1	7.8	8.8	1.7	12.9	0.2	0.0	0.5	9.2	3.3	13.6	0.1	0.0	0.0	0.8	0.0	6.6
	Min. WM2																					
	Max. WM2																					

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (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			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.			
GRADE: WM3																															
1	Region 12	2.6	-	-	18.3	-	-	20.9	-	-	0.0	-	-	0.4	-	-	21.3	-	-	0.2	-	-	0.0	-	-	0.3	-	-			
1	Region 13	17.3	-	-	3.3	-	-	20.6	-	-	0.5	-	-	0.6	-	-	21.7	-	-	0.0	-	-	0.0	-	-	10.4	-	-			
4	Region 14	11.0	3.3	15.0	1.7	0.3	2.6	12.7	5.1	17.6	0.2	0.0	0.7	0.0	0.0	0.0	12.9	5.8	17.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5				
5	Region 15	17.0	13.2	21.5	2.4	0.8	4.6	19.5	14.3	23.9	0.0	0.0	0.1	0.0	0.0	0.0	19.5	14.3	23.9	0.2	0.0	0.5	0.0	0.0	0.7	0.2	1.6				
2	Region 16	17.0	13.2	20.7	5.0	2.7	7.3	21.9	16.0	27.9	0.0	0.0	0.0	0.6	0.2	1.0	22.6	16.1	29.0	0.0	0.0	0.0	0.5	0.0	1.0	4.5	0.9	9.2			
3	Region 17	13.1	4.3	19.8	2.4	2.3	2.5	15.5	6.6	22.4	0.3	0.0	0.7	0.0	0.0	0.1	15.8	7.3	22.5	0.3	0.0	0.8	0.0	0.0	1.0	0.3	2.1				
4	Region 18	13.4	6.8	22.1	2.6	1.4	4.3	16.0	11.1	23.4	0.4	0.1	0.7	0.0	0.0	0.1	16.4	11.7	23.7	0.1	0.0	0.2	0.0	0.0	0.8	0.0	2.7				
1	Region 19	15.6	-	-	7.5	-	-	23.1	-	-	0.0	-	-	0.4	-	-	23.6	-	-	0.0	-	-	0.0	-	-	1.1	-	-			
1	Region 20	13.3	-	-	0.6	-	-	14.0	-	-	0.2	-	-	1.7	-	-	15.9	-	-	0.0	-	-	0.0	-	-	2.9	-	-			
6	Region 21	8.4	4.6	14.0	3.0	1.4	8.4	11.5	6.0	16.9	0.4	0.0	0.7	0.2	0.0	0.8	12.1	6.7	17.7	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.9				
9	Region 22	14.2	8.0	19.6	1.8	0.9	3.3	16.0	9.1	22.9	0.2	0.0	0.7	0.0	0.0	0.2	16.2	9.8	22.9	0.1	0.0	0.3	0.0	0.0	1.4	0.5	2.5				
9	Region 23	12.0	4.0	22.7	3.5	0.9	10.2	15.6	8.3	23.7	0.5	0.0	0.7	0.1	0.0	0.3	16.1	9.0	24.3	0.1	0.0	0.4	0.0	0.0	1.3	0.0	4.5				
7	Region 24	16.0	7.1	25.0	2.4	1.0	6.2	18.4	8.5	27.5	0.3	0.0	0.6	0.4	0.0	2.3	19.1	9.4	27.9	0.2	0.0	1.5	0.1	0.0	1.7	1.1	2.4				
1	Region 25	16.0	-	-	1.6	-	-	17.6	-	-	0.3	-	-	0.0	-	-	17.9	-	-	1.2	-	-	0.0	-	-	0.0	-	-			
7	Region 26	13.9	6.1	23.6	1.4	0.1	2.8	15.3	8.1	26.2	0.2	0.0	0.5	4.0	0.0	7.3	19.5	14.7	26.2	0.4	0.0	0.8	0.0	0.0	0.8	0.0	2.7				
1	Region 27	9.8	-	-	2.7	-	-	12.5	-	-	0.6	-	-	1.0	-	-	14.1	-	-	0.2	-	-	0.0	-	-	0.6	-	-			
2	Region 28	12.2	11.2	13.3	5.1	3.4	6.7	17.3	16.7	18.0	0.1	0.1	0.1	0.6	0.4	0.8	18.0	17.2	18.9	0.0	0.0	0.0	0.0	0.0	1.3	0.9	1.8				
1	Region 29	12.9	-	-	1.3	-	-	14.2	-	-	0.0	-	-	6.4	-	-	20.6	-	-	0.0	-	-	0.0	-	-	4.5	-	-			
4	Region 32	10.4	3.0	21.8	1.9	0.9	2.5	12.2	5.4	23.6	0.5	0.3	0.7	0.6	0.0	1.4	13.3	6.1	24.8	0.1	0.0	0.2	0.5	0.0	2.1	5.6	0.3	13.2			
1	Region 33	13.7	-	-	0.6	-	-	14.3	-	-	0.0	-	-	0.0	-	-	14.3	-	-	0.0	-	-	0.0	-	-	0.7	-	-			
1	Region 34	1.2	-	-	0.7	-	-	2.0	-	-	0.7	-	-	1.7	-	-	4.4	-	-	0.3	-	-	0.0	-	-	0.3	-	-			
71	Ave. WM3	13.0	1.2	25.0	2.7	0.1	18.3	15.7	2.0	27.9	0.3	0.0	0.7	0.7	0.0	7.3	16.7	4.4	29.0	0.1	0.0	1.5	0.1	0.0	2.1	1.6	0.0	13.2			
	Min. WM3																														
	Max. WM3																											13.2			

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (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																															
2	*Region 12	5.6	3.7	7.5	1.5	1.1	1.9	7.1	5.6	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.1	3.7	1.9	0.1	3.7
3	Region 13	4.6	2.7	6.4	3.1	1.3	6.2	7.7	4.7	12.5	1.0	0.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.4	4.2	2.0	0.4	4.2
5	Region 14	6.3	1.1	13.9	2.4	0.8	6.5	8.7	2.5	15.4	1.2	0.8	1.6	0.1	0.0	0.4	0.0	0.4	0.0	0.6	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
7	*Region 15	47.5	3.6	94.5	3.8	1.7	9.2	51.4	6.7	96.2	1.5	0.0	7.1	0.1	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.6	0.4	0.0	1.6
1	*Region 16	2.7	-	-	2.4	-	-	5.1	-	-	0.1	-	-	0.3	-	-	5.5	-	-	0.1	-	-	-	-	-	0.4	-	-	0.4	-	-
2	Region 18	47.8	9.2	86.4	1.9	1.2	2.7	49.7	10.4	89.1	1.3	0.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.3	0.0	0.6
7	*Region 19	5.0	1.4	9.1	6.2	1.6	18.1	11.2	7.9	20.0	1.3	0.6	2.3	0.2	0.0	0.5	0.0	0.5	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.6	0.0	1.3	0.6	0.0	1.3
7	*Region 21	32.1	3.3	85.2	4.0	1.0	15.4	36.1	4.7	95.1	0.8	0.0	2.1	0.2	0.0	0.8	0.0	0.8	0.0	0.7	0.1	0.0	0.7	0.0	0.0	0.7	0.0	1.8	0.7	0.0	1.8
1	*Region 22	3.8	-	-	2.3	-	-	6.1	-	-	0.0	-	-	0.0	-	-	6.1	-	-	0.0	-	-	-	-	-	0.2	-	-	0.2	-	-
9	Region 23	15.0	4.6	72.4	1.5	0.6	3.3	16.5	7.1	73.0	1.3	0.3	4.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.5	0.0	2.4	0.0	0.0	0.5	0.0	1.1	0.5	0.0	1.1
5	Region 24	46.6	5.5	95.9	2.3	0.7	3.8	48.9	6.3	98.4	0.4	0.0	0.8	0.1	0.0	0.2	0.0	0.2	0.0	0.6	0.1	0.0	0.6	0.4	0.0	2.0	0.4	3.1	2.2	0.7	3.1
1	Region 25	68.2	-	-	0.1	-	-	68.3	-	-	0.1	-	-	0.1	-	-	68.4	-	-	0.4	-	-	-	-	-	0.0	-	-	0.0	0.0	0.0
6	*Region 26	30.4	1.1	71.1	2.5	0.4	6.8	32.9	1.8	78.0	0.7	0.0	2.4	6.2	0.0	18.3	39.7	15.3	78.8	0.2	0.0	0.7	0.0	0.0	0.0	0.7	0.0	1.4	0.7	0.0	1.4
3	*Region 27	17.0	3.9	38.6	3.3	3.0	3.6	20.4	7.4	41.6	0.8	0.5	1.2	0.9	0.4	1.6	22.1	9.4	42.6	0.3	0.0	0.8	0.0	0.0	0.0	0.7	0.3	1.1	0.7	0.3	1.1
1	Region 28	61.6	-	-	0.8	-	-	62.4	-	-	0.2	-	-	0.2	-	-	62.7	-	-	0.0	-	-	-	-	-	0.6	-	-	0.6	-	-
1	Region 30	9.4	-	-	2.5	-	-	11.9	-	-	1.6	-	-	0.0	-	-	13.5	-	-	0.3	-	-	-	-	-	1.2	-	-	1.2	-	-
1	*Region 31	3.3	-	-	1.6	-	-	5.0	-	-	0.1	-	-	0.3	-	-	5.4	-	-	0.0	-	-	-	-	-	0.3	-	-	0.3	-	-
1	*Region 32	1.5	-	-	3.1	-	-	4.6	-	-	0.0	-	-	0.0	-	-	4.6	-	-	0.0	-	-	-	-	-	0.5	-	-	0.5	-	-
5	*Region 34	8.1	3.6	11.2	1.1	0.8	1.6	9.2	4.5	12.0	0.8	0.2	1.6	0.2	0.0	0.6	10.2	5.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.4	3.4	2.4	0.4	3.4
1	*Region 36	3.6	-	-	2.5	-	-	6.0	-	-	0.0	-	-	0.2	-	-	6.3	-	-	0.0	-	-	-	-	-	0.5	-	-	0.5	-	-
69	Ave. COM	22.3	1.1	95.9	2.9	0.1	18.1	25.2	1.8	98.4	0.9	0.0	7.1	0.7	0.0	18.3	26.8	4.0	98.8	0.1	0.0	2.4	0.0	0.0	2.0	0.8	0.0	4.2	0.9	0.0	4.2
	Min. COM																														
	Max. COM																														
516	Ave. WM	8.1	0.3	95.9	2.0	0.0	18.3	10.1	0.8	98.4	0.2	0.0	7.1	0.4	0.0	18.3	10.7	0.8	98.8	0.1	0.0	3.9	0.0	0.0	3.4	0.8	0.0	13.2	0.8	0.0	13.2
	Min. WM																														
	Max. WM																														
890	Ave. Maize	6.5	0.1	95.9	2.1	0.0	18.3	8.6	0.3	98.4	0.2	0.0	7.1	0.3	0.0	18.3	9.1	0.3	98.8	0.1	0.0	3.9	0.0	0.0	3.4	0.8	0.0	13.2	0.8	0.0	13.2
	Min. Maize																														
	Max. Maize																														

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2019/20)
(continue)

*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
12	23 <i>Datura</i> spp.	0
12	6 <i>Datura</i> spp.	0
15	19 <i>Datura</i> spp.	0
16	6 <i>Datura</i> spp.	0
19	45 <i>Datura</i> spp.	0
21	0	12 <i>Xanthium strumarium</i>
22	0	12 <i>Xanthium strumarium</i>
26	6 <i>Datura</i> spp.	0
27	6 <i>Datura</i> spp.	0
31	0	12 <i>Xanthium strumarium</i>
32	0	12 <i>Xanthium strumarium</i>
34	0	22 <i>Xanthium strumarium</i>
34	17 <i>Datura</i> spp.	0
36	0	48 <i>Ipomoea purpurea</i>

TABLE 4: RSA GRADING OF WHITE MAIZE (2019/20)

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																															
1	Region 10	10.1	-	-	2.0	-	-	12.1	-	-	0.1	-	-	0.2	-	-	12.4	-	-	0.0	-	-	0.3	-	-	0.3	-	-	-		
2	Region 11	2.9	2.8	3.1	3.6	1.9	5.2	6.5	4.7	8.3	0.1	0.0	0.3	0.1	0.0	0.3	6.8	4.7	8.9	2.1	0.3	3.9	0.4	0.0	0.7	0.4	0.0	0.7			
13	Region 12	3.7	1.3	8.6	2.5	0.1	18.3	6.3	2.0	20.9	0.1	0.0	0.5	0.1	0.0	0.5	6.4	2.0	21.3	0.1	0.0	0.2	0.5	0.0	3.7	0.5	0.0	3.7			
17	Region 13	5.6	2.1	17.3	2.3	0.7	6.5	7.9	4.1	20.6	0.3	0.0	1.2	0.2	0.0	1.8	8.4	4.1	21.7	0.0	0.0	0.0	1.9	0.2	10.4	1.9	0.2	10.4			
33	Region 14	4.9	1.1	15.0	1.6	0.0	6.5	6.4	2.0	17.6	0.3	0.0	1.6	0.0	0.0	0.4	6.7	2.0	17.6	0.0	0.0	0.6	0.3	0.0	1.1	0.3	0.0	1.1			
34	Region 15	16.3	1.6	94.5	2.3	0.5	9.2	18.5	2.5	96.2	0.3	0.0	7.1	0.0	0.0	0.5	18.9	2.5	96.2	0.2	0.0	2.5	0.5	0.0	1.6	0.5	0.0	1.6			
26	Region 16	5.5	0.7	20.7	1.8	0.2	7.3	7.3	1.0	27.9	0.1	0.0	0.4	0.2	0.0	2.4	7.5	1.0	29.0	0.1	0.0	0.5	1.2	0.0	8.2	1.5	0.0	9.2			
21	Region 17	6.0	0.7	19.8	2.0	0.4	6.8	8.0	1.0	22.4	0.1	0.0	0.7	0.0	0.0	0.5	8.2	1.0	22.5	0.1	0.0	0.9	0.8	0.0	2.4	0.8	0.0	2.4			
17	Region 18	12.3	2.4	86.4	1.8	0.6	4.3	14.1	4.6	89.1	0.3	0.0	2.3	0.1	0.0	0.7	14.5	4.6	89.3	0.1	0.0	0.8	0.6	0.0	2.7	0.6	0.0	2.7			
20	Region 19	4.7	1.4	15.6	3.8	0.4	18.1	8.5	3.0	23.1	0.5	0.0	2.3	0.1	0.0	1.1	9.2	3.0	23.6	0.1	0.0	1.0	0.6	0.0	1.7	0.6	0.0	1.7			
15	Region 20	6.4	2.3	13.3	1.3	0.6	2.6	7.6	3.4	14.0	0.1	0.0	0.5	0.5	0.0	1.7	8.3	3.5	15.9	0.1	0.0	1.2	1.1	0.0	2.9	1.1	0.0	2.9			
34	Region 21	11.5	1.7	85.2	2.5	0.1	15.4	14.0	3.2	95.1	0.3	0.0	2.1	0.2	0.0	0.8	14.5	3.3	95.1	0.0	0.0	0.7	0.9	0.0	2.9	0.9	0.0	2.9			
32	Region 22	8.2	2.3	19.6	1.6	0.5	3.3	9.8	3.5	22.9	0.1	0.0	0.7	0.1	0.0	0.7	10.0	3.5	22.9	0.0	0.0	0.3	0.9	0.0	2.5	1.0	0.0	2.5			
56	Region 23	8.6	2.2	72.4	2.0	0.6	10.2	10.6	3.6	73.0	0.4	0.0	4.4	0.1	0.0	0.8	11.0	4.0	73.3	0.2	0.0	2.4	0.7	0.0	4.5	0.7	0.0	4.5			
25	Region 24	16.3	1.7	95.9	2.0	0.5	6.2	18.3	3.2	98.4	0.3	0.0	0.8	0.2	0.0	2.3	18.7	3.7	98.8	0.2	0.0	1.5	1.2	0.0	3.1	1.4	0.0	3.1			
3	Region 25	31.0	8.8	68.2	1.2	0.1	1.9	32.2	10.8	68.3	0.1	0.0	0.3	0.5	0.0	1.6	32.9	12.4	68.4	0.5	0.0	1.2	0.2	0.0	0.5	0.2	0.0	0.5			
21	Region 26	15.5	0.7	71.1	1.7	0.1	6.8	17.2	1.7	78.0	0.3	0.0	2.4	3.5	0.0	18.3	21.0	3.4	78.8	0.3	0.0	0.8	0.6	0.0	2.7	0.6	0.0	2.7			
11	Region 27	8.4	1.0	38.6	3.1	0.9	6.6	11.4	2.9	41.6	0.3	0.0	1.2	0.9	0.2	2.0	12.7	3.4	42.6	0.1	0.0	0.8	0.8	0.0	2.9	0.8	0.0	2.9			
17	Region 28	7.7	0.9	61.6	1.4	0.2	6.7	9.2	1.2	62.4	0.1	0.0	0.3	0.2	0.0	0.8	9.5	1.2	62.7	0.1	0.0	0.6	0.4	0.0	1.8	0.4	0.0	1.8			
17	Region 29	4.9	0.5	12.9	1.6	0.0	4.6	6.5	1.7	14.2	0.1	0.0	0.5	0.7	0.0	6.4	7.3	2.1	20.6	0.1	0.0	0.7	0.9	0.0	4.5	0.9	0.0	4.5			
11	Region 30	3.2	0.3	9.4	1.9	0.2	3.4	5.2	2.7	11.9	0.2	0.0	1.6	0.1	0.0	0.4	5.4	2.7	13.5	0.1	0.0	0.4	0.5	0.0	1.7	0.5	0.0	1.7			
15	Region 31	3.1	1.3	7.5	2.0	0.8	4.9	5.1	2.5	12.4	0.1	0.0	0.4	0.4	0.0	1.8	5.6	2.5	13.5	0.1	0.0	0.4	0.6	0.0	2.3	0.6	0.0	2.3			
19	Region 32	4.5	1.4	21.8	1.7	0.6	3.1	6.3	1.9	23.6	0.2	0.0	0.7	0.5	0.0	1.9	6.9	2.8	24.8	0.1	0.0	0.6	1.6	0.0	13.2	1.7	0.0	13.2			
13	Region 33	3.6	0.5	13.7	0.9	0.4	1.4	4.5	0.9	14.3	0.1	0.0	0.4	0.3	0.0	1.0	4.9	1.1	14.3	0.1	0.0	0.6	0.5	0.0	1.0	0.5	0.0	1.0			
21	Region 34	4.6	0.5	11.2	1.3	0.2	4.4	5.9	0.8	12.0	0.3	0.0	1.6	0.6	0.0	4.0	6.7	0.8	12.8	0.1	0.0	1.7	1.3	0.0	3.4	1.3	0.0	3.4			
3	Region 35	2.4	1.6	4.1	0.8	0.1	1.2	3.2	1.8	5.2	0.0	0.0	0.1	0.0	0.0	0.0	3.3	1.8	5.3	0.0	0.0	0.0	0.2	0.0	0.4	0.2	0.0	0.4			
19	Region 36	3.8	0.3	8.0	2.0	0.6	5.2	5.8	1.9	9.9	0.1	0.0	0.4	0.9	0.0	3.8	6.8	2.5	11.0	0.1	0.0	1.5	1.0	0.0	2.5	1.0	0.0	2.5			
516	Ave. White	8.1	0.3	95.9	2.0	0.0	18.3	10.1	0.8	98.4	0.2	0.0	7.1	0.4	0.0	18.3	10.7	0.8	98.8	0.1	0.0	3.9	0.8	0.0	13.2	0.8	0.0	13.2			
	Min. White																														
	Max. White																														

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)

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.					
GRADE: YM1																															
12	Region 10	1.9	0.6	3.8	1.8	0.9	3.0	3.7	1.9	6.3	0.0	0.0	0.0	0.0	0.0	0.0	3.7	1.9	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.0	0.5
9	Region 11	1.3	0.4	3.3	1.6	1.2	2.1	2.9	2.1	4.7	0.0	0.0	0.2	0.0	0.0	0.3	3.0	2.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
2	Region 12	1.9	1.3	2.5	0.7	0.5	0.9	2.6	2.2	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.2	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.2
4	Region 14	1.3	0.7	1.8	1.6	1.0	2.1	2.8	2.0	3.3	0.1	0.0	0.3	0.3	0.0	1.0	3.3	3.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.7	0.2	0.0	0.7
3	Region 15	2.2	1.9	2.5	1.9	1.3	2.9	4.1	3.1	5.1	0.0	0.0	0.0	0.1	0.0	0.4	4.2	3.1	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	1.2	0.6	0.2	1.2
1	Region 16	2.6	-	-	1.4	-	-	4.0	-	-	0.1	-	-	0.0	-	-	4.1	-	-	0.0	-	-	0.0	-	-	1.2	-	-	1.2	-	-
1	Region 17	5.4	-	-	1.1	-	-	6.5	-	-	0.0	-	-	0.1	-	-	6.6	-	-	0.0	-	-	0.0	-	-	4.0	-	-	4.0	-	-
3	Region 18	2.3	0.6	3.3	1.6	1.2	2.2	3.9	2.0	5.5	0.1	0.0	0.2	0.3	0.0	0.8	4.2	2.2	6.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	2.4	1.1	0.0	2.4
2	Region 19	3.2	2.9	3.5	2.9	2.6	3.1	6.0	6.0	6.1	0.0	0.0	0.0	0.1	0.0	0.3	6.2	6.1	6.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.6	1.6	1.1	0.6	1.6
6	Region 20	2.7	1.6	5.3	1.6	0.6	3.6	4.2	2.4	6.5	0.0	0.0	0.2	0.1	0.0	0.2	4.3	2.4	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	2.6	0.8	0.0	2.6
6	Region 21	4.1	1.7	5.6	1.7	0.2	3.0	5.8	4.0	7.2	0.1	0.0	0.2	0.2	0.0	0.5	6.1	4.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	1.5	0.9	0.3	1.5
1	Region 22	5.2	-	-	2.2	-	-	7.4	-	-	0.0	-	-	0.0	-	-	7.4	-	-	0.0	-	-	0.0	-	-	3.0	-	-	3.0	-	-
1	Region 23	2.3	-	-	2.9	-	-	5.3	-	-	0.0	-	-	0.2	-	-	5.5	-	-	0.0	-	-	0.0	-	-	0.5	-	-	0.5	-	-
6	Region 24	2.2	0.3	5.1	2.6	2.1	3.0	4.8	2.5	7.7	0.0	0.0	0.1	0.1	0.0	0.7	5.0	2.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.8	0.3	0.0	0.8
6	Region 25	2.8	0.8	4.6	1.9	0.3	3.3	4.7	3.2	6.4	0.0	0.0	0.1	0.2	0.0	0.8	4.9	3.5	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.9	0.3	0.0	0.9
6	Region 26	3.5	2.5	4.3	2.1	0.2	4.0	5.7	3.8	7.4	0.1	0.0	0.2	0.0	0.0	0.1	5.7	3.9	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	1.2	0.7	0.3	1.2
10	Region 27	3.8	2.2	7.0	2.0	0.4	3.1	5.8	3.5	7.7	0.1	0.0	0.3	0.0	0.0	0.0	5.9	3.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.9	0.7	0.2	0.9
18	Region 28	2.8	0.7	6.9	1.5	0.1	3.4	4.3	2.2	9.0	0.0	0.0	0.3	0.1	0.0	1.0	4.4	2.2	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.7	0.5	0.0	1.7
26	Region 29	2.9	0.2	5.8	1.6	0.2	3.9	4.4	0.6	8.1	0.0	0.0	0.3	0.1	0.0	1.6	4.6	0.6	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.1	0.7	0.0	2.1
24	Region 30	2.0	0.2	5.4	2.0	0.3	4.0	4.0	0.5	8.8	0.0	0.0	0.3	0.0	0.0	0.2	4.1	0.5	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.8	0.3	0.0	1.0
25	Region 31	2.4	0.3	4.5	1.8	0.6	3.8	4.2	0.9	7.4	0.0	0.0	0.2	0.0	0.0	0.3	4.2	0.9	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	2.5	0.5	0.0	2.5
21	Region 32	3.0	1.8	5.6	1.6	0.4	3.3	4.6	2.7	7.0	0.0	0.0	0.3	0.0	0.0	0.4	4.7	2.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.0	0.6	0.0	2.0
12	Region 33	2.3	0.1	4.0	1.7	0.9	2.8	3.9	1.6	6.8	0.0	0.0	0.2	0.2	0.0	1.6	4.2	1.6	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.6	0.7	0.0	2.8
17	Region 34	2.2	0.6	5.1	1.1	0.1	2.0	3.3	1.6	5.7	0.0	0.0	0.2	0.0	0.0	0.5	3.4	1.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.2	0.7	0.0	2.2
4	Region 35	2.2	0.3	3.8	1.4	0.0	2.4	3.6	0.3	6.2	0.0	0.0	0.1	0.2	0.0	0.9	3.9	0.3	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.3
18	Region 36	2.7	0.5	5.5	1.7	0.2	3.7	4.3	2.0	8.5	0.1	0.0	0.3	0.1	0.0	0.4	4.5	2.1	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.3	0.7	0.0	2.6
244	Ave. YM1	2.6			1.7			4.3			0.0			0.1			4.4			0.0			0.0			0.6			0.6		
	Min. YM1	0.1			0.0			0.3			0.0			0.0			0.3			0.0			0.0			0.0			0.0		
	Max. YM1	7.0			4.0			9.0			0.3			1.6			9.0			0.0			0.3			4.0			4.0		

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve			ave. min. max.			ave. min. max.			ave. min. max.			ave. min. max.			ave. min. max.			ave. min. max.			ave. min. max.			ave. min. max.		
		ave.	min.	max.	ave.	min.	max.	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																															
2	Region 10	1.3	1.0	1.7	4.4	4.4	4.4	5.8	5.4	6.2	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.4	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.8	0.5	0.3	0.8
1	Region 11	9.7	-	-	3.5	-	-	13.2	-	-	0.5	-	-	0.0	-	-	13.7	-	-	0.0	-	-	0.0	-	-	0.1	-	-	0.1	-	-
1	Region 13	6.9	-	-	2.0	-	-	8.9	-	-	0.2	-	-	0.0	-	-	9.1	-	-	0.0	-	-	0.0	-	-	0.5	-	-	0.5	-	-
1	Region 14	9.2	-	-	2.5	-	-	11.7	-	-	0.1	-	-	0.4	-	-	12.1	-	-	0.0	-	-	0.0	-	-	0.6	-	-	0.6	-	-
2	Region 15	10.2	7.9	12.5	4.1	3.2	5.0	14.3	11.1	17.6	0.0	0.0	0.0	1.1	0.0	2.2	15.4	11.1	19.8	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	2.0	1.0	0.0	2.0
2	Region 16	8.3	7.6	9.1	1.4	1.4	1.4	9.7	9.0	10.5	0.0	0.0	0.0	0.3	0.0	0.7	10.1	9.7	10.5	0.0	0.0	0.0	0.1	0.0	0.2	3.4	3.3	3.6	3.5	3.5	3.6
2	Region 18	6.9	6.6	7.1	3.9	2.8	5.1	10.8	9.4	12.3	0.1	0.0	0.1	0.1	0.0	0.2	11.0	9.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2	1.3	0.8	0.2	1.3
3	Region 21	7.5	4.4	9.5	3.1	2.4	4.6	10.6	8.9	11.9	0.0	0.0	0.1	0.2	0.0	0.5	10.8	9.4	11.9	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5	2.3	1.5	0.5	2.3
4	Region 22	3.8	2.4	5.7	3.9	2.0	5.3	7.6	5.8	9.5	0.0	0.0	0.0	1.1	0.2	3.6	8.8	7.9	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	1.4	0.9	0.5	1.4
4	Region 24	9.4	1.4	16.9	2.5	1.3	4.2	11.9	3.1	19.8	0.2	0.0	0.5	0.1	0.0	0.3	12.2	3.9	19.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.3	0.4	0.0	1.3
1	Region 25	2.8	-	-	5.7	-	-	8.5	-	-	0.4	-	-	0.0	-	-	8.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
8	Region 26	9.0	2.3	16.0	2.7	0.8	5.7	11.7	6.7	17.4	0.0	0.0	0.4	0.5	0.0	2.8	12.2	7.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.3	5.4	1.8	0.3	5.4
5	Region 27	5.0	0.8	9.8	3.3	1.9	5.0	8.2	4.9	12.4	0.1	0.0	0.4	0.0	0.0	0.0	8.4	5.4	12.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.5	2.9	1.1	0.0	2.9
7	Region 28	6.8	1.0	14.2	4.9	1.8	9.5	11.7	5.9	16.1	0.1	0.0	0.2	0.1	0.0	0.3	11.9	5.9	16.1	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.1	6.6	1.2	0.1	6.6
7	Region 29	3.5	0.8	6.7	3.4	0.5	7.9	7.0	2.1	11.4	0.2	0.0	0.5	0.0	0.0	0.1	7.2	2.5	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	1.6	0.8	0.0	1.6
6	Region 30	4.9	1.4	10.0	2.9	1.4	4.7	7.8	3.2	14.6	0.2	0.0	0.4	0.0	0.0	0.1	8.0	3.6	14.7	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.9	0.6	0.2	0.9
5	Region 31	6.1	1.6	11.3	3.8	0.7	7.6	9.8	7.2	12.8	0.3	0.0	0.5	0.0	0.0	0.2	10.2	7.7	13.5	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.2	2.9	1.3	0.2	2.9
8	Region 32	3.3	0.9	6.3	3.2	1.1	4.8	6.6	3.7	10.7	0.2	0.0	0.5	0.7	0.0	3.0	7.5	4.1	11.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	3.6	1.1	0.0	3.6
5	Region 33	4.8	1.9	6.7	2.0	0.1	3.7	6.8	3.1	10.2	0.1	0.0	0.5	1.2	0.0	3.4	8.1	5.6	10.2	0.0	0.0	0.0	0.4	0.0	1.0	1.3	0.0	3.1	1.7	0.0	3.9
5	Region 36	1.7	1.3	2.0	4.4	1.6	7.8	6.1	3.3	9.1	0.2	0.0	0.5	1.2	0.0	4.5	7.5	3.8	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	0.7	0.6	0.4	0.7
79	Ave. YM2	5.6			3.4			9.0			0.1			0.4			9.6			0.0			0.0			1.1			1.1		
	Min. YM2		0.8	16.9			0.1	2.1			0.0			0.0			2.5			0.0			0.0			0.0			0.0		
	Max. YM2						9.5	19.8			0.5			4.5			19.9			0.0			1.0			6.6			6.6		

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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	1.6	-	-	1.0	-	-	2.5	-	-	0.6	-	-	0.0	-	-	3.2	-	-	0.0	-	-	0.4	-	-	0.4	-	-
2	Region 24	9.6	3.1	16.0	4.7	3.4	6.0	14.2	6.5	22.0	0.4	0.1	0.6	0.0	0.0	0.0	14.6	7.1	22.2	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.0	0.3
2	Region 27	1.9	1.8	1.9	8.5	5.5	11.6	10.4	7.4	13.4	0.4	0.1	0.7	0.0	0.0	0.0	10.8	8.1	13.5	0.0	0.0	0.0	0.6	0.2	0.9	0.6	0.2	0.9
4	Region 28	5.3	0.4	8.5	5.1	2.2	11.7	10.4	6.8	12.8	0.5	0.1	0.6	0.4	0.0	0.8	11.3	8.1	13.4	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.3
1	Region 29	4.1	-	-	2.4	-	-	6.6	-	-	0.6	-	-	0.0	-	-	7.2	-	-	0.0	-	-	0.4	-	-	0.4	-	-
1	Region 30	0.5	-	-	4.1	-	-	4.5	-	-	0.7	-	-	0.1	-	-	5.4	-	-	0.0	-	-	0.1	-	-	0.1	-	-
1	Region 32	2.1	-	-	1.0	-	-	3.0	-	-	0.6	-	-	0.0	-	-	3.7	-	-	0.0	-	-	1.1	-	-	1.1	-	-
1	Region 34	4.8	-	-	2.3	-	-	7.0	-	-	0.6	-	-	0.2	-	-	7.8	-	-	0.0	-	-	0.7	-	-	0.7	-	-
13	Ave. YM3	4.4			4.4			8.8			0.5			0.1			9.5			0.0			0.4			0.4		
	Min. YM3		0.4			1.0		2.5			0.1			0.0			3.2			0.0			0.0			0.0		
	Max. YM3			16.0			11.7		22.0		0.7			0.8			22.2			0.0			1.1			1.1		
CLASS: COM																												
1	*Region 8	3.9	-	-	1.9	-	-	5.8	-	-	0.4	-	-	0.0	-	-	6.2	-	-	0.0	-	-	0.8	-	-	0.8	-	-
1	Region 10	1.3	-	-	2.9	-	-	4.2	-	-	0.8	-	-	0.0	-	-	5.0	-	-	0.0	-	-	0.4	-	-	0.4	-	-
1	*Region 13	2.7	-	-	2.1	-	-	4.8	-	-	0.6	-	-	0.5	-	-	5.8	-	-	0.0	-	-	0.6	-	-	0.6	-	-
1	*Region 14	1.2	-	-	0.7	-	-	1.9	-	-	0.0	-	-	0.2	-	-	2.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-
1	Region 15	6.2	-	-	1.9	-	-	8.0	-	-	5.9	-	-	0.0	-	-	13.9	-	-	0.0	-	-	0.2	-	-	0.2	-	-
3	Region 18	2.7	0.7	5.5	3.4	2.5	4.1	6.0	3.2	9.6	1.9	1.2	2.4	0.4	0.0	0.7	8.2	6.3	11.1	0.0	0.0	0.0	0.3	0.1	0.5	0.3	0.1	0.5
2	Region 23	4.0	3.3	4.6	1.2	1.0	1.3	5.1	4.6	5.6	0.3	0.0	0.7	6.6	5.4	7.8	12.1	10.7	13.5	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.0	0.5
5	*Region 24	32.0	2.2	79.6	4.7	1.7	7.4	36.6	4.8	85.4	0.4	0.0	2.0	0.0	0.0	0.0	37.1	4.8	85.4	0.0	0.0	0.0	1.1	0.0	4.6	1.1	0.0	4.6
4	*Region 26	31.9	9.1	57.6	1.7	0.6	2.7	33.6	11.0	59.4	0.4	0.0	0.9	0.0	0.0	0.0	34.0	11.0	60.0	0.0	0.0	0.0	0.7	0.0	1.3	0.7	0.0	1.3
2	*Region 27	2.1	1.4	2.8	3.5	3.3	3.6	5.6	5.0	6.1	0.2	0.1	0.3	8.6	0.0	17.2	14.3	5.1	23.6	0.0	0.0	0.0	0.9	0.7	1.2	0.9	0.7	1.2
2	*Region 28	43.6	1.6	85.6	2.2	1.2	3.3	45.9	4.9	86.9	0.0	0.0	0.0	0.0	0.0	0.0	45.9	4.9	86.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	*Region 29	2.5	-	-	1.4	-	-	4.0	-	-	0.0	-	-	0.0	-	-	4.0	-	-	0.0	-	-	0.2	-	-	0.2	-	-
3	*Region 31	2.1	1.5	3.0	1.8	0.7	2.4	3.9	2.4	5.4	0.4	0.0	0.8	0.0	0.0	0.0	4.2	3.2	5.7	0.0	0.0	0.0	0.2	0.0	0.4	0.2	0.0	0.4
5	*Region 32	2.9	1.8	3.5	2.2	1.1	4.4	5.1	2.9	6.8	0.9	0.2	1.5	0.0	0.0	0.0	6.0	4.5	7.0	0.0	0.0	0.0	0.5	0.0	0.9	0.5	0.0	0.9
1	*Region 34	2.6	-	-	2.4	-	-	5.0	-	-	0.0	-	-	0.2	-	-	5.2	-	-	0.0	-	-	0.7	-	-	0.7	-	-

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
5	CLASS: COM *Region 36	8.0	2.3	14.7	4.7	1.6	9.1	12.6	5.4	17.4	0.6	0.0	1.9	0.6	0.0	1.5	13.9	5.6	18.9	0.0	0.0	0.0	0.2	0.0	0.9	2.0	0.5	6.4	2.2	0.5	7.3
38	Ave. COM	12.5			2.8			15.3			0.7			0.9			17.0			0.0			0.0			0.7			0.8		
	Min. COM	0.7			0.6			1.9			0.0			0.0			2.1			0.0			0.0			0.0			0.0		
	Max. COM	85.6			85.6			86.9			5.9			17.2			86.9			0.0			0.9			6.4			7.3		
374	Ave. YM	4.3			2.3			6.6			0.1			0.2			6.9			0.0			0.0			0.7			0.7		
	Min. YM	0.1			0.0			0.3			0.0			0.0			0.3			0.0			0.0			0.0			0.0		
	Max. YM	85.6			85.6			86.9			5.9			17.2			86.9			0.0			1.0			6.6			7.3		
890	Ave. Maize	6.5			2.1			8.6			0.2			0.3			9.1			0.1			0.0			0.8			0.8		
	Min. Maize	0.1			0.0			0.3			0.0			0.0			0.3			0.0			0.0			0.0			0.0		
	Max. Maize	95.9			95.9			98.4			7.1			18.3			98.8			3.9			3.4			13.2			13.2		

*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> <i>Roth.</i> , <i>Lolium temulentum</i> , <i>Xanthium</i> spp.) Max. allowance 7 seeds/1000 g
8	0	12 <i>Xanthium strumarium</i>
13	6 <i>Datura</i> spp.	0
14	6 <i>Datura</i> spp.	0
24	6 <i>Datura</i> spp.	0
24	12 <i>Datura</i> spp.	0
26	0	12 <i>Xanthium strumarium</i>
26	6 <i>Datura</i> spp.	0
27	0	12 <i>Xanthium strumarium</i>
28	6 <i>Datura</i> spp.	0
29	0	12 <i>Xanthium strumarium</i>
31	0	10 <i>Xanthium strumarium</i>
31	0	12 <i>Xanthium strumarium</i>
32	0	12 <i>Xanthium strumarium</i>
32	0	12 <i>Xanthium strumarium</i>
34	5 <i>Datura</i> spp.	0
36	0	12 <i>Xanthium strumarium</i>
36	0	10 <i>Convolvulus</i> spp.
36	5 <i>Datura</i> spp.	0

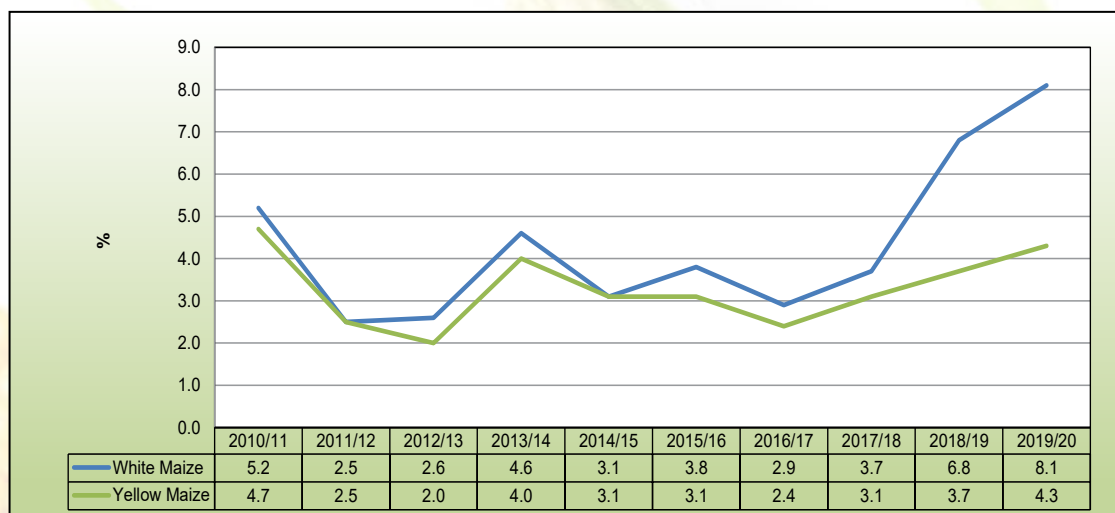
TABLE 6: RSA GRADING OF YELLOW MAIZE (2019/20)

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.	
GRADE: YELLOW																										
1	Region 8	3.9	-	-	1.9	-	-	5.8	-	-	0.4	-	-	6.2	-	-	0.0	-	-	0.0	-	0.8	-	0.8	-	
15	Region 10	1.8	0.6	3.8	2.2	0.9	4.4	4.0	1.9	6.3	0.1	0.0	0.8	4.1	1.9	6.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.8	0.0	
11	Region 11	2.1	0.4	9.7	1.7	1.0	3.5	3.8	2.1	13.2	0.1	0.0	0.6	4.0	2.1	13.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.1	
2	Region 12	1.9	1.3	2.5	0.7	0.5	0.9	2.6	2.2	2.9	0.0	0.0	0.0	2.6	2.2	2.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	
2	Region 13	4.8	2.7	6.9	2.0	2.0	2.1	6.8	4.8	8.9	0.4	0.2	0.6	7.5	5.8	9.1	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.6	0.6	
6	Region 14	2.6	0.7	9.2	1.6	0.7	2.5	4.2	1.9	11.7	0.1	0.0	0.3	4.6	2.1	12.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.7	0.2	
6	Region 15	5.5	1.9	12.5	2.6	1.3	5.0	8.1	3.1	17.6	1.0	0.0	5.9	9.6	3.1	19.8	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.0	0.7	
3	Region 16	6.4	2.6	9.1	1.4	1.4	1.4	7.8	4.0	10.5	0.0	0.0	0.1	8.1	4.1	10.5	0.0	0.0	0.0	0.1	0.0	2.7	1.2	3.6	2.7	
1	Region 17	5.4	-	-	1.1	-	-	6.5	-	-	0.0	-	-	6.6	-	-	0.0	-	-	0.0	-	4.0	-	-	4.0	
8	Region 18	3.6	0.6	7.1	2.9	1.2	5.1	6.4	2.0	12.3	0.7	0.0	2.4	7.4	2.2	12.5	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.4	0.7	
2	Region 19	3.2	2.9	3.5	2.9	2.6	3.1	6.0	6.0	6.1	0.0	0.0	0.0	6.2	6.1	6.3	0.0	0.0	0.0	0.0	0.0	1.1	0.6	1.6	1.1	
6	Region 20	2.7	1.6	5.3	1.6	0.6	3.6	4.2	2.4	6.5	0.0	0.0	0.2	4.3	2.4	6.6	0.0	0.0	0.0	0.0	0.0	0.8	0.0	2.6	0.8	
9	Region 21	5.2	1.7	9.5	2.2	0.2	4.6	7.4	4.0	11.9	0.1	0.0	0.2	7.6	4.5	11.9	0.0	0.0	0.0	0.0	0.0	1.1	0.3	2.3	1.1	
5	Region 22	4.1	2.4	5.7	3.5	2.0	5.3	7.6	5.8	9.5	0.0	0.0	0.0	8.5	7.4	9.7	0.0	0.0	0.0	0.0	0.0	1.3	0.5	3.0	1.3	
3	Region 23	3.4	2.3	4.6	1.8	1.0	2.9	5.2	4.6	5.6	0.2	0.0	0.7	9.9	5.5	13.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.3	
17	Region 24	13.5	0.3	79.6	3.4	1.3	7.4	17.0	2.5	85.4	0.2	0.0	2.0	17.3	2.5	85.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	4.6	0.5	
7	Region 25	2.8	0.8	4.6	2.4	0.3	5.7	5.2	3.2	8.5	0.1	0.0	0.4	5.5	3.5	8.9	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.9	0.2	
18	Region 26	12.3	2.3	57.6	2.3	0.2	5.7	14.6	3.8	59.4	0.1	0.0	0.9	14.9	3.9	60.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	5.4	1.2	
19	Region 27	3.7	0.8	9.8	3.2	0.4	11.6	6.9	3.5	13.4	0.1	0.0	0.7	7.9	3.5	23.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2	2.9	0.8	
31	Region 28	6.7	0.4	85.6	2.8	0.1	11.7	9.5	2.2	86.9	0.1	0.0	0.6	9.7	2.2	86.9	0.0	0.0	0.0	0.0	0.0	0.6	0.0	6.6	0.6	
35	Region 29	3.0	0.2	6.7	2.0	0.2	7.9	5.0	0.6	11.4	0.1	0.0	0.6	5.1	0.6	11.5	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.1	0.7	
31	Region 30	2.5	0.2	10.0	2.3	0.3	4.7	4.8	0.5	14.6	0.1	0.0	0.7	4.9	0.5	14.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.9	0.3	
33	Region 31	3.0	0.3	11.3	2.1	0.6	7.6	5.0	0.9	12.8	0.1	0.0	0.8	5.1	0.9	13.5	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.9	0.6	
35	Region 32	3.0	0.9	6.3	2.0	0.4	4.8	5.1	2.7	10.7	0.2	0.0	1.5	5.5	2.7	11.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	3.6	0.7	
17	Region 33	3.0	0.1	6.7	1.8	0.1	3.7	4.8	1.6	10.2	0.1	0.0	0.5	5.3	1.6	10.2	0.0	0.0	0.0	0.1	0.0	0.8	0.0	3.1	1.0	
19	Region 34	2.3	0.6	5.1	1.2	0.1	2.4	3.6	1.6	7.0	0.1	0.0	0.6	3.7	1.7	7.8	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.2	0.7	
4	Region 35	2.2	0.3	3.8	1.4	0.0	2.4	3.6	0.3	6.2	0.0	0.0	0.1	3.9	0.3	7.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	
28	Region 36	3.4	0.5	14.7	2.7	0.2	9.1	6.1	2.0	17.4	0.2	0.0	1.9	6.7	2.1	18.9	0.0	0.0	0.0	0.0	0.0	0.9	0.0	6.4	1.0	
374	Ave. Yellow	4.3			2.3			6.6			0.1			6.9			0.0			0.0		0.7			0.7	
	Min. Yellow		0.1			0.0		0.3			0.0			0.3			0.0			0.0		0.0			0.0	
	Max. Yellow			85.6			11.7	86.9			17.2			86.9			0.0			1.0		6.6			7.3	

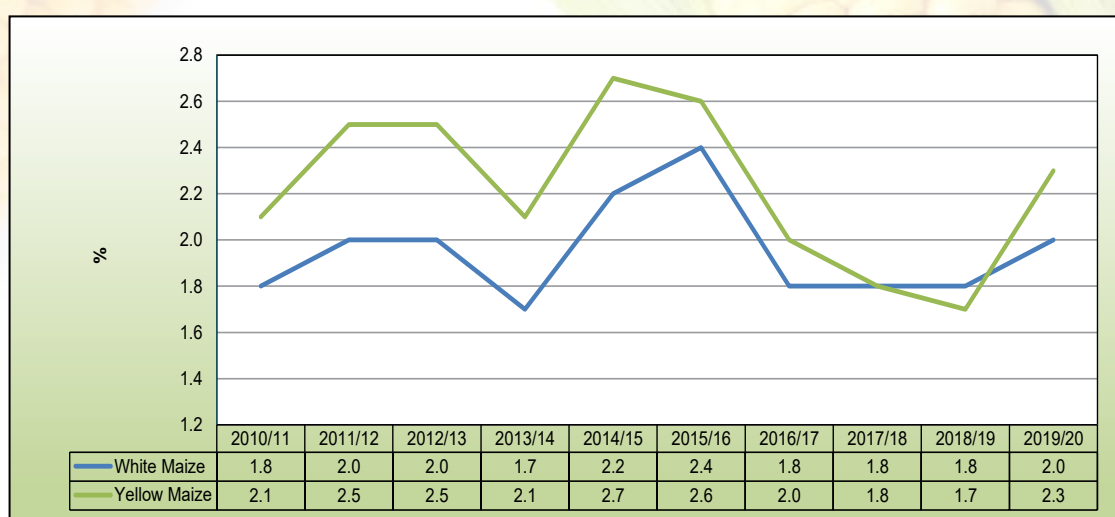
**TABLE 7: GRADING QUALITY OF SOUTH AFRICAN
WHITE AND YELLOW MAIZE 2010/11 - 2019/20**

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																
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
2019/20	516	8.1	0.3	95.9	2.0	0.0	18.3	0.2	0.0	7.1	0.4	0.0	18.3	10.7	0.8	98.8
Weighted Average		4.2			2.0			0.1			0.4			6.7		
Minimum		0.0			0.0			0.0			0.0			0.0		
Maximum		95.9			25.5			7.1			43.7			98.8		
Yellow Maize																
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
2019/20	374	4.3	0.1	85.6	2.3	0.0	11.7	0.1	0.0	5.9	0.2	0.0	17.2	6.9	0.3	86.9
Weighted Average		3.2			2.3			0.1			0.2			5.8		
Minimum		0.0			0.0			0.0			0.0			0.3		
Maximum		85.6			27.4			5.9			17.2			90.4		
White and Yellow Maize																
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
2019/20	890	6.5	0.1	95.9	2.1	0.0	18.3	0.2	0.0	7.1	0.3	0.0	18.3	9.1	0.3	98.8
Weighted Average		3.7			2.1			0.1			0.3			6.2		
Minimum		0.0			0.0			0.0			0.0			0.0		
Maximum		95.9			27.4			7.1			43.7			98.8		

Graph 34: Percentage Defective Kernels above the 6.35 mm sieve over 10 seasons



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



Graph 36: Percentage Combined deviations over 10 seasons

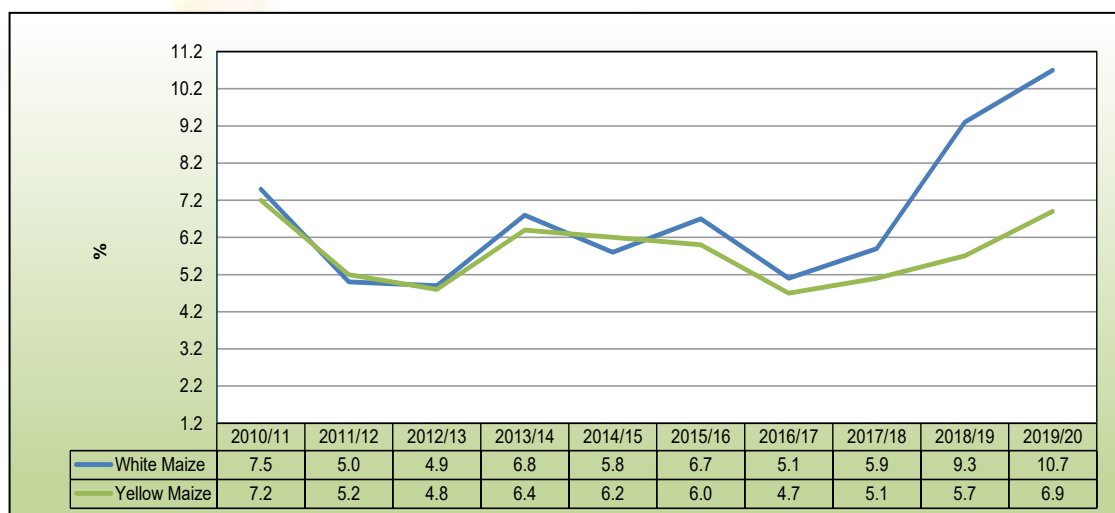


TABLE 8: USA GRADING OF WHITE MAIZE (2019/20)

Number of samples	Region	Damaged kernels						%			Bushel weight (lbs)			% Other colour		
		%			%											
		Heat damaged			Total damaged			Broken corn and foreign material			ave.	min.	max.	ave.	min.	max.
ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.		
GRADE: US No.1																
3	Region 12	0.0	0.0	0.0	1.8	1.4	2.6	0.3	0.0	0.7	59.3	58.4	60.1	0.0	0.0	0.0
1	Region 13	0.0	-	-	2.5	-	-	0.9	-	-	56.7	-	-	0.0	-	-
12	Region 14	0.0	0.0	0.0	2.0	0.4	3.0	0.5	0.0	1.8	59.0	56.4	61.0	0.0	0.0	0.1
2	Region 15	0.0	0.0	0.0	2.2	1.7	2.7	1.0	0.3	1.8	58.3	58.1	58.4	0.0	0.0	0.0
7	Region 16	0.0	0.0	0.0	1.8	0.8	2.9	0.3	0.1	0.6	58.4	56.9	59.6	0.0	0.0	0.0
1	Region 17	0.0	-	-	2.8	-	-	0.4	-	-	58.5	-	-	0.0	-	-
1	Region 18	0.0	-	-	2.5	-	-	0.9	-	-	58.9	-	-	0.5	-	-
6	Region 19	0.0	0.0	0.0	2.7	2.2	2.9	0.6	0.1	1.5	58.7	56.4	60.4	0.0	0.0	0.0
2	Region 20	0.0	0.0	0.0	2.5	2.3	2.8	0.5	0.4	0.7	59.0	58.2	59.8	0.1	0.0	0.1
3	Region 21	0.0	0.0	0.0	2.1	2.0	2.2	0.8	0.8	0.8	59.2	58.4	59.9	0.1	0.0	0.2
1	Region 22	0.0	-	-	2.6	-	-	0.2	-	-	57.9	-	-	0.0	-	-
1	Region 23	0.0	-	-	2.4	-	-	0.6	-	-	58.1	-	-	0.0	-	-
2	Region 24	0.0	0.0	0.0	1.8	1.7	1.9	0.4	0.4	0.5	62.8	62.6	63.0	0.2	0.0	0.4
1	Region 26	0.0	-	-	1.1	-	-	0.7	-	-	56.6	-	-	1.3	-	-
2	Region 27	0.0	0.0	0.0	2.0	1.1	2.9	1.0	0.8	1.2	59.8	58.9	60.6	0.3	0.2	0.4
5	Region 28	0.0	0.0	0.0	2.1	1.0	3.0	0.1	0.0	0.2	61.1	59.5	62.8	0.1	0.0	0.7
6	Region 29	0.0	0.0	0.0	1.7	1.2	3.0	0.6	0.0	1.4	59.4	57.8	61.9	0.6	0.0	1.1
6	Region 30	0.0	0.0	0.0	1.5	0.6	2.6	0.9	0.5	1.3	60.0	58.6	61.6	0.1	0.0	0.2
9	Region 31	0.0	0.0	0.0	2.2	1.5	2.9	0.4	0.1	0.9	59.1	57.7	60.8	0.4	0.0	1.8
7	Region 32	0.0	0.0	0.0	2.2	1.4	3.0	0.5	0.1	0.9	59.7	57.9	61.6	0.2	0.0	1.0
7	Region 33	0.0	0.0	0.0	1.9	0.6	3.0	0.3	0.1	0.6	60.5	59.1	61.3	0.2	0.0	1.0
4	Region 34	0.0	0.0	0.0	1.5	0.5	2.7	0.4	0.0	1.0	59.7	57.9	60.8	0.6	0.0	1.7
1	Region 35	0.0	-	-	1.7	-	-	0.4	-	-	60.0	-	-	0.0	-	-
2	Region 36	0.0	0.0	0.0	1.5	1.5	1.5	0.7	0.1	1.2	60.8	60.5	61.0	0.3	0.2	0.5
92	Ave. US No.1	0.0			2.0			0.5			59.4			0.2		
	Min. US No.1	0.0			0.4			0.0			56.4			0.0		
	Max. US No.1	0.0			3.0			1.8			63.0			1.8		
GRADE: US No.2																
2	Region 11	0.0	0.0	0.0	3.7	3.2	4.1	1.2	0.6	1.9	62.4	61.5	63.3	0.1	0.0	0.3
6	Region 12	0.0	0.0	0.0	3.5	2.3	4.5	0.4	0.0	1.2	56.9	55.5	58.2	0.0	0.0	0.0
6	Region 13	0.0	0.0	0.0	3.7	3.1	5.0	0.7	0.1	1.8	57.7	56.7	58.6	0.1	0.0	0.5
9	Region 14	0.0	0.0	0.0	3.6	1.9	4.7	0.5	0.0	1.4	58.2	55.6	59.8	0.0	0.0	0.3
5	Region 15	0.0	0.0	0.0	4.2	3.1	4.9	0.6	0.1	1.2	58.7	55.7	60.8	0.1	0.0	0.3
8	Region 16	0.0	0.0	0.0	4.0	3.1	4.9	0.7	0.1	0.9	59.5	58.4	60.3	0.0	0.0	0.3
9	Region 17	0.0	0.0	0.0	3.8	0.9	5.0	0.9	0.1	1.8	58.9	55.5	60.2	0.1	0.0	0.5
5	Region 18	0.0	0.0	0.0	4.0	3.4	4.5	0.3	0.1	0.7	58.8	57.9	61.7	0.3	0.0	0.7
2	Region 19	0.0	0.0	0.0	4.2	3.9	4.5	1.1	0.8	1.3	57.8	56.7	58.9	0.0	0.0	0.0
2	Region 20	0.0	0.0	0.0	4.6	4.4	4.8	0.3	0.3	0.4	59.8	59.3	60.3	0.2	0.0	0.4
7	Region 21	0.0	0.0	0.2	4.0	3.2	4.8	0.9	0.0	2.8	58.3	55.7	60.5	0.1	0.0	0.8
5	Region 22	0.0	0.0	0.0	4.2	3.4	4.8	0.4	0.1	0.9	59.5	58.4	59.9	0.1	0.0	0.3
13	Region 23	0.0	0.0	0.0	4.2	3.1	4.9	0.7	0.1	2.2	58.8	54.3	61.0	0.1	0.0	0.8
3	Region 24	0.0	0.0	0.0	3.9	3.1	4.8	0.8	0.7	0.8	58.8	56.7	60.1	0.1	0.0	0.2
3	Region 26	0.0	0.0	0.0	4.4	4.3	4.7	0.8	0.1	1.9	58.1	54.3	60.6	0.7	0.0	1.7
2	Region 27	0.0	0.0	0.0	4.1	3.6	4.5	2.2	1.9	2.6	59.4	58.9	59.8	1.4	0.8	2.0
8	Region 28	0.0	0.0	0.2	3.7	2.8	4.9	0.2	0.0	0.4	61.2	57.2	63.7	0.1	0.0	0.7
2	Region 29	0.0	0.0	0.0	4.2	3.8	4.6	0.3	0.2	0.5	61.0	60.7	61.3	0.0	0.0	0.0
2	Region 30	0.0	0.0	0.0	3.9	3.8	3.9	0.1	0.0	0.3	59.6	59.1	60.1	0.0	0.0	0.0
1	Region 31	0.0	-	-	4.2	-	-	1.0	-	-	58.8	-	-	0.5	-	-
6	Region 32	0.0	0.0	0.0	3.8	3.2	4.5	0.8	0.3	1.5	59.5	58.1	62.0	0.5	0.1	1.4
3	Region 33	0.0	0.0	0.0	3.7	3.1	4.0	0.3	0.0	0.7	59.8	59.2	60.3	0.3	0.0	0.6

TABLE 8: USA GRADING OF WHITE MAIZE (2019/20) (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.		
GRADE: US No.2																
7	Region 34	0.0	0.0	0.0	3.6	3.1	4.4	0.7	0.1	1.4	60.0	58.6	62.2	0.3	0.0	0.6
1	Region 35	0.0	-	-	4.2	-	-	0.3	-	-	61.0	-	-	0.0	-	-
9	Region 36	0.0	0.0	0.0	3.4	0.9	5.0	1.1	0.1	3.0	60.7	57.9	63.4	0.3	0.0	0.8
126	Ave. US No.2	0.0			3.9			0.7			59.2			0.2		
	Min. US No.2	0.0			0.9			0.0			54.3			0.0		
	Max. US No.2	0.2			5.0			3.0			63.7			2.0		
GRADE: US No.3																
1	Region 12	0.0	-	-	5.7	-	-	0.3	-	-	59.1	-	-	0.0	-	-
5	Region 13	0.0	0.0	0.0	5.8	5.1	7.0	0.8	0.2	1.3	57.8	56.8	58.4	0.0	0.0	0.0
5	Region 14	0.0	0.0	0.0	5.8	5.4	6.3	0.8	0.2	1.4	58.8	58.3	59.1	0.1	0.0	0.4
6	Region 15	0.0	0.0	0.0	5.5	3.2	7.0	1.0	0.1	2.6	59.5	55.3	61.6	0.0	0.0	0.0
3	Region 16	0.0	0.0	0.0	6.6	6.3	6.7	0.8	0.4	1.3	58.5	57.1	61.0	0.0	0.0	0.0
5	Region 17	0.0	0.0	0.0	5.2	2.5	6.5	1.4	0.6	3.3	58.4	56.0	60.7	0.0	0.0	0.0
3	Region 18	0.0	0.0	0.0	5.8	5.5	6.2	1.2	0.5	2.1	57.4	56.0	58.6	0.0	0.0	0.0
5	Region 19	0.0	0.0	0.0	5.4	3.9	6.6	2.0	0.4	3.8	57.7	56.4	58.7	0.1	0.0	0.3
6	Region 20	0.0	0.0	0.0	5.6	4.1	7.0	0.3	0.2	0.6	57.6	52.1	59.4	0.4	0.0	1.6
8	Region 21	0.0	0.0	0.0	5.8	5.2	6.6	1.1	0.1	3.1	58.1	56.9	60.3	0.1	0.0	0.3
10	Region 22	0.0	0.0	0.0	6.1	5.2	7.0	0.8	0.4	1.8	60.1	58.9	61.4	0.1	0.0	0.7
14	Region 23	0.0	0.0	0.0	6.0	4.1	6.8	1.2	0.1	3.5	57.9	54.2	60.1	0.1	0.0	0.7
8	Region 24	0.0	0.0	0.0	6.0	5.4	6.9	0.7	0.4	1.2	59.6	58.8	60.3	0.0	0.0	0.2
3	Region 27	0.0	0.0	0.0	5.7	5.0	6.4	1.2	0.1	3.3	57.9	56.7	59.6	1.1	0.8	1.5
3	Region 29	0.0	0.0	0.0	5.0	2.3	6.6	1.7	0.5	3.7	60.7	60.4	61.1	0.1	0.0	0.3
2	Region 30	0.0	0.0	0.0	6.2	5.5	6.9	0.6	0.6	0.6	59.4	59.3	59.4	0.2	0.1	0.4
3	Region 31	0.0	0.0	0.0	5.9	5.4	6.3	0.5	0.1	1.0	60.6	59.6	62.2	0.1	0.0	0.2
2	Region 32	0.0	0.0	0.0	6.3	6.1	6.4	0.7	0.4	1.0	59.4	59.1	59.7	0.4	0.2	0.6
2	Region 33	0.0	0.0	0.0	5.6	5.5	5.8	0.3	0.2	0.5	59.4	57.9	60.8	0.2	0.2	0.3
3	Region 34	0.0	0.0	0.0	5.6	5.5	5.8	0.7	0.2	1.6	60.2	57.3	61.8	0.2	0.0	0.3
1	Region 35	0.3	-	-	1.7	-	-	0.0	-	-	60.1	-	-	0.8	-	-
2	Region 36	0.0	0.0	0.0	5.6	5.2	6.0	0.2	0.2	0.2	61.0	60.9	61.1	0.7	0.6	0.9
100	Ave. US No.3	0.0			5.7			0.9			58.8			0.1		
	Min. US No.3	0.0			1.7			0.0			52.1			0.0		
	Max. US No.3	0.3			7.0			3.8			62.2			1.6		
GRADE: US No.4																
2	Region 12	0.3	0.0	0.6	8.2	7.6	8.7	0.2	0.1	0.4	59.6	59.3	59.8	0.3	0.0	0.5
4	Region 13	0.0	0.0	0.0	7.9	7.2	9.2	2.6	1.5	3.9	56.8	55.8	58.6	0.6	0.0	1.8
4	Region 14	0.0	0.0	0.0	7.9	7.1	8.4	1.9	0.9	4.4	58.6	56.8	60.2	0.0	0.0	0.0
7	Region 15	0.1	0.0	0.9	7.4	3.8	9.9	0.7	0.2	2.1	59.7	58.8	60.3	0.0	0.0	0.0
4	Region 16	0.0	0.0	0.0	8.3	7.3	10.0	0.5	0.1	1.0	58.9	58.2	59.7	0.0	0.0	0.0
3	Region 17	0.0	0.0	0.0	7.8	7.3	8.7	0.5	0.3	0.9	59.1	58.2	59.6	0.0	0.0	0.0
2	Region 18	0.0	0.0	0.0	8.5	7.4	9.5	2.4	2.0	2.7	56.4	54.0	58.8	0.0	0.0	0.0
3	Region 19	0.0	0.0	0.0	8.7	7.6	9.4	1.4	0.9	1.7	58.5	57.6	59.4	0.7	0.4	1.1
3	Region 20	0.0	0.0	0.0	8.8	7.7	10.0	0.4	0.4	0.5	57.9	55.1	59.5	0.4	0.0	1.1
7	Region 21	0.0	0.0	0.0	8.3	7.3	9.6	1.6	0.8	4.2	58.3	53.8	61.1	0.2	0.0	0.7
6	Region 22	0.0	0.0	0.0	8.2	7.2	9.0	0.5	0.2	1.0	59.2	58.2	60.3	0.1	0.0	0.5
18	Region 23	0.1	0.0	0.9	8.4	5.4	9.7	1.5	0.3	4.5	58.4	56.7	59.8	0.0	0.0	0.3
3	Region 24	0.0	0.0	0.0	7.8	7.1	8.9	1.2	1.0	1.6	59.2	58.7	59.8	0.1	0.0	0.3
1	Region 25	0.0	-	-	9.1	-	-	0.5	-	-	58.6	-	-	1.6	-	-
2	Region 26	0.0	0.0	0.0	7.6	7.3	7.9	0.4	0.2	0.6	57.3	55.3	59.2	0.2	0.0	0.4
2	Region 27	0.0	0.0	0.0	9.2	8.8	9.5	1.9	0.9	2.9	58.4	57.9	58.9	1.2	0.4	2.0
1	Region 28	0.0	-	-	7.4	-	-	0.4	-	-	61.8	-	-	0.2	-	-

TABLE 8: USA GRADING OF WHITE MAIZE (2019/20) (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.				
GRADE: US No.4																		
2	Region 29	0.0	0.0	0.0	8.9	8.6	9.2	0.6	0.5	0.7	60.2	59.5	60.8	0.2	0.0	0.4		
1	Region 30	0.0	-	-	9.6	-	-	1.8	-	-	59.1	-	-	0.0	-	-		
1	Region 31	0.0	-	-	8.5	-	-	1.9	-	-	57.2	-	-	0.6	-	-		
3	Region 34	0.0	0.0	0.0	8.7	8.2	9.5	1.0	0.2	2.0	59.6	58.3	60.8	0.2	0.1	0.3		
2	Region 36	0.0	0.0	0.0	8.1	8.1	8.1	0.6	0.6	0.6	60.4	59.3	61.4	0.1	0.0	0.1		
81	Ave. US No.4	0.0			8.2			1.2			58.7			0.2				
	Min. US No.4	0.0			3.8			0.1			53.8			0.0				
	Max. US No.4	0.9			10.0			4.5			61.8			2.0				
GRADE: US No.5																		
1	Region 10	0.0	-	-	10.4	-	-	0.9	-	-	59.4	-	-	0.2	-	-		
2	Region 14	0.0	0.0	0.0	14.1	14.1	14.1	0.7	0.1	1.3	57.6	56.7	58.4	0.0	0.0	0.0		
5	Region 15	0.0	0.0	0.0	12.6	11.6	13.8	0.7	0.1	2.6	58.1	57.0	58.8	0.0	0.0	0.2		
2	Region 16	0.6	0.0	1.2	11.9	10.3	13.6	1.2	0.4	2.1	57.7	57.2	58.1	0.1	0.0	0.2		
1	Region 17	0.0	-	-	10.5	-	-	0.4	-	-	55.0	-	-	0.2	-	-		
4	Region 18	0.0	0.0	0.0	12.1	11.1	14.5	0.9	0.3	1.4	56.7	55.9	57.6	0.1	0.0	0.2		
2	Region 19	0.0	0.0	0.0	3.4	3.1	3.7	5.5	5.2	5.8	55.7	54.3	57.0	0.0	0.0	0.0		
2	Region 20	0.0	0.0	0.0	12.0	10.5	13.5	0.6	0.3	0.8	56.7	56.4	57.0	1.7	1.5	1.8		
5	Region 21	0.0	0.0	0.0	12.0	10.1	14.5	1.3	0.2	2.4	57.9	57.0	59.1	0.5	0.0	0.8		
5	Region 22	0.0	0.0	0.0	12.5	10.8	13.9	0.5	0.1	1.1	58.3	57.5	59.5	0.0	0.0	0.2		
4	Region 23	0.0	0.0	0.0	10.7	10.1	12.2	0.6	0.5	0.8	59.8	59.1	60.3	0.1	0.0	0.6		
1	Region 24	0.0	-	-	13.2	-	-	0.9	-	-	60.0	-	-	0.0	-	-		
1	Region 26	0.0	-	-	11.9	-	-	0.1	-	-	56.4	-	-	0.0	-	-		
1	Region 27	0.0	-	-	10.1	-	-	1.7	-	-	60.2	-	-	1.0	-	-		
2	Region 28	0.0	0.0	0.0	13.9	13.6	14.2	0.9	0.7	1.1	59.4	58.7	60.0	0.2	0.0	0.4		
2	Region 29	0.0	0.0	0.0	10.7	10.7	10.7	0.8	0.6	1.1	59.7	59.3	60.0	0.1	0.0	0.2		
1	Region 32	0.0	-	-	14.0	-	-	0.5	-	-	58.6	-	-	0.0	-	-		
1	Region 33	2.6	-	-	14.0	-	-	0.0	-	-	59.1	-	-	0.0	-	-		
1	Region 34	0.0	-	-	11.4	-	-	1.1	-	-	60.2	-	-	0.0	-	-		
43	Ave. US No.5	0.1			11.7			1.0			58.1			0.2				
	Min. US No.5	0.0			3.1			0.0			54.3			0.0				
	Max. US no.5	2.6			14.5			5.8			60.3			1.8				
GRADE: Sample Grade																		
1	Region 12	0.0	-	-	2.8	-	-	16.5	-	-	60.6	-	-	0.4	-	-		
1	Region 13	0.0	-	-	18.2	-	-	1.9	-	-	55.0	-	-	0.9	-	-		
1	Region 14	0.0	-	-	15.1	-	-	1.3	-	-	56.7	-	-	0.0	-	-		
9	Region 15	0.6	0.0	5.1	43.7	16.5	94.8	2.8	0.1	11.9	57.1	55.2	59.1	0.1	0.0	0.6		
1	Region 16	0.0	-	-	20.9	-	-	5.2	-	-	56.6	-	-	1.0	-	-		
2	Region 17	0.0	0.0	0.0	17.9	15.9	19.9	0.7	0.6	0.9	56.0	53.8	58.2	0.1	0.0	0.1		
2	Region 18	0.0	0.0	0.0	55.0	22.7	87.4	0.8	0.5	1.2	52.6	49.3	55.8	0.0	0.0	0.0		
2	Region 19	0.0	0.0	0.0	9.9	3.4	16.5	7.8	3.6	12.0	55.9	54.1	57.6	0.2	0.0	0.4		
4	*Region 21	19.9	0.0	79.7	51.4	5.2	86.7	2.4	0.3	5.1	56.7	54.3	57.9	0.1	0.0	0.3		
5	*Region 22	0.0	0.0	0.0	15.0	4.1	20.2	1.0	0.3	1.5	58.3	57.7	59.3	0.0	0.0	0.0		
6	Region 23	0.0	0.0	0.0	26.9	15.1	72.4	1.1	0.4	2.4	57.7	55.8	60.0	0.1	0.0	0.3		
7	Region 24	0.0	0.0	0.0	43.7	19.2	96.3	0.9	0.4	1.4	53.4	51.7	55.0	0.1	0.0	0.2		
2	Region 25	0.0	0.0	0.0	42.2	16.2	68.3	0.3	0.0	0.6	56.6	54.1	59.0	0.0	0.0	0.1		
8	Region 26	0.2	0.0	1.3	30.3	15.2	73.6	1.2	0.0	3.2	56.6	52.4	61.4	3.9	0.0	18.3		
1	Region 27	0.0	-	-	39.5	-	-	1.7	-	-	55.4	-	-	0.4	-	-		
1	Region 28	0.0	-	-	61.6	-	-	0.7	-	-	57.2	-	-	0.2	-	-		
1	Region 29	0.0	-	-	18.2	-	-	0.8	-	-	59.2	-	-	0.7	-	-		
1	*Region 31	0.0	-	-	3.5	-	-	1.1	-	-	60.2	-	-	0.3	-	-		

TABLE 8: USA GRADING OF WHITE MAIZE (2019/20) (continue)

Number of samples	Region	Damaged kernels						%			Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		%			%														
		Heat damaged			Total damaged			ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: Sample Grade																			
2	*Region 32	0.0	0.0	0.0	12.1	2.0	22.1	0.6	0.3	1.0	57.7	55.8	59.5	0.5	0.0	0.9			
1	*Region 34	0.0	-	-	3.7	-	-	0.2	-	-	60.3	-	-	0.0	-	-			
1	Region 36	3.4	-	-	6.0	-	-	0.8	-	-	60.6	-	-	1.7	-	-			
59	Ave. Sample Grade	1.5			31.3			1.9			56.7			0.7					
	Min. Sample Grade	0.0			2.0			0.0			49.3			0.0					
	Max. Sample Grade	79.7			96.3			16.5			61.4			18.3					
GRADE: Mixed Corn																			
1	Region 16	0.4	-	-	8.7	-	-	0.6	-	-	56.0	-	-	2.4	-	-			
1	Region 24	0.0	-	-	9.4	-	-	1.5	-	-	56.1	-	-	2.4	-	-			
6	Region 26	0.0	0.0	0.0	6.4	1.1	11.3	0.5	0.0	1.7	58.7	54.3	63.1	6.4	2.1	13.7			
1	Region 29	0.0	-	-	13.1	-	-	0.4	-	-	60.3	-	-	6.4	-	-			
1	Region 32	0.0	-	-	3.0	-	-	1.1	-	-	59.9	-	-	2.2	-	-			
2	Region 34	0.0	0.0	0.0	3.1	2.4	3.7	0.2	0.0	0.3	61.0	60.1	61.8	3.2	2.4	4.0			
3	Region 36	0.0	0.0	0.0	2.9	0.5	7.0	0.3	0.1	0.4	61.0	59.8	61.8	3.3	2.8	3.8			
15	Ave. Mixed Corn	0.0			5.8			0.5			59.3			4.5					
	Min. Mixed Corn	0.0			0.5			0.0			54.3			2.1					
	Max. Mixed Corn	0.4			13.1			1.7			63.1			13.7					
516	Ave. WM	0.2			8.4			0.9			58.7			0.4					
	Min. WM	0.0			0.4			0.0			49.3			0.0					
	Max. WM	79.7			96.3			16.5			63.7			18.3					
890	Ave. Maize	0.1			6.8			0.9			59.0			0.3					
	Min. Maize	0.0			0.1			0.0			49.3			0.0					
	Max. Maize	79.7			96.3			16.5			64.0			18.3					

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

Region	Cockleburs (<i>Xanthium</i> spp.) exceeding 8 seeds
21	12 <i>Xanthium strumarium</i>
22	12 <i>Xanthium strumarium</i>
31	12 <i>Xanthium strumarium</i>
32	12 <i>Xanthium strumarium</i>
34	22 <i>Xanthium strumarium</i>

TABLE 9: USA GRADING OF YELLOW MAIZE (2019/20)

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.		
GRADE: US No.1																
12	Region 10	0.0	0.0	0.0	1.7	0.8	2.9	0.5	0.1	1.3	61.4	58.4	62.2	0.0	0.0	0.0
9	Region 11	0.0	0.0	0.0	1.3	0.5	2.1	0.4	0.1	0.9	62.2	61.0	63.8	0.0	0.0	0.3
2	Region 12	0.0	0.0	0.0	2.0	1.4	2.6	0.0	0.0	0.1	60.8	59.2	62.4	0.0	0.0	0.0
1	Region 13	0.0	-	-	3.0	-	-	1.7	-	-	58.6	-	-	0.5	-	-
5	Region 14	0.0	0.0	0.0	1.4	0.7	1.8	0.6	0.2	0.9	60.5	59.4	61.6	0.3	0.0	1.0
2	Region 15	0.0	0.0	0.0	2.4	2.0	2.7	0.4	0.2	0.7	61.9	59.8	64.0	0.0	0.0	0.0
1	Region 16	0.0	-	-	2.8	-	-	0.2	-	-	60.3	-	-	0.0	-	-
1	Region 18	0.0	-	-	0.7	-	-	0.6	-	-	59.7	-	-	0.0	-	-
4	Region 20	0.0	0.0	0.0	2.0	1.8	2.3	0.6	0.0	1.6	60.9	59.1	62.9	0.1	0.0	0.2
1	Region 21	0.0	-	-	2.0	-	-	1.1	-	-	59.2	-	-	0.3	-	-
1	Region 23	0.0	-	-	2.5	-	-	1.3	-	-	60.8	-	-	0.2	-	-
5	Region 24	0.0	0.0	0.0	1.5	0.5	2.5	0.7	0.4	1.1	60.7	60.3	61.4	0.3	0.0	0.7
4	Region 25	0.0	0.0	0.0	2.2	1.0	3.0	0.9	0.3	2.0	58.0	56.2	59.1	0.2	0.0	0.8
2	Region 26	0.0	0.0	0.0	2.6	2.5	2.6	1.2	0.9	1.4	59.1	58.6	59.6	0.1	0.0	0.2
4	Region 27	0.0	0.0	0.0	2.2	1.1	3.0	0.6	0.1	1.2	59.7	58.7	60.8	0.0	0.0	0.0
16	Region 28	0.0	0.0	0.0	1.8	0.9	3.0	0.3	0.0	1.6	59.5	57.0	62.8	0.0	0.0	0.2
15	Region 29	0.0	0.0	0.0	2.0	0.3	2.9	0.5	0.1	1.4	59.9	57.8	62.0	0.0	0.0	0.1
21	Region 30	0.0	0.0	0.0	1.7	0.2	3.0	0.5	0.0	1.4	58.5	56.7	60.5	0.0	0.0	0.2
15	Region 31	0.0	0.0	0.0	1.7	0.4	3.0	0.4	0.1	1.2	60.0	57.7	62.9	0.0	0.0	0.3
13	Region 32	0.0	0.0	0.0	2.3	1.5	2.9	0.6	0.0	1.8	59.8	57.2	61.6	0.0	0.0	0.4
9	Region 33	0.0	0.0	0.0	1.7	0.1	2.9	0.4	0.0	1.7	58.5	57.5	59.0	0.5	0.0	2.5
12	Region 34	0.0	0.0	0.0	1.7	0.8	2.8	0.2	0.0	0.6	59.9	58.3	61.7	0.0	0.0	0.2
2	Region 35	0.0	0.0	0.0	1.0	0.3	1.8	0.1	0.0	0.2	60.8	60.5	61.0	0.0	0.0	0.0
14	Region 36	0.0	0.0	0.0	1.9	0.6	2.8	0.6	0.0	1.8	59.9	57.0	62.1	0.5	0.0	4.6
171	Ave. US No.1	0.0			1.8			0.5			59.9			0.1		
	Min. US No.1	0.0			0.1			0.0			56.2			0.0		
	Max. US No.1	0.0			3.0			2.0			64.0			4.6		
GRADE: US No.2																
3	Region 10	0.0	0.0	0.0	2.8	1.1	3.9	1.3	0.1	2.9	60.1	58.2	61.3	0.0	0.0	0.0
1	Region 11	0.0	-	-	3.5	-	-	0.2	-	-	62.6	-	-	0.0	-	-
1	Region 15	0.2	-	-	2.3	-	-	1.9	-	-	61.3	-	-	0.4	-	-
2	Region 18	0.0	0.0	0.0	3.5	3.3	3.7	0.3	0.2	0.3	60.3	59.1	61.5	0.0	0.0	0.0
2	Region 19	0.0	0.0	0.0	3.5	3.3	3.7	1.5	1.3	1.7	59.9	59.1	60.6	0.1	0.0	0.3
1	Region 20	0.0	-	-	3.5	-	-	0.3	-	-	60.6	-	-	0.0	-	-
4	Region 21	0.0	0.0	0.0	4.4	3.9	4.8	0.6	0.0	1.6	58.6	56.7	60.9	0.2	0.0	0.5
3	Region 22	0.0	0.0	0.0	3.4	2.8	3.9	1.3	0.2	2.8	57.9	56.8	60.2	1.4	0.2	3.6
2	Region 24	0.0	0.0	0.0	3.5	3.4	3.5	0.7	0.2	1.1	60.1	58.6	61.6	0.0	0.0	0.0
3	Region 25	0.0	0.0	0.0	3.9	3.5	4.6	0.2	0.1	0.3	57.4	56.5	58.0	0.2	0.0	0.5
6	Region 26	0.0	0.0	0.0	3.9	3.1	4.5	0.7	0.0	1.8	59.2	57.0	60.5	0.0	0.0	0.1
8	Region 27	0.0	0.0	0.0	3.6	2.2	4.9	1.3	0.2	2.7	58.2	55.8	59.8	0.0	0.0	0.0
4	Region 28	0.0	0.0	0.0	3.8	2.2	4.8	0.7	0.1	1.0	57.8	55.3	60.4	0.3	0.0	0.8
11	Region 29	0.0	0.0	0.2	3.4	0.9	5.0	0.7	0.0	2.3	59.2	54.8	61.8	0.1	0.0	0.4
6	Region 30	0.0	0.0	0.0	3.0	0.8	4.8	0.8	0.3	1.4	57.5	55.8	59.0	0.0	0.0	0.1
12	Region 31	0.0	0.0	0.0	3.7	1.9	4.6	0.8	0.2	3.0	60.5	59.1	62.0	0.0	0.0	0.0
15	Region 32	0.0	0.0	0.0	3.6	2.1	4.8	0.7	0.0	2.2	59.6	56.3	61.9	0.2	0.0	3.0
4	Region 33	0.0	0.0	0.0	3.8	3.1	4.4	0.4	0.1	0.8	60.0	58.9	60.8	0.1	0.0	0.5
5	Region 34	0.0	0.0	0.0	3.6	3.1	4.5	0.5	0.0	1.5	59.7	58.0	61.3	0.1	0.0	0.5
2	Region 35	0.0	0.0	0.0	3.7	3.2	4.1	0.6	0.2	1.0	59.4	59.1	59.6	0.5	0.0	0.9

TABLE 9: USA GRADING OF YELLOW MAIZE (2019/20) (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.		
GRADE: US No.2																
6	Region 36	0.0	0.0	0.0	3.6	1.7	4.4	0.6	0.0	2.2	60.1	58.3	61.5	0.1	0.0	0.4
101	Ave. US No.2	0.0			3.6			0.8			59.3			0.1		
	Min. US No.2	0.0			0.8			0.0			54.8			0.0		
	Max. US No.2	0.2			5.0			3.0			62.6			3.6		
GRADE: US No.3																
1	Region 17	0.0	-	-	5.7	-	-	0.0	-	-	61.1	-	-	0.1	-	-
3	Region 18	0.0	0.0	0.0	4.7	1.2	6.9	2.1	0.8	3.4	59.0	58.5	59.6	0.4	0.0	0.7
1	Region 20	0.0	-	-	5.3	-	-	0.4	-	-	59.3	-	-	0.1	-	-
2	Region 21	0.0	0.0	0.0	5.9	5.8	6.0	0.6	0.5	0.7	59.4	58.3	60.4	0.2	0.0	0.5
2	Region 22	0.0	0.0	0.0	5.8	5.5	6.1	1.1	0.3	1.8	59.0	58.4	59.6	0.1	0.0	0.2
3	Region 24	0.1	0.0	0.4	3.8	2.6	5.6	2.0	1.0	3.9	58.9	56.3	61.3	0.0	0.0	0.0
1	Region 26	0.2	-	-	5.6	-	-	1.0	-	-	59.0	-	-	0.0	-	-
1	Region 27	0.0	-	-	5.1	-	-	0.8	-	-	58.5	-	-	0.0	-	-
3	Region 28	0.0	0.0	0.0	5.3	5.1	5.6	0.3	0.2	0.4	58.0	56.7	60.1	0.3	0.0	1.0
7	Region 29	0.0	0.0	0.0	5.4	3.2	6.9	1.0	0.0	2.4	58.6	53.0	60.9	0.3	0.0	1.6
2	Region 30	0.0	0.0	0.0	5.7	5.5	5.9	0.8	0.6	1.0	58.4	57.3	59.4	0.0	0.0	0.0
2	Region 31	0.0	0.0	0.0	6.3	5.8	6.9	0.8	0.5	1.1	57.0	54.7	59.2	0.1	0.0	0.2
5	Region 32	0.0	0.0	0.0	5.0	1.1	6.6	1.2	0.2	3.3	59.2	57.0	60.8	0.6	0.0	2.7
2	Region 33	0.0	0.0	0.0	6.4	5.9	6.9	0.8	0.7	1.0	58.7	56.5	60.8	0.0	0.0	0.0
2	Region 34	0.0	0.0	0.0	5.3	5.3	5.4	0.5	0.1	0.9	61.2	59.0	63.4	0.1	0.0	0.2
3	Region 36	0.0	0.0	0.0	5.3	5.1	5.7	0.8	0.5	1.2	58.8	54.8	61.8	0.0	0.0	0.1
40	Ave. US No.3	0.0			5.3			1.0			58.9			0.2		
	Min. US No.3	0.0			1.1			0.0			53.0			0.0		
	Max. US No.3	0.4			6.9			3.9			63.4			2.7		
GRADE: US No.4																
1	Region 13	0.0	-	-	7.3	-	-	1.0	-	-	59.1	-	-	0.0	-	-
1	Region 14	0.0	-	-	9.7	-	-	0.6	-	-	58.4	-	-	0.4	-	-
1	Region 15	0.0	-	-	8.3	-	-	0.3	-	-	60.1	-	-	0.0	-	-
2	Region 16	0.0	0.0	0.0	8.6	8.0	9.2	0.4	0.2	0.5	60.0	58.0	61.9	0.4	0.0	0.8
2	Region 18	0.0	0.0	0.0	4.9	2.1	7.7	3.3	2.2	4.4	57.9	57.2	58.5	0.1	0.0	0.2
2	Region 21	0.0	0.0	0.0	9.2	8.6	9.7	0.8	0.4	1.1	58.1	56.6	59.5	0.0	0.0	0.0
1	Region 24	0.0	-	-	9.4	-	-	0.1	-	-	56.7	-	-	0.0	-	-
1	Region 26	0.0	-	-	9.9	-	-	0.2	-	-	58.3	-	-	0.3	-	-
2	Region 27	0.0	0.0	0.0	8.1	7.1	9.1	0.4	0.0	0.8	60.5	58.5	62.5	0.0	0.0	0.0
4	Region 28	0.0	0.0	0.0	8.1	7.2	8.9	0.6	0.1	1.1	58.1	57.1	60.1	0.1	0.0	0.5
1	Region 29	0.0	-	-	3.5	-	-	4.1	-	-	56.2	-	-	0.0	-	-
1	Region 30	0.0	-	-	8.7	-	-	0.5	-	-	57.7	-	-	0.0	-	-
1	Region 31	0.0	-	-	7.6	-	-	0.2	-	-	61.4	-	-	0.0	-	-
1	Region 33	0.0	-	-	7.1	-	-	0.9	-	-	60.9	-	-	0.0	-	-
21	Ave. US No.4	0.0			7.9			1.0			58.8			0.1		
	Min. US No.4	0.0			2.1			0.0			56.2			0.0		
	Max. US No.4	0.0			9.9			4.4			62.5			0.8		
GRADE: US No.5																
1	Region 11	0.0	-	-	10.5	-	-	1.2	-	-	60.3	-	-	0.0	-	-
2	Region 15	1.2	0.0	2.3	9.5	6.3	12.7	3.8	1.5	6.2	57.9	56.7	59.0	1.2	0.0	2.4
1	Region 24	0.0	-	-	10.4	-	-	2.9	-	-	59.8	-	-	0.2	-	-
3	Region 26	0.0	0.0	0.0	12.2	11.2	14.2	0.5	0.0	1.4	57.4	54.8	58.9	1.1	0.0	2.8
1	Region 27	0.0	-	-	10.1	-	-	1.0	-	-	57.9	-	-	0.0	-	-
3	Region 28	0.0	0.0	0.0	12.4	10.8	14.4	0.3	0.2	0.5	58.4	56.2	59.6	0.3	0.0	0.5
1	Region 30	0.0	-	-	11.2	-	-	0.9	-	-	53.6	-	-	0.0	-	-

TABLE 9: USA GRADING OF YELLOW MAIZE (2019/20) (continue)

Number of samples	Region	Damaged kernels						%			Bushel weight (lbs)			%		
		%			%											
		Heat damaged			Total damaged			Broken corn and foreign material			ave.			ave.		
ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.		
GRADE: US No.5																
1	Region 31	0.0	-	-	11.4	-	-	0.6	-	-	56.9	-	-	0.0	-	-
1	Region 33	2.1	-	-	3.2	-	-	0.0	-	-	59.4	-	-	3.4	-	-
4	Region 36	0.6	0.0	2.5	8.7	1.4	14.8	4.8	1.1	6.4	59.2	57.5	60.8	0.7	0.0	1.5
18	Ave. US No.5	0.4			10.2			2.0			58.2			0.7		
	Min. US No.5	0.0			1.4			0.0			53.6			0.0		
	Max. US No.5	2.5			14.8			6.4			60.8			3.4		
GRADE: Sample Grade																
1	*Region 8	0.0	-	-	4.6	-	-	0.7	-	-	60.6	-	-	0.0	-	-
5	Region 24	0.0	0.0	0.0	38.1	3.9	80.0	1.9	0.7	3.6	54.2	49.6	58.8	0.0	0.0	0.0
5	*Region 26	0.0	0.0	0.2	29.0	9.4	58.0	0.7	0.1	1.5	55.5	52.4	58.0	0.0	0.0	0.0
2	*Region 27	0.0	0.0	0.0	2.0	1.7	2.3	5.4	1.5	9.3	59.5	58.8	60.1	0.0	0.0	0.0
1	Region 28	0.0	-	-	85.9	-	-	0.4	-	-	52.0	-	-	0.0	-	-
1	*Region 29	0.0	-	-	2.7	-	-	0.4	-	-	59.2	-	-	0.0	-	-
2	*Region 31	0.0	0.0	0.0	2.7	2.2	3.3	0.6	0.5	0.7	57.5	57.4	57.5	0.0	0.0	0.0
2	*Region 32	0.0	0.0	0.0	3.2	2.8	3.7	1.0	0.6	1.5	60.2	59.1	61.2	0.0	0.0	0.0
1	*Region 36	0.0	-	-	2.7	-	-	0.4	-	-	60.0	-	-	0.0	-	-
20	Ave. Sample Grade	0.0			22.4			1.4			56.7			0.0		
	Min. Sample Grade	0.0			1.7			0.1			49.6			0.0		
	Max. Sample Grade	0.2			85.9			9.3			61.2			0.0		
CLASS: Mixed Corn																
2	Region 23	0.0	0.0	0.0	4.4	3.7	5.1	0.6	0.1	1.1	56.4	55.5	57.2	6.7	5.6	7.8
1	Region 27	0.0	-	-	3.2	-	-	1.4	-	-	58.5	-	-	17.2	-	-
3	Ave. Mixed Corn	0.0			4.0			0.9			57.1			10.2		
	Min. Mixed Corn	0.0			3.2			0.1			55.5			5.6		
	Max. Mixed Corn	0.0			5.1			1.4			58.5			17.2		
374	Ave. YM	0.0			4.5			0.8			59.3			0.2		
	Min. YM	0.0			0.1			0.0			49.6			0.0		
	Max. YM	2.5			85.9			9.3			64.0			17.2		
890	Ave. Maize	0.1			6.8			0.9			59.0			0.3		
	Min. Maize	0.0			0.1			0.0			49.3			0.0		
	Max. Maize	79.7			96.3			16.5			64.0			18.3		

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

Region	Cocklebur (Xanthium spp.) exceeding 8 seeds
8	12 <i>Xanthium strumarium</i>
26	12 <i>Xanthium strumarium</i>
27	12 <i>Xanthium strumarium</i>
29	12 <i>Xanthium strumarium</i>
31	10 <i>Xanthium strumarium</i>
31	12 <i>Xanthium strumarium</i>
32	12 <i>Xanthium strumarium</i>
32	12 <i>Xanthium strumarium</i>
36	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		
Grades	Minimum test weight per bushel (pounds)		Heat damaged kernels (percent)	Total (percent)	Broken corn and foreign meaterial (percent)
U.S. No. 1	56.0	72.1 kg/hl	0.1	3.0	2.0
U.S. No. 2	54.0	69.5 kg/hl	0.2	5.0	3.0
U.S. No. 3	52.0	66.9 kg/hl	0.5	7.0	4.0
U.S. No. 4	49.0	63.1 kg/hl	1.0	10.0	5.0
U.S. No. 5	46.0	59.2 kg/hl	3.0	15.0	7.0
U.S. Sample Grade	< 46.0	< 59.2 kg/hl	>3.0	>15.0	>7.0
U.S. 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 (2019/20)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			GYA					
		ave.	min.	max.	ave.	min.	max.	Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 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.												
GRADE: WM1																															
1	Region 11	81.5	-	-	37.1	-	-	2.8	-	-	80.2	-	-	17.0	-	-	0.3	-	-	0.1	-	-	10	-	-	91	-	-	67	-	-
8	Region 12	74.5	71.4	77.4	35.4	30.3	38.3	24.9	3.7	49.1	65.1	48.3	82.1	10.0	2.6	22.8	1.4	0.4	3.7	0.9	0.0	2.2	22	7	34	73	53	86	63	58	66
9	Region 13	74.4	73.0	75.5	37.4	33.8	40.7	30.4	18.0	38.6	63.7	58.4	75.0	5.9	3.0	9.1	0.8	0.2	1.6	0.6	0.1	1.3	13	7	19	72	64	78	63	61	64
19	Region 14	75.6	71.6	78.5	36.2	33.0	39.3	33.6	18.4	43.1	60.4	51.5	68.7	6.0	2.5	13.1	0.6	0.0	1.7	0.4	0.0	1.3	9	3	24	74	66	86	63	61	66
8	Region 15	76.8	75.2	79.3	38.0	36.4	40.6	36.7	23.8	47.5	57.4	49.0	68.2	6.0	2.4	11.5	1.0	0.0	2.9	0.7	0.0	1.8	16	7	38	76	62	89	64	60	67
14	Region 16	75.8	73.2	77.6	35.9	34.1	39.7	26.5	14.4	41.3	65.0	54.7	75.0	8.6	4.0	15.3	0.9	0.0	2.3	0.6	0.0	1.6	15	7	38	74	64	91	63	61	68
10	Region 17	75.8	71.5	77.5	36.3	29.7	40.7	35.7	20.7	45.9	57.0	49.7	65.2	7.3	4.4	14.1	0.6	0.1	1.2	0.4	0.0	0.8	12	4	25	71	62	83	63	61	66
7	Region 18	75.5	74.1	79.4	34.3	31.7	36.5	22.3	12.4	36.8	65.7	57.3	71.1	12.0	3.7	16.5	1.1	0.3	2.8	0.8	0.3	2.2	14	8	19	66	54	81	61	59	65
8	Region 19	75.3	72.6	77.8	34.7	32.5	36.8	25.9	18.0	41.2	66.0	54.7	72.7	8.1	4.1	11.2	0.9	0.6	1.7	0.6	0.3	1.1	15	8	22	77	66	92	64	61	68
7	Region 20	76.0	74.5	77.7	36.3	32.7	38.9	28.9	11.6	43.9	61.5	52.2	70.9	9.6	3.9	22.4	0.6	0.0	2.2	0.3	0.0	1.3	14	7	36	70	61	78	62	60	64
8	Region 21	75.4	71.7	77.9	35.5	33.0	37.8	23.5	8.4	33.7	66.4	54.7	71.2	10.1	3.5	22.5	0.8	0.2	1.2	0.6	0.2	1.0	18	5	31	73	66	82	63	61	65
7	Region 22	76.5	74.5	78.4	37.9	35.0	41.9	30.0	8.6	43.9	60.0	50.1	76.2	10.0	3.6	19.2	0.6	0.1	1.2	0.4	0.1	0.9	13	6	19	72	67	79	63	61	65
13	Region 23	75.9	72.8	77.9	35.0	31.3	38.6	25.0	6.7	45.6	63.5	50.6	75.0	11.5	3.0	23.5	0.9	0.1	3.1	0.5	0.0	2.0	12	2	35	71	61	88	63	60	67
7	Region 24	77.6	73.0	81.1	34.8	32.6	36.6	22.3	2.8	42.6	64.0	51.6	77.7	13.7	4.6	26.0	1.6	0.8	3.9	1.2	0.6	2.6	15	6	26	78	67	91	64	62	67
2	Region 26	77.3	76.5	78.0	36.9	36.4	37.3	32.1	31.2	32.9	61.4	59.8	62.9	6.6	5.9	7.3	0.8	0.5	1.0	0.7	0.4	0.9	13	9	17	82	80	84	65	65	66
3	Region 27	75.9	74.0	77.9	32.9	30.8	35.0	13.4	6.5	23.4	67.5	64.3	70.9	19.1	9.3	29.2	0.5	0.0	0.9	0.4	0.0	0.7	11	3	17	80	72	88	65	63	67
13	Region 28	78.7	73.7	82.0	33.2	26.0	39.0	23.4	3.7	46.8	62.7	48.7	71.2	14.0	2.6	34.1	0.5	0.0	2.2	0.3	0.0	1.2	9	2	31	86	71	96	66	63	69
10	Region 29	77.0	74.4	79.7	34.3	27.0	41.1	17.8	3.8	44.9	66.5	52.3	76.8	15.7	2.8	39.9	0.9	0.2	2.8	0.6	0.1	2.2	12	6	23	81	75	89	65	64	67
9	Region 30	77.0	75.4	79.3	28.8	22.7	34.2	12.7	1.5	32.7	64.4	50.3	71.8	22.9	7.7	48.2	0.7	0.2	1.4	0.5	0.1	1.2	10	6	23	76	68	83	64	62	66
11	Region 31	76.5	74.3	80.0	31.5	21.8	41.4	15.7	2.8	58.9	65.6	39.9	76.0	18.8	1.2	37.2	1.0	0.4	1.3	0.6	0.2	1.0	13	5	24	76	64	88	64	61	67
12	Region 32	77.0	74.5	79.8	34.3	29.1	40.4	22.7	7.4	46.3	64.5	50.7	75.0	12.8	3.0	25.1	0.8	0.1	2.0	0.6	0.0	1.4	13	3	22	76	67	82	64	62	65
10	Region 33	77.2	74.5	78.9	32.2	29.1	35.3	16.8	6.0	33.9	67.6	56.7	74.0	15.5	9.4	21.3	0.8	0.2	2.8	0.5	0.0	2.0	11	3	24	76	69	82	64	62	65
11	Region 34	77.8	75.4	80.0	34.8	22.2	41.3	17.3	6.8	38.9	69.4	57.0	76.8	13.3	4.1	24.6	0.6	0.0	1.6	0.5	0.0	1.4	7	3	12	80	67	88	65	62	67
3	Region 35	77.7	77.2	78.6	32.0	29.9	35.2	23.9	13.8	39.5	64.1	53.0	70.3	12.0	7.5	15.9	0.6	0.3	1.1	0.5	0.3	0.9	9	4	13	86	77	96	66	64	69
11	Region 36	78.4	74.5	81.7	34.1	30.6	38.0	19.4	5.9	35.3	67.4	58.5	78.7	13.2	6.0	21.5	0.5	0.0	1.3	0.3	0.0	1.0	9	2	21	86	76	90	66	64	67
221	Ave. WM1	76.5	71.4	82.0	34.7	21.8	41.9	24.3	1.5	58.9	64.1	39.9	82.1	11.7	1.2	48.2	0.8	0.0	3.9	0.5	0.0	2.6	12	2	38	76	53	96	64	58	69

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/ha)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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: WM2																															
1	Region 10	76.5	-	-	31.9	-	-	28.8	-	-	61.5	-	-	9.7	-	-	0.5	-	-	0.4	-	-	17	-	-	72	-	-	63	-	-
1	Region 11	79.1	-	-	30.5	-	-	1.0	-	-	56.1	-	-	42.9	-	-	0.6	-	-	0.3	-	-	5	-	-	92	-	-	68	-	-
2	Region 12	75.4	73.7	77.0	37.7	36.2	39.2	36.1	25.3	46.8	59.8	51.9	67.6	4.2	1.3	7.1	1.2	0.7	1.7	1.0	0.6	1.4	21	14	28	71	62	80	63	60	65
4	Region 13	73.1	71.8	75.4	31.2	26.6	35.9	11.7	2.5	25.9	71.3	66.9	77.9	17.1	7.2	26.8	1.7	0.8	2.9	1.2	0.6	1.7	21	12	27	70	66	72	62	61	63
5	Region 14	76.2	75.4	77.5	36.7	31.9	42.1	33.0	17.0	55.6	60.0	40.3	74.0	7.0	2.3	10.7	0.5	0.2	0.9	0.4	0.2	0.7	12	8	19	74	66	88	63	61	67
14	Region 15	75.7	71.2	78.9	37.7	33.3	43.5	39.3	15.9	61.9	54.4	35.6	68.8	6.2	2.0	15.3	1.0	0.0	2.0	0.8	0.0	1.7	15	4	32	72	62	87	63	60	67
9	Region 16	75.1	72.0	78.6	37.2	33.5	41.0	38.6	26.1	55.4	55.9	42.9	67.9	5.5	1.7	8.3	1.6	0.2	4.4	1.1	0.1	2.8	17	4	39	68	59	82	62	60	65
8	Region 17	74.7	70.9	78.1	36.2	29.5	39.7	26.9	4.2	41.0	64.3	52.1	79.7	8.8	3.2	21.8	1.7	0.5	4.5	1.3	0.2	3.2	21	11	39	68	47	80	62	57	65
4	Region 18	73.4	71.9	75.4	33.4	29.8	35.9	21.9	13.7	34.6	67.7	59.2	71.6	10.5	6.2	17.2	1.2	0.6	2.3	0.9	0.4	1.8	17	8	27	58	51	63	59	58	61
4	Region 19	74.4	72.6	75.4	32.1	31.8	32.4	20.0	2.4	32.0	66.6	61.5	74.9	13.4	6.5	22.7	1.4	0.4	3.0	0.8	0.2	1.9	21	7	32	67	59	71	62	60	63
7	Region 20	73.5	67.0	76.6	35.8	29.4	44.7	33.8	11.0	63.7	58.8	34.8	74.9	7.4	1.5	14.1	1.5	0.1	3.4	1.1	0.1	2.6	21	5	37	70	58	81	62	59	65
13	Region 21	75.9	73.2	78.7	37.5	32.6	42.1	39.1	17.4	53.8	54.6	43.9	69.7	6.3	1.5	14.3	0.6	0.0	1.3	0.5	0.0	0.9	14	7	20	75	63	91	63	61	67
15	Region 22	77.0	75.2	79.0	37.0	33.2	41.2	35.3	21.6	55.2	57.5	40.8	69.6	7.2	3.0	14.8	0.8	0.3	2.0	0.6	0.2	1.1	14	6	25	72	59	84	63	60	66
25	Region 23	75.6	72.8	78.6	36.9	34.2	40.8	36.3	10.9	49.1	57.7	46.0	78.1	5.9	1.6	14.5	1.0	0.2	2.9	0.7	0.1	1.6	15	4	39	71	53	93	62	58	68
6	Region 24	76.7	75.7	77.6	37.3	31.7	41.8	39.0	33.4	47.3	56.0	48.6	62.3	5.0	4.1	6.4	1.0	0.6	1.8	0.8	0.3	1.7	14	9	17	79	74	85	65	63	66
1	Region 25	75.4	-	-	31.9	-	-	21.5	-	-	66.3	-	-	12.2	-	-	0.7	-	-	0.4	-	-	13	-	-	64	-	-	61	-	-
6	Region 26	73.0	69.9	76.2	32.5	30.3	34.6	18.8	4.4	31.3	68.2	57.3	78.2	13.0	10.2	17.4	1.5	0.7	3.2	1.2	0.6	2.5	24	12	37	63	35	74	61	54	63
4	Region 27	75.0	72.9	76.7	31.1	27.1	35.5	9.7	5.1	20.1	67.4	64.2	69.3	22.9	12.5	28.8	0.7	0.4	1.2	0.6	0.3	1.1	14	8	22	73	64	77	63	61	64
1	Region 28	79.5	-	-	33.3	-	-	2.3	-	-	64.4	-	-	33.3	-	-	1.5	-	-	0.8	-	-	18	-	-	94	-	-	68	-	-
6	Region 29	77.5	76.3	78.7	37.2	35.3	40.7	25.7	12.1	41.8	67.1	55.5	78.5	7.3	2.4	12.4	0.9	0.2	1.4	0.7	0.1	1.3	16	7	25	83	76	89	65	64	67
1	Region 30	76.3	-	-	32.4	-	-	18.5	-	-	70.9	-	-	10.6	-	-	0.4	-	-	0.3	-	-	8	-	-	76	-	-	64	-	-
3	Region 31	75.5	73.6	77.1	28.6	26.0	30.9	13.7	4.3	25.1	69.0	64.1	73.6	17.2	5.5	31.6	0.8	0.3	1.0	0.6	0.2	0.9	14	7	21	79	76	84	65	64	66
2	Region 32	76.5	76.1	76.9	33.1	31.5	34.6	20.9	12.6	29.1	65.3	63.4	67.1	13.9	7.5	20.3	0.8	0.0	1.5	0.4	0.0	0.8	18	8	28	75	74	76	64	63	64
2	Region 33	78.3	78.3	78.3	29.2	29.0	29.3	9.0	6.7	11.3	65.4	64.0	66.8	25.6	24.7	26.5	0.6	0.5	0.7	0.3	0.1	0.5	8	7	9	81	78	84	65	64	66
4	Region 34	76.9	73.8	79.5	33.2	31.2	36.3	14.9	6.3	21.5	69.2	64.3	76.7	15.9	10.6	29.4	1.2	0.4	2.3	0.9	0.2	1.8	13	3	18	81	65	92	65	61	68
7	Region 36	77.7	76.1	79.3	34.6	30.2	37.6	15.5	5.8	28.9	71.3	62.8	83.8	13.1	7.2	28.7	1.9	0.6	5.5	1.1	0.5	2.7	27	12	58	89	83	99	67	65	69
155	Ave. WM2	75.7			35.6			29.9			60.8			9.3			1.1			0.8			17			73			63		
	Min. WM2	67.0			26.0			1.0			34.8			1.3			0.0			0.0			3			35			54		
	Max. WM2	79.5			44.7						83.8			42.9			5.5			3.2			58			99			68		

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/ha)			100 kernel mass (g)			Kernel size (%)												Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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.	ave.	min.	max.												
GRADE: WM3																																		
1	Region 12	77.9	-	-	33.6	-	-	34.6	-	-	60.0	-	-	5.4	-	-	1.8	-	-	1.5	-	-	15	-	-	76	-	-	64	-	-			
1	Region 13	70.9	-	-	28.1	-	-	4.8	-	-	80.1	-	-	15.1	-	-	4.4	-	-	3.1	-	-	32	-	-	62	-	-	60	-	-			
4	Region 14	73.2	72.6	74.4	35.2	30.7	38.2	28.0	13.6	38.9	65.5	58.6	73.9	6.6	2.5	12.5	1.2	0.6	1.8	1.0	0.5	1.7	16	12	20	65	45	79	61	56	65			
5	Region 15	74.5	73.4	76.0	35.2	32.0	38.7	33.4	16.9	50.8	58.2	44.8	70.5	8.4	4.4	12.6	1.6	0.7	3.1	1.3	0.6	2.4	18	12	29	61	56	67	60	59	62			
2	Region 16	73.3	72.9	73.6	34.8	34.7	34.8	22.2	14.4	29.9	70.9	65.1	76.6	7.0	5.0	9.0	1.9	1.7	2.0	1.5	1.3	1.6	21	19	22	66	64	67	61	61	62			
3	Region 17	73.9	69.3	77.5	32.6	29.0	35.3	26.2	16.4	37.6	64.9	55.2	71.3	8.9	7.2	12.3	1.8	0.6	3.2	1.4	0.5	2.5	20	11	26	66	56	77	61	59	64			
4	Region 18	73.4	71.9	75.7	34.5	31.4	36.3	30.7	23.4	34.1	62.4	58.4	69.5	6.9	4.4	8.2	0.9	0.4	2.0	0.7	0.3	1.7	26	13	38	63	58	67	61	59	62			
1	Region 19	74.1	-	-	32.9	-	-	22.1	-	-	60.9	-	-	17.0	-	-	1.6	-	-	1.2	-	-	26	-	-	68	-	-	62	-	-			
1	Region 20	73.4	-	-	40.0	-	-	59.2	-	-	34.9	-	-	5.9	-	-	1.4	-	-	1.3	-	-	12	-	-	65	-	-	61	-	-			
6	Region 21	74.0	73.4	74.9	36.9	31.9	41.5	36.2	7.1	57.1	55.3	39.7	72.5	8.5	3.2	20.4	1.0	0.4	2.7	0.7	0.3	1.9	22	13	42	76	57	92	64	59	68			
9	Region 22	74.9	74.0	76.3	36.2	31.2	39.8	37.5	22.7	47.8	55.9	48.2	67.9	6.6	4.0	10.4	1.4	0.4	2.0	1.1	0.3	1.6	18	12	28	63	57	80	61	59	65			
9	Region 23	74.7	71.9	77.4	36.6	29.9	43.2	40.9	12.0	56.0	54.9	41.2	77.2	4.2	2.3	10.8	2.0	0.7	6.3	1.3	0.4	3.4	24	11	58	71	60	90	63	60	67			
7	Region 24	71.8	68.9	77.2	31.2	27.2	38.4	29.1	3.4	45.7	61.2	46.4	69.6	9.7	4.6	32.1	3.1	1.0	5.3	2.3	0.9	4.1	23	5	35	55	33	82	59	53	65			
1	Region 25	75.9	-	-	34.7	-	-	39.5	-	-	54.3	-	-	6.2	-	-	0.8	-	-	0.5	-	-	32	-	-	61	-	-	60	-	-			
7	Region 26	74.0	69.9	78.5	33.7	31.7	36.9	30.0	8.1	36.9	60.5	55.9	69.8	9.5	5.5	22.1	1.7	0.3	3.3	1.2	0.2	2.0	28	13	44	67	57	82	62	59	65			
1	Region 27	77.5	-	-	38.3	-	-	42.1	-	-	54.1	-	-	3.8	-	-	0.4	-	-	0.3	-	-	9	-	-	89	-	-	67	-	-			
2	Region 28	76.4	75.6	77.2	23.7	19.3	28.0	6.8	3.3	10.3	58.9	47.3	70.5	34.3	19.2	49.4	1.5	0.9	2.0	1.1	0.5	1.6	13	8	18	81	81	82	65	65	65			
1	Region 29	77.6	-	-	33.7	-	-	14.6	-	-	69.6	-	-	15.8	-	-	1.0	-	-	0.6	-	-	13	-	-	74	-	-	63	-	-			
4	Region 32	74.6	71.8	76.1	32.3	28.0	35.2	21.5	12.0	29.5	66.5	61.9	71.5	12.1	7.6	16.5	1.2	0.5	2.0	0.9	0.2	1.5	19	12	34	69	60	79	62	60	65			
1	Region 33	76.1	-	-	32.2	-	-	42.0	-	-	47.3	-	-	10.7	-	-	1.8	-	-	1.1	-	-	25	-	-	87	-	-	66	-	-			
1	Region 34	74.5	-	-	43.4	-	-	37.8	-	-	59.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-	8	-	-	86	-	-	66	-	-			
71	Ave. WM3	74.2	68.9			34.5	19.3	31.8	3.3	59.2	59.5	34.9	80.1	8.7	2.3	49.4	1.6	0.0	6.3	1.2	0.0	4.1	21	5	58	67	33	92	62	53	68			
	Min. WM3																																	
	Max. WM3																																	

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)												Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2020			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.	ave.	min.	max.												
CLASS: COM																																		
2	Region 12	75.6	74.9	76.3	38.5	37.6	39.4	38.8	30.3	47.2	56.4	48.2	64.5	4.9	4.6	5.2	0.8	0.7	0.8	0.7	0.6	0.7	22	11	32	73	73	63	63	63	63			
3	Region 13	73.6	73.0	74.3	34.2	32.2	37.0	26.7	13.3	42.7	64.0	52.9	70.0	9.3	4.4	17.7	1.3	0.4	1.9	0.9	0.3	1.3	18	9	28	76	72	81	64	63	65			
5	Region 14	75.4	73.1	78.3	36.0	33.9	39.0	32.0	14.4	47.4	60.0	48.5	69.5	8.0	4.1	18.9	0.6	0.1	1.0	0.4	0.0	0.8	10	8	14	74	65	95	63	61	68			
7	Region 15	73.5	71.0	77.2	35.6	31.9	38.9	45.6	25.5	57.8	49.4	40.2	64.3	5.0	2.0	10.2	1.7	0.4	2.1	1.4	0.3	1.7	29	10	48	59	47	80	60	57	65			
1	Region 16	76.9	-	-	37.1	-	-	33.2	-	-	59.4	-	-	7.4	-	-	1.3	-	-	1.1	-	-	13	-	-	74	-	-	63	-	-			
2	Region 18	66.5	63.4	69.5	31.6	26.3	36.9	37.7	36.6	38.8	56.1	55.9	56.3	6.2	4.9	7.5	2.9	2.0	3.7	2.2	1.7	2.7	31	30	32	42	26	58	55	51	60			
7	Region 19	73.2	69.6	76.5	32.1	30.7	33.0	16.2	5.3	32.3	70.7	57.1	79.3	13.2	9.1	18.7	1.3	0.5	2.7	0.9	0.4	1.5	21	12	37	66	54	80	62	58	65			
7	Region 21	72.7	69.2	74.6	33.0	25.7	37.0	22.4	10.9	32.9	66.9	61.2	77.1	10.7	4.5	21.2	2.0	0.4	4.7	1.5	0.3	3.2	23	8	37	72	57	90	63	59	67			
1	Region 22	74.8	-	-	32.7	-	-	27.2	-	-	61.6	-	-	11.2	-	-	1.4	-	-	1.1	-	-	18	-	-	63	-	-	61	-	-			
9	Region 23	73.4	69.8	77.4	37.1	31.2	39.2	40.1	32.4	53.0	55.3	45.5	60.9	4.6	1.5	7.3	1.3	0.5	1.9	0.8	0.4	1.1	21	9	31	75	57	87	64	59	67			
5	Region 24	71.1	66.5	75.9	32.0	27.7	36.0	33.1	22.4	38.0	60.3	57.7	64.7	6.6	4.3	12.9	2.8	0.6	4.9	2.0	0.5	3.2	26	9	43	50	31	72	57	53	63			
1	Region 25	69.7	-	-	30.1	-	-	13.1	-	-	69.3	-	-	17.6	-	-	4.4	-	-	3.3	-	-	48	-	-	32	-	-	53	-	-			
6	Region 26	73.6	67.4	81.2	30.4	25.0	33.9	23.0	1.1	51.1	57.6	45.6	71.3	19.5	2.7	48.7	2.1	0.2	4.5	1.5	0.1	3.3	22	7	39	70	43	98	62	56	69			
3	Region 27	74.7	71.3	76.9	33.6	30.2	37.3	30.1	18.7	41.1	59.5	52.6	66.3	10.4	6.3	15.0	1.8	0.1	2.8	1.2	0.1	2.0	22	7	32	73	56	87	63	59	66			
1	Region 28	73.6	-	-	37.1	-	-	46.3	-	-	50.6	-	-	3.1	-	-	1.9	-	-	1.7	-	-	26	-	-	69	-	-	62	-	-			
1	Region 30	76.1	-	-	36.0	-	-	49.8	-	-	45.2	-	-	5.0	-	-	1.9	-	-	1.5	-	-	22	-	-	89	-	-	67	-	-			
1	Region 31	77.5	-	-	36.1	-	-	16.8	-	-	69.0	-	-	14.2	-	-	0.6	-	-	0.6	-	-	10	-	-	74	-	-	63	-	-			
1	Region 32	76.6	-	-	31.9	-	-	21.9	-	-	60.7	-	-	17.4	-	-	0.5	-	-	0.3	-	-	12	-	-	72	-	-	63	-	-			
5	Region 34	76.9	75.0	77.9	36.2	32.1	41.6	25.1	8.7	49.8	65.9	47.1	79.4	9.0	3.1	16.1	0.9	0.5	1.8	0.7	0.4	1.2	9	4	18	81	78	91	65	64	67			
1	Region 36	78.9	-	-	37.9	-	-	24.1	-	-	64.1	-	-	11.8	-	-	1.2	-	-	1.0	-	-	16	-	-	91	-	-	67	-	-			
69	Ave. COM	73.7	63.4	81.2	34.3	25.0	41.6	30.4	1.1	57.8	60.3	40.2	79.4	9.4	1.5	48.7	1.6	0.1	4.9	1.2	0.0	3.3	21	4	48	69	26	98	62	51	69			
516	Ave. WM	75.6	63.4	82.0	34.9	19.3	44.7	27.8	1.0	63.7	62.0	34.8	83.8	10.2	1.2	49.4	1.1	0.0	6.3	0.8	0.0	4.1	16	2	58	73	26	99	63	51	69			
890	Ave. Maize	75.9	63.4	82.4	33.0	15.0	44.7	19.7	0.0	63.7	63.3	30.2	83.8	17.1	1.2	68.5	1.1	0.0	6.3	0.8	0.0	4.1	15	2	58	75	26	99	63	54	69			

TABLE 13: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE (2019/20)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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.												
WHITE																															
1	Region 10	76.5	-	-	31.9	-	-	28.8	-	-	61.5	-	-	9.7	-	-	0.5	-	-	0.4	-	-	17	-	-	72	-	-	63	-	-
2	Region 11	80.3	79.1	81.5	33.8	30.5	37.1	1.9	1.0	2.8	68.2	56.1	80.2	30.0	17.0	42.9	0.4	0.3	0.6	0.2	0.1	0.3	8	5	10	92	91	92	68	67	68
13	Region 12	75.1	71.4	77.9	36.1	30.3	39.4	29.5	3.7	49.1	62.5	48.2	82.1	8.0	1.3	22.8	1.3	0.4	3.7	0.9	0.0	2.2	21	7	34	73	53	86	63	58	66
17	Region 13	73.7	70.9	75.5	34.8	26.6	40.7	23.8	2.5	42.7	66.5	52.9	80.1	9.7	3.0	26.8	1.3	0.2	4.4	0.9	0.1	3.1	17	7	32	72	62	81	63	60	65
33	Region 14	75.4	71.6	78.5	36.1	30.7	42.1	32.6	13.6	55.6	60.9	40.3	74.0	6.5	2.3	18.9	0.7	0.0	1.8	0.5	0.0	1.7	11	3	24	73	45	95	63	56	68
34	Region 15	75.3	71.0	79.3	37.0	31.9	43.5	39.1	15.9	61.9	54.6	35.6	70.5	6.2	2.0	15.3	1.2	0.0	3.1	1.0	0.0	2.4	18	4	48	68	47	89	62	57	67
26	Region 16	75.4	72.0	78.6	36.3	33.5	41.0	30.6	14.4	55.4	62.1	42.9	76.6	7.4	1.7	15.3	1.2	0.0	4.4	0.9	0.0	2.8	16	4	39	72	59	91	63	60	68
21	Region 17	75.1	69.3	78.1	35.7	29.0	40.7	31.0	4.2	45.9	60.9	49.7	79.7	8.1	3.2	21.8	1.2	0.1	4.5	0.9	0.0	3.2	16	4	39	69	47	83	62	57	66
17	Region 18	73.4	63.4	79.4	33.8	26.3	36.9	26.0	12.4	38.8	64.3	55.9	71.6	9.8	3.7	17.2	1.3	0.3	3.7	1.0	0.3	2.7	20	8	38	61	26	81	60	51	65
20	Region 19	74.3	69.6	77.8	33.2	30.7	36.8	21.1	2.4	41.2	67.5	54.7	79.3	11.4	4.1	22.7	1.2	0.4	3.0	0.8	0.2	1.9	19	7	37	71	54	92	63	58	68
15	Region 20	74.7	67.0	77.7	36.3	29.4	44.7	33.2	11.0	63.7	58.5	34.8	74.9	8.3	1.5	22.4	1.1	0.0	3.4	0.7	0.0	2.6	17	5	37	70	58	81	62	59	65
34	Region 21	74.8	69.2	78.7	36.0	25.7	42.1	31.5	7.1	57.1	60.0	39.7	77.1	8.5	1.5	22.5	1.0	0.0	4.7	0.8	0.0	3.2	18	5	42	74	57	92	63	59	68
32	Region 22	76.2	74.0	79.0	36.8	31.2	41.9	34.5	8.6	55.2	57.7	40.8	76.2	7.8	3.0	19.2	0.9	0.1	2.0	0.7	0.1	1.6	15	6	28	69	57	84	62	59	66
56	Region 23	75.2	69.8	78.6	36.4	29.9	43.2	35.1	6.7	56.0	58.2	41.2	78.1	6.7	1.5	23.5	1.2	0.1	6.3	0.8	0.0	3.4	17	2	58	72	53	93	63	58	68
25	Region 24	74.4	66.5	81.1	33.8	27.2	41.8	30.4	2.8	47.3	60.6	46.4	77.7	9.1	4.1	32.1	2.1	0.6	5.3	1.6	0.3	4.1	19	5	43	66	31	91	61	53	67
3	Region 25	73.7	69.7	75.9	32.2	30.1	34.7	24.7	13.1	39.5	63.3	54.3	69.3	12.0	6.2	17.6	2.0	0.7	4.4	1.4	0.4	3.3	31	13	48	52	32	64	58	53	61
21	Region 26	73.9	67.4	81.2	32.7	25.0	37.3	25.0	1.1	51.1	61.9	45.6	78.2	13.1	2.7	48.7	1.7	0.2	4.5	1.2	0.1	3.3	24	7	44	68	35	98	62	54	69
11	Region 27	75.4	71.3	77.9	32.9	27.1	38.3	19.2	5.1	42.1	64.1	52.6	70.9	16.7	3.8	29.2	0.9	0.0	2.8	0.7	0.0	2.0	15	3	32	76	56	89	64	59	67
17	Region 28	78.2	73.6	82.0	32.3	19.3	39.0	21.5	2.3	46.8	61.6	47.3	71.2	16.8	2.6	49.4	0.7	0.0	2.2	0.5	0.0	1.7	11	2	31	85	69	96	66	62	69
17	Region 29	77.2	74.4	79.7	35.3	27.0	41.1	20.4	3.8	44.9	66.9	52.3	78.5	12.7	2.4	39.9	0.9	0.2	2.8	0.6	0.1	2.2	13	6	25	81	74	89	65	63	67
11	Region 30	76.9	75.4	79.3	29.8	22.7	36.0	16.6	1.5	49.8	63.2	45.2	71.8	20.2	5.0	48.2	0.8	0.2	1.9	0.6	0.1	1.5	11	6	23	77	68	89	64	62	67
15	Region 31	76.4	73.6	80.0	31.3	21.8	41.4	15.4	2.8	58.9	66.5	39.9	76.0	18.1	1.2	37.2	0.9	0.3	1.3	0.6	0.2	1.0	13	5	24	77	64	88	64	61	67
19	Region 32	76.4	71.8	79.8	33.6	28.0	40.4	22.2	7.4	46.3	64.8	50.7	75.0	13.0	3.0	25.1	0.9	0.0	2.0	0.6	0.0	1.5	15	3	34	74	60	82	63	60	65
13	Region 33	77.3	74.5	78.9	31.7	29.0	35.3	17.6	6.0	42.0	65.7	47.3	74.0	16.7	9.4	26.5	0.8	0.2	2.8	0.5	0.0	2.0	11	3	25	77	69	87	64	62	66
21	Region 34	77.2	73.8	80.0	35.2	22.2	43.4	19.7	6.3	49.8	68.1	47.1	79.4	12.3	3.1	29.4	0.8	0.0	2.3	0.6	0.0	1.8	9	3	18	81	65	92	65	61	68
3	Region 35	77.7	77.2	78.6	32.0	29.9	35.2	23.9	13.8	39.5	64.1	53.0	70.3	12.0	7.5	15.9	0.6	0.3	1.1	0.5	0.3	0.9	9	4	13	86	77	96	66	64	69
19	Region 36	78.1	74.5	81.7	34.5	30.2	38.0	18.2	5.8	35.3	68.7	58.5	83.8	13.1	6.0	28.7	1.0	0.0	5.5	0.6	0.0	2.7	16	2	58	87	76	99	67	64	69
516	Ave. White	75.6	63.4	82.0	34.9	19.3	44.7	27.8	1.0	63.7	62.0	34.8	83.8	10.2	1.2	49.4	1.1	0.0	6.3	0.8	0.0	4.1	16	2	58	73	26	99	63	51	69

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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: YM1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling Index 2020			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.
GRADE: YM2																															
2	Region 10	79.0	78.9	79.1	34.7	34.1	35.2	1.3	1.0	1.6	60.5	47.2	73.8	38.2	24.6	51.8	1.3	1.2	1.3	0.9	0.7	1.0	15	12	17	81	71	91	65	63	68
1	Region 11	77.6	-	-	31.5	-	-	2.1	-	-	60.5	-	-	37.4	-	-	1.0	-	-	0.9	-	-	8	-	-	75	-	-	63	-	-
1	Region 13	76.1	-	-	30.1	-	-	5.4	-	-	68.6	-	-	26.0	-	-	1.7	-	-	1.6	-	-	17	-	-	81	-	-	65	-	-
1	Region 14	75.1	-	-	26.8	-	-	7.2	-	-	66.1	-	-	26.7	-	-	1.1	-	-	0.7	-	-	18	-	-	83	-	-	66	-	-
2	Region 15	75.1	72.9	77.3	28.5	24.9	32.0	3.6	1.2	5.9	62.9	55.2	70.6	33.6	23.5	43.6	2.7	2.2	3.2	2.0	1.7	2.3	17	15	19	62	49	74	60	57	63
2	Region 16	77.2	74.7	79.7	35.7	33.1	38.3	22.8	22.2	23.4	63.8	63.7	63.8	13.5	12.9	14.0	1.0	0.4	1.5	0.7	0.2	1.2	15	6	24	86	77	95	66	64	68
2	Region 18	75.6	75.3	75.9	29.8	27.4	32.1	8.5	7.6	9.3	64.6	59.8	69.3	27.0	21.4	32.6	1.6	1.1	2.1	1.3	0.7	2.0	16	13	19	73	72	74	63	63	63
3	Region 21	74.2	72.9	76.6	30.6	27.7	35.5	6.2	2.3	10.3	73.4	69.5	78.5	20.4	19.2	21.9	1.5	1.0	1.7	1.1	0.5	1.5	25	21	28	73	67	79	63	62	65
4	Region 22	75.1	73.1	77.5	31.0	28.2	33.0	3.5	1.4	8.0	61.4	58.4	63.9	35.1	28.1	40.1	1.5	0.9	2.0	1.1	0.7	1.6	16	10	22	75	74	76	64	63	64
4	Region 24	74.5	70.2	77.7	30.0	28.7	32.9	6.1	3.0	10.9	68.6	62.0	78.7	25.4	10.4	35.0	2.0	1.3	2.8	1.5	1.1	2.2	33	22	42	72	63	86	63	61	66
1	Region 25	72.4	-	-	29.7	-	-	5.3	-	-	65.0	-	-	29.7	-	-	2.8	-	-	1.6	-	-	33	-	-	67	-	-	62	-	-
8	Region 26	75.0	70.6	76.9	29.5	26.3	33.1	10.2	2.5	17.9	64.0	57.4	70.7	25.8	15.6	39.8	1.4	0.5	3.3	0.9	0.1	2.2	17	9	24	69	55	80	62	59	65
5	Region 27	75.3	74.5	76.9	28.4	27.0	30.3	5.4	0.8	8.4	66.8	63.1	70.1	27.8	22.3	33.4	0.8	0.6	1.5	0.6	0.4	0.9	14	7	26	80	76	87	65	64	67
7	Region 28	74.7	71.2	77.3	23.7	18.9	30.0	3.5	0.0	8.3	50.3	31.2	66.7	46.2	25.0	67.0	1.4	0.6	3.5	0.7	0.4	1.6	17	9	28	79	69	83	64	62	66
7	Region 29	75.4	70.5	78.7	28.7	19.9	36.2	10.6	1.1	20.4	62.8	46.7	71.3	26.6	12.0	52.2	0.7	0.2	1.5	0.5	0.1	1.0	11	4	18	82	76	90	65	64	67
6	Region 30	73.4	69.0	75.9	27.8	19.8	30.6	6.3	2.4	9.7	65.0	58.7	67.9	28.8	23.3	38.9	1.2	0.5	2.1	0.9	0.5	1.5	18	8	30	72	60	83	63	60	65
5	Region 31	75.3	70.4	79.0	26.5	15.0	33.2	7.2	1.3	20.6	53.1	37.7	69.4	39.7	10.0	61.0	1.4	0.8	2.9	0.7	0.3	1.4	13	6	20	76	69	82	64	62	65
8	Region 32	76.4	72.9	79.3	29.4	24.9	32.0	10.7	1.5	19.0	62.5	51.3	68.0	26.8	16.3	44.9	1.6	0.2	4.9	1.0	0.1	3.2	17	8	32	79	72	84	64	63	66
5	Region 33	76.4	72.9	78.4	28.5	24.5	31.8	7.1	2.1	15.5	63.3	60.5	64.8	29.7	20.1	36.0	1.3	0.6	3.0	0.9	0.4	2.2	15	8	32	79	72	86	64	63	66
5	Region 36	76.2	74.1	78.3	30.1	28.0	31.5	7.3	0.0	17.4	54.5	41.9	66.2	38.2	16.4	56.6	1.2	0.6	1.7	1.0	0.4	1.5	19	16	25	82	74	91	65	63	67
79	Ave. YM2	75.4	69.0	79.7	28.9	15.0	38.3	7.4	0.0	23.4	61.8	31.2	78.7	30.7	10.0	67.0	1.4	0.2	4.9	0.9	0.1	3.2	17	4	42	77	49	95	64	57	68

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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: YM3																															
1	Region 11	78.5	-	-	36.6	-	-	3.1	-	-	72.1	-	-	24.8	-	-	0.3	-	-	0.3	-	-	5	-	-	76	-	-	64	-	-
2	Region 24	73.5	71.6	75.4	28.0	25.8	30.1	1.8	1.7	1.9	65.4	61.5	69.3	32.8	29.0	36.6	1.8	0.8	2.8	1.3	0.5	2.1	19	15	22	67	62	73	62	60	63
2	Region 27	74.6	71.8	77.3	26.6	24.4	28.8	6.8	6.5	7.0	64.7	63.3	66.0	28.6	27.0	30.2	1.6	0.7	2.4	1.0	0.3	1.6	20	9	31	77	65	89	64	61	67
4	Region 28	73.6	73.1	74.2	24.8	19.4	27.5	6.5	1.3	9.1	55.1	30.2	69.2	38.5	22.0	68.5	1.0	0.6	1.7	0.7	0.4	0.8	12	9	13	70	66	74	62	61	63
1	Region 29	74.9	-	-	32.0	-	-	10.5	-	-	72.0	-	-	17.5	-	-	0.4	-	-	0.3	-	-	16	-	-	72	-	-	63	-	-
1	Region 30	71.9	-	-	24.0	-	-	1.6	-	-	51.8	-	-	46.6	-	-	1.1	-	-	0.3	-	-	11	-	-	61	-	-	60	-	-
1	Region 32	78.1	-	-	29.3	-	-	15.6	-	-	57.7	-	-	26.7	-	-	0.4	-	-	0.3	-	-	8	-	-	78	-	-	64	-	-
1	Region 34	75.9	-	-	29.0	-	-	7.1	-	-	62.0	-	-	30.9	-	-	0.4	-	-	0.3	-	-	5	-	-	87	-	-	66	-	-
13	Ave. YM3	74.6	71.6	78.5	27.6	19.4	36.6	6.2	1.3	15.6	61.2	30.2	72.1	32.6	17.5	68.5	1.0	0.3	2.8	0.7	0.3	2.1	13	5	31	72	62	89	63	60	679
CLASS: COM																															
1	Region 8	78.0	-	-	36.6	-	-	2.6	-	-	69.4	-	-	28.0	-	-	0.2	-	-	0.2	-	-	4	-	-	75	-	-	64	-	-
1	Region 10	77.6	-	-	37.5	-	-	1.8	-	-	65.9	-	-	32.3	-	-	1.5	-	-	0.9	-	-	12	-	-	75	-	-	64	-	-
1	Region 13	75.4	-	-	28.0	-	-	8.7	-	-	69.8	-	-	21.5	-	-	1.3	-	-	1.0	-	-	18	-	-	83	-	-	66	-	-
1	Region 14	79.3	-	-	35.8	-	-	10.0	-	-	73.4	-	-	16.6	-	-	0.2	-	-	0.2	-	-	12	-	-	89	-	-	67	-	-
1	Region 15	75.9	-	-	38.3	-	-	1.9	-	-	72.8	-	-	25.3	-	-	0.5	-	-	0.4	-	-	9	-	-	71	-	-	63	-	-
3	Region 18	75.2	73.6	76.8	27.1	25.5	28.1	3.3	1.2	5.0	64.9	61.6	68.9	31.9	26.1	37.2	2.0	1.3	3.0	1.4	0.8	2.1	18	15	25	83	79	88	65	65	67
2	Region 23	72.6	71.5	73.6	33.9	33.2	34.6	6.6	5.4	7.7	75.3	72.4	78.1	18.2	16.5	19.9	0.9	0.8	1.0	0.7	0.7	0.7	14	12	15	78	74	82	64	63	65
5	Region 24	71.8	63.9	79.3	27.5	23.2	32.1	6.6	5.0	8.7	68.5	64.3	72.3	25.0	21.6	27.7	2.7	1.2	6.0	1.9	0.8	3.7	27	10	48	56	34	82	59	54	65
4	Region 26	70.7	67.4	73.6	30.1	27.5	35.2	13.4	4.1	30.1	66.5	63.8	68.6	20.1	6.1	27.8	2.3	1.3	3.3	1.9	0.8	2.8	21	12	28	58	53	68	59	58	62
2	Region 27	75.5	75.3	75.7	32.4	29.8	35.0	18.8	12.9	24.6	62.3	59.8	64.8	19.0	15.6	22.3	0.6	0.2	1.1	0.2	0.1	0.3	13	8	17	83	81	84	65	65	66
2	Region 28	72.5	67.0	77.9	28.3	27.1	29.4	10.8	2.2	19.4	67.7	65.4	69.9	21.6	10.7	32.4	1.9	0.0	3.7	1.3	0.0	2.6	25	4	46	60	44	76	60	56	64
1	Region 29	76.2	-	-	27.8	-	-	6.9	-	-	71.4	-	-	21.7	-	-	0.9	-	-	0.7	-	-	12	-	-	82	-	-	65	-	-
3	Region 31	75.2	73.9	77.7	27.9	25.7	31.9	7.4	5.7	10.4	68.9	64.9	76.0	23.8	18.0	29.4	0.7	0.1	1.5	0.5	0.0	0.9	10	2	18	76	74	78	64	63	64
5	Region 32	76.6	72.5	78.8	29.1	26.7	35.3	10.0	3.9	13.2	65.0	42.3	80.0	25.0	10.9	53.8	1.1	0.5	1.4	0.9	0.2	1.2	13	9	18	80	76	87	65	64	66
1	Region 34	74.7	-	-	31.6	-	-	12.1	-	-	68.4	-	-	19.5	-	-	1.7	-	-	1.0	-	-	9	-	-	80	-	-	65	-	-

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)
(continue)

Number of samples	Region	Test weight (kg/hi)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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.			
CLASS: COM																															
5	Region 36	76.6	74.0	79.6	32.5	29.8	38.0	5.3	0.4	12.5	59.0	36.1	77.8	35.7	12.1	61.3	2.0	1.1	2.5	1.5	0.9	2.3	24	18	28	73	64	84	63	61	66
38	Ave. COM	74.7			30.4			8.2			66.6			25.2			1.6			1.1			18			72			63		
	Min. COM	63.9			23.2			0.4			36.1			6.1			0.0			0.0			2			34			54		
	Max. COM	79.6			38.3			30.1			80.0			61.3			6.0			3.7			48			89			67		
374	Ave. YM	76.3			30.4			8.4			65.1			26.5			1.0			0.7			13			77			64		
	Min. YM	63.9			15.0			0.0			30.2			6.1			0.0			0.0			2			32			53		
	Max. YM	82.4			39.3			30.1			82.1			68.5			6.0			3.7			48			97			69		
890	Ave. Maize	75.9			33.0			19.7			63.3			17.1			1.1			0.8			15			75			63		
	Min. Maize	63.4			15.0			0.0			30.2			1.2			0.0			0.0			2			26			54		
	Max. Maize	82.4			44.7			63.7			83.8			68.5			6.3			4.1			58			99			69		

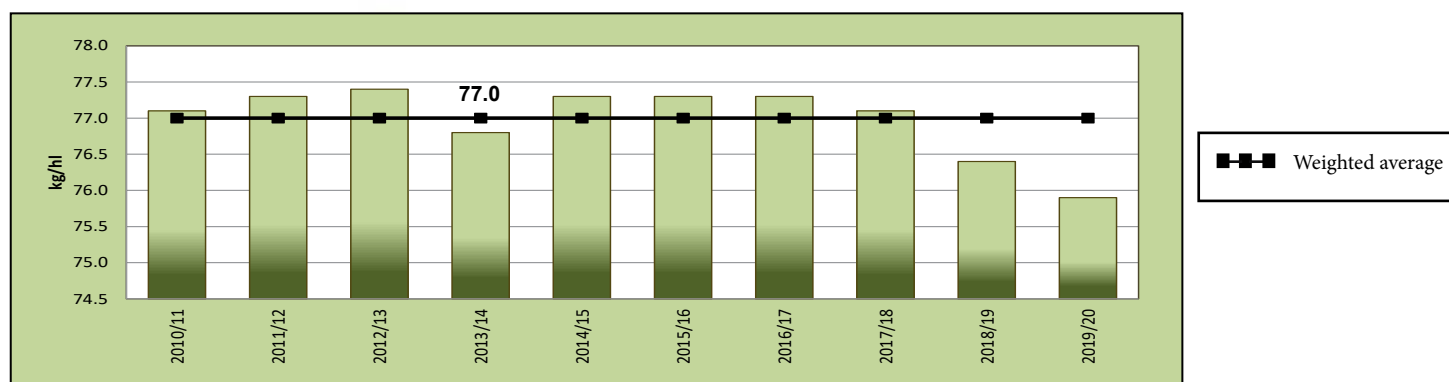
TABLE 15: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE (2019/20)

Number of samples	Region	Test weight (kg/ht)			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2020			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 08	78.0	-	-	36.6	-	-	2.6	-	-	69.4	-	-	28.0	-	-	0.2	-	-	4	-	-	75	-	-	64	-	-			
15	Region 10	78.6	74.9	80.0	35.0	29.9	38.6	4.3	1.0	14.9	66.4	47.2	74.6	29.3	15.2	51.8	0.6	0.0	1.5	12	4	23	75	59	91	64	60	68			
11	Region 11	79.9	77.6	82.1	35.6	31.5	37.9	4.2	1.0	7.1	67.6	60.0	79.1	28.2	14.1	39.0	0.8	0.3	1.5	9	4	17	80	75	85	65	63	66			
2	Region 12	78.3	76.2	80.3	32.9	32.1	33.6	15.1	4.9	25.2	65.1	62.1	68.1	19.9	12.7	27.0	1.2	0.8	1.5	11	8	14	87	81	92	66	65	68			
2	Region 13	75.8	75.4	76.1	29.1	28.0	30.1	7.1	5.4	8.7	69.2	68.6	69.8	23.8	21.5	26.0	1.5	1.3	1.7	18	17	18	82	81	83	65	65	66			
6	Region 14	77.4	75.1	79.3	31.2	26.8	35.8	8.0	3.9	14.8	68.5	56.9	74.7	23.5	15.5	38.2	0.7	0.2	1.8	14	7	24	89	83	97	67	66	69			
6	Region 15	77.4	72.9	82.4	32.1	24.9	38.3	2.7	0.9	5.9	65.0	55.2	72.8	32.3	23.5	43.6	1.5	0.4	3.2	15	9	23	72	49	86	63	57	66			
3	Region 16	77.4	74.7	79.7	33.5	29.0	38.3	19.2	11.9	23.4	64.2	63.7	65.2	16.6	12.9	22.9	0.9	0.4	1.5	13	6	24	87	77	95	66	64	68			
1	Region 17	78.7	-	-	29.2	-	-	3.8	-	-	69.5	-	-	26.7	-	-	1.6	-	-	14	-	-	86	-	-	66	-	-			
8	Region 18	76.1	73.6	79.2	28.5	25.5	32.1	5.3	1.2	9.3	65.5	59.7	72.9	29.2	21.4	37.2	1.5	0.3	3.0	15	8	25	78	65	88	64	61	67			
2	Region 19	77.0	76.1	77.9	28.9	28.5	29.2	9.2	7.4	11.0	70.7	67.2	74.2	20.1	18.4	21.8	0.6	0.5	0.8	10	8	11	79	72	86	65	63	66			
6	Region 20	77.9	76.0	80.9	31.4	27.5	35.3	9.8	4.9	13.5	69.4	65.5	72.2	20.9	17.8	27.9	0.8	0.3	1.4	9	6	16	83	76	85	65	64	66			
9	Region 21	75.6	72.9	78.4	30.4	27.5	35.5	7.2	1.1	13.8	68.6	57.7	78.5	24.2	16.0	37.1	1.1	0.2	1.9	16	7	28	77	58	92	64	60	68			
5	Region 22	75.1	73.1	77.5	30.8	28.2	33.0	4.7	1.4	9.5	62.0	58.4	64.5	33.3	26.0	40.1	1.4	0.9	2.0	15	10	22	76	74	80	64	63	65			
3	Region 23	74.4	71.5	78.2	32.8	30.6	34.6	4.7	0.9	7.7	70.0	59.6	78.1	25.3	16.5	39.5	1.3	0.8	2.2	14	12	15	78	74	82	64	63	65			
17	Region 24	74.8	63.9	79.3	30.8	23.2	39.3	4.8	1.6	10.9	67.8	61.5	78.7	27.4	10.4	36.6	1.9	0.0	6.0	24	8	48	68	34	89	62	54	67			
7	Region 25	74.3	72.4	76.0	29.9	26.8	33.0	7.2	4.8	14.9	66.9	62.4	70.7	26.0	14.4	31.0	1.2	0.5	2.8	20	9	33	61	32	73	60	53	63			
18	Region 26	74.4	67.4	77.9	29.4	26.3	35.2	9.6	2.5	30.1	64.5	56.9	72.2	25.9	6.1	39.8	1.4	0.4	3.3	16	7	28	70	53	92	62	58	68			
19	Region 27	75.8	71.8	80.4	29.9	24.4	35.0	8.9	0.8	24.6	66.3	58.6	72.0	24.8	15.6	35.5	0.8	0.1	2.4	13	4	31	80	65	95	65	61	68			
31	Region 28	75.4	67.0	80.9	26.8	18.9	32.9	5.3	0.0	19.4	57.9	30.2	75.1	36.8	10.7	68.5	1.0	0.0	3.7	12	4	46	75	44	92	63	56	68			
35	Region 29	76.3	68.2	79.8	30.4	19.9	36.2	11.0	1.1	22.6	66.1	46.7	75.0	22.9	9.3	52.2	0.7	0.0	1.5	11	4	29	81	72	93	65	63	68			
31	Region 30	74.8	69.0	77.9	28.5	19.8	35.3	8.8	1.5	23.5	64.7	51.8	77.3	26.4	6.1	46.6	1.1	0.2	2.7	15	5	30	75	60	87	64	60	66			
33	Region 31	77.0	70.4	80.9	29.9	15.0	38.0	11.7	1.3	28.4	63.6	37.7	76.0	24.7	8.5	61.0	0.7	0.0	2.9	10	2	22	79	68	91	65	62	67			
35	Region 32	76.8	72.5	79.7	30.3	24.0	35.3	11.1	1.5	22.3	66.5	42.3	80.0	22.4	10.9	53.8	1.0	0.1	4.9	12	3	32	77	65	87	64	61	66			
17	Region 33	76.1	72.9	78.4	28.6	23.5	31.8	8.4	1.4	17.3	65.2	58.0	75.5	26.3	16.5	36.7	1.1	0.4	3.0	15	7	32	74	57	86	63	59	66			
19	Region 34	77.2	74.7	81.6	31.5	28.0	34.9	9.4	3.5	27.4	69.5	60.9	82.1	21.1	10.4	32.3	0.5	0.1	1.7	7	2	16	81	72	94	65	63	68			
4	Region 35	77.3	76.0	78.5	31.2	24.4	36.3	8.7	1.7	19.8	63.4	35.2	77.0	27.9	15.0	63.1	0.6	0.3	1.0	10	4	13	83	80	88	65	65	67			
28	Region 36	76.8	70.6	79.9	32.3	21.4	38.0	7.6	0.0	21.4	61.8	36.1	78.8	30.6	9.9	61.3	1.2	0.1	2.5	19	4	38	78	47	94	64	57	68			
374	Ave. Yellow	76.3	63.9	82.4	30.4	15.0	39.3	8.4	0.0	30.1	65.1	30.2	82.1	26.5	6.1	68.5	1.0	0.0	6.0	13	2	48	77	32	97	64	53	69			
	Min. Yellow																														
	Max. Yellow																														

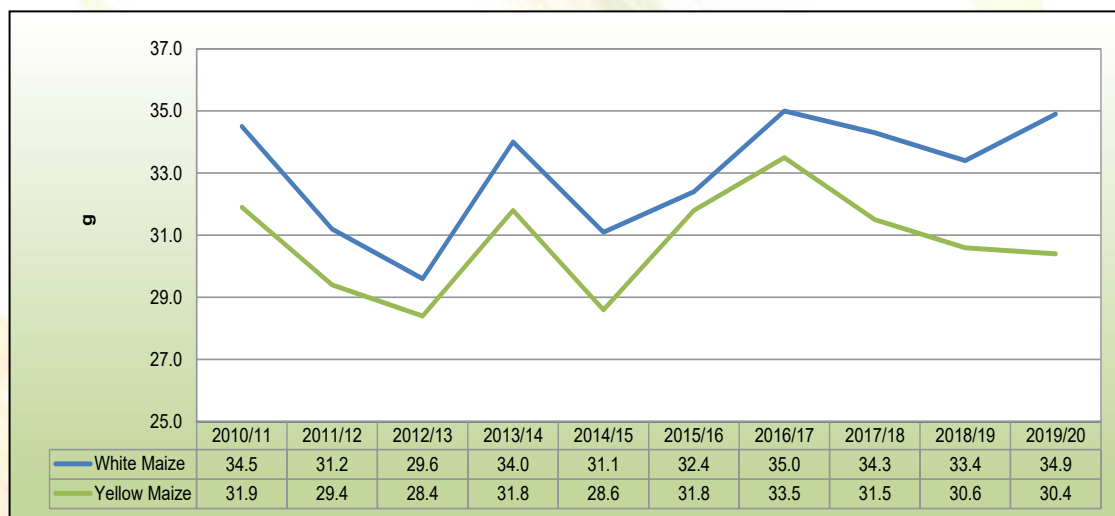
**TABLE 16: PHYSICAL QUALITY CHARACTERISTICS OF WHITE AND YELLOW MAIZE
2010/11 - 2019/20**

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.						
White Maize																												
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			
2019/20	516	75.6	63.4	82.0	34.9	19.3	44.7	27.8	1.0	63.7	62.0	34.8	83.8	10.2	1.2	49.4	1.1	0.0	6.3	0.8	0.0	4.1	16	2	58			
Weighted Average		77.5			33.0			21.4			64.3			14.3			1.1			0.8			8					
Minimum		61.0			17.4			0.0			0.1			0.0			0.0			0.0			0					
Maximum		83.9			51.1			99.4			89.5			83.5			12.1			9.0			61					
Yellow Maize																												
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			
2019/20	374	76.3	63.9	82.4	30.4	15.0	39.3	8.4	0.0	30.1	65.1	30.2	82.1	26.5	6.1	68.5	1.0	0.0	6.0	0.7	0.0	3.7	13	2	48			
Weighted Average		76.5			30.7			11.0			65.4			23.7			1.3			0.9			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																												
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			
2019/20	890	75.9	63.4	82.4	33.0	15.0	44.7	19.7	0.0	63.7	63.3	30.2	83.8	17.1	1.2	68.5	1.1	0.0	6.3	0.8	0.0	4.1	15	2	58			
Weighted Average		77.0			31.9			16.4			64.8			18.8			1.2			0.8			8					
Minimum		56.6			14.5			0.0			0.1			0.0			0.0			0.0			0					
Maximum		83.9			51.1			99.4			93.6			90.4			15.6			9.9			61					

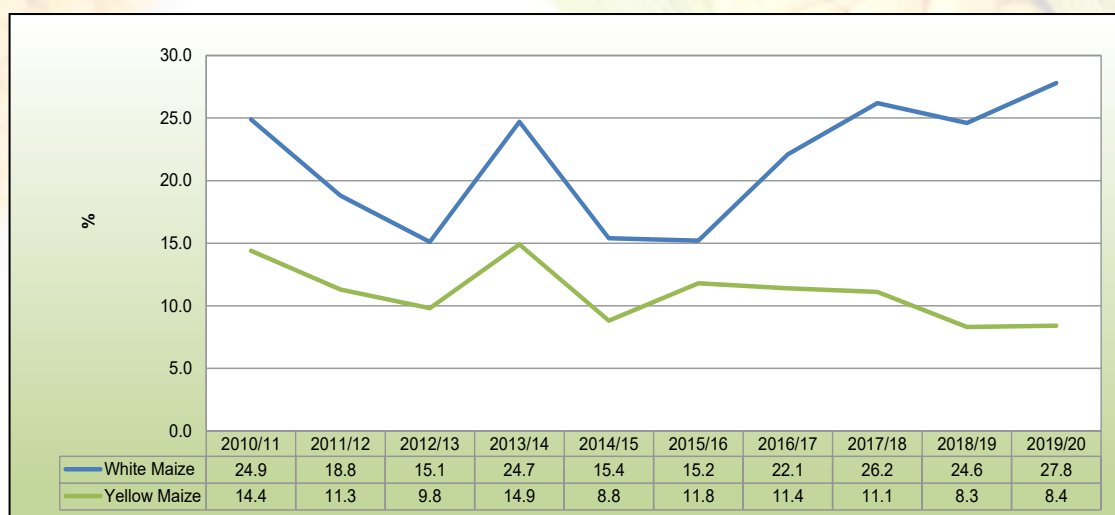
Graph 37: Test weight of white and yellow maize over 10 seasons



Graph 38: 100 Kernel mass over 10 seasons



Graph 39: Kernel size above 10 mm sieve over 10 seasons



Graph 40: Kernel size below 8 mm sieve over 10 seasons

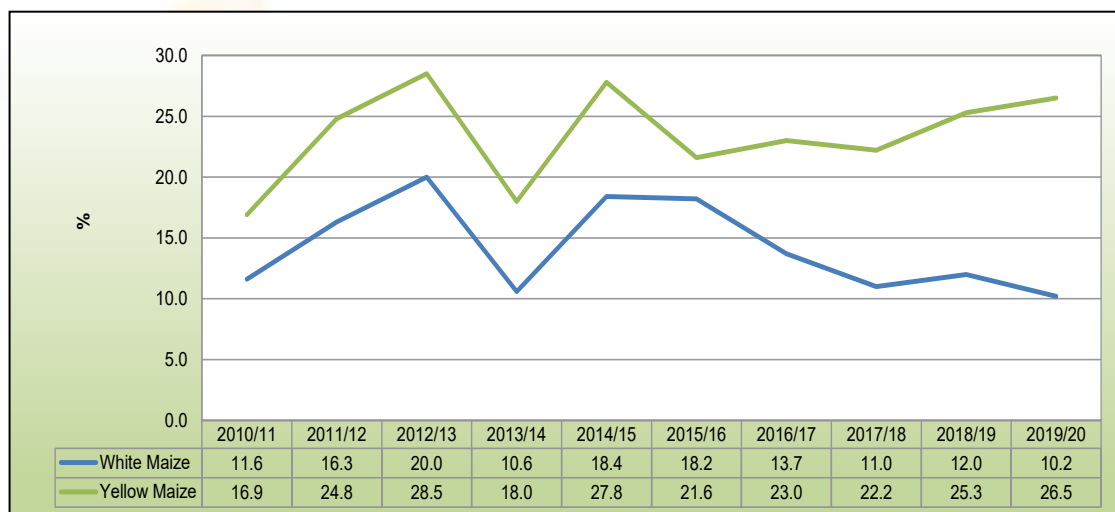


TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2019/20)

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		12.9	-	-	10.3	-	-	18.6	-	-	36.8	-	-	21.3	-	-	78.7	-	-	30.0	-	-	21.3	-	-
1	Region 11	14.5	12.2	16.7	11.4	10.7	12.8	17.6	16.0	18.8	32.1	27.9	35.4	24.4	22.7	27.9	75.6	72.1	77.3	34.8	28.9	40.3	24.8	18.9	31.1
8	Region 12	14.8	13.7	16.3	11.2	10.4	12.2	17.6	16.7	18.3	32.2	30.0	34.1	24.3	22.6	24.9	75.7	75.1	77.4	31.9	27.7	37.5	21.1	18.0	27.6
9	Region 13	15.2	13.7	18.0	11.5	10.6	12.3	17.9	15.3	19.0	32.0	29.5	34.1	23.4	21.5	28.7	76.6	71.3	78.5	33.7	29.6	37.8	23.5	18.9	31.5
19	Region 14	14.1	12.2	16.1	11.0	10.3	11.8	18.1	16.7	19.2	34.0	31.1	36.8	22.9	21.3	25.3	77.1	74.7	78.7	33.3	30.9	36.3	24.0	21.3	27.4
8	Region 15	14.8	11.0	16.4	11.4	10.8	12.0	18.0	16.5	19.0	32.7	30.7	37.7	23.1	21.3	26.2	76.9	73.8	78.7	33.1	30.1	38.3	22.9	19.1	27.5
14	Region 16	15.3	14.1	16.4	11.4	10.7	11.9	17.8	16.0	19.4	31.4	29.9	33.4	24.1	22.6	27.8	75.9	72.2	77.4	35.5	31.6	40.0	24.2	20.3	28.5
10	Region 17	15.3	13.4	17.6	11.3	10.4	12.0	17.6	16.6	18.8	32.1	28.1	36.7	23.7	21.4	25.1	76.3	74.9	78.6	31.0	29.4	34.5	21.9	18.1	25.3
7	Region 18	14.2	12.0	15.8	11.2	10.3	11.6	17.9	16.9	18.5	32.8	30.8	37.2	23.9	22.7	25.5	76.1	74.5	77.3	33.5	32.1	36.4	23.3	22.2	26.8
8	Region 19	15.2	13.9	16.3	11.5	10.9	12.1	17.8	16.7	18.4	31.9	30.0	34.2	23.6	22.7	25.4	76.4	74.6	77.3	31.0	27.2	34.1	20.1	16.1	24.2
7	Region 20	14.3	13.1	15.7	10.9	10.4	11.4	17.1	15.5	18.3	33.4	32.1	35.0	24.4	22.5	26.7	75.6	73.3	77.5	32.2	28.2	33.7	21.0	18.3	22.3
8	Region 21	14.3	12.1	16.1	10.9	10.4	11.6	17.6	16.0	18.9	33.1	31.3	35.3	24.1	23.3	25.4	75.9	74.6	76.7	32.0	27.6	34.1	23.4	20.3	26.6
7	Region 22	15.3	12.5	17.8	11.0	9.9	11.7	17.5	15.4	19.2	32.4	29.1	38.2	23.8	21.5	26.7	76.2	73.3	78.5	33.2	27.5	37.7	23.7	17.4	31.6
13	Region 23	13.7	12.1	14.6	10.7	10.0	11.5	18.5	17.2	19.8	34.5	30.5	37.4	22.7	21.1	26.4	77.3	73.6	78.9	29.5	22.4	35.2	19.3	10.3	24.6
7	Region 24	12.6	12.5	12.7	10.7	10.6	10.8	18.1	18.0	18.2	34.9	34.4	35.4	23.7	23.4	24.0	76.3	76.0	76.6	27.3	24.0	30.7	16.2	12.8	19.6
2	Region 26	13.0	11.3	15.2	10.7	9.9	11.9	17.6	17.5	17.7	34.5	31.1	37.4	24.1	23.6	24.5	75.9	75.5	76.4	29.6	26.7	32.5	20.8	18.8	22.4
3	Region 27	11.9	8.4	14.2	10.1	8.9	11.5	18.9	17.4	19.9	36.6	32.1	41.0	22.5	20.2	25.8	77.5	74.2	79.8	30.4	24.6	35.0	21.7	17.2	26.6
13	Region 28	12.4	10.9	14.1	10.6	9.6	11.4	18.4	17.8	18.9	36.1	34.1	38.2	22.5	21.2	23.9	77.5	76.1	78.8	29.0	24.0	33.0	17.6	12.8	23.8
10	Region 29	13.5	12.3	15.6	10.7	10.0	11.4	18.4	17.4	19.6	34.8	32.7	37.3	22.6	19.6	25.0	77.4	75.0	80.4	32.5	26.7	37.5	21.3	14.8	27.3
9	Region 30	13.0	11.7	15.6	10.5	9.9	11.6	18.1	17.1	19.9	34.2	30.8	36.2	24.2	21.8	26.9	75.8	73.1	78.2	30.3	17.2	38.4	19.6	5.0	28.0
11	Region 31	13.9	12.5	15.6	10.7	10.0	11.6	18.0	16.9	19.3	33.9	30.8	36.4	23.5	21.4	24.6	76.5	75.4	78.6	30.8	26.0	37.2	20.4	14.4	27.2
12	Region 32	13.7	11.8	14.8	10.7	10.1	11.6	18.1	16.7	19.4	34.5	31.3	36.4	22.9	20.2	24.7	77.1	75.3	79.8	31.3	27.0	33.9	20.7	14.8	24.5
10	Region 33	12.6	11.0	15.5	10.5	9.9	11.8	18.0	17.3	18.6	35.7	31.4	37.7	23.2	21.4	24.7	76.8	75.3	78.6	27.8	24.0	33.3	17.4	10.5	25.2
11	Region 34	12.6	10.1	15.3	9.7	8.6	10.6	18.5	18.1	18.9	36.8	33.1	40.3	22.4	22.0	22.9	77.6	77.1	78.0	30.8	27.7	35.6	20.1	16.0	24.5
3	Region 35	11.7	10.4	12.9	9.9	9.0	10.9	18.3	16.0	19.3	37.6	34.6	40.4	22.4	20.3	25.6	77.6	74.4	79.7	26.2	18.5	33.9	15.3	6.2	25.2
11	Region 36																								
221	Ave. WM1	13.9	8.4	18.0	10.9	8.6	12.8	18.0	15.3	19.9	33.8	27.9	41.0	23.4	19.6	28.7	76.6	71.3	80.4	31.5	17.2	40.3	21.3	5.0	31.6
	Min. WM1																								
	Max. WM1																								

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2019/20)

(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																															
1	Region 10	13.1	-	-	11.1	-	-	17.5	-	-	35.5	-	-	22.8	-	-	77.2	-	-	32.2	-	-	24.2	-	-						
1	Region 11	11.8	-	-	10.0	-	-	19.9	-	-	36.3	-	-	22.0	-	-	78.0	-	-	35.0	-	-	25.4	-	-						
2	Region 12	15.0	13.9	16.2	11.6	11.1	12.1	17.5	17.5	17.5	31.8	29.8	33.9	24.0	23.6	24.5	76.0	75.5	76.4	35.7	31.9	39.5	25.5	21.9	29.1						
4	Region 13	14.7	14.4	15.2	10.9	10.6	11.0	17.4	16.7	18.1	32.1	30.3	33.2	24.8	23.0	26.4	75.2	73.6	77.0	29.8	28.5	31.0	19.3	17.5	20.8						
5	Region 14	14.4	12.2	15.2	11.2	10.5	11.7	18.2	17.3	19.3	32.9	30.7	36.8	23.3	21.7	25.0	76.7	75.0	78.3	34.1	30.8	36.9	23.7	21.1	26.8						
14	Region 15	14.6	12.0	16.5	11.6	10.9	12.0	18.1	17.1	18.8	32.6	30.7	35.7	23.1	21.6	25.1	76.9	74.9	78.4	35.0	31.2	37.6	25.1	21.6	32.3						
9	Region 16	15.6	13.0	17.0	11.8	11.1	12.5	18.3	16.8	19.4	31.2	28.0	35.7	23.1	20.8	26.2	76.9	73.8	79.2	34.3	29.1	41.2	25.4	20.8	31.1						
8	Region 17	14.8	14.1	17.1	11.3	11.0	11.9	17.8	16.7	18.7	31.6	27.1	33.6	24.6	23.1	26.8	75.4	73.2	76.9	33.2	26.5	39.9	23.0	14.1	30.2						
4	Region 18	16.6	15.3	17.8	11.5	11.1	11.9	17.1	16.2	17.5	30.0	27.5	32.1	24.8	23.4	25.7	75.2	74.3	76.6	34.1	31.4	36.5	22.7	19.9	25.6						
4	Region 19	14.9	14.4	15.3	10.9	10.4	11.7	17.3	16.1	18.6	32.1	31.6	32.6	24.7	22.9	27.4	75.3	72.6	77.1	33.6	31.0	36.8	23.0	20.2	27.1						
7	Region 20	14.8	13.8	15.9	11.5	10.7	12.1	17.5	15.3	18.6	31.0	28.3	33.1	25.2	23.0	29.7	74.8	70.3	77.0	32.8	27.4	38.9	23.3	15.3	35.5						
13	Region 21	14.5	11.9	16.9	11.1	10.3	12.0	17.7	16.4	18.8	33.5	29.1	37.0	23.2	21.5	25.5	76.8	74.5	78.5	32.5	29.2	39.2	23.0	19.4	33.4						
15	Region 22	14.7	12.2	17.2	11.3	10.4	12.3	17.7	16.7	19.3	32.6	29.3	36.6	23.7	21.1	25.0	76.3	75.0	78.9	32.5	27.5	35.8	24.0	17.0	28.6						
25	Region 23	15.1	11.2	17.7	11.2	10.1	12.3	17.7	16.1	19.0	31.7	23.1	36.6	24.4	21.9	34.7	75.6	65.3	78.1	33.9	28.9	41.1	24.2	16.7	36.0						
6	Region 24	14.1	13.6	14.7	10.7	10.3	11.2	18.1	17.4	19.4	34.6	33.4	36.3	22.5	22.2	22.9	77.5	77.1	77.8	32.7	28.6	37.1	23.5	19.4	29.2						
1	Region 25	15.5	-	-	11.4	-	-	16.4	-	-	31.3	-	-	25.4	-	-	74.6	-	-	33.7	-	-	22.6	-	-						
6	Region 26	15.6	13.5	19.7	11.2	10.4	12.7	16.8	15.0	17.7	31.1	24.3	34.6	25.4	23.5	27.8	74.6	72.2	76.5	31.4	23.9	39.8	22.3	15.9	34.3						
4	Region 27	13.6	13.0	15.0	10.5	10.3	10.8	16.8	15.9	17.6	34.2	31.1	35.7	24.9	22.9	27.7	75.1	72.3	77.1	27.7	26.2	31.1	19.6	16.4	22.0						
1	Region 28	11.1	-	-	9.2	-	-	19.5	-	-	37.8	-	-	22.5	-	-	77.5	-	-	26.1	-	-	17.7	-	-						
6	Region 29	12.1	10.6	14.4	10.4	9.6	10.9	18.6	17.9	19.2	36.1	33.1	38.6	22.9	21.3	25.3	77.1	74.7	78.7	29.1	24.8	31.5	18.8	11.3	22.6						
1	Region 30	14.6	-	-	10.6	-	-	18.1	-	-	33.3	-	-	23.4	-	-	76.6	-	-	30.8	-	-	21.3	-	-						
3	Region 31	13.0	11.8	13.7	10.6	10.2	10.9	18.0	17.6	18.3	34.3	33.5	35.0	24.1	22.2	26.0	75.9	74.0	77.8	30.6	28.0	32.6	19.5	17.8	20.4						
2	Region 32	14.3	13.5	15.2	11.0	10.5	11.6	18.2	17.7	18.7	33.8	32.6	34.9	22.6	21.9	23.4	77.4	76.6	78.1	32.5	30.8	34.2	19.9	17.2	22.7						
2	Region 33	12.0	11.6	12.5	10.5	10.2	10.8	18.9	18.7	19.2	36.6	36.6	36.6	21.9	20.9	22.9	78.1	77.1	79.1	30.7	30.4	31.0	19.1	18.7	19.5						
4	Region 34	12.4	9.7	13.9	10.4	9.7	10.9	18.4	17.5	19.7	35.5	32.6	38.0	23.4	21.0	25.4	76.6	74.6	79.0	26.3	15.5	33.8	15.2	4.8	21.1						
7	Region 36	11.6	9.9	12.7	10.0	9.6	10.4	18.4	17.5	19.1	37.2	35.9	38.9	22.8	22.1	24.0	77.2	76.0	77.9	25.7	19.9	30.9	14.4	8.6	20.4						
155	Ave. WM2	14.4	9.7	19.7	11.1	9.2	12.7	17.8	15.0	19.9	32.9	23.1	38.9	23.8	20.8	34.7	76.2	65.3	79.2	32.4	15.5	41.2	22.6	4.8	36.0						
	Min. WM2																														
	Max. WM2																														

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2019/20)
(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.						
GRADE: WM3																									
1	Region 12	14.6	-	-	11.7	-	-	19.9	-	-	32.2	-	-	21.7	-	-	78.3	-	-	35.6	-	26.2	-	-	
1	Region 13	17.1	-	-	11.8	-	-	18.0	-	-	28.2	-	-	25.0	-	-	75.0	-	-	27.2	-	16.3	-	-	
4	Region 14	16.6	14.7	19.3	12.0	11.0	13.1	17.5	16.1	18.7	29.3	26.7	31.3	24.6	23.6	26.8	75.4	73.2	76.4	36.2	30.9	41.0	24.6	18.3	
5	Region 15	15.4	14.7	16.0	12.2	11.9	12.4	18.4	18.0	18.8	30.0	27.2	32.7	24.0	21.9	25.7	76.0	74.3	78.1	35.5	32.6	39.4	25.8	24.5	
2	Region 16	16.1	16.0	16.1	11.5	11.1	12.0	17.3	16.6	18.1	30.8	30.2	31.4	24.3	23.7	24.8	75.7	75.2	76.3	31.5	30.3	32.7	20.4	17.9	
3	Region 17	15.7	14.5	16.5	11.6	11.4	11.8	18.1	17.4	18.6	30.6	28.1	33.8	24.0	22.0	26.4	76.0	73.6	78.0	32.9	32.0	34.0	22.9	21.1	
4	Region 18	16.3	15.9	16.8	11.6	11.3	12.0	17.0	16.4	17.8	30.4	29.0	31.6	24.7	23.2	25.8	75.3	74.2	76.8	35.6	33.1	39.0	26.5	21.0	
1	Region 19	14.9	-	-	10.8	-	-	17.7	-	-	32.0	-	-	24.6	-	-	75.4	-	-	34.1	-	-	22.1	-	
1	Region 20	15.4	-	-	12.1	-	-	17.9	-	-	30.8	-	-	23.8	-	-	76.2	-	-	24.7	-	-	16.0	-	
6	Region 21	13.4	11.8	16.2	11.0	10.0	12.1	17.3	15.6	19.1	34.0	30.7	36.1	24.3	22.4	26.2	75.7	73.8	77.6	32.3	24.8	36.8	22.8	15.7	
9	Region 22	15.6	12.4	17.4	11.9	11.1	12.5	17.8	17.3	18.4	30.7	28.9	35.4	24.0	22.7	25.0	76.0	75.0	77.3	34.3	30.5	36.2	26.4	20.8	
9	Region 23	14.7	11.9	16.7	11.4	11.0	12.4	17.8	17.1	18.8	32.2	29.5	35.1	23.9	22.4	26.5	76.1	73.5	77.6	33.6	27.1	39.2	23.4	16.7	
7	Region 24	17.5	13.7	20.0	11.8	10.4	13.1	16.6	15.4	18.4	28.5	23.9	34.4	25.5	22.6	27.5	74.5	72.5	77.4	34.6	23.5	40.8	26.0	13.4	
1	Region 25	16.1	-	-	12.0	-	-	17.2	-	-	30.7	-	-	24.0	-	-	76.0	-	-	36.4	-	-	30.4	-	
7	Region 26	14.3	12.8	16.6	11.1	9.9	12.0	17.3	16.0	19.0	32.5	29.0	36.3	24.8	22.8	27.1	75.2	72.9	77.2	22.7	13.5	33.5	11.9	2.2	
1	Region 27	10.9	-	-	10.5	-	-	17.6	-	-	37.3	-	-	23.6	-	-	76.4	-	-	26.6	-	-	21.3	-	
2	Region 28	11.1	10.7	11.4	10.2	9.9	10.4	18.7	18.4	18.9	36.6	35.6	37.6	23.5	23.4	23.7	76.5	76.3	76.6	30.1	28.2	32.1	19.7	16.6	
1	Region 29	13.2	-	-	10.0	-	-	18.5	-	-	34.0	-	-	24.3	-	-	75.7	-	-	20.1	-	-	8.2	-	
4	Region 32	15.2	12.4	18.1	11.0	10.3	11.9	17.6	16.3	18.5	32.6	29.9	35.6	23.6	21.8	25.5	76.4	74.5	78.2	30.3	28.8	32.2	17.9	15.1	
1	Region 33	12.0	-	-	10.1	-	-	17.5	-	-	36.5	-	-	23.8	-	-	76.2	-	-	29.6	-	-	18.7	-	
1	Region 34	11.4	-	-	10.4	-	-	16.5	-	-	37.3	-	-	24.4	-	-	75.6	-	-	27.8	-	-	15.7	-	
71	Ave. WM3	15.1	10.7	20.0	11.4	9.9	13.1	17.6	15.4	19.9	31.6	23.9	37.6	24.3	21.7	27.5	75.7	72.5	78.3	32.1	13.5	41.0	22.2	2.2	
	Min. WM3																							39.7	
	Max. WM3																								

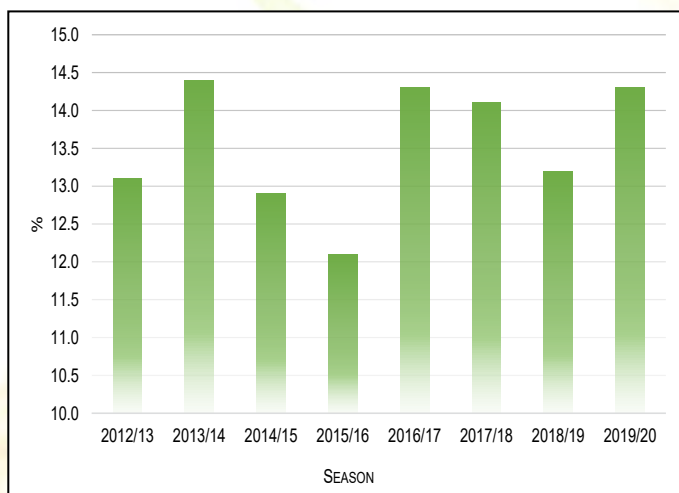
TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2019/20)

(continue)

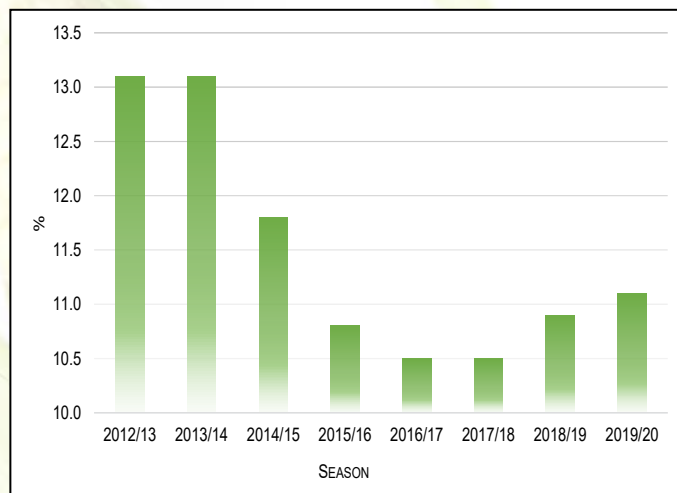
Number of samples	Region	Roff Milling															Whiteness index									
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13			
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	
CLASS: COM																										
2	Region 12	14.1	13.9	14.3	11.1	10.8	11.5	18.2	17.0	19.4	33.9	33.3	34.5	22.7	21.4	23.9	77.3	76.1	78.6	34.3	33.6	35.0	24.2	23.8	24.6	
3	Region 13	14.5	13.8	15.3	11.0	10.7	11.1	17.3	16.7	17.9	32.7	31.3	33.6	24.7	23.7	25.2	75.3	74.8	76.3	31.3	28.3	33.4	20.4	17.4	22.3	
5	Region 14	14.8	11.7	16.8	11.3	10.8	12.0	18.0	17.3	18.3	31.9	29.7	36.0	24.1	23.3	25.9	75.9	74.1	76.7	32.0	29.1	33.7	21.6	20.9	22.3	
7	Region 15	15.5	13.0	17.8	12.1	10.7	12.9	17.8	16.8	18.5	30.0	26.6	34.0	24.6	23.3	26.1	75.4	73.9	76.7	35.8	28.4	41.4	26.4	19.5	32.1	
1	Region 16	14.7	-	-	11.3	-	-	17.7	-	-	34.3	-	-	22.1	-	-	77.9	-	-	35.2	-	-	24.6	-	-	
2	Region 18	18.3	16.7	19.8	12.3	11.6	13.0	16.4	15.4	17.3	25.0	19.9	30.1	28.0	24.2	31.8	72.0	68.2	75.8	35.3	35.1	35.5	24.5	23.7	25.3	
7	Region 19	15.1	13.0	17.0	11.3	10.7	11.8	17.3	15.5	19.1	30.9	27.3	33.4	25.4	21.9	29.4	74.6	70.6	78.1	34.1	29.1	39.2	23.1	18.8	29.9	
7	Region 21	14.2	12.1	16.7	11.1	10.0	12.4	17.7	16.5	19.8	32.3	28.4	35.4	24.7	21.7	28.4	75.3	71.6	78.3	29.5	9.7	36.6	19.2	-3.2	28.2	
1	Region 22	17.0	-	-	12.0	-	-	17.8	-	-	29.0	-	-	24.2	-	-	75.8	-	-	34.7	-	-	23.0	-	-	
9	Region 23	14.2	13.0	16.3	11.1	10.7	11.7	17.2	15.7	18.0	32.9	29.6	34.8	24.6	23.2	26.8	75.4	73.2	76.8	35.6	33.1	37.3	27.4	23.1	33.5	
5	Region 24	17.3	14.1	19.7	12.1	10.6	12.9	17.1	16.1	18.0	28.1	23.3	33.4	25.4	22.1	27.0	74.6	73.0	77.9	34.8	32.8	39.4	25.5	22.1	34.9	
1	Region 25	19.7	-	-	12.5	-	-	15.6	-	-	24.4	-	-	27.8	-	-	72.2	-	-	37.2	-	-	25.8	-	-	
6	Region 26	13.4	8.5	18.4	11.1	9.6	13.0	17.6	16.4	18.6	33.2	26.1	40.5	24.8	22.8	27.5	75.2	72.5	77.2	16.4	-9.2	37.5	5.6	-19.1	26.2	
3	Region 27	13.8	12.8	15.6	11.3	10.9	11.8	17.4	17.0	18.2	33.2	29.9	35.2	24.3	22.7	25.7	75.7	74.3	77.3	30.6	27.8	32.6	22.3	21.6	23.2	
1	Region 28	13.1	-	-	12.0	-	-	18.4	-	-	33.9	-	-	22.5	-	-	77.5	-	-	33.7	-	-	22.4	-	-	
1	Region 30	13.3	-	-	10.8	-	-	19.0	-	-	34.9	-	-	22.0	-	-	78.0	-	-	28.4	-	-	18.4	-	-	
1	Region 31	12.4	-	-	10.1	-	-	17.2	-	-	34.8	-	-	25.4	-	-	74.6	-	-	30.5	-	-	21.6	-	-	
1	Region 32	15.4	-	-	10.7	-	-	18.3	-	-	32.3	-	-	23.2	-	-	76.8	-	-	35.7	-	-	22.9	-	-	
5	Region 34	12.0	11.1	12.6	10.2	10.0	10.5	18.2	17.8	18.6	36.4	35.6	37.0	23.3	22.1	25.1	76.7	74.9	77.9	26.4	23.4	29.7	17.6	12.4	20.8	
1	Region 36	11.6	-	-	10.6	-	-	18.1	-	-	36.1	-	-	23.5	-	-	76.5	-	-	32.5	-	-	20.0	-	-	
69	Ave. COM	14.6	8.5	19.8	11.3	9.6	13.0	17.6	15.4	19.8	32.0	19.9	40.5	24.6	21.4	31.8	75.4	68.2	78.6	31.5	-9.2	41.4	21.6	-19.1	34.9	
	Min. COM																									
	Max. COM																									
516	Ave. WM	14.3	8.4	20.0	11.1	8.6	13.1	17.8	15.0	19.9	33.0	19.9	41.0	23.8	19.6	34.7	76.2	65.3	80.4	31.8	-9.2	41.4	21.8	-19.1	39.7	
	Min. WM																									
	Max. WM																									

TABLE 18: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE (2019/20)																					
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.		
WHITE																					
1	Region 10	13.1	-	-	11.1	-	-	17.5	-	-	35.5	-	-	22.8	-	-	77.2	-	-	24.2	-
2	Region 11	12.3	11.8	12.9	10.1	10.0	10.3	19.3	18.6	19.9	36.6	36.3	36.8	21.7	21.3	22.0	78.3	78.0	78.7	23.3	21.3
13	Region 12	14.6	12.2	16.7	11.4	10.7	12.8	17.9	16.0	19.9	32.3	27.9	35.4	23.8	21.4	27.9	76.2	72.1	78.6	24.9	18.9
17	Region 13	14.8	13.7	17.1	11.1	10.4	12.2	17.5	16.7	18.3	32.0	28.2	34.1	24.5	22.6	26.4	75.5	73.6	77.4	20.3	16.3
33	Region 14	15.2	11.7	19.3	11.5	10.5	13.1	17.9	15.3	19.3	31.8	26.7	36.8	23.6	21.5	28.7	76.4	71.3	78.5	23.3	18.3
34	Region 15	14.8	12.0	17.8	11.6	10.3	12.9	18.1	16.7	19.2	32.0	26.6	36.8	23.5	21.3	26.1	76.5	73.9	78.7	25.2	19.5
26	Region 16	15.2	11.0	17.0	11.5	10.8	12.5	18.0	16.5	19.4	32.1	28.0	37.7	23.2	20.8	26.2	76.8	73.8	79.2	23.6	17.9
21	Region 17	15.2	14.1	17.1	11.4	10.7	11.9	17.8	16.0	19.4	31.3	27.1	33.8	24.3	22.0	27.8	75.7	72.2	78.0	23.5	14.1
17	Region 18	16.2	13.4	19.8	11.5	10.4	13.0	17.2	15.4	18.8	30.4	19.9	36.7	24.7	21.4	31.8	75.3	68.2	78.6	23.5	18.1
20	Region 19	14.7	12.0	17.0	11.2	10.3	11.8	17.5	15.5	19.1	32.0	27.3	37.2	24.6	21.9	29.4	75.4	70.6	78.1	23.2	18.8
15	Region 20	15.0	13.8	16.3	11.5	10.7	12.1	17.6	15.3	18.6	31.4	28.3	34.2	24.4	22.7	29.7	75.6	70.3	77.3	21.3	15.3
34	Region 21	14.2	11.8	16.9	11.0	10.0	12.4	17.5	15.5	19.8	33.3	28.4	37.0	24.0	21.5	28.4	76.0	71.6	78.5	21.7	-3.2
32	Region 22	14.9	12.1	17.4	11.4	10.4	12.5	17.7	16.0	19.3	32.1	28.9	36.6	23.9	21.1	25.4	76.1	74.6	78.9	24.5	17.0
56	Region 23	14.9	11.2	17.8	11.1	9.9	12.4	17.6	15.4	19.2	32.2	23.1	38.2	24.2	21.5	34.7	75.8	65.3	78.5	24.5	16.7
25	Region 24	15.6	12.1	20.0	11.3	10.0	13.1	17.6	15.4	19.8	31.6	23.3	37.4	24.0	21.1	27.5	76.0	72.5	78.9	23.4	10.3
3	Region 25	17.1	15.5	19.7	12.0	11.4	12.5	16.4	15.6	17.2	28.8	24.4	31.3	25.7	24.0	27.8	74.3	72.2	76.0	26.3	22.6
21	Region 26	14.3	8.5	19.7	11.1	9.6	13.0	17.3	15.0	19.0	32.5	24.3	40.5	24.8	22.8	27.8	75.2	72.2	77.2	13.5	-19.1
11	Region 27	13.3	10.9	15.6	10.8	9.9	11.9	17.2	15.9	18.2	34.3	29.9	37.4	24.4	22.7	27.7	75.6	72.3	77.3	20.8	16.4
17	Region 28	11.8	8.4	14.2	10.1	8.9	12.0	18.9	17.4	19.9	36.5	32.1	41.0	22.6	20.2	25.8	77.4	74.2	79.8	21.3	16.6
17	Region 29	12.4	10.6	14.4	10.5	9.6	11.4	18.5	17.8	19.2	36.0	33.1	38.6	22.7	21.2	25.3	77.3	74.7	78.8	17.5	8.2
11	Region 30	13.6	12.3	15.6	10.7	10.0	11.4	18.4	17.4	19.6	34.6	32.7	37.3	22.6	19.6	25.0	77.4	75.0	80.4	21.1	14.8
15	Region 31	13.0	11.7	15.6	10.5	9.9	11.6	18.0	17.1	19.9	34.3	30.8	36.2	24.3	21.8	26.9	75.7	73.1	78.2	19.7	5.0
19	Region 32	14.3	12.4	18.1	10.8	10.0	11.9	17.9	16.3	19.3	33.6	29.9	36.4	23.4	21.4	25.5	76.6	74.5	78.6	19.9	14.4
13	Region 33	13.3	11.6	14.8	10.6	10.1	11.6	18.2	16.7	19.4	35.0	31.3	36.6	22.9	20.2	24.7	77.1	75.3	79.8	20.3	14.8
21	Region 34	12.3	9.7	15.5	10.4	9.7	11.8	18.1	16.5	19.7	35.9	31.4	38.0	23.3	21.0	25.4	76.7	74.6	79.0	17.0	4.8
3	Region 35	12.6	10.1	15.3	9.7	8.6	10.6	18.5	18.1	18.9	36.8	33.1	40.3	22.4	22.0	22.9	77.6	77.1	78.0	20.1	16.0
19	Region 36	11.6	9.9	12.9	10.0	9.0	10.9	18.4	16.0	19.3	37.4	34.6	40.4	22.6	20.3	25.6	77.4	74.4	79.7	15.2	6.2
516	Ave. White	14.3	8.4		11.1	8.6		17.8	15.0		33.0	19.9		23.8	19.6		76.2	65.3		21.8	
	Min. White			20.0			13.1			19.9			41.0			34.7			80.4	-19.1	
	Max. White																			39.7	

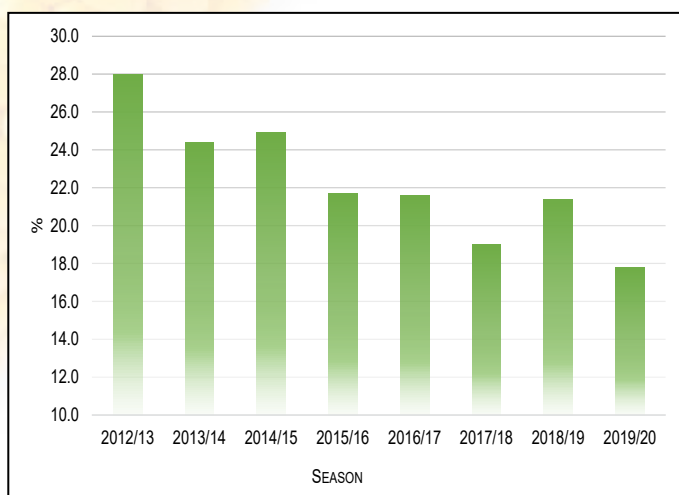
Graph 41: Roff Mill Break 1 meal fraction % since 2012/2013



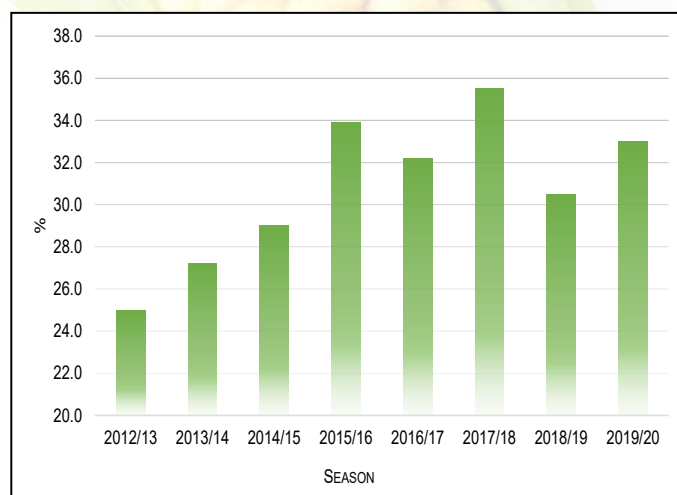
Graph 42: Roff Mill Break 2 meal fraction % since 2012/2013



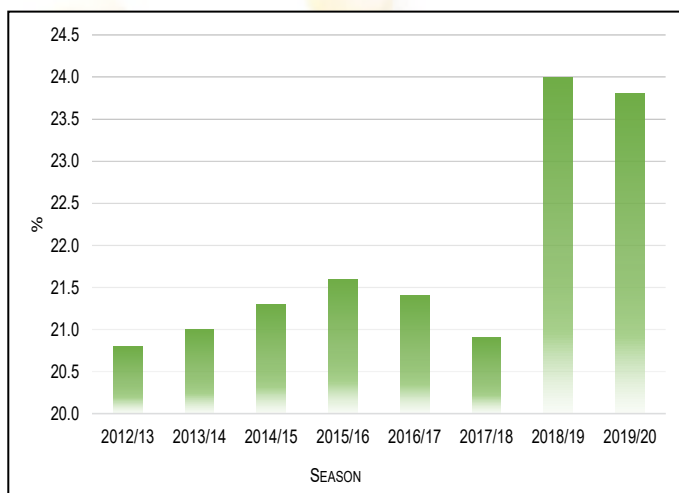
Graph 43: Roff Mill Break 3 meal fraction % since 2012/2013



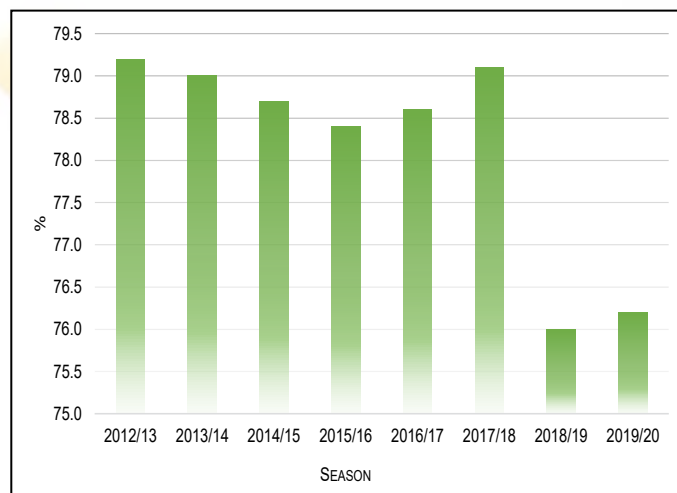
Graph 44: Roff Mill Grits fraction % since 2012/2013



Graph 45: Roff Mill Chop fraction % since 2012/2013



Graph 46: Roff Mill Total meal extraction % since 2012/2013



Figures provided by the CEC.

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20)													
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 10	-	-	-	-	-	-	-	-	-	-	-	-	12	Region 10	3.8	3.5	4.1	8.4	8.0	8.9	72.8	71.6	74.1	1.8	1.6	2.0
1	Region 11	3.9	-	-	8.7	-	-	74.0	-	-	1.7	-	-	9	Region 11	3.7	3.4	4.0	8.5	8.1	9.1	73.6	72.9	74.2	1.7	1.7	1.8
8	Region 12	4.2	4.0	4.4	8.3	7.2	8.8	73.2	71.9	74.1	1.9	1.8	2.1	2	Region 12	4.3	4.1	4.4	8.8	8.5	9.1	72.8	72.3	73.3	2.0	1.9	2.0
9	Region 13	4.3	4.0	4.7	8.2	7.7	8.5	73.0	72.6	73.6	1.9	1.8	2.0	-	Region 13	-	-	-	-	-	-	-	-	-	-	-	
19	Region 14	4.2	3.9	4.8	8.0	7.4	8.8	73.5	72.5	74.5	1.9	1.8	2.0	4	Region 14	4.2	4.0	4.4	8.7	7.7	9.7	72.7	71.9	74.0	1.9	1.9	1.9
8	Region 15	4.1	3.7	4.7	8.4	7.6	8.8	73.4	72.9	74.0	1.9	1.7	2.0	3	Region 15	4.0	3.9	4.1	8.4	8.0	8.8	73.3	72.8	73.8	1.8	1.7	1.9
14	Region 16	4.2	3.7	5.0	8.1	7.4	8.9	73.4	71.9	74.6	1.9	1.8	2.0	1	Region 16	4.2	-	-	8.4	-	-	73.4	-	-	1.9	-	-
10	Region 17	4.1	3.9	5.0	7.7	7.5	8.1	73.8	72.5	74.2	1.8	1.6	1.9	1	Region 17	4.1	-	-	9.2	-	-	72.8	-	-	1.9	-	-
7	Region 18	4.1	3.8	4.3	7.8	7.1	8.2	73.9	73.3	74.4	1.9	1.8	1.9	3	Region 18	3.9	3.6	4.2	8.2	8.0	8.4	73.7	73.2	74.2	1.9	1.8	1.9
8	Region 19	4.2	4.1	4.3	8.2	7.9	8.6	73.5	73.3	73.7	1.9	1.8	2.0	2	Region 19	4.1	3.9	4.2	8.5	8.3	8.6	73.0	72.4	73.6	1.9	1.9	2.0
7	Region 20	4.1	3.9	4.3	8.0	7.6	8.7	73.7	73.3	74.3	1.8	1.7	1.9	6	Region 20	3.9	3.7	4.1	8.8	8.5	9.5	72.6	71.7	73.4	1.9	1.9	1.9
8	Region 21	4.2	4.1	4.7	8.0	7.6	8.7	73.6	72.8	74.6	1.9	1.8	2.0	6	Region 21	4.1	3.7	4.5	9.1	8.5	10.1	71.9	69.9	73.0	2.0	1.9	2.1
7	Region 22	4.0	3.9	4.3	8.1	7.9	8.6	73.7	72.2	74.3	1.9	1.8	1.9	1	Region 22	4.0	-	-	8.0	-	-	73.5	-	-	1.9	-	-
13	Region 23	4.1	3.8	4.5	7.9	6.8	8.9	73.8	72.9	74.7	1.9	1.7	2.0	1	Region 23	3.7	-	-	8.7	-	-	73.5	-	-	1.8	-	-
7	Region 24	4.0	3.8	4.6	8.3	7.5	9.2	73.6	73.2	74.2	1.8	1.7	1.9	6	Region 24	4.0	3.8	4.3	8.4	7.9	8.9	72.7	72.2	73.3	1.9	1.8	2.0
-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-	6	Region 25	3.7	3.6	3.8	8.5	7.1	9.5	72.5	71.9	72.9	2.0	1.8	2.1
2	Region 26	4.1	4.0	4.2	8.6	8.6	8.6	73.1	72.8	73.4	1.9	1.9	2.0	6	Region 26	3.9	3.6	4.4	9.4	8.3	10.8	71.3	69.2	72.6	2.0	1.8	2.2
3	Region 27	4.3	4.0	4.5	8.6	8.3	9.0	73.2	72.8	73.4	1.8	1.7	1.9	10	Region 27	3.9	3.6	4.3	9.6	8.4	10.6	71.6	70.2	72.9	2.0	1.9	2.1
13	Region 28	4.0	3.5	4.4	9.5	8.2	11.7	72.4	69.6	73.6	1.9	1.8	1.9	18	Region 28	3.8	3.5	4.2	9.5	8.7	10.5	71.9	70.7	73.8	1.9	1.9	2.1
10	Region 29	4.0	3.6	4.4	8.9	7.6	9.6	73.1	71.9	74.0	1.9	1.8	2.0	26	Region 29	4.0	3.6	4.5	9.6	8.8	10.4	71.7	70.5	73.1	2.0	1.8	2.3
9	Region 30	3.9	3.5	4.4	8.7	7.0	9.6	73.3	72.2	74.8	1.8	1.6	2.1	24	Region 30	4.0	3.5	4.4	8.9	7.9	9.8	72.6	71.6	74.1	1.9	1.8	2.1
11	Region 31	3.9	3.4	4.4	8.9	7.4	10.0	73.0	71.9	74.4	1.8	1.7	1.9	25	Region 31	3.9	3.5	4.2	9.2	7.9	10.0	72.4	71.1	73.9	1.9	1.8	2.1
12	Region 32	3.9	3.8	4.1	8.5	7.4	9.3	73.2	71.9	74.9	1.9	1.7	2.1	21	Region 32	3.9	3.5	4.3	8.9	8.3	9.6	72.3	71.4	73.8	2.0	1.8	2.1
10	Region 33	3.9	3.8	4.0	8.5	8.1	9.1	73.5	72.9	74.3	1.8	1.7	2.0	12	Region 33	3.7	3.4	4.1	8.8	8.1	9.5	72.7	72.3	73.4	1.9	1.8	2.0
11	Region 34	4.0	3.8	4.3	9.0	7.7	10.0	72.8	71.8	74.1	1.8	1.7	1.9	17	Region 34	3.9	3.6	4.3	8.8	7.8	9.6	72.7	71.8	73.6	2.0	1.8	2.0
3	Region 35	4.1	4.0	4.2	9.0	8.5	9.7	72.8	72.0	73.4	1.8	1.8	1.9	4	Region 35	3.9	3.5	4.3	9.6	9.1	10.2	71.7	70.6	72.4	1.9	1.8	2.0
11	Region 36	4.1	3.6	4.6	9.3	8.5	10.0	72.8	71.4	74.3	1.8	1.7	2.0	18	Region 36	3.9	3.5	4.5	8.9	8.2	10.5	72.6	71.1	73.8	1.9	1.7	2.0
221	Ave. WM1	4.1	3.4	5.0	8.4	6.8	11.7	73.3	69.6	74.9	1.9	1.6	2.1	244	Ave. YM1	3.9	3.4	4.5	9.0	7.1	10.8	72.4	69.2	74.2	1.9	1.6	2.3
	Min. WM1														Min. YM1												
	Max. WM1														Max. YM1												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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													
1	Region 10	4.1	-	-	8.5	-	-	73.0	-	-	2.0	-	-	2	Region 10	4.2	4.0	4.4	8.6	7.9	9.3	73.2	72.3	74.0	1.7	1.7	1.8
1	Region 11	3.7	-	-	8.9	-	-	74.0	-	-	1.6	-	-	1	Region 11	3.8	-	-	8.8	-	-	72.4	-	-	1.9	-	-
2	Region 12	4.0	3.6	4.4	7.9	7.7	8.1	73.7	73.3	74.1	1.9	1.9	1.9	-	Region 12	-	-	-	-	-	-	-	-	-	-	-	
4	Region 13	4.0	3.9	4.2	8.3	7.9	8.6	73.4	72.4	73.9	1.9	1.8	2.0	1	Region 13	4.1	-	-	8.4	-	-	73.2	-	-	2.0	-	-
5	Region 14	4.0	3.8	4.2	8.2	7.8	8.7	73.6	73.4	73.9	1.8	1.7	1.9	1	Region 14	4.3	-	-	7.9	-	-	73.6	-	-	2.0	-	-
14	Region 15	3.9	3.7	4.5	8.3	7.6	9.7	73.5	72.5	74.3	1.9	1.8	2.1	2	Region 15	4.0	4.0	4.0	7.8	7.6	8.0	73.2	73.1	73.3	2.0	1.9	2.1
9	Region 16	3.9	3.7	4.0	7.9	7.2	8.8	73.5	71.7	74.5	1.9	1.8	2.1	2	Region 16	4.1	4.0	4.2	8.9	8.6	9.2	72.9	72.9	72.9	1.9	1.9	2.0
8	Region 17	4.2	3.9	4.8	8.3	7.8	8.9	73.3	72.2	73.9	1.9	1.8	2.0	-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-
4	Region 18	4.1	3.9	4.3	7.9	7.7	8.3	73.6	72.9	74.3	1.9	1.8	2.1	2	Region 18	3.8	3.7	3.9	8.7	8.6	8.8	72.7	72.6	72.8	2.0	1.9	2.0
4	Region 19	4.1	4.1	4.2	8.1	7.5	8.4	73.6	73.4	73.7	1.9	1.9	1.9	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
7	Region 20	4.2	3.8	4.8	8.5	8.0	8.7	73.1	72.7	73.5	1.9	1.8	2.1	-	Region 20	-	-	-	-	-	-	-	-	-	-	-	-
13	Region 21	4.1	3.9	4.5	8.4	7.3	9.3	73.1	72.1	74.0	1.9	1.8	2.0	3	Region 21	4.0	3.6	4.4	9.8	9.1	10.6	71.0	69.2	72.0	2.1	2.0	2.1
15	Region 22	4.0	3.8	4.2	8.1	7.4	8.7	73.5	72.9	74.2	1.9	1.8	2.0	4	Region 22	4.0	3.7	4.4	8.9	8.3	9.5	72.4	71.4	73.4	1.9	1.8	2.0
25	Region 23	4.0	3.7	4.2	8.2	7.3	8.9	73.5	72.4	74.3	1.9	1.6	2.0	-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
6	Region 24	3.9	3.7	4.1	8.5	8.3	8.7	73.6	73.3	74.0	1.9	1.8	2.0	4	Region 24	4.1	3.8	4.3	8.8	7.8	9.4	71.9	70.3	73.7	2.1	1.8	2.2
1	Region 25	4.1	-	-	7.8	-	-	73.7	-	-	2.0	-	-	1	Region 25	4.0	-	-	8.1	-	-	72.9	-	-	2.1	-	-
6	Region 26	4.1	3.8	4.6	8.0	6.7	8.6	73.4	72.5	73.9	1.9	1.8	2.0	8	Region 26	4.0	3.7	4.4	8.9	7.9	9.9	71.7	69.7	73.0	2.0	1.9	2.2
4	Region 27	4.3	4.1	4.6	8.4	7.7	8.7	73.4	72.8	73.7	1.9	1.8	1.9	5	Region 27	4.0	3.8	4.2	9.6	9.1	10.2	71.4	70.3	71.9	1.9	1.8	2.0
1	Region 28	3.8	-	-	9.3	-	-	72.8	-	-	1.8	-	-	7	Region 28	3.8	3.5	4.1	10.4	9.9	10.8	71.0	69.4	72.0	2.0	1.9	2.1
6	Region 29	4.0	3.7	4.2	9.1	8.7	9.8	72.7	71.2	73.5	1.9	1.7	1.9	7	Region 29	3.9	3.7	4.4	9.7	8.9	10.9	71.7	70.3	72.7	2.0	1.9	2.1
1	Region 30	3.9	-	-	8.0	-	-	73.9	-	-	1.8	-	-	6	Region 30	3.9	3.6	4.1	9.1	8.3	9.9	72.1	70.9	73.5	2.0	1.9	2.2
3	Region 31	4.0	3.9	4.2	9.3	8.6	10.5	72.3	70.9	73.2	1.9	1.9	1.9	5	Region 31	3.7	3.3	4.0	9.4	8.4	10.6	72.2	71.6	72.8	2.0	1.8	2.1
2	Region 32	3.9	3.8	4.0	8.4	8.1	8.8	73.7	72.9	74.4	1.9	1.8	2.0	8	Region 32	3.9	3.6	4.1	9.0	8.8	9.2	72.5	71.6	73.3	1.9	1.8	2.1
2	Region 33	3.9	3.8	4.1	8.9	8.2	9.5	72.3	71.8	72.8	1.9	1.8	2.0	5	Region 33	3.6	3.4	3.8	8.7	7.9	9.1	72.8	72.2	73.1	2.0	1.9	2.1
4	Region 34	3.8	3.5	4.0	8.8	8.1	10.4	73.2	71.4	74.5	1.8	1.7	1.9	-	Region 34	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-	-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-
7	Region 36	4.0	3.6	4.6	9.0	8.5	10.4	73.4	72.2	74.1	1.8	1.7	1.9	5	Region 36	3.6	3.4	3.8	8.9	8.5	9.6	73.1	72.9	73.6	1.8	1.8	1.9
155	Ave. WM2	4.0	3.5	4.8	8.3	6.7	10.5	73.4	70.9	74.5	1.9	1.6	2.1	79	Ave. YM2	3.9	3.3	4.4	9.1	7.6	10.9	72.1	69.2	74.0	2.0	1.7	2.2
	Min. WM2														Min. YM2												
	Max. WM2														Max. YM2												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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														
1	Region 10	4.1	-	-	8.5	-	-	73.0	-	-	2.0	-	-	2	Region 10	4.2	4.0	4.4	8.6	7.9	9.3	73.2	72.3	74.0	1.7	1.7	1.8	
1	Region 11	3.7	-	-	8.9	-	-	74.0	-	-	1.6	-	-	1	Region 11	3.8	-	-	8.8	-	-	72.4	-	-	1.9	-	-	
2	Region 12	4.0	3.6	4.4	7.9	7.7	8.1	73.7	73.3	74.1	1.9	1.9	1.9	-	Region 12	-	-	-	-	-	-	-	-	-	-	-	-	
4	Region 13	4.0	3.9	4.2	8.3	7.9	8.6	73.4	72.4	73.9	1.9	1.8	2.0	1	Region 13	4.1	-	-	8.4	-	-	73.2	-	-	2.0	-	-	
5	Region 14	4.0	3.8	4.2	8.2	7.8	8.7	73.6	73.4	73.9	1.8	1.7	1.9	1	Region 14	4.3	-	-	7.9	-	-	73.6	-	-	2.0	-	-	
14	Region 15	3.9	3.7	4.5	8.3	7.6	9.7	73.5	72.5	74.3	1.9	1.8	2.1	2	Region 15	4.0	4.0	4.0	7.8	7.6	8.0	73.2	73.1	73.3	2.0	1.9	2.1	
9	Region 16	3.9	3.7	4.0	7.9	7.2	8.8	73.5	71.7	74.5	1.9	1.8	2.1	2	Region 16	4.1	4.0	4.2	8.9	8.6	9.2	72.9	72.9	72.9	1.9	1.9	2.0	
8	Region 17	4.2	3.9	4.8	8.3	7.8	8.9	73.3	72.2	73.9	1.9	1.8	2.0	-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-	
4	Region 18	4.1	3.9	4.3	7.9	7.7	8.3	73.6	72.9	74.3	1.9	1.8	2.1	2	Region 18	3.8	3.7	3.9	8.7	8.6	8.8	72.7	72.6	72.8	2.0	1.9	2.0	
4	Region 19	4.1	4.1	4.2	8.1	7.5	8.4	73.6	73.4	73.7	1.9	1.9	1.9	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-	
7	Region 20	4.2	3.8	4.8	8.5	8.0	8.7	73.1	72.7	73.5	1.9	1.8	2.1	-	Region 20	-	-	-	-	-	-	-	-	-	-	-	-	
13	Region 21	4.1	3.9	4.5	8.4	7.3	9.3	73.1	72.1	74.0	1.9	1.8	2.0	3	Region 21	4.0	3.6	4.4	9.8	9.1	10.6	71.0	69.2	72.0	2.1	2.0	2.1	
15	Region 22	4.0	3.8	4.2	8.1	7.4	8.7	73.5	72.9	74.2	1.9	1.8	2.0	4	Region 22	4.0	3.7	4.4	8.9	8.3	9.5	72.4	71.4	73.4	1.9	1.8	2.0	
25	Region 23	4.0	3.7	4.2	8.2	7.3	8.9	73.5	72.4	74.3	1.9	1.6	2.0	-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-	
6	Region 24	3.9	3.7	4.1	8.5	8.3	8.7	73.6	73.3	74.0	1.9	1.8	2.0	4	Region 24	4.1	3.8	4.3	8.8	7.8	9.4	71.9	70.3	73.7	2.1	1.8	2.2	
1	Region 25	4.1	-	-	7.8	-	-	73.7	-	-	2.0	-	-	1	Region 25	4.0	-	-	8.1	-	-	72.9	-	-	2.1	-	-	
6	Region 26	4.1	3.8	4.6	8.0	6.7	8.6	73.4	72.5	73.9	1.9	1.8	2.0	8	Region 26	4.0	3.7	4.4	8.9	7.9	9.9	71.7	69.7	73.0	2.0	1.9	2.2	
4	Region 27	4.3	4.1	4.6	8.4	7.7	8.7	73.4	72.8	73.7	1.9	1.8	1.9	5	Region 27	4.0	3.8	4.2	9.6	9.1	10.2	71.4	70.3	71.9	1.9	1.8	2.0	
1	Region 28	3.8	-	-	9.3	-	-	72.8	-	-	1.8	-	-	7	Region 28	3.8	3.5	4.1	10.4	9.9	10.8	71.0	69.4	72.0	2.0	1.9	2.1	
6	Region 29	4.0	3.7	4.2	9.1	8.7	9.8	72.7	71.2	73.5	1.9	1.7	1.9	7	Region 29	3.9	3.7	4.4	9.7	8.9	10.9	71.7	70.3	72.7	2.0	1.9	2.1	
1	Region 30	3.9	-	-	8.0	-	-	73.9	-	-	1.8	-	-	6	Region 30	3.9	3.6	4.1	9.1	8.3	9.9	72.1	70.9	73.5	2.0	1.9	2.2	
3	Region 31	4.0	3.9	4.2	9.3	8.6	10.5	72.3	70.9	73.2	1.9	1.9	1.9	5	Region 31	3.7	3.3	4.0	9.4	8.4	10.6	72.2	71.6	72.8	2.0	1.8	2.1	
2	Region 32	3.9	3.8	4.0	8.4	8.1	8.8	73.7	72.9	74.4	1.9	1.8	2.0	8	Region 32	3.9	3.6	4.1	9.0	8.8	9.2	72.5	71.6	73.3	1.9	1.8	2.1	
2	Region 33	3.9	3.8	4.1	8.9	8.2	9.5	72.3	71.8	72.8	1.9	1.8	2.0	5	Region 33	3.6	3.4	3.8	8.7	7.9	9.1	72.8	72.2	73.1	2.0	1.9	2.1	
4	Region 34	3.8	3.5	4.0	8.8	8.1	10.4	73.2	71.4	74.5	1.8	1.7	1.9	-	Region 34	-	-	-	-	-	-	-	-	-	-	-	-	
-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-	-	Region 35	-	-	-	-	-	-	-	-	-	-	-	-	
7	Region 36	4.0	3.6	4.6	9.0	8.5	10.4	73.4	72.2	74.1	1.8	1.7	1.9	5	Region 36	3.6	3.4	3.8	8.9	8.5	9.6	73.1	72.9	73.6	1.8	1.8	1.9	
155	Ave. WM2	4.0	3.5	4.8	8.3	6.7	10.5	73.4	70.9	74.5	1.9	1.6	2.1	79	Ave. YM2	3.9	3.3	4.4	9.1	7.6	10.9	72.1	69.2	74.0	2.0	1.7	2.2	
	Min. WM2														Min. YM2													
	Max. WM2														Max. YM2													

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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: WM3														GRADE: YM3													
1	Region 10	3.9	-	-	8.5	-	-	73.9	-	-	1.8	-	-	-	Region 10	-	-	-	-	-	-	-	-	-	-	-	
1	Region 11	3.7	-	-	7.7	-	-	74.2	-	-	2.0	-	-	1	Region 11	4.3	-	-	8.6	-	-	73.0	-	-	1.8	-	
4	Region 12	4.4	3.8	4.9	7.8	7.5	8.3	73.4	73.0	73.9	2.0	1.9	2.1	-	Region 12	-	-	-	-	-	-	-	-	-	-	-	
5	Region 13	4.0	3.8	4.3	8.0	7.9	8.2	73.6	72.8	74.2	2.0	1.9	2.1	-	Region 13	-	-	-	-	-	-	-	-	-	-	-	
2	Region 14	4.0	4.0	4.0	7.7	7.4	8.1	74.0	73.7	74.2	1.9	1.9	2.0	-	Region 14	-	-	-	-	-	-	-	-	-	-	-	
3	Region 15	4.1	3.8	4.3	7.9	7.6	8.0	73.3	73.3	73.4	2.0	1.9	2.0	-	Region 15	-	-	-	-	-	-	-	-	-	-	-	
4	Region 16	4.0	4.0	4.0	8.0	7.8	8.4	73.6	73.4	74.1	1.9	1.8	2.0	-	Region 16	-	-	-	-	-	-	-	-	-	-	-	
1	Region 17	4.1	-	-	8.3	-	-	73.4	-	-	1.9	-	-	-	Region 17	-	-	-	-	-	-	-	-	-	-	-	
1	Region 18	3.7	-	-	8.4	-	-	73.4	-	-	2.0	-	-	-	Region 17	-	-	-	-	-	-	-	-	-	-	-	
6	Region 19	4.2	3.9	4.9	8.6	8.0	9.3	72.7	71.8	73.3	2.0	1.9	2.1	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	
9	Region 20	3.9	3.7	4.3	8.0	7.7	8.7	73.4	73.0	73.7	2.0	1.9	2.1	-	Region 20	-	-	-	-	-	-	-	-	-	-	-	
9	Region 21	4.0	3.9	4.2	8.3	7.7	8.9	73.4	72.7	73.8	2.0	1.8	2.1	-	Region 21	-	-	-	-	-	-	-	-	-	-	-	
7	Region 22	4.1	3.8	4.3	7.9	7.4	8.6	72.9	71.8	74.3	2.1	1.8	2.4	-	Region 22	-	-	-	-	-	-	-	-	-	-	-	
1	Region 23	4.1	-	-	8.0	-	-	73.3	-	-	2.0	-	-	-	Region 23	-	-	-	-	-	-	-	-	-	-	-	
7	Region 24	4.2	3.9	4.7	8.6	7.8	9.7	72.6	71.9	73.5	2.0	1.9	2.1	2	Region 24	4.3	4.2	4.4	8.5	7.9	9.0	72.4	71.6	73.3	2.1	2.0	2.2
1	Region 25	4.1	-	-	9.5	-	-	72.2	-	-	1.9	-	-	-	Region 25	-	-	-	-	-	-	-	-	-	-	-	
2	Region 26	3.7	3.5	3.8	10.5	10.3	10.7	71.3	71.1	71.4	2.0	2.0	2.0	-	Region 26	-	-	-	-	-	-	-	-	-	-	-	
1	Region 27	3.8	-	-	9.0	-	-	73.1	-	-	1.9	-	-	2	Region 27	3.8	3.6	4.0	9.3	9.0	9.6	71.6	71.2	72.0	1.9	1.8	1.9
-	Region 28	-	-	-	-	-	-	-	-	-	-	-	-	4	Region 28	3.7	3.5	3.9	9.6	9.1	10.1	71.8	71.4	72.1	2.0	2.0	2.1
-	Region 29	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 29	4.6	-	-	9.5	-	-	70.3	-	-	2.1	-	-
-	Region 30	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 30	4.0	-	-	7.8	-	-	72.7	-	-	2.1	-	-
4	Region 32	3.8	3.7	3.9	8.4	7.8	9.9	73.4	72.1	74.8	1.9	1.8	2.1	1	Region 32	3.8	-	-	9.2	-	-	72.1	-	-	2.1	-	-
1	Region 33	4.4	-	-	9.5	-	-	73.1	-	-	1.9	-	-	-	Region 33	-	-	-	-	-	-	-	-	-	-	-	
1	Region 34	3.9	-	-	9.7	-	-	71.9	-	-	1.9	-	-	1	Region 34	4.1	-	-	8.7	-	-	72.6	-	-	2.1	-	-
71	Ave. WM3	4.0	3.5	4.9	8.3	7.4	10.7	73.2	71.1	74.8	2.0	1.8	2.4	13	Ave. YM3	4.0	3.5	4.6	9.0	7.8	10.1	72.0	70.3	73.3	2.0	1.8	2.2
	Min. WM3														Min. YM3												
	Max. WM3														Max. YM3												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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																											
-	Region 08	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 08	3.8	-	-	9.2	-	-	72.9	-	-	1.8	-	-
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 10	3.9	-	-	8.7	-	-	72.7	-	-	1.8	-	-
2	Region 12	4.0	3.9	4.1	8.4	8.3	8.6	72.8	72.6	73.1	1.9	1.9	2.0	-	Region 11	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 13	4.4	4.3	4.5	8.4	7.9	8.8	73.0	72.6	73.4	1.9	1.8	2.0	1	Region 13	4.2	-	-	8.1	-	-	73.0	-	-	1.9	-	-
5	Region 14	4.2	4.0	4.4	8.4	7.4	9.0	72.8	72.3	73.7	1.9	1.9	2.0	1	Region 14	4.4	-	-	9.4	-	-	71.1	-	-	2.0	-	-
7	Region 15	3.9	3.7	4.2	8.5	8.1	8.9	72.5	71.9	73.3	2.0	1.9	2.2	1	Region 15	4.0	-	-	8.3	-	-	72.7	-	-	1.8	-	-
1	Region 16	4.0	-	-	7.9	-	-	73.7	-	-	1.8	-	-	-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 18	3.8	3.7	3.9	8.1	7.9	8.3	72.0	70.5	73.5	2.2	1.9	2.6	3	Region 18	4.0	4.0	4.1	8.0	7.5	8.7	74.0	73.8	74.3	2.0	1.9	2.0
7	Region 19	4.1	3.9	4.3	7.9	7.2	8.4	73.7	72.9	74.5	1.9	1.8	1.9	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
7	Region 21	4.3	3.7	4.9	8.7	7.6	9.3	72.7	71.3	73.7	2.0	1.9	2.2	-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	4.1	-	-	7.4	-	-	74.4	-	-	1.9	-	-	-	Region 22	-	-	-	-	-	-	-	-	-	-	-	-
9	Region 23	3.9	3.7	4.2	8.4	8.0	8.9	73.3	72.4	74.1	1.9	1.8	2.1	2	Region 23	4.3	4.3	4.3	9.1	8.7	9.5	71.9	71.6	72.3	2.1	2.1	2.2
5	Region 24	4.0	3.9	4.3	8.2	7.9	8.7	72.2	70.9	73.9	2.3	1.9	2.6	5	Region 24	3.8	3.8	3.9	8.1	7.0	8.9	72.3	70.8	73.3	2.1	1.8	2.5
1	Region 25	4.4	-	-	7.3	-	-	72.6	-	-	2.1	-	-	-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-
6	Region 26	3.9	3.6	4.5	9.2	7.5	10.4	72.0	70.6	73.3	2.0	1.8	2.2	4	Region 26	4.1	3.7	4.5	9.6	9.0	10.7	70.2	68.3	71.7	2.2	2.0	2.4
3	Region 27	4.1	3.9	4.3	8.5	8.2	8.6	73.4	72.6	73.8	1.9	1.8	2.1	2	Region 27	3.9	3.9	4.0	9.6	9.4	9.8	71.4	71.0	71.8	1.9	1.8	1.9
1	Region 28	3.7	-	-	9.2	-	-	73.1	-	-	2.1	-	-	2	Region 28	3.8	3.7	4.0	9.3	9.0	9.6	71.0	69.6	72.4	2.1	2.0	2.3
-	Region 29	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 29	3.8	-	-	10.2	-	-	71.4	-	-	2.0	-	-
1	Region 30	4.3	-	-	9.1	-	-	72.7	-	-	2.0	-	-	-	Region 30	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 31	3.8	-	-	8.9	-	-	73.1	-	-	1.7	-	-	3	Region 31	3.9	3.7	4.0	9.1	8.7	9.6	72.4	71.8	73.0	1.9	1.9	2.0
1	Region 32	3.8	-	-	7.6	-	-	74.3	-	-	1.8	-	-	5	Region 32	3.9	3.6	4.1	9.3	9.0	9.7	72.3	71.8	72.8	1.9	1.8	2.1
5	Region 34	3.9	3.6	4.0	9.4	8.9	9.8	72.6	71.7	73.3	1.9	1.8	2.0	1	Region 34	4.2	-	-	8.5	-	-	73.0	-	-	1.9	-	-
1	Region 36	3.8	-	-	9.0	-	-	72.9	-	-	1.8	-	-	5	Region 36	3.7	3.5	3.9	8.7	7.9	9.6	73.0	71.6	74.9	1.9	1.8	2.0
69	Ave. COM	4.0	3.6	4.9	8.5	7.2	10.4	72.9	70.5	74.5	2.0	1.7	2.6	38	Ave. COM	3.9	3.5	4.5	8.9	7.0	10.7	72.2	68.3	74.9	2.0	1.8	2.5
	Min. COM														Min. COM												
	Max. COM														Max. COM												
516	Ave. White	4.0	3.4	5.0	8.4	6.7	11.7	73.2	69.6	74.9	1.9	1.6	2.6	374	Min. Yellow	3.9	3.3	4.6	9.0	7.0	10.9	72.3	68.3	74.9	1.9	1.6	2.5
	Min. White														Min. Yellow												
	Max. White														Max. Yellow												
890	Ave. Maize	4.0	3.3	5.0	8.7	6.7	11.7	72.8	68.3	74.9	1.9	1.6	2.6	890	Ave. Maize	4.0	3.3	5.0	8.7	6.7	11.7	72.8	68.3	74.9	1.9	1.6	2.6
	Min. Maize														Min .Maize												
	Max. Maize														Max. Maize												

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2019/20) (continue)														TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2019/20) (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																											
-	Region 08	-	-	-	-	-	-	-	-	-	-	-	1	Region 08	3.8	-	-	9.2	-	-	72.9	-	-	1.8	-	-	
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	1	Region 10	3.9	-	-	8.7	-	-	72.7	-	-	1.8	-	-	
2	Region 12	4.0	3.9	4.1	8.4	8.3	8.6	72.8	72.6	73.1	1.9	1.9	2.0	-	Region 11	-	-	-	-	-	-	-	-	-	-	-	
3	Region 13	4.4	4.3	4.5	8.4	7.9	8.8	73.0	72.6	73.4	1.9	1.8	2.0	1	Region 13	4.2	-	-	8.1	-	-	73.0	-	-	1.9	-	-
5	Region 14	4.2	4.0	4.4	8.4	7.4	9.0	72.8	72.3	73.7	1.9	1.9	2.0	1	Region 14	4.4	-	-	9.4	-	-	71.1	-	-	2.0	-	-
7	Region 15	3.9	3.7	4.2	8.5	8.1	8.9	72.5	71.9	73.3	2.0	1.9	2.2	1	Region 15	4.0	-	-	8.3	-	-	72.7	-	-	1.8	-	-
1	Region 16	4.0	-	-	7.9	-	-	73.7	-	-	1.8	-	-	-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 18	3.8	3.7	3.9	8.1	7.9	8.3	72.0	70.5	73.5	2.2	1.9	2.6	3	Region 18	4.0	4.0	4.1	8.0	7.5	8.7	74.0	73.8	74.3	2.0	1.9	2.0
7	Region 19	4.1	3.9	4.3	7.9	7.2	8.4	73.7	72.9	74.5	1.9	1.8	1.9	-	Region 19	-	-	-	-	-	-	-	-	-	-	-	-
7	Region 21	4.3	3.7	4.9	8.7	7.6	9.3	72.7	71.3	73.7	2.0	1.9	2.2	-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	4.1	-	-	7.4	-	-	74.4	-	-	1.9	-	-	-	Region 22	-	-	-	-	-	-	-	-	-	-	-	-
9	Region 23	3.9	3.7	4.2	8.4	8.0	8.9	73.3	72.4	74.1	1.9	1.8	2.1	2	Region 23	4.3	4.3	4.3	9.1	8.7	9.5	71.9	71.6	72.3	2.1	2.1	2.2
5	Region 24	4.0	3.9	4.3	8.2	7.9	8.7	72.2	70.9	73.9	2.3	1.9	2.6	5	Region 24	3.8	3.8	3.9	8.1	7.0	8.9	72.3	70.8	73.3	2.1	1.8	2.5
1	Region 25	4.4	-	-	7.3	-	-	72.6	-	-	2.1	-	-	-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-
6	Region 26	3.9	3.6	4.5	9.2	7.5	10.4	72.0	70.6	73.3	2.0	1.8	2.2	4	Region 26	4.1	3.7	4.5	9.6	9.0	10.7	70.2	68.3	71.7	2.2	2.0	2.4
3	Region 27	4.1	3.9	4.3	8.5	8.2	8.6	73.4	72.6	73.8	1.9	1.8	2.1	2	Region 27	3.9	3.9	4.0	9.6	9.4	9.8	71.4	71.0	71.8	1.9	1.8	1.9
1	Region 28	3.7	-	-	9.2	-	-	73.1	-	-	2.1	-	-	2	Region 28	3.8	3.7	4.0	9.3	9.0	9.6	71.0	69.6	72.4	2.1	2.0	2.3
-	Region 29	-	-	-	-	-	-	-	-	-	-	-	-	1	Region 29	3.8	-	-	10.2	-	-	71.4	-	-	2.0	-	-
1	Region 30	4.3	-	-	9.1	-	-	72.7	-	-	2.0	-	-	-	Region 30	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 31	3.8	-	-	8.9	-	-	73.1	-	-	1.7	-	-	3	Region 31	3.9	3.7	4.0	9.1	8.7	9.6	72.4	71.8	73.0	1.9	1.9	2.0
1	Region 32	3.8	-	-	7.6	-	-	74.3	-	-	1.8	-	-	5	Region 32	3.9	3.6	4.1	9.3	9.0	9.7	72.3	71.8	72.8	1.9	1.8	2.1
5	Region 34	3.9	3.6	4.0	9.4	8.9	9.8	72.6	71.7	73.3	1.9	1.8	2.0	1	Region 34	4.2	-	-	8.5	-	-	73.0	-	-	1.9	-	-
1	Region 36	3.8	-	-	9.0	-	-	72.9	-	-	1.8	-	-	5	Region 36	3.7	3.5	3.9	8.7	7.9	9.6	73.0	71.6	74.9	1.9	1.8	2.0
69	Ave. COM	4.0	3.6	4.9	8.5	7.2	10.4	72.9	70.5	74.5	2.0	1.7	2.6	38	Ave. COM	3.9	3.5	4.5	8.9	7.0	10.7	72.2	68.3	74.9	2.0	1.8	2.5
	Min. COM														Min. COM												
	Max. COM														Max. COM												
516	Ave. White	4.0	3.4	5.0	8.4	6.7	11.7	73.2	69.6	74.9	1.9	1.6	2.6	374	Min. Yellow	3.9	3.3	4.6	9.0	7.0	10.9	72.3	68.3	74.9	1.9	1.6	2.5
	Min. White														Min. Yellow												
	Max. White														Max. Yellow												
890	Ave. Maize	4.0	3.3	5.0	8.7	6.7	11.7	72.8	68.3	74.9	1.9	1.6	2.6	890	Ave. Maize	4.0	3.3	5.0	8.7	6.7	11.7	72.8	68.3	74.9	1.9	1.6	2.6
	Min. Maize														Min .Maize												
	Max. Maize														Max. Maize												

TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2019/20)

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													
1	Region 10	4.1	-	-	8.5	-	-	73.0	-	-	2.0	-	-
2	Region 11	3.8	3.7	3.9	8.8	8.7	8.9	74.0	74.0	74.0	1.7	1.6	1.7
13	Region 12	4.1	3.6	4.4	8.3	7.2	8.8	73.3	71.9	74.1	1.9	1.8	2.1
17	Region 13	4.2	3.7	4.7	8.2	7.7	8.8	73.2	72.4	74.2	1.9	1.8	2.0
33	Region 14	4.2	3.8	4.9	8.1	7.4	9.0	73.4	72.3	74.5	1.9	1.7	2.1
34	Region 15	4.0	3.7	4.7	8.3	7.6	9.7	73.3	71.9	74.3	1.9	1.7	2.2
26	Region 16	4.1	3.7	5.0	8.0	7.2	8.9	73.5	71.7	74.6	1.9	1.8	2.1
21	Region 17	4.1	3.8	5.0	8.0	7.5	8.9	73.5	72.2	74.2	1.9	1.6	2.0
17	Region 18	4.1	3.7	4.3	7.9	7.1	8.4	73.5	70.5	74.4	1.9	1.8	2.6
20	Region 19	4.1	3.9	4.3	8.1	7.2	8.6	73.6	72.9	74.5	1.9	1.8	2.0
15	Region 20	4.1	3.7	4.8	8.3	7.6	8.7	73.4	72.7	74.3	1.8	1.7	2.1
34	Region 21	4.2	3.7	4.9	8.4	7.3	9.3	73.1	71.3	74.6	2.0	1.8	2.2
32	Region 22	4.0	3.7	4.3	8.0	7.4	8.7	73.6	72.2	74.4	1.9	1.8	2.1
56	Region 23	4.0	3.7	4.5	8.2	6.8	8.9	73.5	72.4	74.7	1.9	1.6	2.1
25	Region 24	4.0	3.7	4.6	8.2	7.4	9.2	73.2	70.9	74.3	2.0	1.7	2.6
3	Region 25	4.2	4.1	4.4	7.7	7.3	8.0	73.2	72.6	73.7	2.0	2.0	2.1
21	Region 26	4.1	3.6	4.7	8.6	6.7	10.4	72.7	70.6	73.9	2.0	1.8	2.2
11	Region 27	4.2	3.9	4.6	8.6	7.7	9.5	73.2	72.2	73.8	1.9	1.7	2.1
17	Region 28	4.0	3.5	4.4	9.6	8.2	11.7	72.3	69.6	73.6	1.9	1.8	2.1
17	Region 29	4.0	3.6	4.4	9.0	7.6	9.8	73.0	71.2	74.0	1.9	1.7	2.0
11	Region 30	4.0	3.5	4.4	8.7	7.0	9.6	73.3	72.2	74.8	1.8	1.6	2.1
15	Region 31	3.9	3.4	4.4	9.0	7.4	10.5	72.9	70.9	74.4	1.8	1.7	1.9
19	Region 32	3.8	3.7	4.1	8.5	7.4	9.9	73.3	71.9	74.9	1.9	1.7	2.1
13	Region 33	3.9	3.8	4.4	8.6	8.1	9.5	73.3	71.8	74.3	1.9	1.7	2.0
21	Region 34	3.9	3.5	4.3	9.1	7.7	10.4	72.8	71.4	74.5	1.8	1.7	2.0
3	Region 35	4.1	4.0	4.2	9.0	8.5	9.7	72.8	72.0	73.4	1.8	1.8	1.9
19	Region 36	4.1	3.6	4.6	9.2	8.5	10.4	73.0	71.4	74.3	1.8	1.7	2.0
516	Ave. white	4.0			8.4			73.2			1.9		
	Min. white	3.4			6.7			69.6			1.6		
	Max. white	5.0			11.7			74.9			2.6		
YELLOW													
1	Region 08	3.8	-	-	9.2	-	-	72.9	-	-	1.8	-	-
15	Region 10	3.9	3.5	4.4	8.4	7.9	9.3	72.9	71.6	74.1	1.8	1.6	2.0
11	Region 11	3.7	3.4	4.3	8.5	8.1	9.1	73.4	72.4	74.2	1.8	1.7	1.9
2	Region 12	4.3	4.1	4.4	8.8	8.5	9.1	72.8	72.3	73.3	2.0	1.9	2.0
2	Region 13	4.1	4.1	4.2	8.2	8.1	8.4	73.1	73.0	73.2	2.0	1.9	2.0
6	Region 14	4.2	4.0	4.4	8.7	7.7	9.7	72.6	71.1	74.0	1.9	1.9	2.0
6	Region 15	4.0	3.9	4.1	8.2	7.6	8.8	73.2	72.7	73.8	1.8	1.7	2.1
3	Region 16	4.1	4.0	4.2	8.7	8.4	9.2	73.1	72.9	73.4	1.9	1.9	2.0
1	Region 17	4.1	-	-	9.2	-	-	72.8	-	-	1.9	-	-
8	Region 18	3.9	3.6	4.2	8.3	7.5	8.8	73.5	72.6	74.3	1.9	1.8	2.0
2	Region 19	4.1	3.9	4.2	8.5	8.3	8.6	73.0	72.4	73.6	1.9	1.9	2.0
6	Region 20	3.9	3.7	4.1	8.8	8.5	9.5	72.6	71.7	73.4	1.9	1.9	1.9
9	Region 21	4.1	3.6	4.5	9.3	8.5	10.6	71.6	69.2	73.0	2.0	1.9	2.1
5	Region 22	4.0	3.7	4.4	8.7	8.0	9.5	72.6	71.4	73.5	1.9	1.8	2.0
3	Region 23	4.1	3.7	4.3	9.0	8.7	9.5	72.4	71.6	73.5	2.0	1.8	2.2

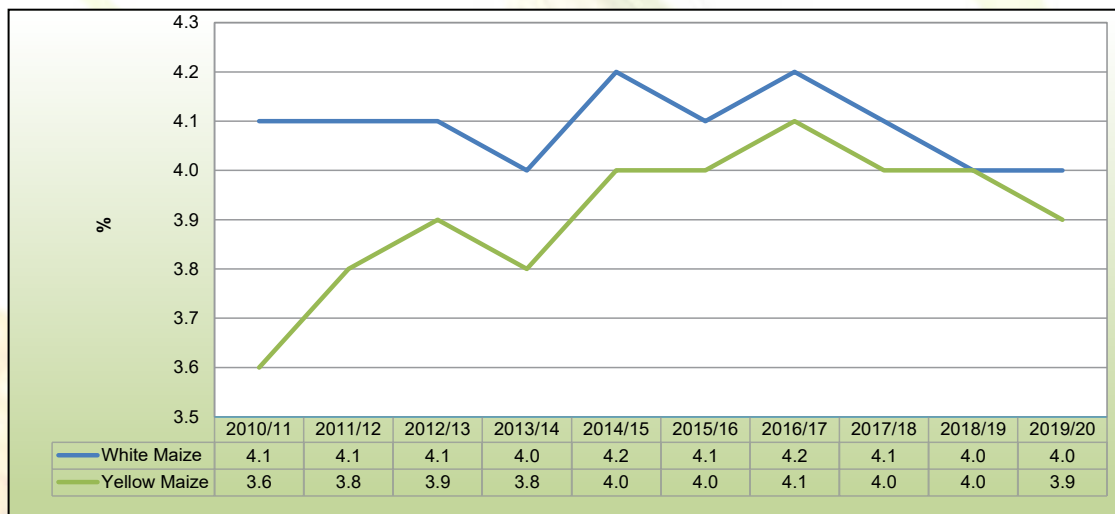
TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2019/20)
(continue)

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													
17	Region 24	4.0	3.8	4.4	8.4	7.0	9.4	72.3	70.3	73.7	2.0	1.8	2.5
7	Region 25	3.7	3.6	4.0	8.5	7.1	9.5	72.5	71.9	72.9	2.0	1.8	2.1
18	Region 26	4.0	3.6	4.5	9.2	7.9	10.8	71.2	68.3	73.0	2.1	1.8	2.4
19	Region 27	3.9	3.6	4.3	9.6	8.4	10.6	71.5	70.2	72.9	1.9	1.8	2.1
31	Region 28	3.8	3.5	4.2	9.7	8.7	10.8	71.6	69.4	73.8	2.0	1.9	2.3
35	Region 29	4.0	3.6	4.6	9.6	8.8	10.9	71.6	70.3	73.1	2.0	1.8	2.3
31	Region 30	3.9	3.5	4.4	8.9	7.8	9.9	72.5	70.9	74.1	1.9	1.8	2.2
33	Region 31	3.8	3.3	4.2	9.2	7.9	10.6	72.3	71.1	73.9	1.9	1.8	2.1
35	Region 32	3.9	3.5	4.3	9.0	8.3	9.7	72.4	71.4	73.8	2.0	1.8	2.1
17	Region 33	3.7	3.4	4.1	8.8	7.9	9.5	72.7	72.2	73.4	1.9	1.8	2.1
19	Region 34	3.9	3.6	4.3	8.8	7.8	9.6	72.7	71.8	73.6	2.0	1.8	2.1
4	Region 35	3.9	3.5	4.3	9.6	9.1	10.2	71.7	70.6	72.4	1.9	1.8	2.0
28	Region 36	3.8	3.4	4.5	8.9	7.9	10.5	72.8	71.1	74.9	1.9	1.7	2.0
374	Ave. yellow	3.9			9.0			72.3			1.9		
	Min. yellow		3.3			7.0			68.3			1.6	
	Max. yellow			4.6		10.9			74.9				2.5
WHITE AND YELLOW													
1	Region 08	3.8	-	-	9.2	-	-	72.9	-	-	1.8	-	-
16	Region 10	3.9	3.5	4.4	8.4	7.9	9.3	72.9	71.6	74.1	1.8	1.6	2.0
13	Region 11	3.7	3.4	4.3	8.6	8.1	9.1	73.5	72.4	74.2	1.7	1.6	1.9
15	Region 12	4.1	3.6	4.4	8.3	7.2	9.1	73.2	71.9	74.1	1.9	1.8	2.1
19	Region 13	4.2	3.7	4.7	8.2	7.7	8.8	73.2	72.4	74.2	1.9	1.8	2.0
39	Region 14	4.2	3.8	4.9	8.2	7.4	9.7	73.3	71.1	74.5	1.9	1.7	2.1
40	Region 15	4.0	3.7	4.7	8.3	7.6	9.7	73.3	71.9	74.3	1.9	1.7	2.2
29	Region 16	4.1	3.7	5.0	8.1	7.2	9.2	73.5	71.7	74.6	1.9	1.8	2.1
22	Region 17	4.1	3.8	5.0	8.0	7.5	9.2	73.5	72.2	74.2	1.9	1.6	2.0
25	Region 18	4.0	3.6	4.3	8.0	7.1	8.8	73.5	70.5	74.4	1.9	1.8	2.6
22	Region 19	4.1	3.9	4.3	8.1	7.2	8.6	73.5	72.4	74.5	1.9	1.8	2.0
21	Region 20	4.1	3.7	4.8	8.4	7.6	9.5	73.2	71.7	74.3	1.9	1.7	2.1
43	Region 21	4.2	3.6	4.9	8.6	7.3	10.6	72.8	69.2	74.6	2.0	1.8	2.2
37	Region 22	4.0	3.7	4.4	8.1	7.4	9.5	73.4	71.4	74.4	1.9	1.8	2.1
59	Region 23	4.0	3.7	4.5	8.2	6.8	9.5	73.4	71.6	74.7	1.9	1.6	2.2
42	Region 24	4.0	3.7	4.6	8.3	7.0	9.4	72.8	70.3	74.3	2.0	1.7	2.6
10	Region 25	3.9	3.6	4.4	8.2	7.1	9.5	72.7	71.9	73.7	2.0	1.8	2.1
39	Region 26	4.0	3.6	4.7	8.9	6.7	10.8	72.0	68.3	73.9	2.0	1.8	2.4
30	Region 27	4.0	3.6	4.6	9.2	7.7	10.6	72.1	70.2	73.8	1.9	1.7	2.1
48	Region 28	3.9	3.5	4.4	9.7	8.2	11.7	71.9	69.4	73.8	1.9	1.8	2.3
52	Region 29	4.0	3.6	4.6	9.4	7.6	10.9	72.1	70.3	74.0	1.9	1.7	2.3
42	Region 30	3.9	3.5	4.4	8.8	7.0	9.9	72.7	70.9	74.8	1.9	1.6	2.2
48	Region 31	3.9	3.3	4.4	9.1	7.4	10.6	72.5	70.9	74.4	1.9	1.7	2.1
54	Region 32	3.9	3.5	4.3	8.8	7.4	9.9	72.7	71.4	74.9	1.9	1.7	2.1
30	Region 33	3.8	3.4	4.4	8.7	7.9	9.5	73.0	71.8	74.3	1.9	1.7	2.1
40	Region 34	3.9	3.5	4.3	8.9	7.7	10.4	72.7	71.4	74.5	1.9	1.7	2.1
7	Region 35	4.0	3.5	4.3	9.3	8.5	10.2	72.2	70.6	73.4	1.9	1.8	2.0
47	Region 36	3.9	3.4	4.6	9.0	7.9	10.5	72.9	71.1	74.9	1.8	1.7	2.0
890	Ave. W & Y	4.0			8.7			72.8			1.9		
	Min. W & Y		3.3			6.7			68.3			1.6	
	Max. W & Y			5.0		11.7			74.9				2.6

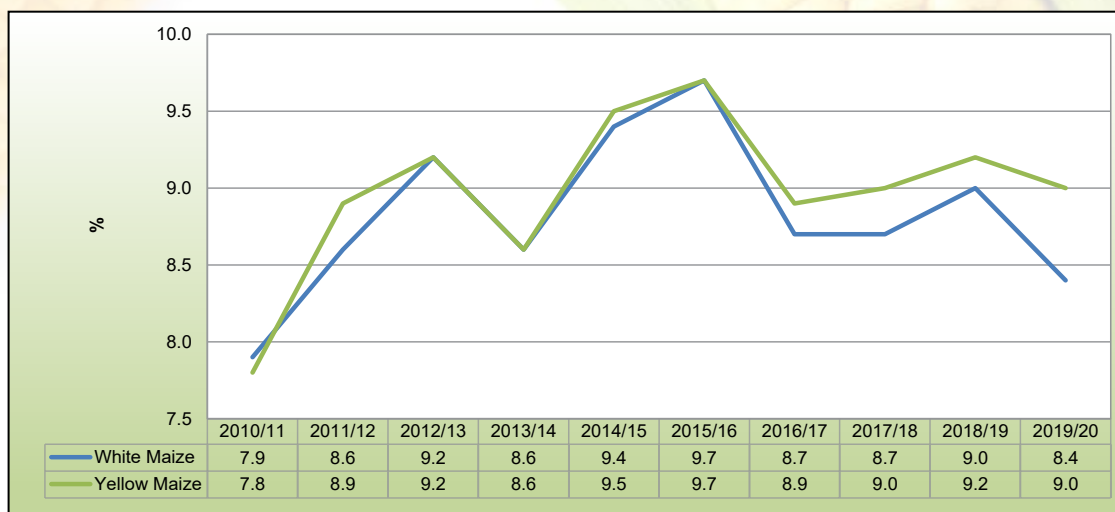
TABLE 22: NUTRITIONAL VALUES OF SOUTH AFRICAN WHITE AND YELLOW MAIZE 2010/11 - 2019/20

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													
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
2019/20	516	4.0	3.4	5.0	8.4	6.7	11.7	73.2	69.6	74.9	1.9	1.6	2.6
Weighted Average		4.1			8.8			73.0			1.9		
Minimum		2.8			6.1			68.5			1.6		
Maximum		5.8			12.3			77.0			2.8		
Yellow Maize													
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
2019/20	374	3.9	3.3	4.6	9.0	7.0	10.9	72.3	68.3	74.9	1.9	1.6	2.5
Weighted Average		3.9			9.0			72.8			2.0		
Minimum		2.8			6.0			68.3			1.6		
Maximum		5.1			12.8			76.2			2.5		
White and Yellow Maize													
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
2019/20	890	4.0	3.3	5.0	8.7	6.7	11.7	72.8	68.3	74.9	1.9	1.6	2.6
Weighted Average		4.0			8.9			72.9			1.9		
Minimum		2.8			6.0			68.3			1.6		
Maximum		5.8			12.8			77.0			2.8		

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



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



Graph 49: Starch content of white and yellow maize over 10 seasons

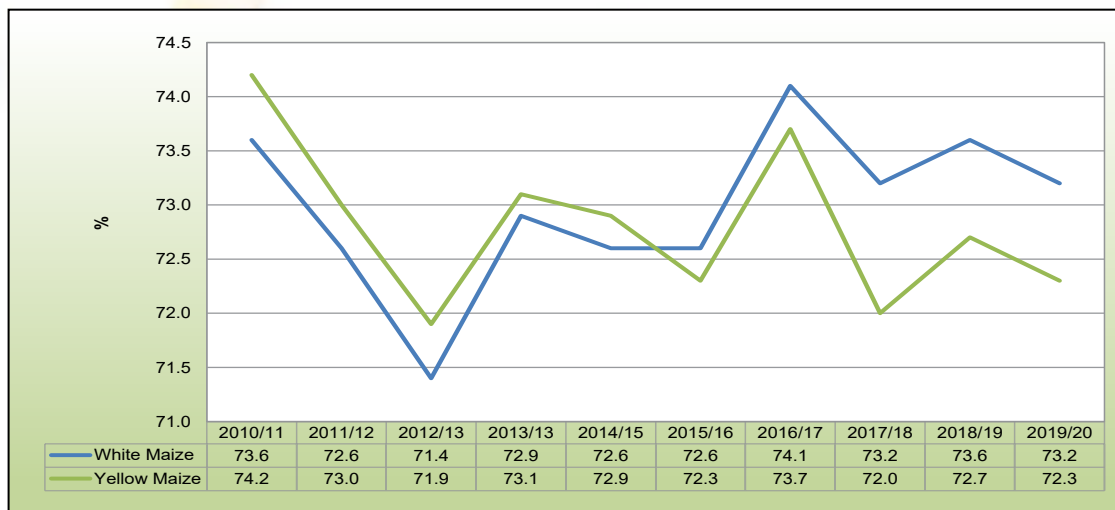


TABLE 23: PRESENCE OF GENETICALLY MODIFIED MAIZE (2019/20)

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%)
8	Y	>5.0	>5.0	>5.0	22	Y	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0
10	Y	>5.0	>5.0	4.9	22	W	>5.0	>5.0	>5.0	30	Y	<0.4	<0.5	<0.25
12	W	>5.0	>5.0	>5.0	22	W	>5.0	>5.0	>5.0	30	Y	>5.0	>5.0	2.2
13	W	>5.0	>5.0	>5.0	23	Y	>5.0	>5.0	>5.0	30	W	<0.4	0.81	0.77
13	Y	<0.4	>5.0	0.43	23	Y	2.5	>5.0	>5.0	31	Y	2.6	>5.0	1.4
14	W	>5.0	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	31	Y	<0.4	4.0	<0.25
14	Y	>5.0	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	31	W	>5.0	>5.0	0.23
14	W	>5.0	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	31	W	>5.0	>5.0	>5.0
15	Y	>5.0	>5.0	>5.0	24	W	>5.0	>5.0	>5.0	32	W	<0.4	1.7	0.27
15	W	>5.0	>5.0	>5.0	24	Y	>5.0	>5.0	>5.0	32	Y	>5.0	>5.0	>5.0
15	W	>5.0	>5.0	>5.0	24	W	2.8	>5.0	>5.0	32	Y	<0.4	>5.0	0.21
16	Y	>5.0	>5.0	>5.0	25	W	>5.0	>5.0	>5.0	32	W	<0.4	<0.5	<0.25
16	W	>5.0	>5.0	>5.0	26	W	>5.0	>5.0	>5.0	33	W	>5.0	>5.0	>5.0
17	W	>5.0	>5.0	>5.0	26	Y	2.6	>5.0	1.6	33	Y	5.0	>5.0	<0.25
17	W	>5.0	>5.0	>5.0	26	W	>5.0	>5.0	>5.0	34	W	<0.4	>5.0	0.56
18	Y	>5.0	>5.0	>5.0	27	Y	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
18	W	>5.0	>5.0	>5.0	27	W	>5.0	>5.0	>5.0	34	Y	<0.4	1.2	1.1
19	Y	>5.0	>5.0	>5.0	28	W	>5.0	>5.0	>5.0	35	Y	>5.0	>5.0	2.7
19	W	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	35	W	>5.0	>5.0	>5.0
20	Y	>5.0	>5.0	>5.0	28	W	>5.0	>5.0	>5.0	36	Y	>5.0	>5.0	0.59
20	W	>5.0	>5.0	>5.0	28	Y	>5.0	>5.0	>5.0	36	W	>5.0	0.43	>5.0
21	Y	>5.0	>5.0	>5.0	29	W	>5.0	>5.0	<0.25	36	W	>5.0	>5.0	>5.0
21	W	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0					
21	W	>5.0	>5.0	>5.0	29	W	<0.4	0.30	<0.25					
n	Season	% Samples positive for Cry1Ab			n	Season	% Samples positive for Cry2Ab			n	Season	% Samples positive for CP4 EPSPS		
70	2019/20	86	91	86	70	2019/20	97	83	97	70	2019/20	91	96	99
70	2018/19	91	91	91	70	2018/19	83	83	83	70	2018/19	96	100	100
100	2017/18	91	91	91	100	2017/18	83	84	84	100	2017/18	100	100	100
100	2016/17	98	94	94	100	2016/17	78			100	2016/17	99		
100	2015/16				100	2015/16				100	2015/16			

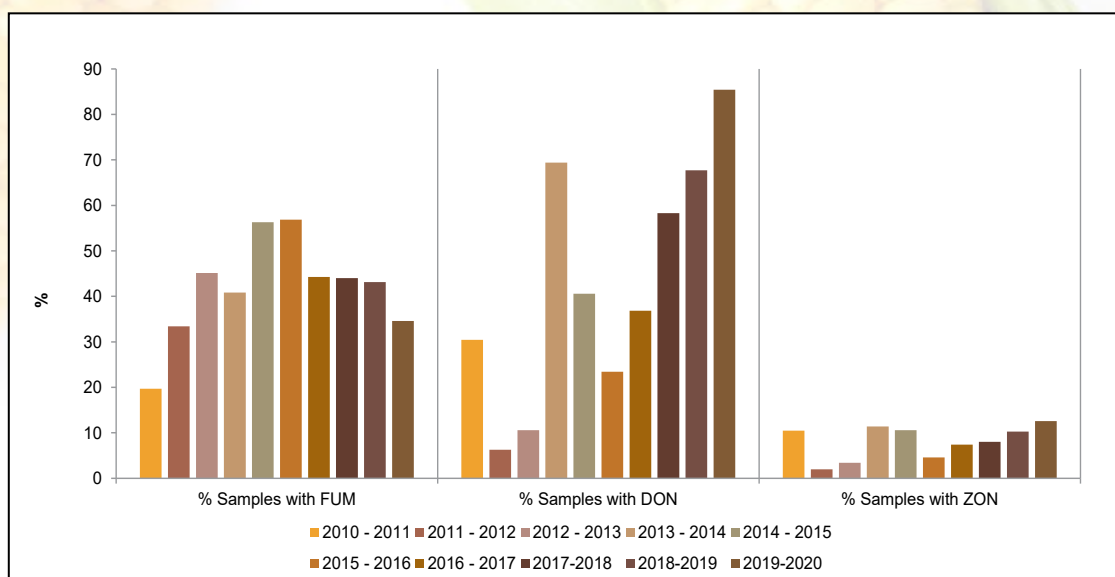
LOD: Limit of Detection

Mycotoxins

The multi-mycotoxin results of 350 maize samples tested in the 2019/20 season are reported. The samples were selected to represent white and yellow maize from all the production regions for the analysis of 13 mycotoxins with the LC-MS/MS instrument. These mycotoxins include Aflatoxin B₁, B₂, G₁ and G₂, Fumonisin (FUM) B₁, B₂ and B₃, Deoxynivalenol (DON), 15-acetyl-deoxynivalenol (15-ADON), Ochratoxin A, T2-toxin, HT-2 toxin and Zearalenone (ZON). 350 samples, representing approximately 35 - 40% of the survey samples annually, were analysed over the past 10 production seasons as part of the South African maize crop quality survey. Notable trends in the presence of specific mycotoxins in different production regions, the concentration ranges found and occurrence in white and yellow maize are observed.

This season, 90% of the samples (316 samples) contained one or more mycotoxin, mainly deoxynivalenol (85%), fumonisins (35%) and zearalenone (13%). The presence of deoxynivalenol and zearalenone, as illustrated in Graph 50, increased over the past five seasons. In 2015/16, only 23% and 5% of the samples contained DON and ZON, respectively. The fumonisin prevalence decreased over the same period, from 57% in 2015/16 to 35% this season.

Graph 50: Percentage white and yellow maize samples that tested positive for mycotoxins over 10 seasons



In three of the seven provinces represented by the samples, namely the Northern Cape, Limpopo and KwaZulu-Natal (KZN), all the samples tested contained mycotoxins. An increase in the occurrence of mycotoxins was found in the other four provinces this season. Only one white maize sample was received from the Eastern Cape. This sample was contaminated with DON, 15-ADON and ZON and the DON concentration was more than the regulated maximum allowable level of 2 000 µg/kg.

The results of the 13 mycotoxins, including the range of concentration levels and notable trends in the mean concentration levels in white and yellow maize in the different provinces, are summarised as follows:

Aflatoxins

Only one yellow maize sample collected in North West province in Region 12, was contaminated with 10 µg/kg Aflatoxin B₁. Previously, aflatoxins were found in one white maize sample collected in 2018/19 in the Free State and also in three white maize samples collected in the North West province in the 2014/15 season.

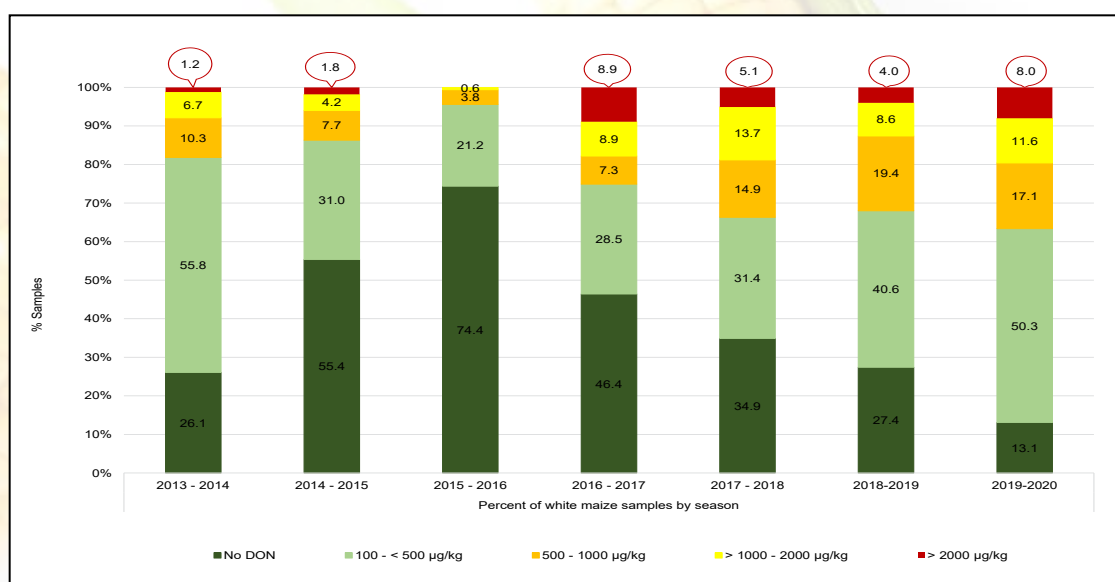
Ochratoxin A, T2- toxin and HT-2 toxin

None were reported in locally produced commercial maize since the mycotoxin survey began in 2010/11.

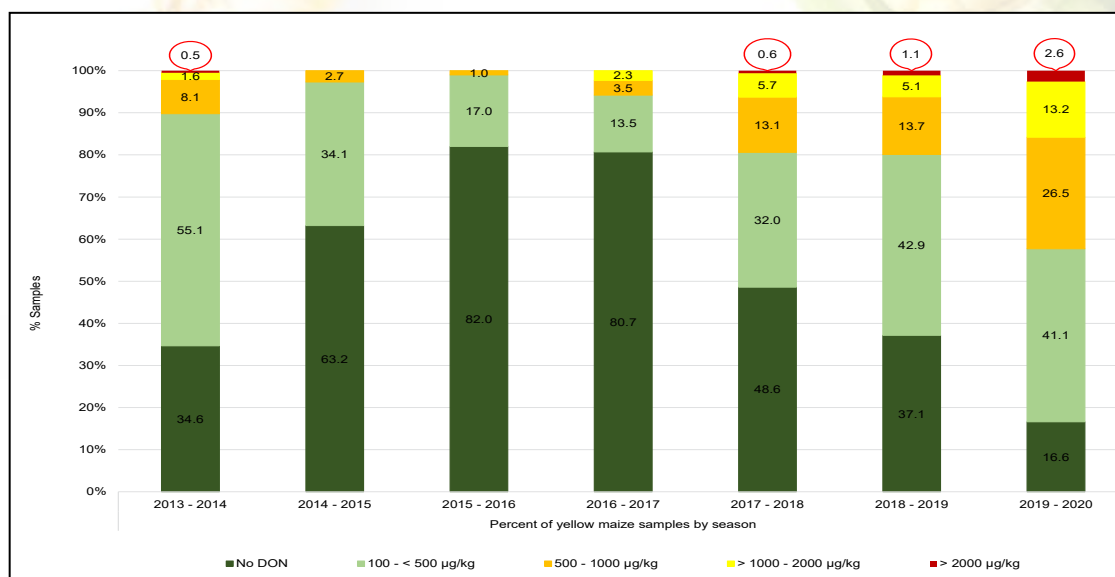
DON and 15-ADON

- Approximately 87% white maize and 83% yellow maize samples contained DON, this is a steep increase compared to previous seasons.
- The percentage of white maize samples that contained more than 2 000 µg/kg DON, the national regulated maximum allowable level in unprocessed maize for human consumption, increased to 8%. These white maize samples were collected in North West (4), Free State (6), Mpumalanga (2), Gauteng (3) and KZN (1). The DON concentration ranges are summarised in Graph 51 (white maize) and Graph 52 (yellow maize).

Graph 51: DON concentration range in white maize samples over seven seasons



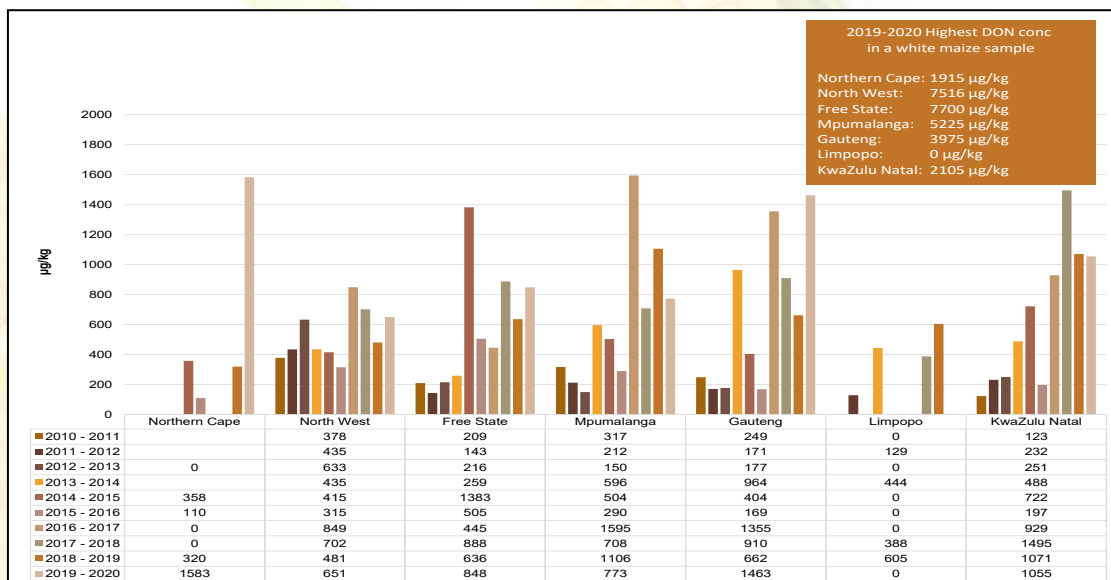
Graph 52: DON concentration range in yellow maize samples over seven seasons



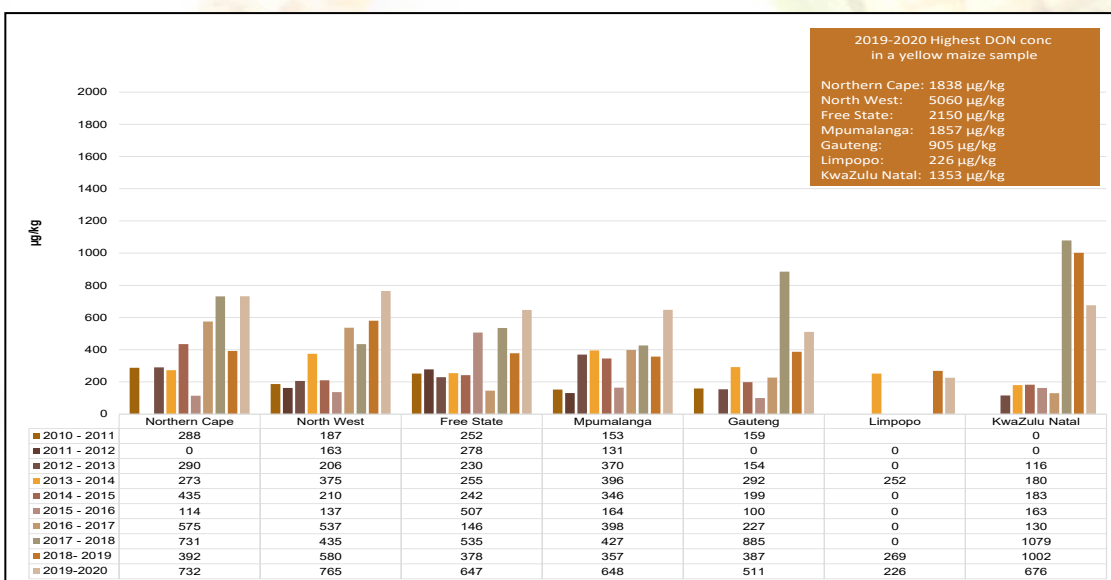
- In contrast to the previous season, the white maize samples with the highest DON concentrations were collected in North West (7 526 µg/kg) and the Free State (7 700 µg/kg). The highest DON concentration (5 060 µg/kg) reported on yellow maize over the past ten seasons, was found this season in North West.

- The annual mean DON concentrations of the positive white maize samples increased significantly in four provinces and with regards to yellow maize in five provinces. Limpopo reported no DON residues in white maize, but in contrast mean values as high as 1 583 µg/kg and 1 463 µg/kg were reported in the Northern Cape and Gauteng respectively. The 10-year mean concentrations in the seven provinces are illustrated in Graphs 53 and 54.

Graphs 53: White maize DON mean concentration (µg/kg)
per province over ten seasons



Graph 54: Yellow maize DON mean concentration (µg/kg)
per province over ten seasons

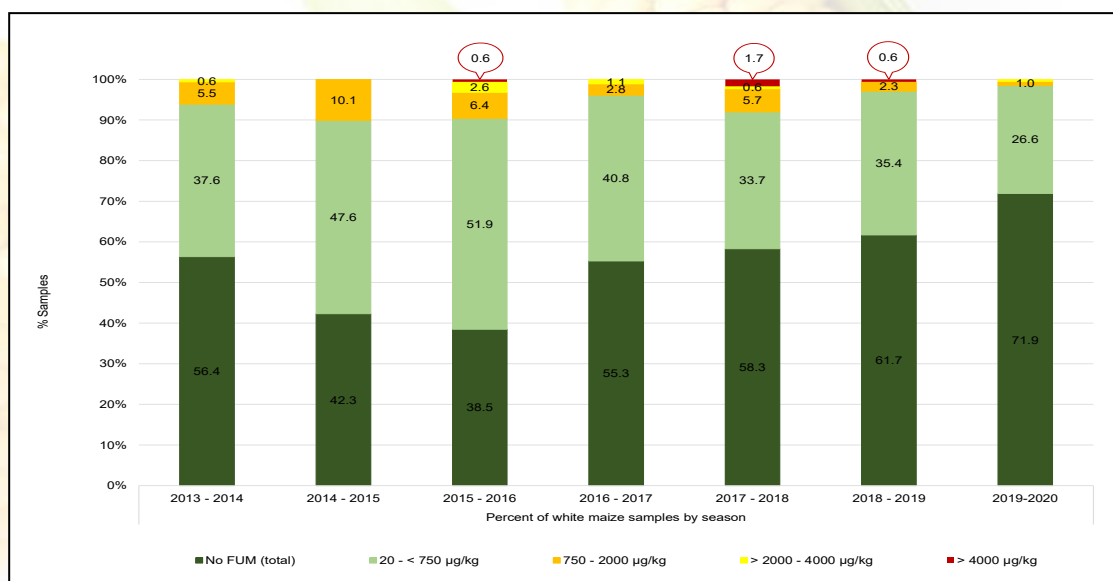


- 15-ADON is always present in samples that contain DON, mostly when the DON concentration exceeds 500 µg/kg. Due to the increase in DON concentrations, a 16% increase in 15-ADON occurrence was reported. This season 34% of the 350 samples tested contained 15-ADON, with a mean concentration of 208 µg/kg.

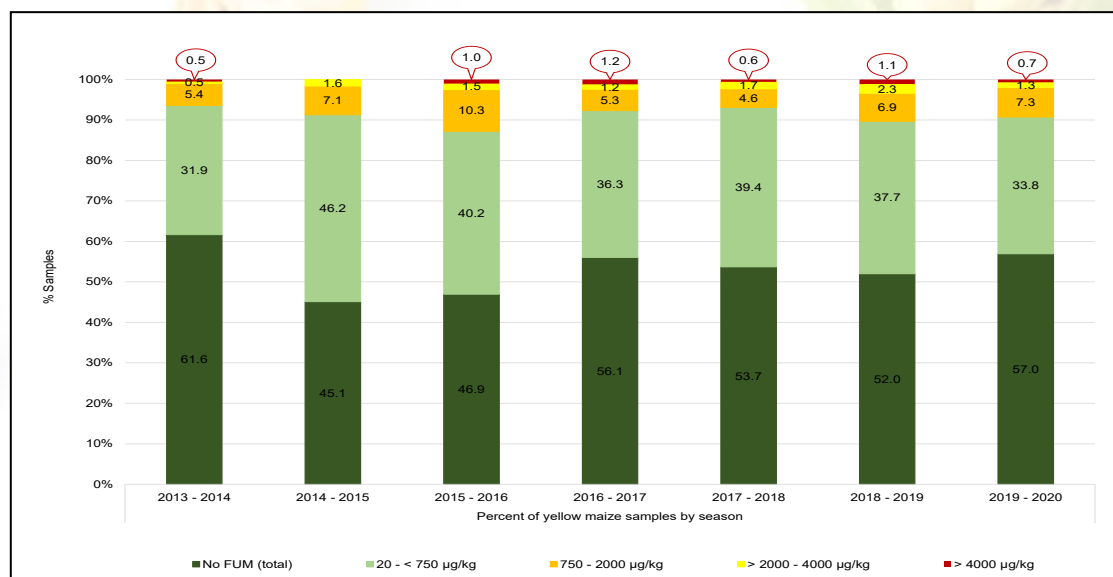
Fumonisin (FUM Total = FB1 + FB2 + FB3)

- This season, only 28% of the white maize samples contained fumonisins, showing a continuous decrease in contamination from the 62% in 2015/16. In contrast, more yellow maize samples contained fumonisins, approximately 43%, similar to the previous four seasons.
- The highest concentration FUM measured in white maize (3 911 µg/kg) was just slightly less than the national regulated maximum allowable level in unprocessed maize for human consumption, namely, 4 000 µg/kg. A yellow maize sample from the Northern Cape with a concentration of 5 928 µg/kg exceeded this level. The concentration ranges of the samples with fumonisins over the past seven seasons are summarised in Graph 55 (white maize) and Graph 56 (yellow maize).

Graph 55: FUM concentration range in white maize samples over seven seasons

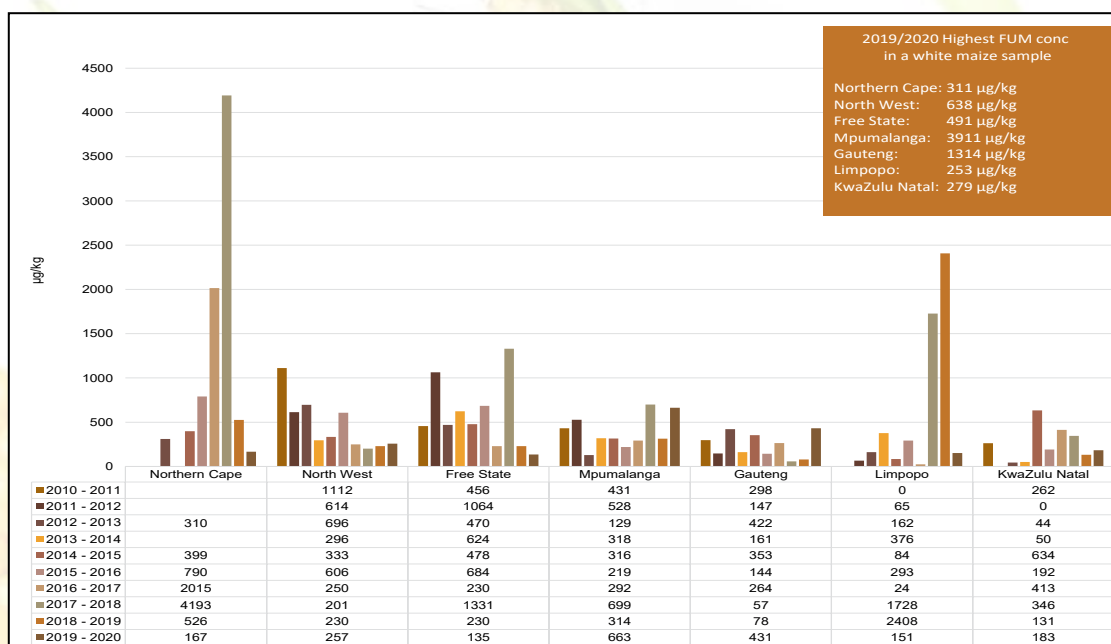


Graph 56: FUM concentration range in yellow maize samples over seven seasons

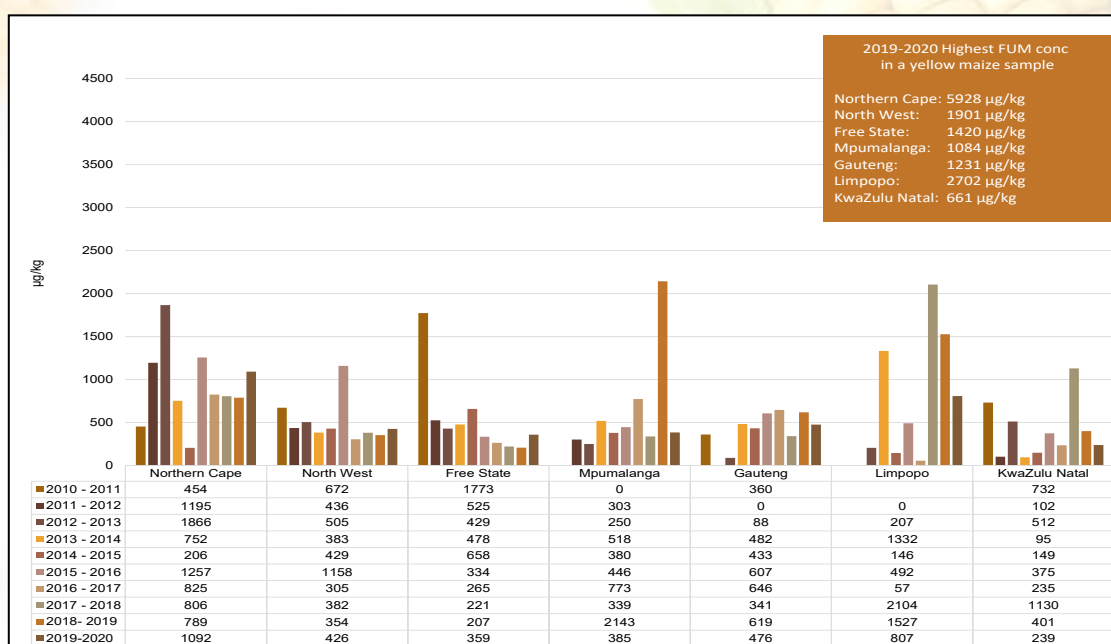


- A decrease was observed in the white maize mean FUM concentration in three of the seven provinces over the last three production seasons. The 10-year FUM mean concentration variations in white maize in the seven provinces are illustrated in Graph 57.
- The mean FUM concentration in yellow maize ranged from 239 µg/kg in KZN to 1 092 µg/kg in the Northern Cape and increased only slightly in the North West and Free State. These trends are illustrated in Graph 58.

Graph 57: White maize FUM (total) mean concentration (µg/kg) per province over ten seasons



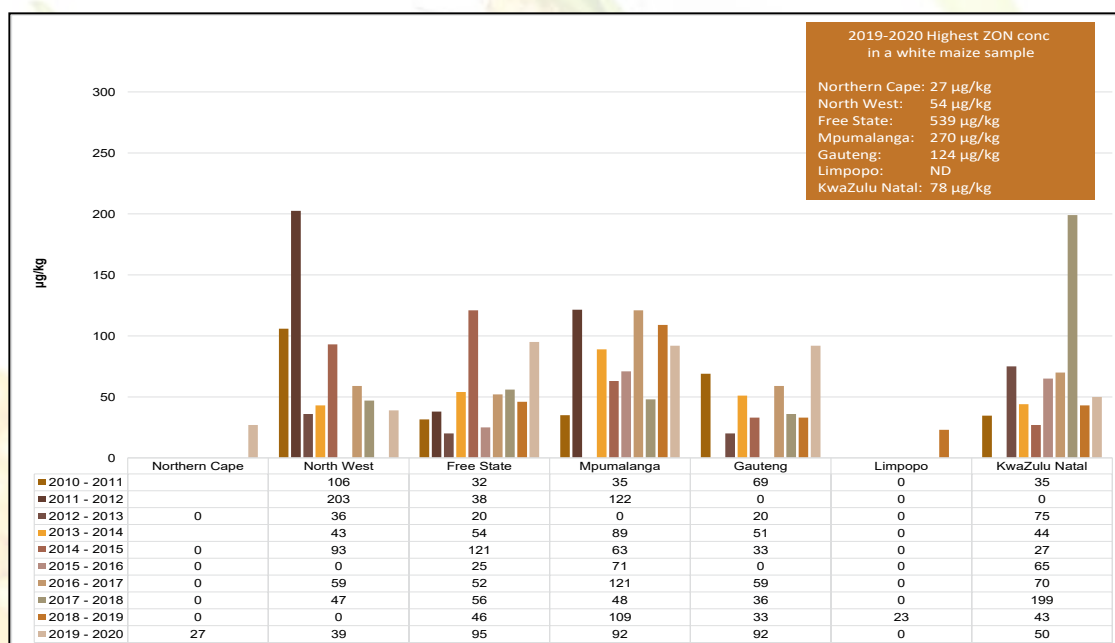
Graph 58: Yellow maize FUM (total) mean concentration (µg/kg) per province over ten seasons



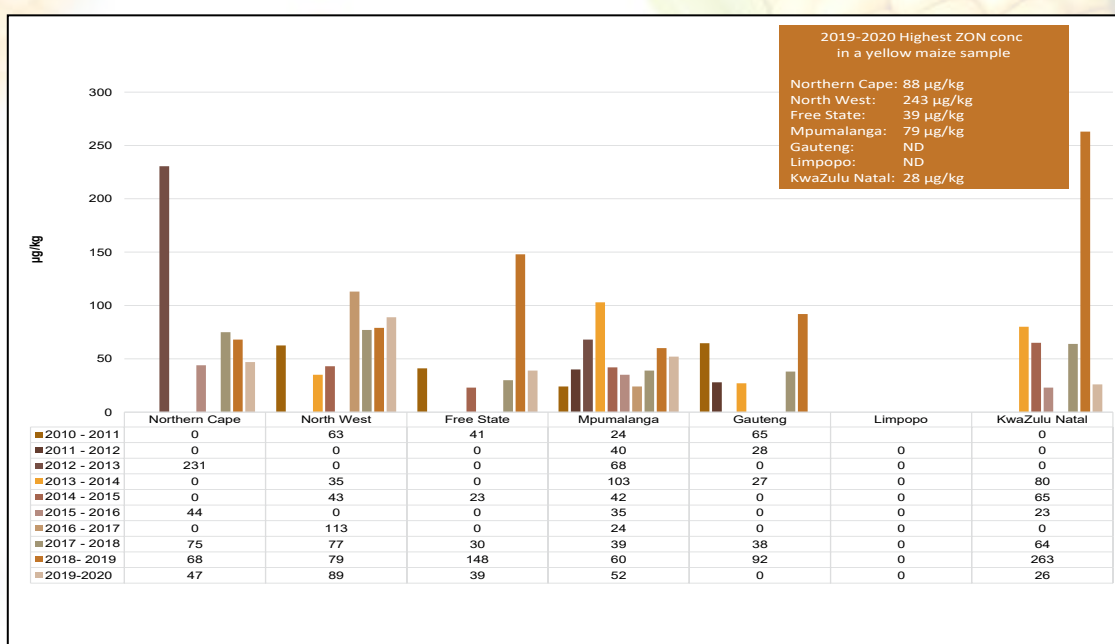
Zearalenone

- ZON was not found in the Limpopo province nor in the yellow maize produced in Gauteng. ZON was found for the first time in white maize produced in the Northern Cape. The ZON occurrences in the seven provinces are illustrated in Graphs 59 and 60 by reporting the mean ZON concentrations found in white and yellow maize.
- The highest concentration ZON in an individual white maize sample since commencement of the survey in 2010/11, namely 539 µg/kg, was reported this season in a sample from the Free State.

Graph 59: White maize ZON mean concentration (µg/kg)
per province over ten seasons



Graph 60: Yellow maize ZON mean concentration (µg/kg)
per province over ten seasons



The multi-mycotoxin results over 10 consecutive seasons provide an excellent perspective of the South African commercially produced maize. The increased occurrence and concentration levels of DON confirmed that mycotoxin risk varies significantly between production seasons in the different production regions and maize classes.

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 B₁	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 B₁	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 2019/20

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	
		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					LOQ: 20 µg/kg	T-2 LOQ: 20 µg/kg
8	COM	ND	ND	ND	ND	ND	ND	ND	ND	3 748	514	ND	33	ND	ND
10	YM1	ND	ND	ND	ND	ND	47	ND	ND	578	ND	ND	ND	ND	ND
10	YM2	ND	ND	ND	ND	ND	211	40	ND	365	ND	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	741	119	61	148	ND	ND	ND	ND	ND
10	WM2	ND	ND	ND	ND	ND	ND	ND	ND	1 214	351	ND	ND	ND	ND
10	YM1	ND	ND	ND	ND	ND	84	20	ND	537	ND	ND	ND	ND	ND
10	COM	ND	ND	ND	ND	ND	1 729	520	126	664	141	ND	88	ND	ND
11	WM2	ND	ND	ND	ND	ND	243	68	ND	1 915	335	ND	ND	ND	ND
11	YM3	ND	ND	ND	ND	ND	370	67	29	993	121	ND	40	ND	ND
11	YM1	ND	ND	ND	ND	ND	356	82	ND	ND	ND	ND	ND	ND	ND
11	YM1	ND	ND	ND	ND	ND	88	ND	ND	401	ND	ND	ND	ND	ND
11	WM1	ND	ND	ND	ND	ND	22	ND	ND	1 619	433	ND	27	ND	ND
11	YM1	ND	ND	ND	ND	ND	271	29	ND	1 838	252	ND	29	ND	ND
11	YM2	ND	ND	ND	ND	ND	4 565	990	373	1 061	174	ND	29	ND	ND
12	YM1	10	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	WM3	ND	ND	ND	ND	ND	35	ND	ND	ND	ND	ND	ND	ND	ND
12	COM	ND	ND	ND	ND	ND	23	ND	ND	217	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	WM1	ND	ND	ND	ND	ND	134	52	ND	139	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	ND	ND	ND	127	ND	ND	ND	ND	ND
13	COM	ND	ND	ND	ND	ND	217	159	ND	263	ND	ND	ND	ND	ND
13	COM	ND	ND	ND	ND	ND	ND	ND	ND	212	ND	ND	ND	ND	ND
13	WM1	ND	ND	ND	ND	ND	53	ND	ND	129	ND	ND	ND	ND	ND
13	YM2	ND	ND	ND	ND	ND	39	ND	ND	527	161	ND	ND	ND	ND
13	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	WM3	ND	ND	ND	ND	ND	246	81	47	280	ND	ND	ND	ND	ND
13	WM2	ND	ND	ND	ND	ND	ND	ND	ND	599	ND	ND	ND	ND	ND
14	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	39	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
14	COM	ND	ND	ND	ND	ND	ND	74	25	ND	99	144	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	WM2	ND	ND	ND	ND	ND	ND	336	90	36	462	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	ND	28	ND	ND	28	ND	ND	ND	ND	ND	ND
14	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	284	ND	ND	ND	ND	ND	ND
14	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	404	154	ND	243	ND	ND	ND
14	WM1	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	113	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	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	166	ND	ND	ND	ND	ND	ND
14	YM1	ND	ND	ND	ND	ND	ND	92	57	ND	149	ND	ND	ND	ND	ND	ND
14	WM3	ND	ND	ND	ND	ND	ND	317	117	25	459	158	ND	ND	ND	ND	ND
14	WM1	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	ND	ND	ND	ND	ND	ND	ND
15	YM2	ND	ND	ND	ND	ND	ND	136	ND	ND	136	5 060	768	ND	85	ND	ND
15	YM1	ND	ND	ND	ND	ND	ND	244	ND	ND	244	521	109	ND	ND	ND	ND
15	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	532	ND	ND	ND	ND	ND
15	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 269	337	ND	ND	ND	ND	ND
15	YM1	ND	ND	ND	ND	ND	ND	1 379	413	109	1 901	282	ND	56	ND	ND	ND
15	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 072	256	ND	ND	ND	ND	ND
15	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	266	ND	ND	ND	ND	ND	ND
15	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	64	ND	ND	ND
15	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	288	ND	ND	ND	ND	ND	ND
15	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	402	ND	ND	ND	ND	ND	ND
15	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	670	122	ND	ND	ND	ND	ND
15	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 047	362	ND	ND	ND	ND	ND
15	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	526	125	ND	ND	ND	ND	ND
15	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	327	ND	ND	ND	ND	ND	ND
15	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
15	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	569	ND	ND	ND	ND	ND	ND
15	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	808	169	ND	ND	ND	ND	ND
15	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	385	ND	ND	ND	ND	ND	ND
16	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	126	ND	ND	ND	ND	ND	ND
16	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	YM2	ND	ND	ND	ND	ND	95	36	ND	131	1 071	117	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	330	ND	ND	ND	ND	ND	ND
16	YM2	ND	ND	ND	ND	ND	75	35	ND	110	401	ND	ND	ND	ND	ND	ND
16	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	780	190	ND	31	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	851	153	ND	ND	ND	ND	ND
16	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 191	159	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 332	271	ND	ND	ND	ND	ND
16	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	230	ND	ND	ND	ND	ND	ND
16	WM1	ND	ND	ND	ND	ND	21	ND	ND	21	101	ND	ND	ND	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	21	ND	ND	21	268	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	YM1	ND	ND	ND	ND	ND	20	ND	ND	20	243	123	ND	ND	ND	ND	ND
17	WM3	ND	ND	ND	ND	ND	31	47	ND	78	1 606	324	ND	26	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	378	192	40	610	1 466	140	ND	ND	ND	ND	ND
17	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	264	102	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	184	ND	ND	ND	ND	ND	ND
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	ND	ND	ND	ND	ND	ND
17	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	145	ND	ND	ND	ND	ND	ND
18	WM1	ND	ND	ND	ND	ND	313	115	30	458	185	ND	ND	ND	ND	ND	ND
18	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	377	129	ND	ND	ND	ND	ND
18	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	224	ND	ND	ND	ND	ND	ND
18	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	296	ND	ND	ND	ND	ND	ND
18	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	509	212	ND	ND	ND	ND	ND
18	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
18	WM3	ND	ND	ND	ND	ND	ND	ND	ND	369	ND	ND	ND	ND	ND	ND	ND
18	WM2	ND	ND	ND	ND	ND	ND	ND	ND	244	ND	ND	ND	ND	ND	ND	ND
18	YM1	ND	ND	ND	ND	ND	ND	ND	ND	237	ND	ND	ND	ND	ND	ND	ND
18	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	WM1	ND	ND	ND	ND	ND	ND	ND	ND	112	ND	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	ND	ND	ND	146	ND	ND	ND	ND	ND	ND	ND
19	COM	ND	ND	ND	ND	ND	271	131	ND	183	ND	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	ND	ND	ND	243	ND	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND	ND	ND
19	COM	ND	ND	ND	ND	ND	ND	ND	ND	801	ND	ND	ND	ND	ND	ND	ND
19	YM1	ND	ND	ND	ND	ND	ND	ND	ND	1 457	301	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	ND	ND	ND	248	ND	ND	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	ND	ND	ND	229	ND	ND	ND	ND	ND	ND	ND
19	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	WM2	ND	ND	ND	ND	ND	ND	ND	ND	118	ND	ND	ND	ND	ND	ND	ND
19	WM1	ND	ND	ND	ND	ND	414	188	36	280	ND	ND	ND	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	369	105	29	225	ND	ND	58	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	1 232	448	113	690	ND	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	1 724	219	ND	ND	ND	ND	ND	ND
20	YM1	ND	ND	ND	ND	ND	ND	ND	ND	1 249	212	ND	25	ND	ND	ND	ND
20	WM3	ND	ND	ND	ND	ND	ND	ND	ND	7 516	829	ND	54	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	ND	ND	ND	3 188	362	ND	46	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	ND	ND	ND	216	130	ND	ND	ND	ND	ND	ND
20	WM1	ND	ND	ND	ND	ND	ND	ND	ND	317	ND	ND	ND	ND	ND	ND	ND
20	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	WM2	ND	ND	ND	ND	ND	ND	ND	ND	265	ND	ND	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	ND	ND	116	ND	ND	ND	ND	ND	ND	ND
21	YM1	ND	ND	ND	ND	ND	ND	ND	ND	649	213	ND	ND	ND	ND	ND	ND
21	WM3	ND	ND	ND	ND	ND	ND	ND	ND	1 432	170	ND	ND	ND	ND	ND	ND
21	COM	ND	ND	ND	ND	ND	ND	ND	ND	243	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
21	WM2	ND	ND	ND	ND	ND	ND	ND	ND	376	128	ND	ND	ND	ND	ND	
21	YM2	ND	ND	ND	ND	ND	ND	ND	ND	332	ND	ND	ND	ND	ND	ND	
21	WM3	ND	ND	ND	ND	ND	ND	ND	ND	178	ND	ND	ND	ND	ND	ND	
21	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
21	YM2	ND	ND	ND	ND	ND	510	136	50	1 141	ND	ND	ND	ND	ND	ND	
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	185	ND	ND	ND	ND	ND	ND	
21	YM1	ND	ND	ND	ND	ND	190	114	ND	217	ND	ND	ND	ND	ND	ND	
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	275	ND	ND	ND	ND	ND	ND	
21	WM2	ND	ND	ND	ND	ND	33	ND	ND	488	124	ND	ND	ND	ND	ND	
21	WM2	ND	ND	ND	ND	ND	ND	ND	ND	132	ND	ND	ND	ND	ND	ND	
21	YM2	ND	ND	ND	ND	ND	ND	ND	ND	361	ND	ND	ND	ND	ND	ND	
21	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
21	WM2	ND	ND	ND	ND	ND	58	ND	ND	467	105	ND	ND	ND	ND	ND	
22	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 515	262	ND	ND	ND	ND	ND	
22	COM	ND	ND	ND	ND	ND	ND	ND	ND	770	143	ND	ND	ND	ND	ND	
22	WM2	ND	ND	ND	ND	ND	ND	ND	ND	1 581	385	ND	ND	ND	ND	ND	
22	WM1	ND	ND	ND	ND	ND	ND	ND	ND	698	118	ND	ND	ND	ND	ND	
22	WM3	ND	ND	ND	ND	ND	ND	ND	ND	2 588	440	ND	ND	ND	ND	ND	
22	WM3	ND	ND	ND	ND	ND	ND	ND	ND	1 948	350	ND	ND	110	ND	ND	
22	WM2	ND	ND	ND	ND	ND	23	ND	ND	792	104	ND	ND	ND	ND	ND	
22	WM1	ND	ND	ND	ND	ND	ND	ND	ND	606	ND	ND	ND	ND	ND	ND	
22	WM3	ND	ND	ND	ND	ND	28	ND	ND	523	ND	ND	ND	ND	ND	ND	
22	WM2	ND	ND	ND	ND	ND	51	ND	ND	375	ND	ND	ND	22	ND	ND	
22	WM1	ND	ND	ND	ND	ND	ND	ND	ND	131	ND	ND	ND	ND	ND	ND	
22	YM2	ND	ND	ND	ND	ND	ND	ND	ND	431	131	ND	ND	ND	ND	ND	
23	WM2	ND	ND	ND	ND	ND	372	92	27	695	130	ND	40	ND	ND	ND	
23	WM1	ND	ND	ND	ND	ND	29	ND	ND	201	ND	ND	ND	ND	ND	ND	
23	YM1	ND	ND	ND	ND	ND	45	ND	ND	2 002	216	ND	39	ND	ND	ND	
23	WM2	ND	ND	ND	ND	ND	68	20	ND	720	123	ND	ND	ND	ND	ND	
23	COM	ND	ND	ND	ND	ND	ND	ND	ND	241	ND	ND	ND	ND	ND	ND	

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
23	COM	ND	ND	ND	ND	ND	49	ND	ND	49	538	142	ND	ND	ND	ND	ND
23	COM	ND	ND	ND	ND	ND	143	36	ND	179	237	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	23	ND	ND	23	356	ND	ND	ND	ND	ND	ND
23	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 387	489	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	843	151	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	339	ND	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	22	ND	ND	22	540	ND	ND	ND	20	ND	ND
23	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	7 700	1 072	ND	ND	52	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	668	108	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	514	ND	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	460	ND	ND	23	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	240	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	298	ND	ND	ND	ND	ND	ND
23	WM3	ND	ND	ND	ND	ND	63	ND	ND	63	221	ND	ND	ND	ND	ND	ND
23	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	896	125	ND	ND	ND	ND	ND
23	COM	ND	ND	ND	ND	ND	76	27	ND	103	1 052	194	ND	ND	ND	ND	ND
23	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	318	ND	ND	ND	ND	ND	ND
24	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 791	244	ND	ND	57	ND	ND
24	WM2	ND	ND	ND	ND	ND	225	48	ND	273	922	127	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	161	50	ND	211	1 291	198	ND	ND	70	ND	ND
24	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	258	84	ND	342	110	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	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	243	ND	ND	ND	ND	ND	ND
24	YM2	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	455	ND	ND	ND	ND	ND	ND
24	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 761	1 173	ND	ND	93	ND	ND
24	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 969	1 066	ND	ND	539	ND	ND
24	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 880	592	ND	ND	24	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
24	YM2	ND	ND	ND	ND	ND	43	ND	ND	ND	43	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	211	ND	ND	ND	ND	ND	ND
24	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	445	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	449	ND	ND	ND	ND	ND	ND
25	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	116	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	454	116	ND	ND	ND	ND	ND
25	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	176	ND	ND	ND	ND	ND	ND
25	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	396	112	ND	ND	ND	ND	ND
25	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	219	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 267	278	ND	ND	ND	ND	ND
26	WM3	ND	ND	ND	ND	ND	58	ND	ND	ND	1 088	142	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	167	44	ND	ND	339	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	109	ND	ND	ND	ND	ND	ND
26	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	223	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	26	ND	ND	ND	696	151	ND	ND	ND	ND	ND
26	COM	ND	ND	ND	ND	ND	156	71	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	157	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	942	403	75	1 420	1 166	211	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	147	ND	ND	ND	ND	ND	ND
26	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	322	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	394	162	ND	556	302	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	931	189	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	344	ND	ND	ND	ND	ND	ND
26	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	283	ND	ND	ND	ND	ND	ND
26	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	984	251	ND	ND	ND	ND	ND
27	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	104	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	369	ND	ND	ND	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	185	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	579	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
27	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	116	ND	ND	ND	ND	ND	ND	ND
27	WM3	ND	ND	ND	ND	ND	ND	ND	ND	965	166	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	400	ND	ND	ND	ND	ND	ND	ND
27	WM2	ND	ND	ND	ND	ND	ND	ND	ND	214	ND	ND	ND	ND	ND	ND	ND
27	YM2	ND	ND	ND	ND	ND	ND	ND	ND	122	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	167	26	ND	460	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	127	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	512	ND	ND	ND	ND	ND	ND	ND
28	COM	ND	ND	ND	ND	ND	26	ND	ND	566	ND	ND	ND	ND	ND	ND	ND
28	YM3	ND	ND	ND	ND	ND	ND	ND	ND	322	ND	ND	ND	ND	ND	ND	ND
28	WM2	ND	ND	ND	ND	ND	164	50	ND	368	ND	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	484	233	37	1 453	160	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	203	ND	ND	ND	ND	ND	ND	ND
28	WM1	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	192	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	389	ND	ND	ND	ND	ND	ND	ND
28	WM3	ND	ND	ND	ND	ND	ND	ND	ND	611	ND	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	ND	ND	ND	288	ND	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	369	ND	ND	ND	ND	ND	ND	ND
28	COM	ND	ND	ND	ND	ND	ND	ND	ND	1 115	256	ND	ND	ND	ND	ND	ND
28	YM1	ND	ND	ND	ND	ND	ND	ND	ND	1 419	180	ND	ND	ND	ND	ND	ND
28	YM2	ND	ND	ND	ND	ND	ND	ND	ND	2 150	256	ND	ND	ND	ND	ND	ND
28	WM1	ND	ND	ND	ND	ND	130	37	ND	398	ND	ND	ND	ND	ND	ND	ND
28	COM	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	440	124	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	22	ND	ND	285	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	105	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	475	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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						
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	431	ND	ND	25	ND	ND
29	YM2	ND	ND	ND	ND	ND	215	84	ND	998	ND	ND	ND	ND	ND
29	WM3	ND	ND	ND	ND	ND	515	281	42	5 225	612	ND	55	ND	ND
29	YM2	ND	ND	ND	ND	ND	68	ND	ND	352	ND	ND	ND	ND	ND
29	WM2	ND	ND	ND	ND	ND	349	133	42	1 338	121	ND	56	ND	ND
29	YM2	ND	ND	ND	ND	ND	31	ND	ND	1 538	333	ND	50	ND	ND
29	WM2	ND	ND	ND	ND	ND	ND	ND	ND	1 403	240	ND	ND	ND	ND
29	YM2	ND	ND	ND	ND	ND	145	42	ND	113	ND	ND	ND	ND	ND
29	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	67	ND	ND	ND	ND	ND	ND	ND	ND
29	WM1	ND	ND	ND	ND	ND	ND	ND	ND	208	ND	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	399	ND	ND	ND	ND	ND
29	COM	ND	ND	ND	ND	ND	ND	ND	ND	768	116	ND	ND	ND	ND
29	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	181	53	ND	945	183	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	591	283	ND	ND	ND	ND
30	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 585	194	ND	ND	ND	ND
30	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	224	ND	ND	ND	ND	ND
30	COM	ND	ND	ND	ND	ND	34	ND	ND	709	ND	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	440	169	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	101	ND	ND	ND	ND	ND
30	WM2	ND	ND	ND	ND	ND	ND	ND	ND	614	100	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	533	109	ND	ND	ND	ND
30	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	YM2	ND	ND	ND	ND	ND	ND	ND	ND	649	105	ND	ND	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	206	ND	ND	ND	ND	ND
30	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 857	222	ND	45	ND	ND
30	WM1	ND	ND	ND	ND	ND	ND	ND	ND	589	131	ND	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 687	300	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	504	ND	ND	ND	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	410	121	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	216	ND	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	519	ND	ND	55	ND	ND	ND
31	YM2	ND	ND	ND	ND	ND	610	316	38	964	788	195	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	55	ND	ND	55	1 110	224	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	457	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	165	ND	ND	ND	ND	ND	ND
31	COM	ND	ND	ND	ND	ND	373	102	53	528	ND	ND	ND	ND	ND	ND	ND
31	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	ND	ND	ND	ND	ND	ND
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	208	ND	ND	ND	ND	ND	ND
31	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	781	125	ND	ND	ND	ND	ND
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	182	81	ND	263	ND	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	771	273	40	1 084	798	116	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	189	50	ND	239	343	ND	ND	ND	ND	ND	ND
32	COM	ND	ND	ND	ND	ND	39	ND	ND	39	511	104	ND	ND	ND	ND	ND
32	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	441	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	707	265	63	1 035	ND	ND	ND	ND	ND	ND	ND
32	WM3	ND	ND	ND	ND	ND	52	20	ND	72	2 672	290	ND	270	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	997	148	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	650	278	33	961	582	ND	ND	ND	ND	ND	ND
32	YM2	ND	ND	ND	ND	ND	227	65	ND	292	230	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	835	155	92	1 082	1 243	190	ND	79	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	202	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	94	27	ND	121	231	ND	ND	ND	ND	ND	ND
32	YM1	ND	ND	ND	ND	ND	36	ND	ND	36	1 808	262	ND	ND	ND	ND	ND
32	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	482	ND	ND	ND	ND	ND	ND
32	WM1	ND	ND	ND	ND	ND	60	ND	ND	60	532	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	199	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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							
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	186	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	289	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	828	ND	ND	ND	ND	ND	ND
33	WM3	ND	ND	ND	ND	ND	2 651	984	276	3 911	291	ND	ND	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	395	129	33	557	165	ND	ND	ND	ND	ND	ND
33	WM2	ND	ND	ND	ND	ND	30	ND	ND	30	670	111	ND	ND	ND	ND	ND
33	YM2	ND	ND	ND	ND	ND	42	ND	ND	42	861	ND	ND	ND	35	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	ND	ND	ND	ND	ND	ND
33	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	230	ND	ND	ND	ND	ND	ND
33	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	271	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	365	152	23	540	2 096	346	ND	ND	ND	ND	ND
34	COM	ND	ND	ND	ND	ND	873	381	60	1 314	3 975	408	ND	ND	124	ND	ND
34	WM1	ND	ND	ND	ND	ND	351	126	29	506	454	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	208	ND	ND	ND	ND	ND	ND
34	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 302	501	ND	ND	60	ND	ND
34	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	905	ND	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	131	52	ND	183	425	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	416	ND	ND	ND	ND	ND	ND
34	WM2	ND	ND	ND	ND	ND	21	ND	ND	21	980	107	ND	ND	ND	ND	ND
34	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	175	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	263	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	62	22	ND	84	600	107	ND	ND	ND	ND	ND
34	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	364	ND	ND	ND	ND	ND	ND
34	YM1	ND	ND	ND	ND	ND	775	398	58	1 231	636	ND	ND	ND	ND	ND	ND
34	YM3	ND	ND	ND	ND	ND	75	38	ND	113	548	109	ND	ND	ND	ND	ND
34	COM	ND	ND	ND	ND	ND	21	ND	ND	21	1 392	165	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	1 942	565	195	2 702	226	ND	ND	ND	ND	ND	ND
35	YM1	ND	ND	ND	ND	ND	270	55	ND	325	ND	ND	ND	ND	ND	ND	ND
35	WM1	ND	ND	ND	ND	ND	192	61	ND	253	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2019/20 (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									
35	WM1	ND	ND	ND	ND	ND	48	ND	ND	ND	48	ND	ND	ND	ND	ND	ND	ND	
35	YM1	ND	ND	ND	ND	ND	128	42	ND	ND	170	ND	ND	ND	ND	ND	ND	ND	
35	YM1	ND	ND	ND	ND	ND	31	ND	ND	ND	31	ND	ND	ND	ND	ND	ND	ND	
36	WM2	ND	ND	ND	ND	ND	61	26	ND	1 954	87	152	ND	36	ND	ND	ND	ND	
36	YM2	ND	ND	ND	ND	ND	36	ND	ND	779	36	ND	23	ND	ND	ND	ND	ND	
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	167	ND	ND	ND	ND	ND	ND	ND	ND	
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	687	ND	ND	28	ND	ND	ND	ND	ND	
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	721	ND	110	ND	ND	ND	ND	ND	ND	
36	WM2	ND	ND	ND	ND	ND	178	101	ND	2 105	279	136	37	ND	ND	ND	ND	ND	
36	COM	ND	ND	ND	ND	ND	ND	ND	ND	1 010	ND	ND	ND	ND	ND	ND	ND	ND	
36	COM	ND	ND	ND	ND	ND	469	156	36	349	661	ND	ND	ND	ND	ND	ND	ND	
36	WM2	ND	ND	ND	ND	ND	ND	ND	ND	199	ND	ND	ND	ND	ND	ND	ND	ND	
36	WM2	ND	ND	ND	ND	ND	ND	ND	ND	668	ND	113	ND	ND	ND	ND	ND	ND	
36	YM2	ND	ND	ND	ND	ND	ND	ND	ND	744	ND	ND	ND	ND	ND	ND	ND	ND	
36	YM1	ND	ND	ND	ND	ND	21	ND	ND	733	21	ND	ND	ND	ND	ND	ND	ND	
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	824	ND	ND	ND	ND	ND	ND	ND	ND	
36	YM2	ND	ND	ND	ND	ND	ND	ND	ND	1 353	ND	184	ND	ND	ND	ND	ND	ND	
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	1 231	ND	110	78	ND	ND	ND	ND	ND	
36	WM1	ND	ND	ND	ND	ND	ND	ND	ND	221	ND	ND	ND	ND	ND	ND	ND	ND	
36	YM1	ND	ND	ND	ND	ND	ND	ND	ND	399	ND	ND	ND	ND	ND	ND	ND	ND	
Total number of samples		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	
Average of total number of samples		0	0	0	0	0	103	32	7	656	143	82	0	9	0	0	0	0	
Number of positive results		1	0	0	0	1	121	75	33	299	121	120	0	44	0	0	0	0	
Average of positive results		10	-	-	-	10	299	152	71	768	413	238	-	70	-	-	-	-	
Maximum of positive results		10	-	-	-	10	4 565	990	373	7 700	5 928	1 173	-	539	-	-	-	-	

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 2010/11 TO 2019/20

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.
**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
**2019/20	890	350	1	0	10	361	0	5 928	898	0	7 700	43	0	539	0	0	0	0	0	0
Total	9 141	3 475																		
	Min.		0			0				0		0				0			0	
	Max.				143			34 740			11 181			957						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 2020, 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 2019/20 season maize samples were measured with the NIT on the SAGL Milling Index 2020 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 2017/18 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 are:

- 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 2019/20 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 890 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 (In house method 026) 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	Tradename/Brand
Cry1Ab	MON810 Cry1A.105 Bt11	YieldGard®
Cry2Ab	MON89034	in SmartStax™
CP4 EPSPS	NK603	Roundup Ready®



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)
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)

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Mrs H Meyer

Issue No.: 30**Date of Issue:** 24 May 2021**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)
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
Food and feed	Multi-Mycotoxin: -Aflatoxin G ₁ , B ₁ , G ₂ , B ₂ and total -Deoxynivalenol (DON), 15-ADON -Fumonisin B ₁ , B ₂ , B ₃ -Ochratoxin A -T2, HT-2 -Zearalenone	In-house method 026
GRADING		
Maize	Defective kernels (White maize/ yellow maize)	Government Gazette Maize Regulation, Latest Edition
Cereal as grains (Wheat, barley, rye and oats)	Hectolitre mass (Kern222)	ISO 7971-3, Latest edition
Wheat	Screenings	Government Gazette Wheat Grading Regulation, Latest Edition
RHEOLOGICAL		
Wheat flour	Alveograph (Rheological properties)	ICC Std.121, Latest Edition
Flours	Farinograph (Rheological properties)	AACCI 54.02, Latest Edition (Rheological behaviour of flour Farinograph: Constant Flour Weight procedure)
Hard, soft and durum wheat (flour and whole wheat flour)	Mixograph (Rheological properties)	Industry accepted method 020 (Based on AACCI 54-40.02, Latest Edition Mixograph Method)

Original Date of Accreditation: 01 November 1999

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM


Accreditation Manager

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**

	Maximum permissible deviation/ Maksimum toelaatbare afwyking					
Deviation/Afwyking	White maize/ Witmielies			Yellow maize/ Geelmielies		
	WM1	WM 2	WM 3	YM1	YM2	YM3
1	2	3	4	5	6	7
1. Foreign matter [regulation 15]/ Vreemde voorwerpe [regulasie 15]	0,3%	0,5%	0,75 %	0,3%	0,5%	0,75%
2. Defective maize kernels, above and below the 6,35 mm round-hole sieve [regulations 16]/ <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

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FAX COVER SHEET

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FAX:	(012) 319 6055	SERIAL NO:
NO. PAGES:	1	DATE: 15 April 2010

Subject

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

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

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

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

ANNEXURE/AANHANGSEL
TABLE/TABEL

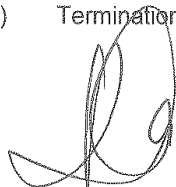
STANDARDS FOR GRADES OF CLASS WHITE MAIZE AND CLASS YELLOW MAIZE/
STANDAARDE VIR GRADE VAN KLAS WITMIELIES EN KLAS GEELMIELIES

Deviation/Afwyking	Maximum permissible deviation/ Maksimum toelaatbare afwyking					
	White maize/ Witmielies			Yellow maize/ Geelmielies		
	WM 1	WM2	WM3	YM1	YM2	YM3
1	2	3	4	5	6	7
6. Deviations referred to in items 1, 2, 3, 4 and 5 collectively: Provided that the deviations are individually within the specified limits/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



