South African Maize Crop

Quality Report 2021/2022 Season

Index

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South African

Commercial Maize Quality 2021/2022

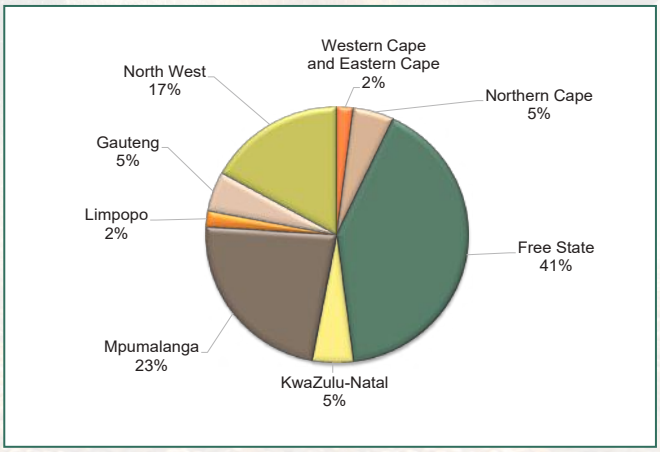
Acknowledgments
With gratitude to:

- 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 2022 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 105. A total of 1 000 composite samples, representing white and yellow maize of each production region, were received and analysed to determine the quality. The samples consisted of 524 white and 476 yellow maize samples.

Graph 1: Provincial contribution to the production of the 2021/22 maize crop



Figures provided by the CEC.

The quality attributes tested, 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 60 samples representative of white and yellow maize produced per region.

Please refer to pages 105 - 109 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 25th 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 114 to 122.

The goal of this crop quality survey is to accumulate quality data on the commercial maize crop on a national level. This valuable data reveals general tendencies, highlights quality differences in the commercial maize produced in different local production regions and provides 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.

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 database.

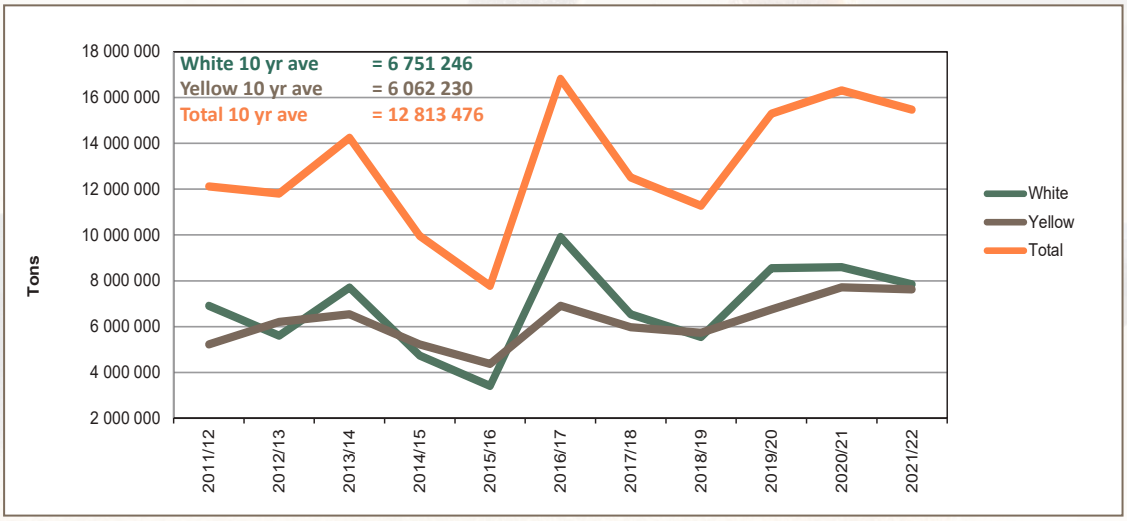
As part of the project, the possibility was explored to develop a Geographic Information System (GIS) map system, where grain production regions (with the boundaries illustrated) are presented on a map of South Africa. SIQ (with additional data from Agbiz Grain on the regional boundary specifications) 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 2021/22 season's commercial maize crop as overseen by the National Crop Estimates Liaison Committee (CELC) is 15 470 million tons, the third largest maize crop on record. Although this figure represents a year-on-year decrease of just more than 5%, it is still almost 21% higher than the previous 10-year crop average (12 813 million tons). White maize's contribution to the total production was 7 850 million tons (50.7%) and that of yellow maize 7 620 million tons (49.3%).

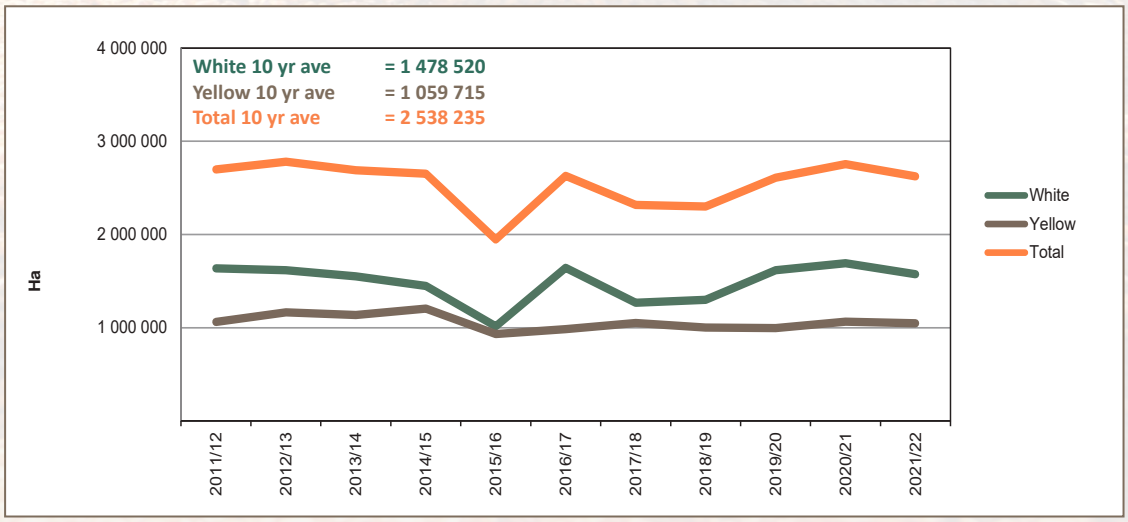
The national Crop Estimates Committee's (CEC) estimated total production figures were revised, using the South African Grain Information Services' (SAGIS) published figures of actual deliveries as basis for the calculations. Figures from the maize utilisation survey, conducted by the Department of Agriculture, 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 2011/12 to 2021/22



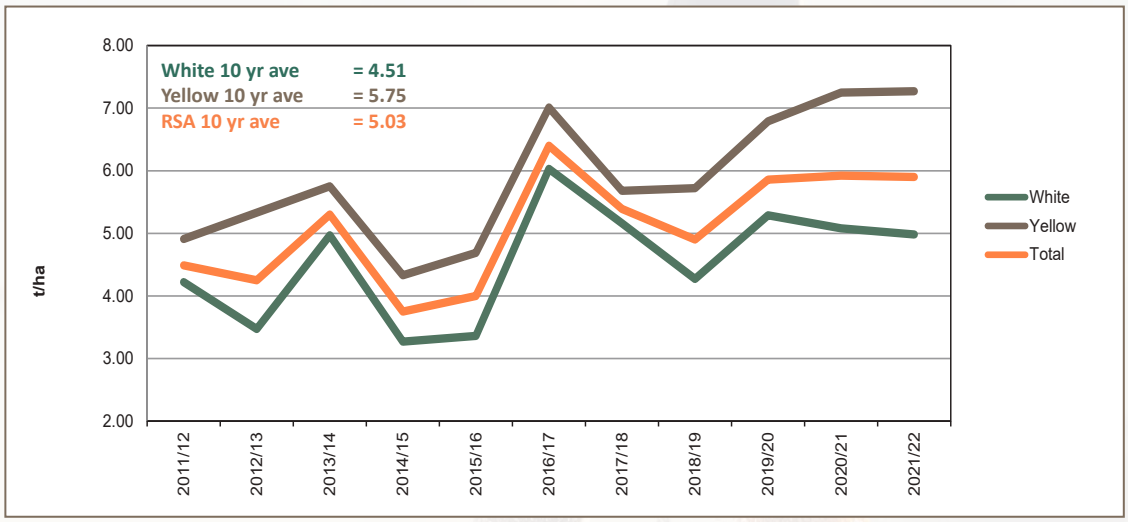
The total area utilised for maize production in the 2021/22 season was 2 623 000 hectares, representing a decrease of 4.8% compared to the previous season but still 3.3% higher than the previous 10-year average. White maize was planted on 1 575 000 hectares and yellow maize on 1 048 000 hectares (1 691 900 and 1 063 500 hectares respectively in the 2020/21 season).

Graph 3: Total RSA area utilised for maize production from 2011/12 to 2021/22



The maize yield of 5.90 tons per hectare (t/ha) this season, was almost equal to the 5.92 t/ha of the previous season. The previous 10-year average is 5.03 t/ha. White maize yielded 4.98 t/ha and yellow maize 7.27 t/ha (5.08 t/ha and 7.25 t/ha respectively last season).

Graph 4: RSA Maize yield from 2011/12 to 2021/22



The maize area planted in the non-commercial agricultural sector is estimated at 378 800 ha, representing a 4.4% increase compared to the 362 900 ha of the previous season. The expected maize crop is 667 000 tons for this sector, which is 4.8% more than last season. Approximately 47% of non-commercial maize is produced in the Eastern Cape, followed by KwaZulu-Natal with 22%.

Table 1: Maize production overview - 2021/22 season

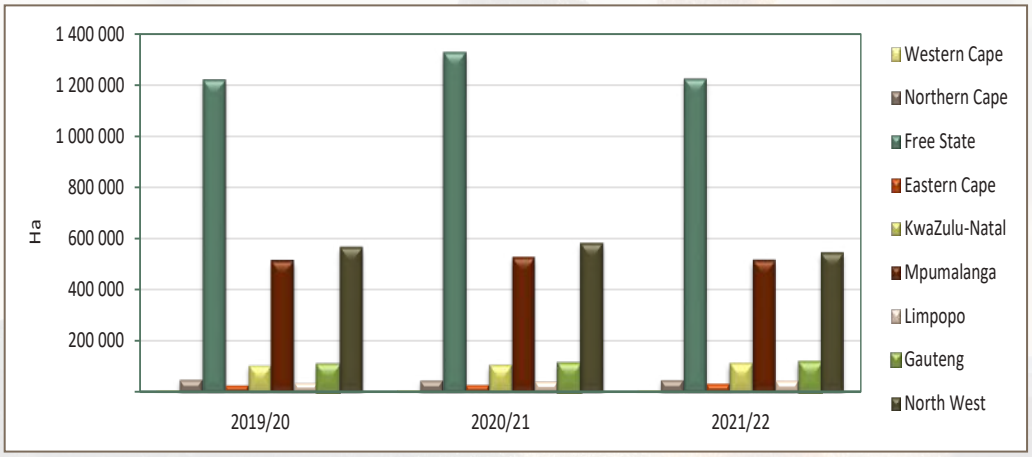
Province	Type of production	White			Yellow		
		Hectares planted, ha	Production, tons	Yield, t/ha	Hectares planted, ha	Production, tons	Yield, t/ha
Western Cape	Dryland	-	-	-	-	-	-
	Irrigation	500	4 750	9.50	3 500	32 900	9.40
	Total	500	4 750	9.50	3 500	32 900	9.40
Northern Cape	Dryland	-	-	-	-	-	-
	Irrigation	3 000	36 000	12.00	42 000	672 000	16.00
	Total	3 000	36 000	12.00	42 000	672 000	16.00
Free State	Dryland	812 000	3 665 900	4.51	364 000	2 141 500	5.88
	Irrigation	14 500	136 000	9.38	34 000	406 300	11.95
	Total	826 500	3 801 900	4.60	398 000	2 547 800	6.40
Eastern Cape	Dryland	4 200	18 850	4.49	14 000	73 400	5.24
	Irrigation	1 800	21 950	12.19	6 500	84 500	13.00
	Total	6 000	40 800	6.80	20 500	157 900	7.70
KwaZulu-Natal	Dryland	43 500	238 000	5.47	41 500	307 000	7.40
	Irrigation	8 500	84 400	9.93	17 500	182 700	10.44
	Total	52 000	322 400	6.20	59 000	489 700	8.30
Mpumalanga	Dryland	156 000	979 000	6.28	332 000	2 348 000	7.07
	Irrigation	9 000	93 500	10.39	18 000	206 000	11.44
	Total	165 000	1 072 500	6.50	350 000	2 554 000	7.30
Limpopo	Dryland	7 000	20 650	2.95	11 000	45 700	4.15
	Irrigation	8 500	81 650	9.61	14 000	156 800	11.20
	Total	15 500	102 300	6.60	25 000	202 500	8.10
Gauteng	Dryland	53 300	329 600	6.18	48 200	314 300	6.52
	Irrigation	3 200	32 000	10.00	7 800	88 900	11.40
	Total	56 500	361 600	6.40	56 000	403 200	7.20
North West	Dryland	435 000	1 980 250	4.55	83 000	434 000	5.23
	Irrigation	15 000	127 500	8.50	11 000	126 000	11.45
	Total	450 000	2 107 750	4.68	94 000	560 000	5.96
RSA	Dryland	1 511 000	7 232 250	4.79	893 700	5 663 900	6.34
	Irrigation	64 000	617 750	9.65	154 300	1 956 100	12.68
	Total	1 575 000	7 850 000	4.98	1 048 000	7 620 000	7.27

Figures provided by the CEC.

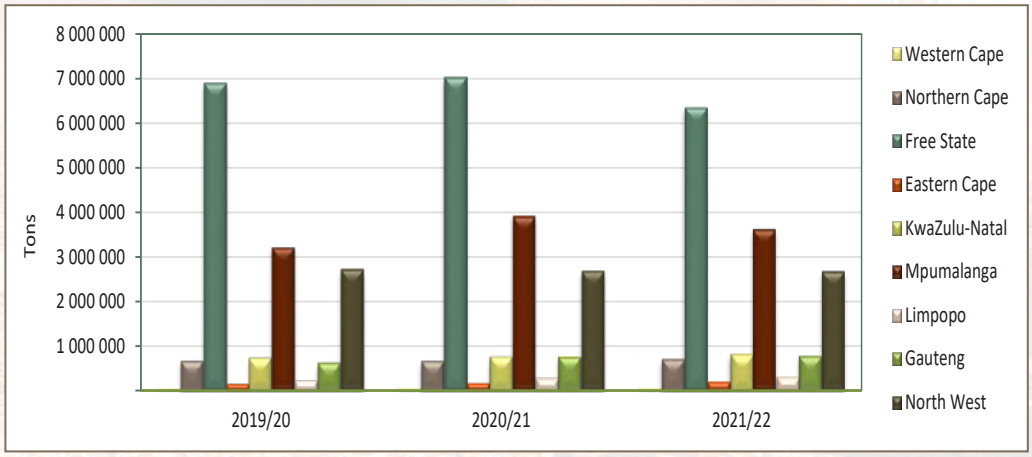
The major commercial maize-producing provinces are the Free State, Mpumalanga and North West, contributing 82% of the total maize production in the RSA. The Free State produced 6 349 700 tons of maize on 1 224 500 hectares with a yield of 5.19 t/ha. Mpumalanga produced 3 626 500 tons of maize on 515 000 hectares with a yield of 7.04 t/ha and North West harvested 2 667 750 tons of maize on 544 000 hectares yielding 4.90 t/ha. Yellow maize contributed 70% of the total maize production in Mpumalanga while the majority of maize produced in the Free State (60%) and North West (79%) was white.

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

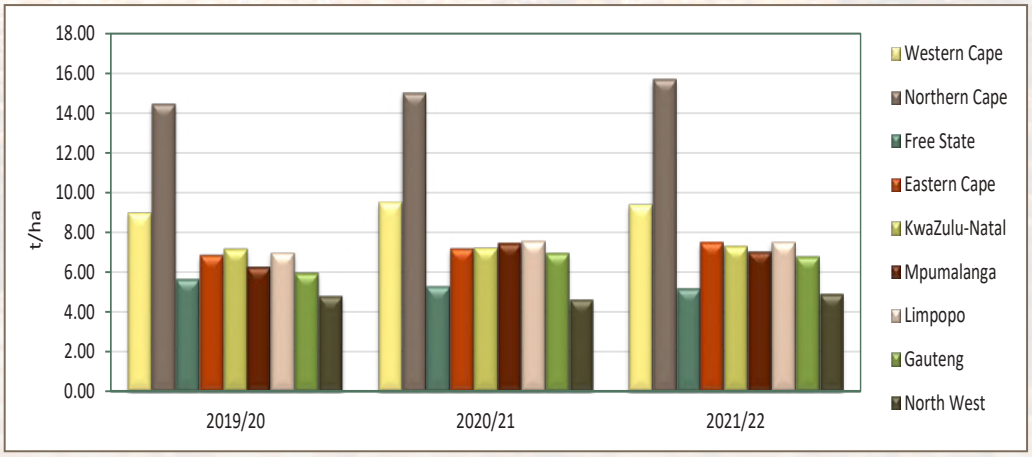
Graph 5: Area utilised for maize production per province over three seasons



Graph 6: Maize production per province over three seasons



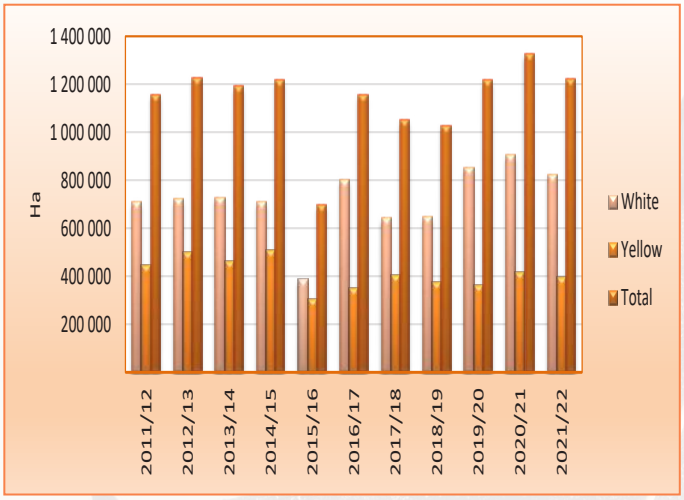
Graph 7: Maize yield per province over three seasons



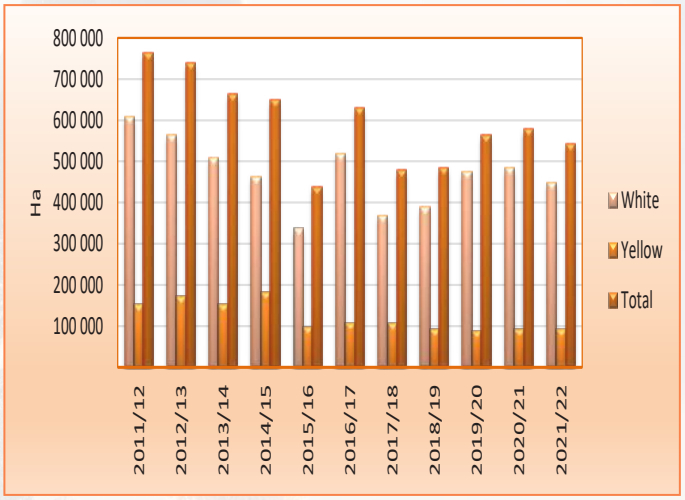
Figures provided by the CEC.

Graphs 8 to 13 provide an overview of the area planted and production figures for the Free State, Mpumalanga and North West from the 2011/12 to 2021/22 seasons.

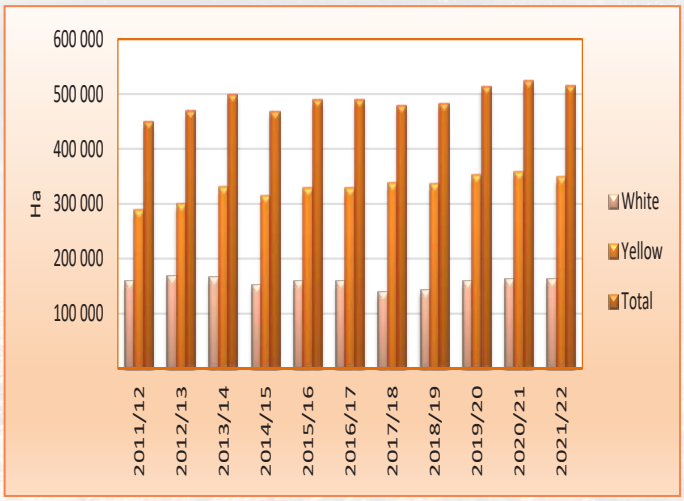
Graph 8: Area utilised for maize production in the Free State since 2011/12



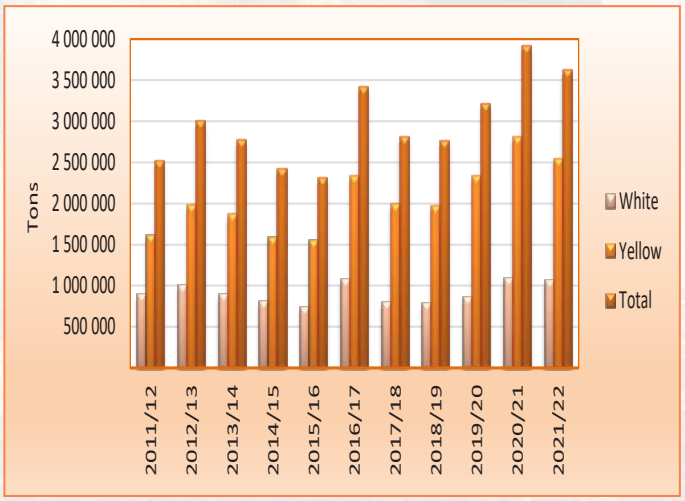
Graph 9: Maize production in the Free State since 2011/12



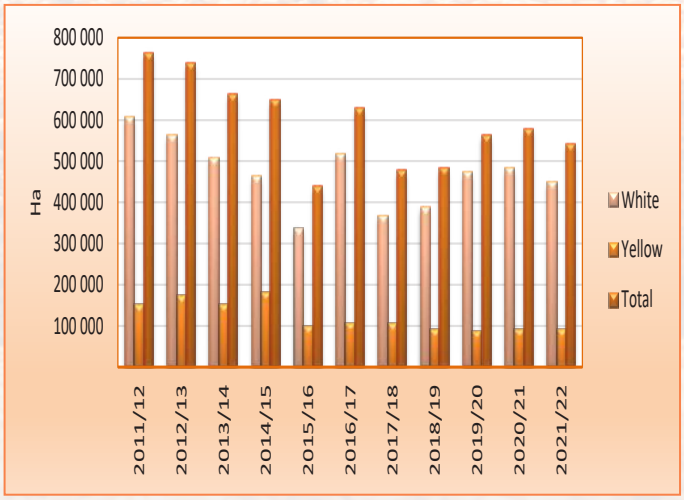
Graph 10: Area utilised for maize production in Mpumalanga since 2011/12



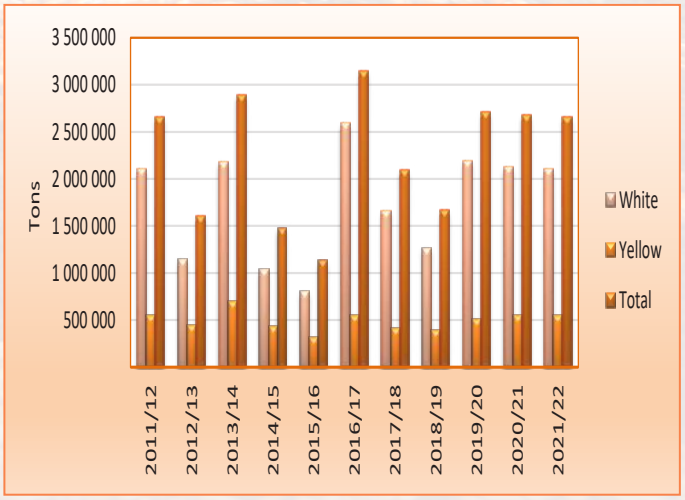
Graph 11: Maize production in Mpumalanga since 2011/12



Graph 12: Area utilised for maize production in North West since 2011/12



Graph 13: Maize production in North West since 2011/12



Figures provided by the CEC.

Supply and Demand

World maize production for the 2021/22 season was set at 1 224.2 million tons according to the *International Grains Council Grain Market Report GMR 546 – 17 August 2023,* with the major maize producing countries being the USA, China and Brazil. The USA, Argentina, Ukraine and Brazil are the biggest exporters of maize. Maize usage figures are 137.5, 308.4 and 723.3 million tons respectively for food, industrial and feed purposes. World production for the 2022/23 season is estimated at 1 160.4 million tons and the 2023/24 figure is forecasted to be 1 220.8 million tons.

According to *The Bureau for Food and Agricultural Policy (BFAP) Baseline, Agricultural Outlook 2022 – 2031,* demand prospects for the various field crops differ owing to differences in use and marketing channels. Grains such as white maize and sorghum are predominantly consumed as staple foods. While the bulk of yellow maize consumption is attributed to the animal feed industry, where it provides the primary energy source in most feed rations.

The most widely consumed grain-based food in South Africa is maize meal. Per capita maize consumption is projected to rise by 0.5% per annum over the ten-year period, following a decline of 0.1% per annum in the previous decade. Combined with population growth, this supports growth of 11% in white maize consumption by 2031 compared to the 2019-21 base period.

Despite slower growth in the demand for animal protein in South Africa, the commitments made in the Poultry Masterplan still imply some growth in the demand for animal feed over the coming decade, albeit at a slower rate than the past. The Poultry Masterplan ought to result in some import replacement and consequently a decline in the share of imported products in domestic consumption, combined with export led expansion in the beef sector. Accordingly, yellow maize consumption as animal feed is projected to rise by 19% over the next 10 years.

White maize area increased sharply in 2020 & 2021, then contracted slightly in 2022. Following another spike in 2023, it is expected to trend downwards by 11%, relative to the 2019-21 average level, over the rest of the outlook period to 2031. Nevertheless, the expected 1.37 million hectares under white maize by 2031 will still exceed the levels observed in 2018 and 2019. The area planted to yellow maize is expected to stabilise at similar levels to the recent past, just exceeding 1 million hectares by 2031.

Considering the changes in area in conjunction with projected yields, by comparing 2031 to the 2019-2021 base period, fairly consistent yield gains are reflected. This reflection is based on continuous improvements in cultivar technology, as well as a consistent evolution of production practices and area dynamics. The largest yield gains are expected for sunflower and white maize – both commodities where area is expected to decline from current levels.

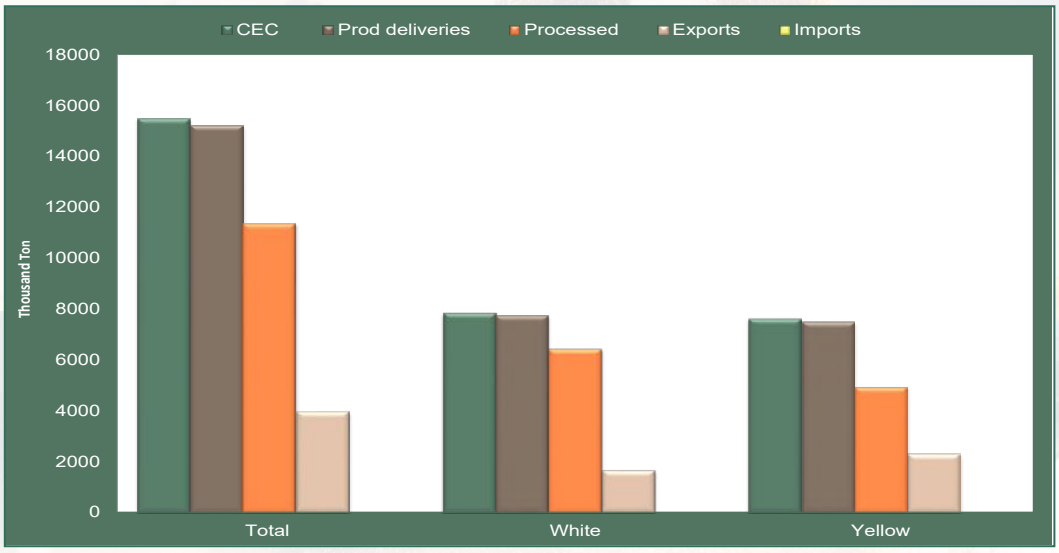
In white maize, this gain is projected at 20%. This is sufficient to ensure ample production for South Africa and provide an exportable surplus into neighbouring markets. For commodities where area is stable or expanding, such as yellow maize and soybeans, yield gains are more moderate at 11%. In the case of yellow maize, growth seems slower, but from an abnormally high base following exceptional years in 2020 and 2021. The baseline yield path assumes a return to longer term norms in terms of weather conditions.

As mentioned, production is still expected to be sufficient to sustain an exportable surplus, albeit smaller than the recent past. While projections reflect the assumption of stable weather conditions, the reality is that this surplus, and the associated prices, will fluctuate in line with weather dynamics. In normal years, the exportable surplus is expected to average around 1.5 million tons. This

comprises approximately 700 thousand tons of yellow maize, predominantly into the global market, and 800 thousand tons of white maize into the rest of the Southern African region. Despite competition from Zambia as a competitive supplier of non-GM maize, countries such as Mozambique, Namibia and Botswana continue to rely on South Africa as a consistent supplier, with additional export opportunities often emerging from Zambia's tendency to control export volumes when supplies decline.

Local Supply and Demand figures, compiled by SAGIS, are provided in the graph below and in tables and graphs on pages 9 to 14.

Graph 14: Maize supply and demand overview 2022/23 marketing season



Information provided by SAGIS.

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

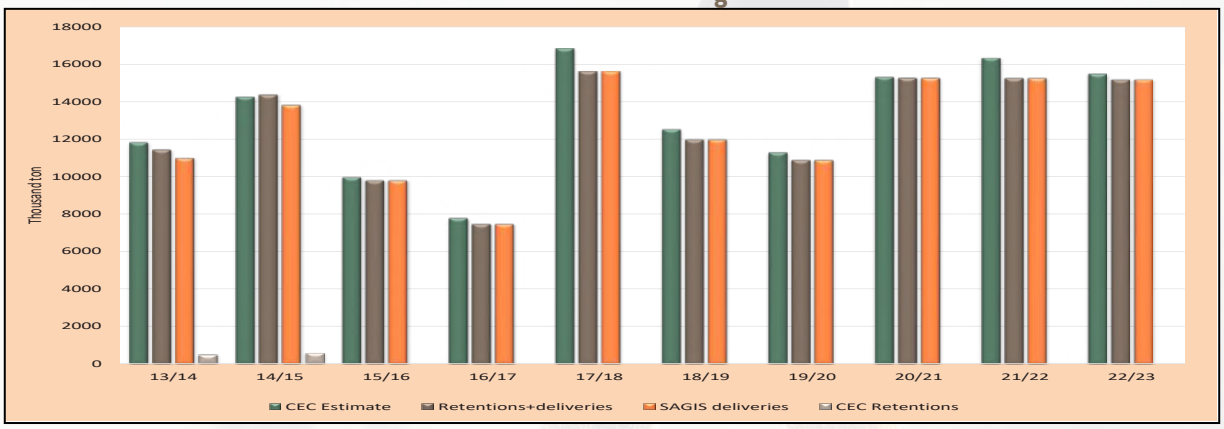
TOTAL MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2023-08-25

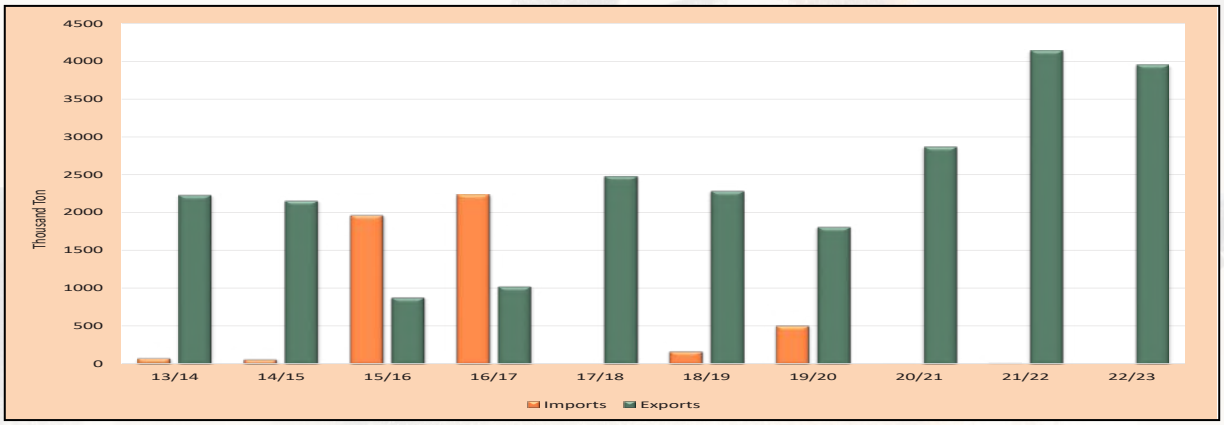
	Marketing Season (May - Apr)																			Current Season May - Jul	10 Year average
Season	**04/05**	**05/06**	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**2013/14 - 2022/23**
																				***	
																				3	
CEC (Crop Estimate)	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	16 315 000	15 470 000	16 354 100	13 148 410
CEC (Retention)	410 000	754 000	480 000	337 000	554 000	389 000	527 000	474 000	433 000	457 810	550 000	0	0	0	0	0	0	0	0	0	100 781
SUPPLY																					
Opening stock (1 May)	2 624 000	3 148 000	3 169 000	2 070 000	1 049 000	1 581 000	2 131 000	2 336 000	994 000	1 417 393	589 028	2 073 635	2 471 067	1 094 638	3 689 476	2 663 086	1 000 601	2 116 906	2 124 219	1 953 931	1 924 005
Prod deliveries*	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	11 983 852	10 887 053	15 278 983	15 266 562	15 189 328	12 671 905	12 631 802
Imports	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	7 583	0	0	503 464
Surplus	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	20 079	43 389	24 045	915	42 479
Total Supply	**11 936 000**	**13 563 000**	**10 839 000**	**10 101 000**	**13 005 000**	**13 305 000**	**14 224 000**	**13 151 000**	**12 976 000**	**12 611 678**	**14 508 063**	**13 884 507**	**12 221 827**	**16 769 977**	**15 867 123**	**14 087 764**	**16 300 126**	17 434 440	**17 337 592**	**14 626 751**	**15 102 310**
DEMAND																					
Processed	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	11 201 202	11 087 127	11 353 240	2 976 006	10 510 153
-human	3 740 000	3 825 000	3 816 000	3 809 000	4 524 000	4 471 000	4 513 000	4 512 000	4 499 000	4 582 310	4 840 021	4 698 482	4 809 221	4 993 476	5 160 772	5 387 572	5 657 836	5 171 981	5 387 927	1 529 911	5 068 960
-animal/industrial	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	5 527 649	5 897 871	5 948 222	1 441 856	5 413 569
-gristing	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	15 717	17 275	17 091	4 239	27 625
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	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	35 736	36 663	28 857	9 623	77 078
Released to end-consumers	351 000	340 000	235 000	230 000	220 000	378 000	526 000	484 000	478 000	280 432	205 577	186 296	157 460	180 544	151 643	99 815	69 329	48 882	36 453	5 316	141 643
Net receipts(-)/disp(+)	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	9 163	2 338	3 434	-1 528	11 771
Deficit	49 000	12 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11 871	0	1 187
Total Exports	832 000	2 237 000	597 000	534 000	2 269 000	1 796 000	2 194 000	2 575 000	1 946 000	2 232 596	2 155 724	879 811	1 026 302	2 481 708	2 284 058	1 809 573	2 867 790	4 135 211	3 949 806	1 416 204	2 382 258
Products	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	320 926	403 225	297 531	100 404	253 975
African Countries	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	282 678	360 891	247 012	92 273	200 916
Other Countries	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	38 248	42 334	50 519	8 131	53 059
Whole maize	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	2 546 864	3 731 986	3 652 275	1 315 800	2 128 283
Border Posts	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	1 380 017	764 557	837 958	190 719	853 783
Harbours	141 000	832 000	60 000	0	830 000	967 000	1 437 000	1 862 000	1 200 000	1 134 164	1 264 326	8 594	32 868	1 697 142	1 439 894	217 999	1 166 847	1 166 847	2 814 317	1 125 081	1 094 300
Total Demand	**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**	**13 080 501**	**13 204 037**	**13 087 163**	**14 183 220**	15 310 221	**15 383 661**	**4 405 621**	**13 124 651**
Ending Stock (30 Apr)	**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**	**2 116 906**	2 124 219	**1 953 931**	**10 221 130**	**1 977 659**
- processed p/month	606 900	621 800	638 300	669 100	717 800	721 500	738 100	745 100	744 583	779 056	827 210	854 083	819 892	858 307	890 915	925 534	933 434	923 927	946 103	992 002	875 846
- months' stock	5.2	5.1	3.2	1.6	2.2	3.0	3.2	1.3	1.9	0.8	2.5	2.9	1.3	4.3	3.0	1.1	2.3	2.3	2.1	10.3	2

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

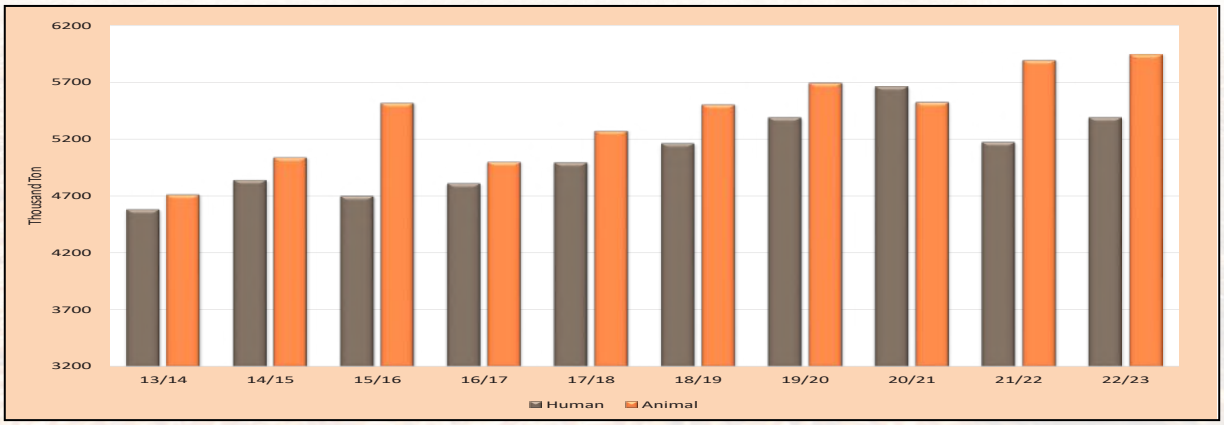
Graph 15: Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



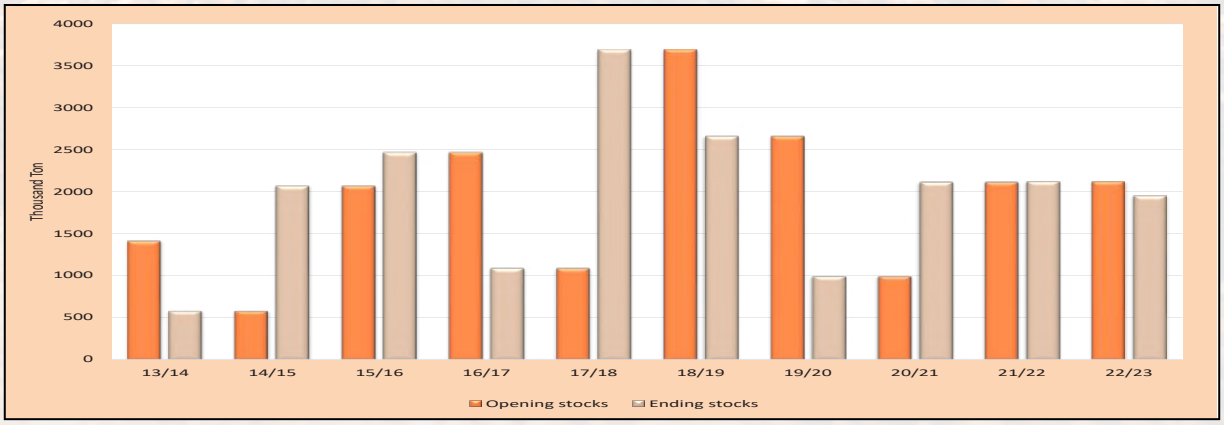
Graph 16: Maize: Imports and exports over 10 marketing seasons



Graph 17: Maize: RSA consumption over 10 marketing seasons



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



Information provided by SAGIS.

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

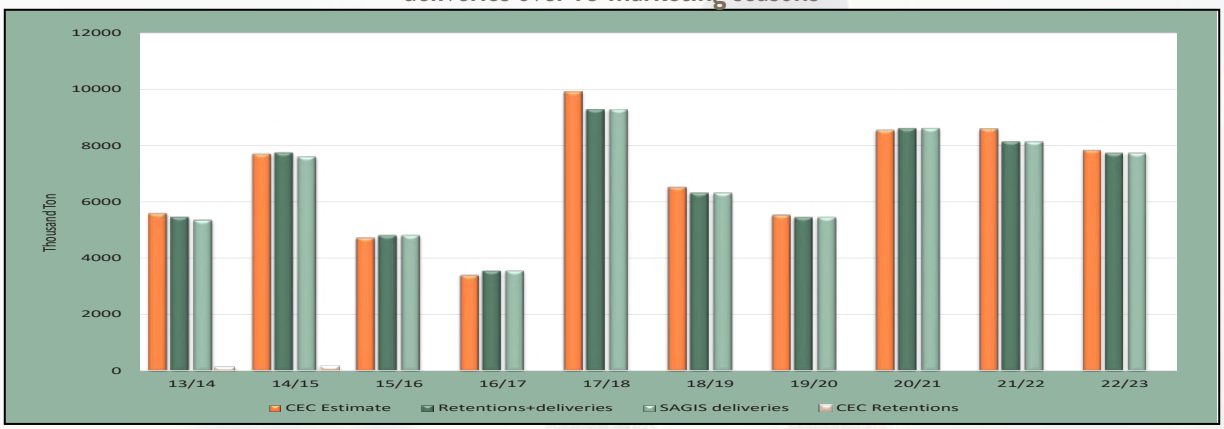
WHITE MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2023-08-25

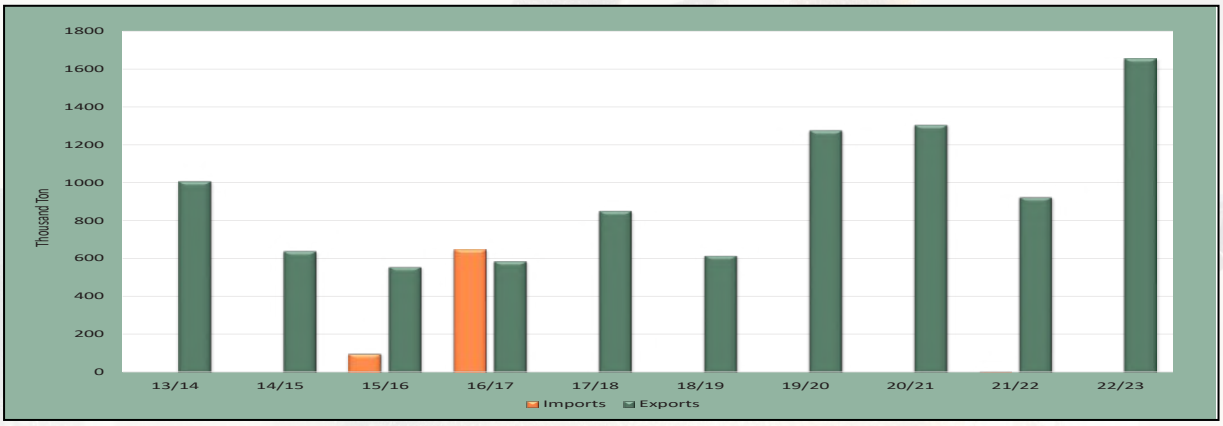
	Marketing Season (May - Apr)																			Current Season May - Mar	10 Year average
Season	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	2013/14 - 2022/23
																				***	
																				3	
CEC (Crop Estimate)	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	8 547 500	8 600 000	7 850 000	8 637 950	6 845 880
CEC (Retention)	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	0	0	0	26 091
SUPPLY																					
Opening stock (1 May)	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	1 354 953	1 465 537	1 082 640	1 174 192
Prod deliveries*	5 647 000	6 108 000	4 392 000	4 309 000	7 190 000	6 737 000	7 518 000	6 105 000	6 880 000	5 342 204	7 592 893	4 808 279	3 551 822	9 268 593	6 308 941	5 442 474	8 606 334	8 135 392	7 723 640	6 781 059	6 678 057
Imports	0	0	1 000	46 000	0	0	0	133 000	11 000	0	0	100 803	644 144	0	0	0	0	7 583	0	0	75 253
Surplus	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	11 215	25 495	0	2 665	18 800
Total Supply	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	9 091 513	9 523 423	9 189 177	7 866 364	7 946 302
DEMAND																					
Processed	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	6 410 756	7 116 774	6 421 561	1 862 039	5 753 839
-human	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	5 073 886	4 697 765	4 827 300	1 386 082	4 535 754
-animal/industrial	733 000	543 000	787 000	1 142 000	662 000	362 000	1 658 000	1 202 000	904 000	651 925	1 469 002	118 522	86 153	2 061 649	1 677 236	629 076	1 325 959	2 407 049	1 583 331	473 442	1 200 990
-gristing	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	10 911	11 960	10 930	2 515	17 095
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	107 000	101 000	112 000	107 000	111 000	81 000	108 000	46 000	36 000	32 409	36 940	13 385	14 083	35 885	12 844	13 111	10 089	13 766	15 442	6 690	19 795
Released to end-consumers	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	5 827	3 404	1 905	123	18 344
Net receipts(-)/disp(+)	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	5 413	-492	1 233	-436	3 670
Deficit	38 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5 605	0	0	11 871	0	1 748
Total Exports	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	1 304 475	924 434	1 654 525	240 577	942 172
Products	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	182 824	189 492	155 871	70 393	117 990
African Countries	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	182 297	186 977	153 806	70 342	113 026
Other Countries	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	2 515	2 065	51	4 965
Whole maize	668 000	1 786 000	460 000	400 000	1 897 000	1 408 000	1 049 000	1 734 000	1 400 000	926 046	547 500	473 427	546 381	809 931	544 371	1 038 909	1 121 651	734 942	1 498 654	170 184	824 181
Border Posts	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	953 736	560 540	616 837	146 144	604 244
Harbours	141 000	576 000	60 000	0	656 000	842 000	540 000	1 295 000	938 000	198 057	9 372	0	26 181	392 604	146 714	202 313	167 915	174 402	881 817	24 040	219 938
Total Demand	5 368 000	6 213 000	5 084 000	5 386 000	7 071 000	6 185 000	7 316 000	7 347 000	6 674 000	5 894 959	6 593 438	4 901 270	4 937 990	7 459 528	6 939 999	6 767 508	7 736 560	8 057 886	8 106 537	2 108 993	6 739 568
Ending Stock (30 Apr)	2 402 000	2 301 000	1 630 000	618 000	762 000	1 362 000	1 609 000	518 000	757 000	274 318	1 282 581	1 307 867	597 837	2 428 653	1 798 998	473 964	1 354 953	1 465 537	1 082 640	5 757 371	1 206 735
- processed p/month	359 400	348 800	365 400	395 900	410 200	379 600	489 300	447 800	420 583	400 723	488 537	359 975	360 982	544 497	523 610	454 118	534 230	593 065	535 130	620 680	479 487
- months' stock	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	2.5	2.5	2.0	9.3	3

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

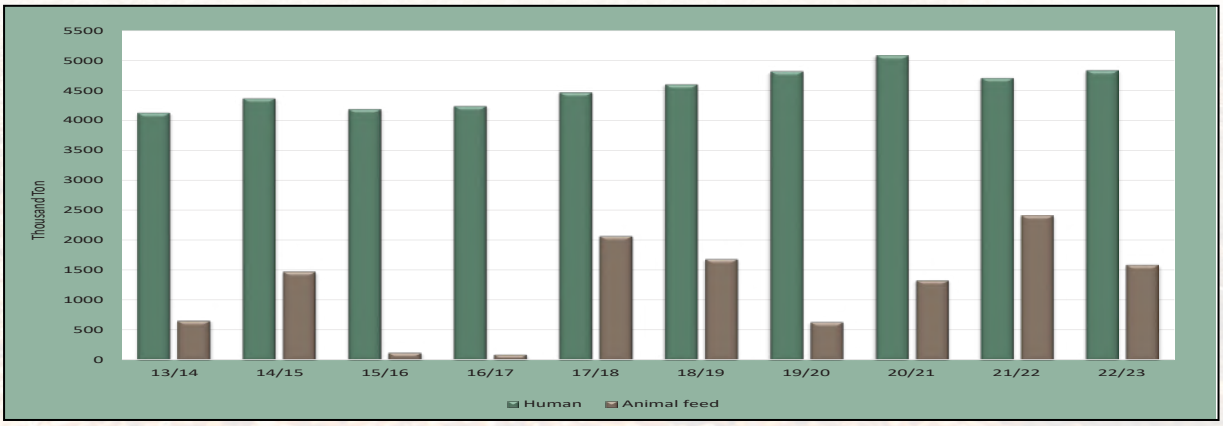
Graph 19: White Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



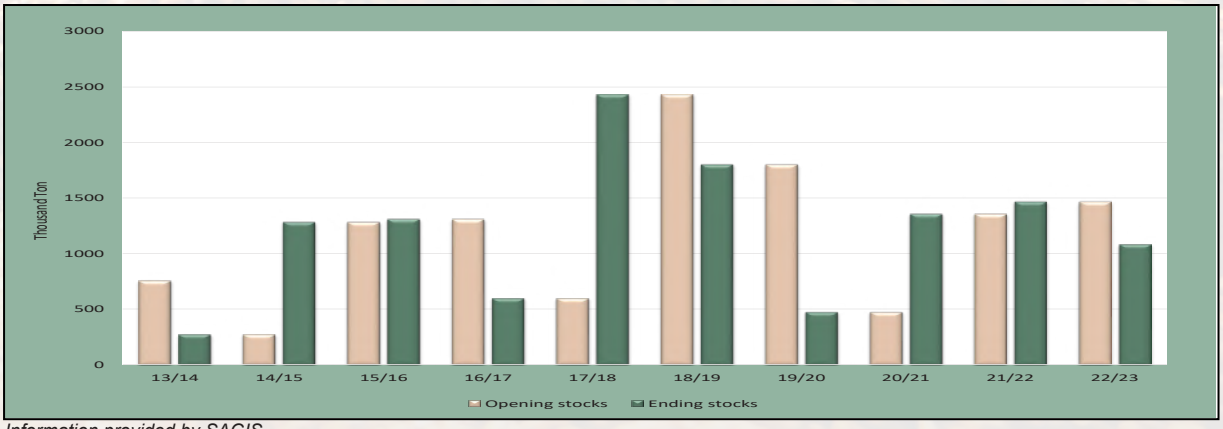
Graph 20: White Maize: Imports and exports over 10 marketing seasons



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



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



Information provided by SAGIS.

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

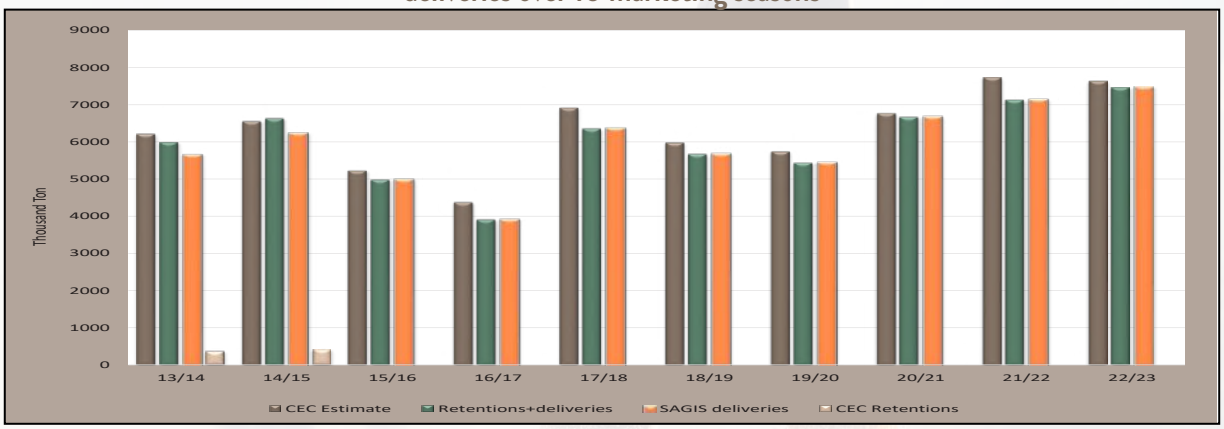
YELLOW MAIZE: SUPPLY AND DEMAND TABLE BASED ON SAGIS' INFO (TON)

Publication date: 2023-08-25

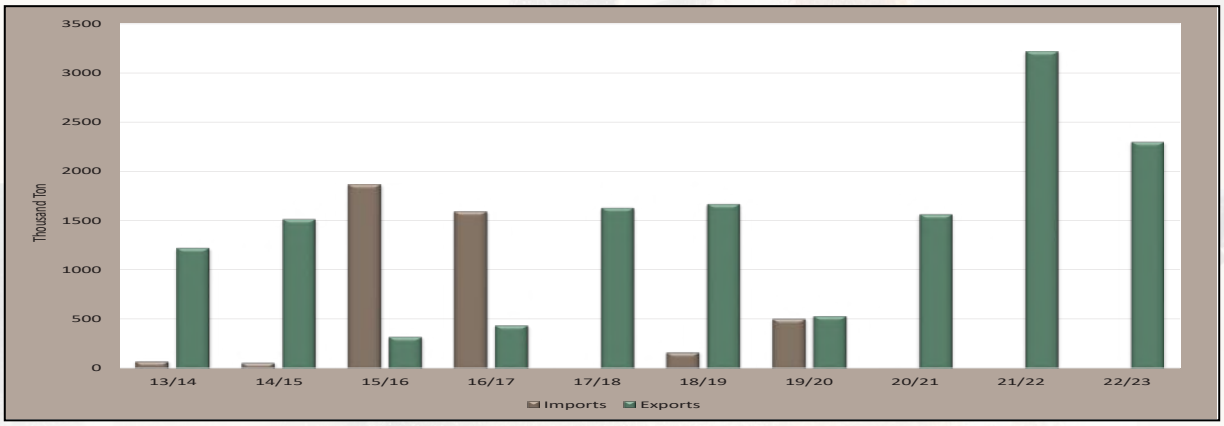
	Marketing Season (May - Apr)																			Current Season May-Mar	10 Year average
Season	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	2023/14 - 2022/23
																				***	
																				3	
CEC (Crop Estimate)	3 677 000	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	7 715 000	7 620 000	7 716 150	6 302 530
CEC (Retention)	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	0	0	0	74 690
SUPPLY																					
Opening stock (1 May)	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	761 953	658 682	871 291	749 813
Prod deliveries*	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	6 672 649	7 131 170	7 465 688	5 890 846	5 953 745
Imports	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	0	0	0	428 211
Surplus	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	8 864	17 894	24 045	0	24 239
Total Supply	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	7 208 613	7 911 017	8 148 415	6 762 137	7 156 007
DEMAND																					
Processed	2 970 000	3 276 000	3 275 000	3 278 000	3 691 000	4 103 000	2 986 000	3 567 000	3 888 000	4 539 996	4 064 081	5 929 297	5 506 922	3 765 714	4 407 657	5 656 997	4 790 446	3 970 353	4 931 679	1 113 967	4 756 314
-human	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	583 950	474 216	560 627	143 829	533 206
-animal/industrial	2 694 000	2 994 000	2 976 000	3 015 000	3 358 000	3 739 000	2 613 000	3 160 000	3 474 000	4 063 370	3 571 645	5 401 726	4 917 657	3 214 798	3 829 944	5 069 241	4 201 690	3 490 822	4 364 891	968 414	4 212 578
-gristing	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	4 806	5 315	6 161	1 724	10 530
-bio-fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Withdrawn by producers	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	25 647	22 897	13 415	2 933	57 283
Released to end-consumers	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	63 502	45 478	34 548	5 193	123 299
Net receipts(-)/disp(+)	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	3 750	2 830	2 201	- 1 092	8 101
Deficit	11 000	16 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 750	0
Total Exports	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	1 563 315	3 210 777	2 295 281	1 175 627	1 440 086
Products	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	138 102	213 733	141 660	30 011	135 985
African Countries	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	100 381	173 914	93 206	21 931	87 890
Other Countries	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	37 721	39 819	48 454	8 080	48 095
Whole maize	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	1 425 213	2 997 044	2 153 621	1 145 616	1 304 102
Border Posts	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	426 281	204 017	221 121	44 575	249 539
Harbours	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	998 932	2 793 027	1 932 500	1 101 041	1 054 421
Total Demand	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	6 446 660	7 252 335	7 277 124	2 298 378	6 385 084
Ending Stock (30 Apr)	746 000	868 000	440 000	431 000	819 000	769 000	727 000	476 000	660 000	314 710	791 054	1 163 200	496 801	1 260 823	864 088	526 637	761 953	658 682	871 291	4 463 759	770 924
- processed p/month	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	399 204	330 863	410 973	371 322	396 360
- months' stock	3	3	2	2	3	2	3	2	2	1	2	2	1	4	2	1	2	2	2	12	2

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

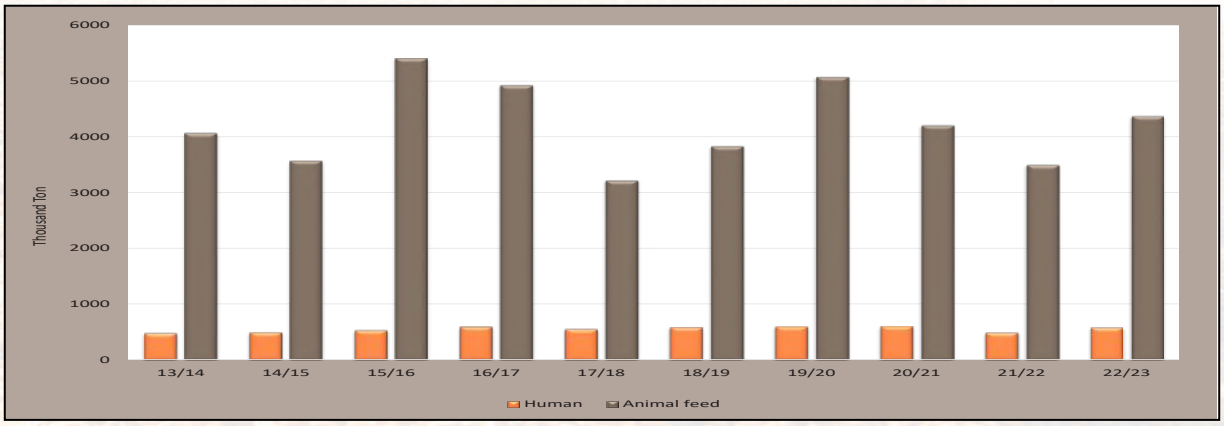
Graph 23: Yellow Maize: CEC Estimate, Retentions and SAGIS deliveries over 10 marketing seasons



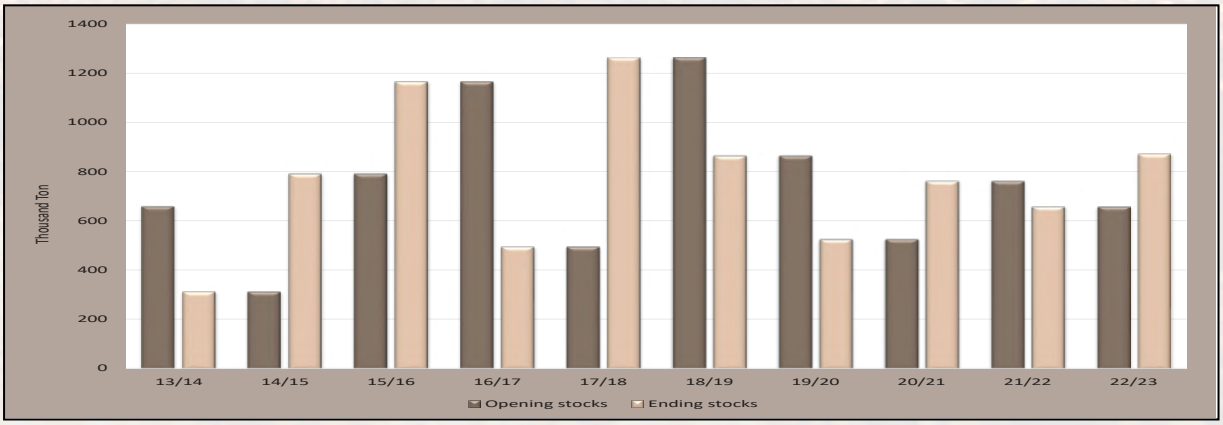
Graph 24: Yellow Maize: Imports and exports over 10 marketing seasons



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



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



Information provided by SAGIS.

SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM

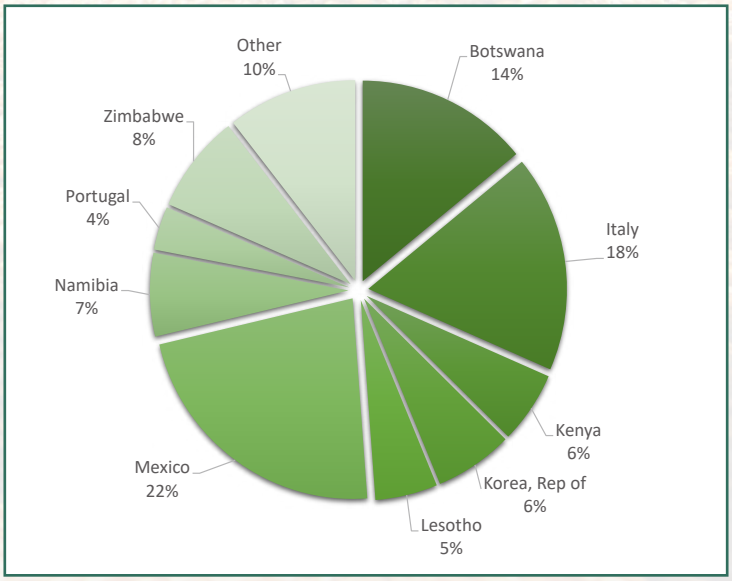
WHITE MAIZE EXPORTS/IMPORTS

2022/23 MARKETING SEASON (30 Apr 2022 to 28 April 2023)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
Albania	42	-	-	-	-	-	-	-	-	Durban	838 195
Botswana	210 890	-	-	-	-	-	-	-	-	East London	43 622
Eswatini (Swaziland)	37 627	-	-	-	-	-	-	-	-	-	-
Guatemala	21 811	-	-	-	-	-	-	-	-	-	-
Honduras	46 811	-	-	-	-	-	-	-	-	-	-
Italy	262 211	-	-	-	-	-	-	-	-	-	-
Kenya	87 046	-	-	-	-	-	-	-	-	-	-
Korea, Rep of	95 500	-	-	-	-	-	-	-	-	-	-
Lesotho	75 994	-	-	-	-	-	-	-	-	-	-
Mexico	336 942	-	-	-	-	-	-	-	-	-	-
Mozambique	51 784	-	-	-	-	-	-	-	-	-	-
Namibia	100 674	-	-	-	-	-	-	-	-	-	-
Portugal	52 500	-	-	-	-	-	-	-	-	-	-
Zimbabwe	118 822	-	-	-	-	-	-	-	-	-	-
Total	**1 498 654**	**Total**	**0**	**Total**	**0**	**Total**	**0**	**Total***	**0**	**Total**	**881 817**

** Includes imports for RSA and Other Countries*

Graph 27: Major destinations for RSA white maize exported during the 2022/23 marketing season



SAGIS South African Grain Information Service NPC
Suid Afrikaanse Graaninligtingsdiens NWM

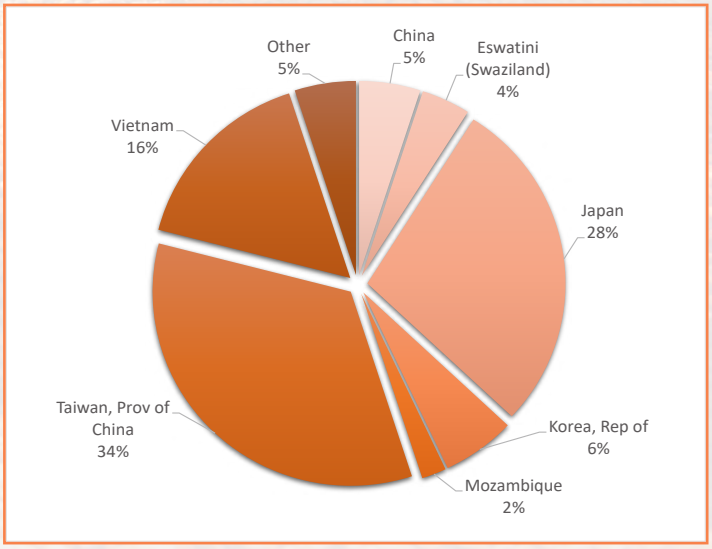
YELLOW MAIZE EXPORTS/IMPORTS

2022/23 MARKETING SEASON (30 Apr 2022 to 28 April 2023)

RSA EXPORTS		IMPORTS FOR RSA		IMPORTS FOR OTHER COUNTRIES		EXPORTS OF IMPORTED MAIZE		IMPORTS PER HARBOUR		EXPORTS PER HARBOUR	
Angola	5 983	-	-	-	-	-	-	-	-	Durban	1 890 700
Botswana	27 571	-	-	-	-	-	-	-	-	East London	41 800
China	108 104	-	-	-	-	-	-	-	-	-	-
Eswatini (Swaziland)	87 474	-	-	-	-	-	-	-	-	-	-
Italy	4 021	-	-	-	-	-	-	-	-	-	-
Japan	605 146	-	-	-	-	-	-	-	-	-	-
Korea, Rep of	129 803	-	-	-	-	-	-	-	-	-	-
Lesotho	8 882	-	-	-	-	-	-	-	-	-	-
Mozambique	50 749	-	-	-	-	-	-	-	-	-	-
Namibia	36 183	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	6 432	-	-	-	-	-	-	-	-	-	-
Seychelles	347	-	-	-	-	-	-	-	-	-	-
Taiwan, Prov of China	720 010	-	-	-	-	-	-	-	-	-	-
Vietnam	352 689	-	-	-	-	-	-	-	-	-	-
Zimbabwe	10 227	-	-	-	-	-	-	-	-	-	-
Total	**2 153 621**	**Total**	**0**	**Total**	**0**	**Total**	**0**	**Total***	**0**	**Total**	**1 932 500**

** Includes imports for RSA and Other Countries*

Graph 28: Major destinations for RSA yellow maize exported during the 2022/23 marketing season



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

TOTAL WHOLE MAIZE PROCESSED PER PROVINCE

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

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

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

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	259 782	2 013 461	402 528	777 393	399 818	920 505	1 160 019	5 933 506
Animal Feed and Industrial	1 387 012	728 135	503 310	849 138	139 147	1 392 472	589 408	5 588 622
	1 646 794	**2 741 596**	**905 838**	**1 626 531**	**538 965**	**2 312 977**	**1 749 427**	**11 522 128**

PROGRESSIVE: May 2021 to April 2022 (2021/22 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	251 947	1 859 544	329 889	756 717	356 859	1 013 953	964 240	5 533 149
Animal Feed and Industrial	1 378 107	825 703	669 153	829 215	206 236	1 430 940	617 849	5 957 203
	1 630 054	**2 685 247**	**999 042**	**1 585 932**	**563 095**	**2 444 893**	**1 582 089**	**11 490 352**

PROGRESSIVE: May 2022 to April 2023 (2022/23 Full Marketing Year) **Publication Date: 2023/06/26**

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	247 314	1 893 287	377 519	813 357	361 295	1 011 617	937 033	5 641 422
Animal Feed and Industrial	1 390 758	738 973	703 096	835 790	196 505	1 538 652	605 575	6 009 349
	1 638 072	**2 632 260**	**1 080 615**	**1 649 147**	**557 800**	**2 550 269**	**1 542 608**	**11 650 771**

** Please note that included are the products destined for exports*

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

WHOLE WHITE MAIZE PROCESSED PER PROVINCE

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

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

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

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	242 155	1 734 660	355 306	604 682	399 818	789 544	1 141 456	5 267 621
Animal Feed and Industrial	629 902	179 240	10 806	10 912	3 488	192 885	298 726	1 325 959
	872 057	**1 913 900**	**366 112**	**615 594**	**403 306**	**982 429**	**1 440 182**	**6 593 580**

PROGRESSIVE: May 2021 to April 2022 (2021/22 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	232 143	1 624 113	297 523	587 693	356 235	851 718	949 792	4 899 217
Animal Feed and Industrial	818 947	345 380	133 466	75 175	34 861	463 682	535 538	2 407 049
	1 051 090	**1 969 493**	**430 989**	**662 868**	**391 096**	**1 315 400**	**1 485 330**	**7 306 266**

PROGRESSIVE: May 2022 to April 2023 (2022/23 Full Marketing Year) **Publication Date: 2023/06/26**

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	225 342	1 681 418	337 216	633 211	360 924	832 565	923 425	4 994 101
Animal Feed and Industrial	518 034	245 440	57 790	6 407	1 304	324 320	430 036	1 583 331
	743 376	**1 926 858**	**395 006**	**639 618**	**362 228**	**1 156 885**	**1 353 461**	**6 577 432**

** Please note that included are the products destined for exports*

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

WHOLE YELLOW MAIZE PROCESSED PER PROVINCE

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

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

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

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	17 627	278 801	47 222	172 711		130 961	18 563	665 885
Animal Feed and Industrial	757 110	548 895	492 504	838 226	135 659	1 199 587	290 682	4 262 663
	774 737	**827 696**	**539 726**	**1 010 937**	**135 659**	**1 330 548**	**309 245**	**4 928 548**

PROGRESSIVE: May 2021 to April 2022 (2021/22 Full Marketing Year)

Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	19 804	235 431	32 366	169 024	624	162 235	14 448	633 932
Animal Feed and Industrial	559 160	480 323	535 687	754 040	171 375	967 258	82 311	3 550 154
	578 964	**715 754**	**568 053**	**923 064**	**171 999**	**1 129 493**	**96 759**	**4 184 086**

PROGRESSIVE: May 2022 to April 2023 (2022/23 Full Marketing Year) **Publication Date: 2023/06/26**

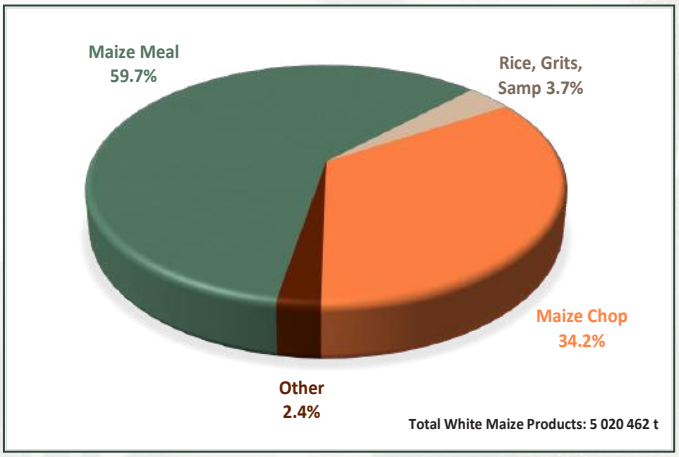
Processed For	Cape Provinces	Free State	Kwazulu-Natal	Mpumalanga	Limpopo	Gauteng	Northwest	Total
Human Consumption and Gristing	21 972	211 869	40 303	180 146	371	179 052	13 608	647 321
Animal Feed and Industrial	872 724	493 533	645 306	829 383	195 201	1 214 332	175 539	4 426 018
	894 696	**705 402**	**685 609**	**1 009 529**	**195 572**	**1 393 384**	**189 147**	**5 073 339**

** Please note that included are the products destined for exports*

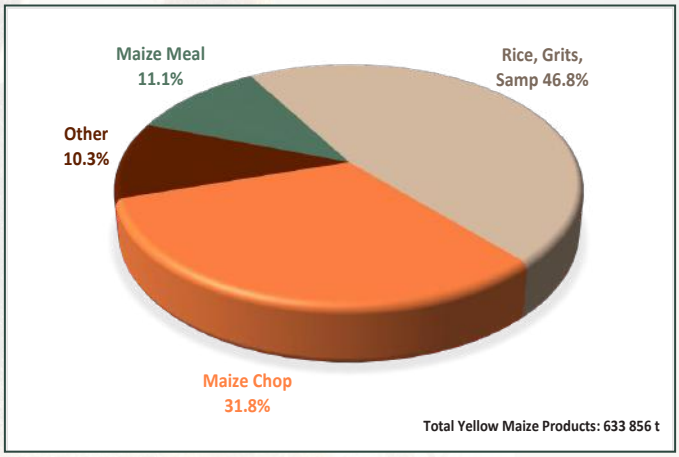
SAGIS Maize Product Information

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 2022 to March 2023. The tables on pages 20 to 22 provide a summary of the figures for maize products manufactured, imported and exported during the previous three marketing seasons (May to April).

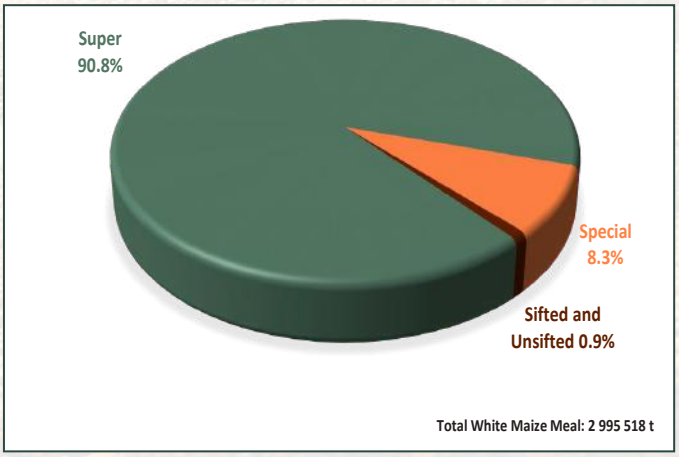
Graph 29: White maize products manufactured from May 2022 to March 2023



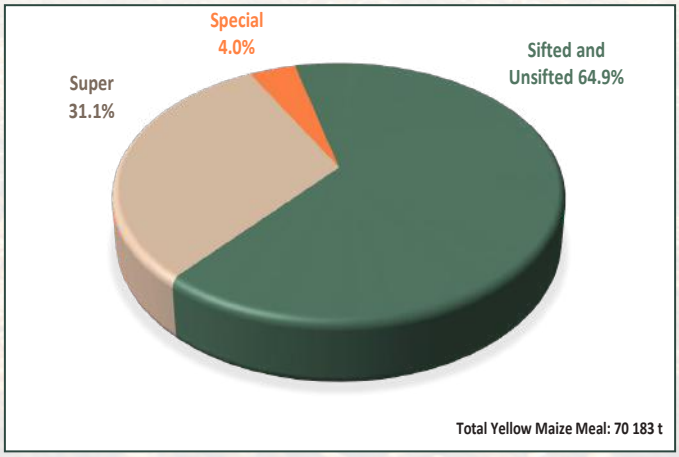
Graph 30: Yellow maize products manufactured from May 2022 to March 2023



Graph 31: White maize meal manufactured from May 2022 to March 2023



Graph 32: Yellow maize meal manufactured from May 2022 to March 2023



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

MAIZE PRODUCTS MANUFACTURED PER MARKETING YEAR

Date Published: 2023/09/01

	Marketing year: May 2020 - Apr 2021 Manufactured Tons Progressive: 12 Months			Marketing year: May 2021 - Apr 2022 Manufactured Tons Progressive: 12 Months			Marketing year: May 2022 - Apr 2023 Manufactured Tons Progressive: 12 Months		
	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize
Maize Chop	1 764 791	205 068	1 969 859	1 641 899	187 890	1 829 789	1 715 327	201 409	1 916 736
Maize Rice	7 264	*	7 264	7 044	*	7 044	6 406	*	6 406
Maize Grits	69 446	*	69 446	78 688	*	78 688	75 557	*	75 557
Samp	110 572	*	110 572	107 682	*	107 682	102 705	*	102 705
**** Total Yellow Maize Rice / Maize Grits / Samp***		***301 905***	***301 905***		***292 219***	***292 219***		***296 499***	***296 499***
Sifted Maize Meal	21 881	36 050	57 931	22 311	60 971	83 282	25 979	45 550	71 529
Special Maize Meal	295 406	3 501	298 907	242 736	1 830	244 566	249 467	2 811	252 278
Super Maize Meal	2 862 883	25 084	2 887 967	2 693 285	18 790	2 712 075	2 719 115	21 814	2 740 929
Unsifted Maize Meal	9 987	10	9 997	6 580	44	6 624	957	8	965
Other maize products intended for Human consumption	114 903	90 768	205 671	126 163	59 402	185 565	124 949	65 765	190 714
Total	***5 257 133***	***662 386***	***5 919 519***	***4 926 388***	***621 146***	***5 547 534***	***5 020 462***	***633 856***	***5 654 318***

** Included total for yellow rice, grits and samp*

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

MAIZE PRODUCTS IMPORTED PER MARKETING YEAR

Date Published: 2023/09/01

	Marketing year: May 2020 - Apr 2021 Imported Tons Progressive: 12 Months			Marketing year: May 2021 - Apr 2022 Imported Tons Progressive: 12 Months			Marketing year: May 2022 - Apr 2023 Imported Tons Progressive: 12 Months		
	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize
Maize Chop	6 153	0	6 153	19 903	0	19 903	22 467	0	22 467
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	4 766	0	4 766	0	0	0	0	0	0
Special Maize Meal	0	0	0	5 823	0	5 823	2 206	0	2 206
Super Maize Meal	0	0	0	51	0	51	159	0	159
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	***10 919***	***0***	***10 919***	***25 777***	***0***	***25 777***	***24 832***	***0***	***24 832***

** Included total for yellow rice, grits and samp*

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

MAIZE PRODUCTS EXPORTED PER MARKETING YEAR

Date Published: 2023/09/01

	Marketing year: May 2020 - Apr 2021 Exported Tons Progressive: 12 Months			Marketing year: May 2021 - Apr 2022 Exported Tons Progressive: 12 Months			Marketing year: May 2022 - Apr 2023 Exported Tons Progressive: 12 Months		
	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize	White Maize	Yellow Maize	Total Maize
Maize Chop	375	0	375	169	14	183	124	0	124
Maize Rice	8	*	8	3	*	3	46	*	46
Maize Grits	0	*	0	212	*	212	278	*	278
Samp	1 086	*	1 086	1 490	*	1 490	1 195	*	1 195
**** Total Yellow Maize Rice / Maize Grits / Samp***		***27 937***	***27 937***		***40 814***	***40 814***		***44 446***	***44 446***
Sifted Maize Meal	0	11 002	11 002	552	39 411	39 963	0	12 416	12 416
Special Maize Meal	14 136	0	14 136	8 791	0	8 791	13 260	1 158	14 418
Super Maize Meal	89 834	7 015	96 849	56 849	2 157	59 006	57 118	3 799	60 917
Unsifted Maize Meal	0	0	0	265	0	265	0	0	0
Other maize products intended for Human consumption	32 355	9 345	41 700	55 998	2 292	58 290	35 539	3	35 542
Total	***137 794***	***55 299***	***193 093***	***124 329***	***84 688***	***209 017***	***107 560***	***61 822***	***169 382***

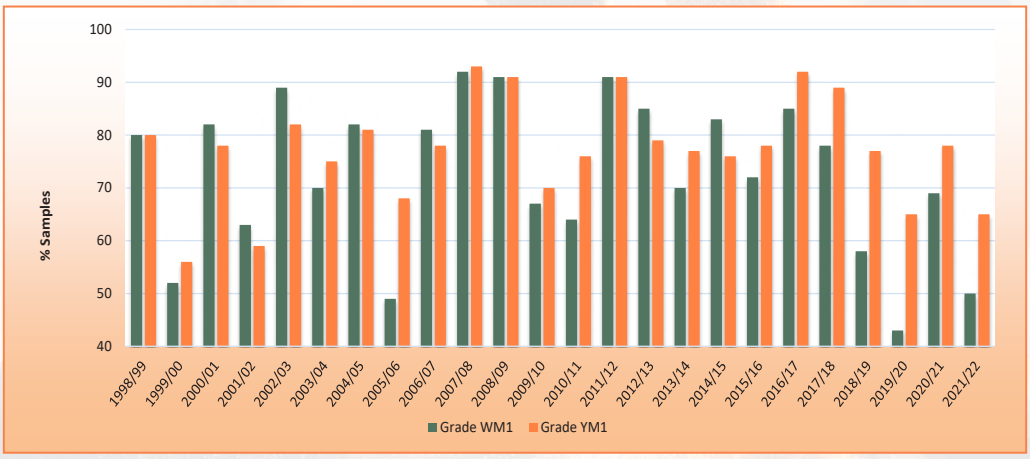
** Included total for yellow rice, grits and samp*

Maize Crop Quality 2021/22 - summary of results

RSA Grading

Based on the results reported on the 2021/22 season's crop samples, the maize crop was of below average quality. 50% of white maize samples received for the purpose of the crop quality survey was graded as maize grade one, last season this figure was 69%. 65% of yellow maize samples received and graded was graded as grade one, compared to the 78% 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, 7.6% for white and 6.7% for yellow maize, was respectively 1.5% and 2.5% higher than the previous season. Defective white maize kernels above the 6.35 mm sieve increased by 2.7% to 5.7% and yellow maize increased by 2.2% to 4.3%. The percentage defective kernels below the 6.35 mm sieve for white maize decreased slightly from 2.1% to 1.9% and that of yellow maize increased slightly from 2.1% to 2.3%. The average percentage Diplodia infected kernels in white and yellow maize was 1.2% and 1.5% respectively this season, the previous season the average for both was 0%. Fusarium infected kernels of white maize were 1.7% compared to the 0.8% of 2020/21 and that of yellow maize 1.6% compared to 0.6% previously.

The percentage of white maize samples that were downgraded to class other maize as a result of the percentage foreign matter exceeding 0.75%, increased from 5% (29 samples) to 6% (34 samples) this season. The percentage for yellow maize equaled last season's 5% (23 and 21 samples respectively). No samples were downgraded as a result of other colour maize exceeding the 10% and 5% maximum permissable deviation for grade 3 white and yellow maize respectively. The average percentage combined deviations of white maize was 8.0% compared to the 5.6% of the 2020/21 season and that of yellow maize 6.9% compared to 4.5% previously.

Please refer to Tables 3 to 7 and Graphs 34 to 36 on pages 35 to 48.

USA Grading

Of the 1 000 maize samples graded according to USA grading regulations, 27% were graded US1, 31% US2, 15% US3, 12% US4, 8% US5, while sample grade and class mixed corn represented 6% and 1% respectively. The percentage samples graded as US1 varies substantially over seasons, varying from 62% to 30%, 41%, 51% and 71% over the previous five seasons. The percentage samples graded as US2 was higher than the 21% and 25% of the previous two seasons. Grades 3, 4 and 5 as well as sample grade also reported increases in the percentage samples compared to a number of previous seasons. 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 49 to 56.

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 75.5 kg/hl compared to the 75.4 kg/hl of yellow maize. The average test weights of white and yellow maize were respectively 0.4 kg/hl and 1.1 kg/hl lower than in the previous season. The test weight in total varied from 56.6 kg/hl to 83.9 kg/hl.

68 samples (6.8%) reported Bushel weight values below the minimum requirement (56.0 lbs or 72.1 kg/hl) for USA grade 1 maize. One sample each originated in the Eastern Cape and Vaalharts regions, 37 were from the North West production regions, 17 from the Free State, eight from Mpumalanga and two each from Gauteng and KwaZulu Natal. In the previous season 2.1% of the samples were below the minimum requirement.

The 100 kernel mass ("as is" basis) of white maize was 35.1 g (33.3 g in 2020/21) and averaged higher than yellow maize's 31.1 g (last season 31.2 g). This trend is also observed in previous seasons. The percentage white maize kernels above the 10 mm sieve (28.2%) increased by 6.6% compared to the previous season. The percentage yellow maize kernels above the 10 mm sieve (9.4%) was 2% higher than last season. The percentage yellow maize kernels above the 10 mm sieve was on average 18.8% lower than white kernels and the percentage yellow kernels below the 8 mm sieve 14.9% higher than that of white maize.

The percentages maize below the 6.35 mm and 4.75 mm sieves provides an indication of the breakage susceptibility. White maize was slightly more susceptible to breakage than during the previous season and the same can also be said for yellow maize. The percentage stress cracks observed varied overall from 0 to 50% and averaged 11%. White and yellow maize both also averaged 11%, the previous season both averaged 12%.

Please refer to Tables 12 to 16 on pages 58 to 68 and Graphs 37 to 40 on pages 68 and 69.

The milling index obtained from the SAGL Milling Index 2022 model, varied from an average of 68 (73 in 2020/21) for white maize to an average of 72 (76 previously) for yellow maize. Grit Yield All (GYA) values averaged 62 for white maize and 63 for yellow maize, 63 and 64 respectively in the previous season.

Roff milling and whiteness index (WI)

The average % extraction of total meal in white maize obtained with the Roff mill, averaged 76.2% (1.4% lower than the previous season) and varied from 63.5% to 81.4%. Please see Graphs 41 to 46 on page 75 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 season when the development of the new model for Milling Index was commenced.

The whiteness index averaged 38.9 for unsifted and 35.7 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 36.3 and 27.0 for unsifted and sifted maize meal respectively.

The higher the WI value, 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 spread of the results this season, both sifted and unsifted, were less than in previous seasons. Please see Tables 17 and 18 on pages 70 to 74.

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 is updated annually with the latest season's results.

The average fat content of white maize equaled the 4.0% of the previous three seasons. Yellow maize averaged 3.9%, 0.1% lower than the previous season. The 10-year average fat content of white maize is 4.1% and that of yellow maize 4.0%. The average protein content of yellow maize was 8.4%, while white maize averaged 8.0%, both the lowest levels 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 (76.0%) and yellow maize (75.1%) were 0.5% and 0.4% respectively higher than in the previous season. Ten-year averages for white and yellow maize are 73.6% and 73.1% respectively. The average crude fibre content of white maize was 2.2% and that of yellow maize 2.3%, similar to the previous season.

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 76 to 82 and Graphs 47 to 49 on page 83.

Genetic Modification (GM)

The SAGL used the EnviroLogix QuickComb kit for bulk grain, to screen 60 of the crop samples in order to quantitatively determine the presence of genetically modified maize (Cry1Ab, Cry2Ab and/or CP4 EPSPS traits). 88% of the samples tested positive for the Cry1Ab trait, 92% for Cry2Ab and 98% 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 84 for the results obtained as well as page 109 for a summary of the Events and Trade names/Brands represented by these three traits.

Mycotoxins

None of the 350 samples analysed this season, tested positive for Aflatoxin or Ochratoxin A residues.

This season T2- toxin and HT-2 toxin residues were found for the first time since the 2012/13 season. Two samples, a yellow maize sample collected in Mpumalanga and a white maize sample from KwaZulu Natal reported 28 µg/kg T2-toxin and 93 µg/kg HT-2 toxin and 30 µg/kg T2-toxin and 47 µg/kg HT-2 toxin respectively.

The average Fumonisin level (Sum of B_1, B_2 and B_3) on all 350 samples tested was 111 µg/kg (ppb), compared to the previous season's average of 100 µg/kg. Levels ranged from not detected (ND) to 18 301 µg/kg. The second highest value detected was 2 286 µg/kg. Of the 350 samples tested, 55 samples (16%) tested positive for fumonisin levels and the average of these positive results was 709 µg/kg. The previous season, 22% of the samples tested positive, with an average of 459 µg/kg.

The highest Deoxynivalenol (DON) level detected this season was 6 879 µg/kg, compared to the 3 256 µg/kg of last season. The average level of all samples tested this season was 621 µg/kg, 279 µg/kg the previous season. Both the percentage of positive results as well as the average of the positive results increased this season and compared with the results of the 2019/20 season. 64% of the samples tested positive for DON last season with the average of the positive results 434 µg/kg. This season, 83% of the samples tested positive with an average of 749 µg/kg.

31% of the samples tested positive for 15-acetyl-deoxynivalenol (15-ADON) residues, compared to 18% the previous season. The average of the positive results was 211 µg/kg compared to 176 µg/kg in the previous season.

Zearalenone residues were found in 16% of the samples, 3% during the previous season. Values ranged from ND to 428 µg/kg. The average of the positive samples was 58 µg/kg compared to the 38 µg/kg of the previous season.

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 92 to 103.

TABLE 2: SOUTH AFRICAN MAIZE CROP QUALITY 2021/22 (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	6.8	12.0	8.6	3.2	7.0	10.0	4.3	5.0
Defective kernels below 6.35 mm sieve, %	1.5	2.2	2.3	2.9	1.9	3.2	3.1	2.9	2.1
Total defective kernels, %	4.7	9.0	14.2	11.5	5.2	10.2	13.1	7.1	7.2
Other colour maize kernels, %	0.2	0.2	0.3	0.4	0.1	0.2	0.3	0.1	0.2
Foreign matter, %	0.0	0.1	0.2	0.9	0.0	0.1	0.4	0.7	0.2
Combined deviation, %	5.0	9.3	14.7	12.8	5.3	10.5	13.8	8.0	7.5
Pinked maize kernels, %	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Physical Factors									
Test weight, kg/hl	75.9	75.3	74.9	74.2	75.8	74.8	74.3	74.6	75.4
100 Kernel mass, g	34.5	35.8	36.0	35.0	31.4	30.3	30.9	30.8	33.2
Stress cracks, %	10	11	12	13	10	13	10	14	11
Milling Index	69	68	68	68	73	71	70	73	70
Grit Yield	62	62	62	62	63	63	62	63	63
Kernel Size									
% on top 10 mm	23.1	33.4	35.3	31.3	9.4	8.9	11.1	10.1	19.3
% on top 8 mm	65.5	58.0	57.3	59.2	66.2	63.2	68.3	66.6	63.7
% through 8 mm	11.3	8.7	7.4	9.4	24.5	27.8	20.6	23.3	17.1
Breakage susceptibility									
% Below 6.35 mm sieve	0.8	1.4	1.7	1.8	1.0	1.5	1.6	1.2	1.2
% Below 4.75 mm sieve	0.6	1.0	1.3	1.4	0.8	1.1	1.4	0.9	0.9
Nutritional Values									
Fat, % (db)	4.0	4.0	3.8	3.9	3.9	3.8	3.9	3.8	3.9
Protein, %	8.1	8.0	8.1	8.0	8.5	8.3	8.6	8.5	8.2
Starch, % (db)	75.9	76.2	76.1	76.1	75.1	75.2	74.3	75.0	75.6
Crude fibre, % (db)	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.2
Number of samples	***263***	***158***	***51***	***52***	***310***	***100***	***16***	***50***	***1 000***

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

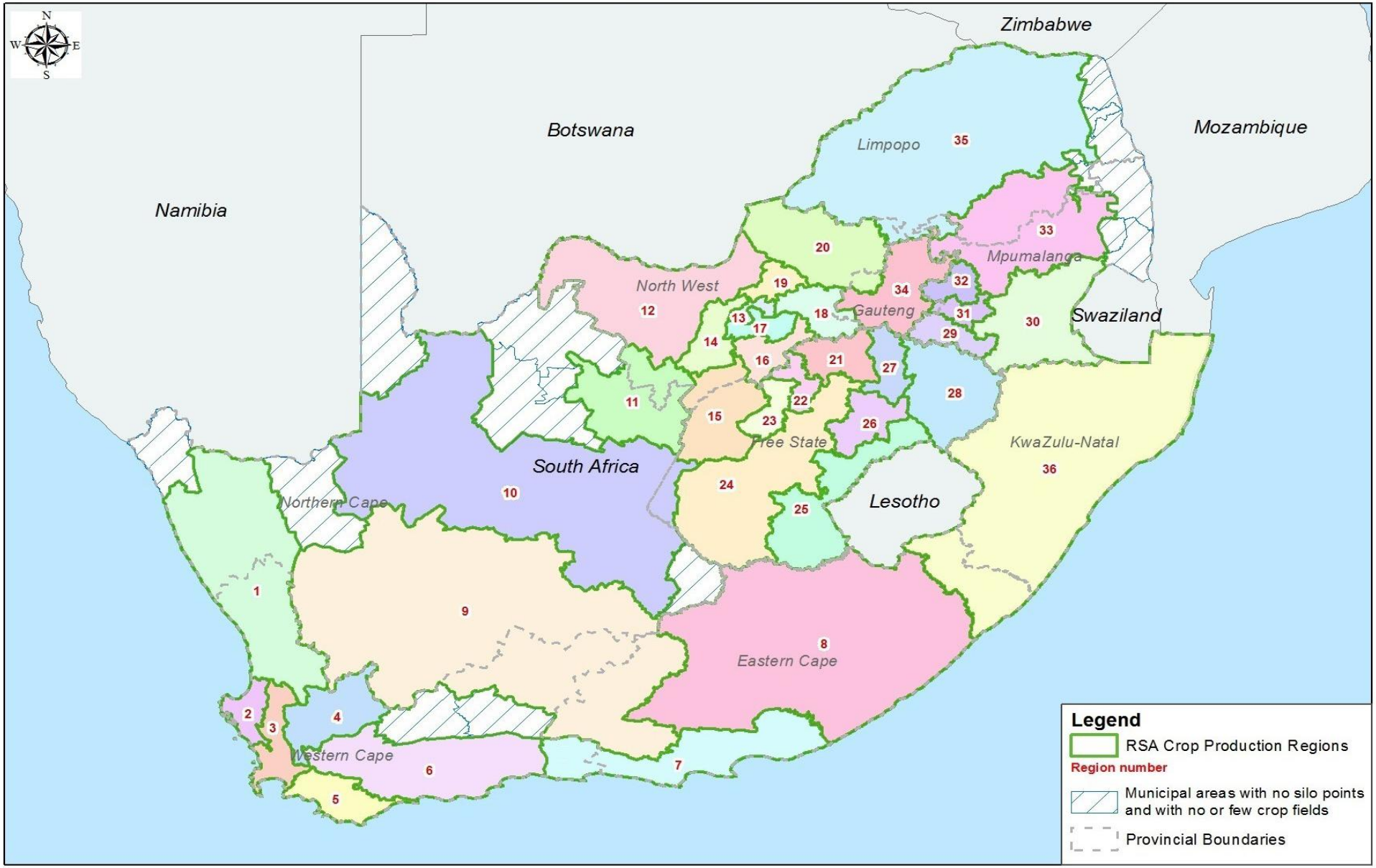
Please see the Crop Production Regions map on the next page.

The production regions from which maize samples have been received for the crop quality survey of the 2021/22 production season, are named and described on pages 30 to 33. 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	Stoffelshoek (Bunkers)
GWK	Luckhoff (Bins)	GWK	Trans Oranje (Bags/Bins/Bunkers)
GWK	Marydale (Bins)	OVK	Havenga Brug (Bins)
GWK	Meganisasie (Bungers)	OVK	Morgenzon (Bins)
GWK	Modderrivier (Bags/Bins/Bulk)	OVK	Oranjerivier (Bins/Bunkers)
GWK	Prieska (Bins/Dams)	OVK	Prieska (Bins/Bunkers)
GWK	Rietrivier (Bins)	OVK	Rietrivier (Bins)

Region 11: Vaalharts Region

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

Region 12: North West Western Region

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

Region 15: North West South Eastern Region

GWK	Christiana (Bins)	Senwes	Hoopstad (Bins)
Senwes	Bloemhof (Bins)	Senwes	Kingswood (Bins)
Senwes	Christiana (Bins)	Senwes	Krusing (Bunkers)
Senwes	Helpman Depot 726 (Bags)	Senwes	Poppieland (Bunkers)
Senwes	Hertzogville (Bins)		

Region 16: North West Central-Eastern Region

Senwes	Bamboesspruit (Bins)	Senwes	Regina (Bins)
Senwes	Klerksdorp (Bins)	Senwes	Strydpoort (Bins)
Senwes	Leeudoringstad (Bins)	Senwes	Wolmaranstad (Bins)
Senwes	Makwassie (Bins)	Senwes	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 (Bins)
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	Swartruggens (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	Allanrigde (Bins)	Senwes	Schoonspruit (Bins)
Senwes	Bothaville (Bins)	Senwes	Schuttesdraai (Bins)
Senwes	Mirage (Bins)	Senwes	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	Modderpoort (Bins)
Afgri	Slabberts (Bins)	OVK	Thaba Nchu (Bunkers)
OVK	Clocolan (Bins)	OVK	Tweespruit (Bins)
OVK	Ficksburg (Bins)	OVK	Westminster (Bins)
OVK	Fouriesburg (Bins)	Senwes	Dewetsdorp (Bins)
OVK	Marseilles (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	Dennegeur (Bunkers)	Afgri	Sandspruit (Bunkers)
Afgri	Eerstelingsfontein (Bunkers)	BKB	Waterval (Bunkers)
Afgri	Ermelo (Bins)	TWK	Mkondo (Bins)
Afgri	Estancia (Bins)	TWK	Panbult (Bins)
Afgri	Hendriksvallei (Bunkers)	TWK	Rietspruit (Bunkers)
Afgri	Lothair (Bins)		

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	Bronkhorstspruit (Bins)	Afgri	Pretoria Wes (Bins)
Afgri	Glenroy (Bins)	Afgri	Vogelvallei (Bunkers)
Afgri	Goeie Hoek (Bins)	Senwes	Middelvlei (Bins)
Afgri	Kaalfontein (Bins)	Senwes	Oberholzer (Bins)
Afgri	Kliprivier (Bunkers)	Senwes	Raathsvlei (Bins)
Afgri	Meyerton (Bunkers)		

Region 35: Limpopo Region

Afgri	Northam (Bins)	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, 75.6 in the Free State and 76.7 in Mpumalanga. Yellow maize varied from 74.7 kg/hl in the Free State to 74.8 kg/hl in North West and 76.0 kg/hl in Mpumalanga. The white maize 100 kernel mass values ranged from 34.0 g in Mpumalanga and 35.4 g in North West, the Free State averaged 35.3 g. Yellow maize kernels had the highest average 100 kernel mass in North West with 31.5 g, followed by 30.5 g in Mpumalanga and 30.3 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 the Free State (31.7%), followed by North West (31.4%). Mpumalanga had the smallest white kernel sizes (16.9%) on average. North West had the largest yellow maize kernels, averaging 13.4% kernels above the 10 mm sieve, followed by Mpumalanga with 10.1% and the Free State with 8.8%.

Mpumalanga showed the least susceptibility to breakage (lowest percentage below the sieve), with 0.7% for white and 1.0 % for yellow maize passing through the 6.35 mm sieve. North West averaged 1.2% and 1.6% for white and yellow maize respectively and the Free State 1.4% and 1.0% for white and yellow maize respectively. The percentage stress cracks on white maize ranged from 10% in North West, 11% in Mpumalanga and 12% in the Free State. On yellow maize these averages varied between 10% in both Mpumalanga and North West, to 12% in the Free State.

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. The averages for white maize in the production regions of these three provinces ranged from 5.2% in Mpumalanga, 8.2% in the Free State and 8.4% in North West. The highest percentage total defective kernels on yellow maize (8.8%) was found in North West, followed by the Free State with 6.0% and Mpumalanga with 4.6%. Please see page 105 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 72 (74), the Free State 68 (71) and North West 66 (76). The highest percentage total extraction as determined on the Roff laboratory mill, was found on white maize from the Free State (76.8%), followed by Mpumalanga (76.4%) and North West with 75.8%.

The meal obtained from the white maize in North West gave an average whiteness index of 39.3 (unsifted) and 37.0 (sifted). The Free State gave an average of 39.3 (unsifted) and 35.1 (sifted) while Mpumalanga averaged 37.4 (unsifted) and 33.5 (sifted).

The nutritional component analyses namely crude fat, crude protein, crude fibre and total starch compared well between the three provinces and reported values within narrow ranges. North West and the Free State both averaged 4.0% fat on white maize, Mpumalanga averaged 3.9%. The average fat content on yellow maize was 3.9% in both North West and the Free State while Mpumalanga averaged 3.8%. The lowest average protein content on white maize was found in North West and the Free State, both with 8.0%, Mpumalanga averaged 8.2%. The protein content on yellow maize varied from 8.4% in Mpumalanga to 8.5% in both the Free State and North West. Crude fibre on white maize in all three of these provinces, averaged 2.2%. Crude fibre on yellow maize reported 2.2% for both North West and Mpumalanga, the Free State averaged 2.3%. The Free State had the highest average starch content on white maize, namely 76.2%, followed closely by North West with 76.1% and Mpumalanga with 75.6%. The yellow maize starch content ranged from a low of 74.7% in North West to a high of 75.1% in the Free State. Mpumalanga averaged 75.0%. These values are all reported on a dry basis.

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1																															
1	Region 11	1.4	-	-	4.2	-	-	5.6	-	-	0.0	-	-	0.0	-	-	5.6	-	-	1.5	-	-	0.0	-	-	0.5	-	-	0.5	-	-
8	Region 12	3.3	2.6	4.6	1.5	0.1	3.3	4.8	3.1	6.3	0.1	0.0	0.3	0.2	0.0	1.0	5.0	3.1	7.6	0.0	0.0	0.3	0.4	0.0	1.2	0.8	0.2	1.8	1.2	0.6	2.6
10	Region 13	3.2	2.3	4.5	1.6	0.4	2.7	4.8	3.1	6.6	0.0	0.0	0.1	0.3	0.0	1.3	5.1	3.1	7.9	0.0	0.0	0.2	0.7	0.0	2.3	1.3	0.0	3.4	2.0	0.5	3.9
24	Region 14	3.6	1.4	6.4	1.3	0.5	3.1	4.8	2.8	6.8	0.1	0.0	0.3	0.1	0.0	0.9	5.0	2.8	6.8	0.1	0.0	0.8	0.6	0.0	2.0	0.8	0.0	2.1	1.4	0.0	2.8
2	Region 15	2.3	1.8	2.9	1.2	0.7	1.6	3.5	3.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.4	3.6	0.0	0.0	0.0	0.7	0.0	1.4	1.4	0.0	2.9	2.2	1.4	2.9
12	Region 17	4.0	1.9	5.9	1.4	0.5	2.8	5.4	3.6	6.7	0.0	0.0	0.1	0.1	0.0	0.3	5.5	3.6	6.9	0.1	0.0	0.4	0.5	0.0	1.5	1.4	0.8	2.2	1.9	0.8	3.6
4	Region 18	2.5	0.9	3.6	1.5	1.1	2.2	4.0	2.2	5.8	0.0	0.0	0.1	0.5	0.0	1.1	4.5	2.9	7.0	0.0	0.0	0.0	0.1	0.0	0.2	1.0	0.4	1.7	1.1	0.4	1.9
15	Region 19	3.9	2.2	6.3	2.0	0.6	4.4	5.9	3.4	6.9	0.0	0.0	0.2	0.2	0.0	1.0	6.1	3.9	7.3	0.0	0.0	0.2	0.6	0.0	2.1	1.1	0.0	2.4	1.7	0.7	3.2
17	Region 20	2.5	0.8	5.0	1.3	0.3	3.3	3.9	2.0	5.9	0.0	0.0	0.2	0.3	0.0	1.9	4.2	2.2	6.0	0.0	0.0	0.0	0.3	0.0	1.4	0.5	0.0	1.1	0.8	0.0	1.7
16	Region 21	3.5	0.6	5.0	1.7	0.6	4.3	5.2	3.6	6.3	0.1	0.0	0.3	0.2	0.0	0.8	5.4	4.1	6.4	0.0	0.0	0.0	0.5	0.0	2.1	0.7	0.0	1.3	1.2	0.1	2.7
4	Region 22	3.4	1.4	5.4	2.1	0.9	3.5	5.5	4.8	6.3	0.0	0.0	0.0	0.0	0.0	0.2	5.5	4.8	6.5	0.0	0.0	0.0	1.8	0.1	4.5	0.5	0.0	1.4	2.2	0.5	4.5
14	Region 23	4.3	2.4	6.2	1.5	0.5	2.7	5.8	3.8	6.8	0.0	0.0	0.2	0.0	0.0	0.1	5.8	4.0	6.9	0.0	0.0	0.0	1.5	0.0	3.6	1.4	0.0	2.5	2.9	1.0	4.9
4	Region 24	4.0	2.0	5.7	1.2	0.2	2.1	5.1	4.1	5.9	0.1	0.0	0.2	0.1	0.0	0.3	5.4	4.7	6.1	0.0	0.0	0.0	1.1	0.0	2.7	1.5	0.9	2.6	2.7	1.2	4.4
1	Region 25	0.9	-	-	0.7	-	-	1.5	-	-	0.0	-	-	1.3	-	-	2.8	-	-	0.0	-	-	0.0	-	-	0.2	-	-	0.2	-	-
8	Region 26	2.5	0.9	6.0	1.2	0.4	1.9	3.7	1.3	6.6	0.1	0.0	0.3	0.1	0.0	0.3	3.9	1.8	6.7	0.1	0.0	0.4	0.4	0.0	2.0	0.6	0.1	1.3	1.0	0.1	2.9
4	Region 27	2.0	1.5	2.7	3.0	2.1	4.3	5.0	3.7	6.5	0.1	0.0	0.2	0.3	0.0	0.5	5.3	4.1	7.1	0.2	0.0	0.4	0.1	0.0	0.5	0.9	0.5	1.8	1.0	0.5	1.8
18	Region 28	3.6	1.7	5.6	1.2	0.4	3.3	4.8	2.5	6.3	0.1	0.0	0.3	0.4	0.0	1.8	5.2	2.7	7.0	0.0	0.0	0.2	1.0	0.0	2.4	0.8	0.0	2.8	1.8	0.1	5.1
12	Region 29	3.5	1.4	5.9	1.3	0.5	2.9	4.9	2.5	6.5	0.0	0.0	0.3	0.2	0.0	1.1	5.2	2.5	7.6	0.0	0.0	0.4	0.7	0.2	1.5	0.9	0.0	2.6	1.7	0.7	4.0
12	Region 30	3.5	0.7	6.3	1.1	0.4	2.1	4.6	2.0	6.9	0.0	0.0	0.2	0.4	0.0	1.0	5.1	2.3	7.4	0.0	0.0	0.1	0.5	0.0	2.5	1.2	0.3	2.9	1.7	0.3	4.1
9	Region 31	2.7	0.2	4.4	1.1	0.2	2.0	3.8	1.2	5.8	0.0	0.0	0.2	0.3	0.0	1.3	4.2	1.2	6.2	0.0	0.0	0.2	0.6	0.0	1.7	0.8	0.0	2.3	1.4	0.1	2.8
9	Region 32	3.4	1.2	5.7	1.6	0.9	2.9	5.0	2.9	7.0	0.1	0.0	0.2	0.3	0.0	1.5	5.3	2.9	7.0	0.0	0.0	0.0	0.5	0.0	1.2	0.9	0.0	1.4	1.4	1.0	2.2
27	Region 33	2.2	0.7	5.7	1.4	0.3	3.0	3.6	1.2	6.6	0.0	0.0	0.3	0.3	0.0	2.9	3.9	1.2	6.9	0.0	0.0	0.3	0.4	0.0	1.5	0.8	0.0	3.0	1.2	0.0	3.6
18	Region 34	3.3	1.0	5.9	1.5	0.4	3.0	4.8	1.8	7.0	0.0	0.0	0.2	0.3	0.0	1.6	5.2	2.4	7.1	0.0	0.0	0.2	0.4	0.0	1.2	1.1	0.0	2.4	1.4	0.5	2.6
6	Region 35	1.8	0.3	2.9	1.6	0.0	4.8	3.4	0.3	6.7	0.1	0.0	0.3	0.0	0.0	0.2	3.5	0.3	6.8	0.0	0.0	0.0	0.4	0.0	1.1	0.2	0.0	0.7	0.6	0.0	1.5
8	Region 36	3.8	2.6	5.2	1.4	0.6	2.7	5.2	3.7	6.2	0.0	0.0	0.1	0.2	0.0	0.8	5.4	3.7	6.4	0.2	0.0	0.5	0.9	0.0	2.1	0.4	0.1	0.9	1.3	0.4	2.2
263	**Ave. WM1**	**3.2**			**1.5**			**4.7**			**0.0**			**0.2**			**5.0**			**0.0**			**0.6**			**0.9**			**1.5**		
	Min. WM1		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM1			**6.4**			**4.8**			**7.0**			**0.3**			**2.9**			**7.9**			**1.5**			**4.5**			**3.4**			**5.1**

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2																															
4	Region 12	6.7	1.7	9.1	0.3	0.1	0.5	7.1	2.1	9.6	0.1	0.0	0.4	0.4	0.0	1.8	7.6	2.4	9.6	0.0	0.0	0.0	1.1	0.0	1.7	1.7	0.0	3.8	2.8	0.4	5.1
12	Region 13	6.2	2.8	8.8	2.9	1.0	7.2	9.1	6.2	13.0	0.1	0.0	0.5	0.4	0.0	2.4	9.6	7.6	13.0	0.0	0.0	0.2	0.7	0.0	1.6	2.3	0.3	3.7	3.0	1.2	4.1
21	Region 14	7.8	4.4	11.0	1.4	0.4	3.5	9.2	7.1	12.2	0.0	0.0	0.2	0.1	0.0	1.0	9.4	7.1	12.2	0.1	0.0	0.3	1.2	0.0	4.2	2.4	0.0	4.1	3.6	1.0	7.1
5	Region 15	7.9	7.4	9.0	1.9	0.4	4.0	9.8	7.7	11.5	0.2	0.0	0.4	0.3	0.0	0.7	10.2	8.1	11.8	0.3	0.0	1.4	1.4	0.0	4.6	1.9	0.6	3.0	3.3	1.6	5.2
3	Region 16	10.3	8.8	11.7	0.8	0.1	1.8	11.1	8.9	12.3	0.0	0.0	0.0	0.0	0.0	0.0	11.1	8.9	12.3	0.0	0.0	0.0	3.5	2.2	4.5	2.8	1.1	4.1	6.3	3.4	8.7
22	Region 17	7.8	2.0	10.7	2.0	0.6	5.7	9.8	3.7	13.0	0.1	0.0	0.5	0.3	0.0	1.7	10.2	4.1	13.7	0.0	0.0	0.1	1.1	0.0	3.1	2.7	0.6	5.1	3.8	1.3	5.9
7	Region 18	6.2	2.4	10.0	3.3	1.4	8.3	9.6	8.0	11.6	0.1	0.0	0.5	0.3	0.0	0.9	9.9	8.1	11.9	0.1	0.0	0.7	1.4	0.6	3.3	1.6	0.0	2.6	3.0	1.5	4.8
11	Region 19	6.0	2.3	10.9	2.5	0.5	6.8	8.5	2.8	12.7	0.2	0.0	0.4	0.2	0.0	0.6	8.9	3.5	12.7	0.0	0.0	0.2	0.7	0.0	1.7	1.8	0.6	4.3	2.6	0.6	5.5
4	Region 20	6.7	5.8	9.1	1.2	0.8	1.5	7.9	7.1	9.9	0.2	0.0	0.5	0.4	0.0	1.3	8.5	7.4	10.4	0.0	0.0	0.0	0.4	0.0	0.7	1.6	1.2	2.0	1.9	1.4	2.3
3	Region 21	6.5	3.0	11.1	1.9	1.2	2.8	8.4	4.8	12.3	0.1	0.0	0.4	0.3	0.0	0.8	8.8	6.0	12.3	0.0	0.0	0.0	1.1	0.4	2.1	1.8	0.5	3.1	2.9	2.1	3.9
9	Region 22	7.0	2.1	10.2	1.9	1.3	3.3	8.9	4.0	12.0	0.1	0.0	0.4	0.0	0.0	0.0	9.0	4.4	12.0	0.0	0.0	0.2	3.3	0.6	5.4	2.0	0.0	4.3	5.3	0.6	7.3
26	Region 23	7.3	1.2	11.6	2.5	0.3	6.8	9.7	6.3	12.8	0.1	0.0	0.5	0.0	0.0	0.2	9.9	6.8	13.0	0.0	0.0	0.0	3.1	0.6	7.0	2.2	0.0	4.1	5.2	1.0	9.8
10	Region 24	6.8	4.1	9.3	1.8	0.8	3.0	8.6	5.9	11.0	0.1	0.0	0.5	0.2	0.0	1.2	8.9	6.4	11.1	0.0	0.0	0.0	1.2	0.0	3.7	2.2	1.1	3.4	3.4	2.5	5.2
1	Region 25	5.1	-	-	3.9	-	-	9.0	-	-	0.4	-	-	0.5	-	-	9.9	-	-	0.0	-	-	0.0	-	-	0.7	-	-	0.7	-	-
1	Region 26	0.8	-	-	0.8	-	-	1.6	-	-	0.4	-	-	0.0	-	-	2.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
4	Region 27	2.4	1.7	3.7	5.1	2.6	7.2	7.5	4.7	9.5	0.2	0.0	0.5	0.2	0.0	0.6	7.9	5.5	9.6	0.0	0.0	0.1	0.8	0.2	1.2	0.3	0.0	1.1	1.1	0.2	2.2
3	Region 28	4.9	3.2	7.1	3.5	0.7	7.0	8.5	7.4	10.1	0.1	0.0	0.1	0.3	0.0	0.5	8.8	7.4	10.5	0.1	0.0	0.3	2.1	0.2	3.7	0.7	0.5	0.8	2.7	0.9	4.2
2	Region 29	5.3	4.3	6.3	1.6	1.4	1.9	6.9	5.6	8.2	0.4	0.4	0.4	0.0	0.0	0.0	7.2	6.0	8.5	0.0	0.0	0.0	1.6	0.0	3.2	1.0	1.0	1.0	2.6	1.0	4.2
2	Region 31	5.1	2.7	7.5	0.8	0.6	1.0	5.9	3.3	8.6	0.3	0.1	0.5	0.0	0.0	0.0	6.2	3.8	8.7	0.0	0.0	0.0	1.0	0.7	1.3	1.3	0.5	2.1	2.3	1.9	2.8
3	Region 32	6.2	3.2	8.2	2.5	1.6	4.0	8.7	7.2	9.8	0.2	0.0	0.5	0.1	0.0	0.3	9.0	7.3	10.1	0.2	0.0	0.6	1.6	0.0	4.8	2.3	1.2	2.8	3.9	1.2	7.5
1	Region 33	1.5	-	-	1.3	-	-	2.8	-	-	0.4	-	-	0.0	-	-	3.2	-	-	0.2	-	-	0.0	-	-	0.4	-	-	0.4	-	-
4	Region 34	4.0	1.3	7.4	3.9	2.5	5.6	7.9	4.3	12.0	0.2	0.0	0.5	0.2	0.0	0.3	8.3	4.8	12.4	0.1	0.0	0.1	0.7	0.0	2.6	1.0	0.0	2.5	1.7	0.0	3.7
158	**Ave. WM2**	**6.8**			**2.2**			**9.0**			**0.1**			**0.2**			**9.3**			**0.0**			**1.6**			**2.0**			**3.6**		
	Min. WM2		**0.8**			**0.1**			**1.6**			**0.0**			**0.0**			**2.0**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM2			**11.7**			**8.3**			**13.0**			**0.5**			**2.4**			**13.7**			**1.4**			**7.0**			**5.1**			**9.8**

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3																															
3	Region 12	15.9	13.3	19.8	0.5	0.1	1.0	16.5	13.8	20.9	0.0	0.0	0.1	0.0	0.0	0.1	16.5	13.9	20.9	0.0	0.0	0.0	3.3	1.5	6.0	4.4	1.6	6.3	7.7	3.1	12.3
3	Region 13	8.5	4.0	11.2	3.6	2.4	4.8	12.1	6.4	16.0	0.2	0.0	0.7	0.4	0.0	0.7	12.7	7.5	16.0	0.0	0.0	0.1	1.1	0.0	2.9	2.6	2.1	3.1	3.8	2.1	6.0
13	Region 14	12.6	5.2	14.7	1.6	0.8	3.8	14.2	7.6	18.5	0.2	0.0	0.7	0.1	0.0	0.3	14.5	8.2	18.7	0.0	0.0	0.2	1.9	0.2	6.1	4.2	1.5	7.0	6.1	1.9	10.4
5	Region 15	15.2	6.4	18.9	1.9	1.0	4.0	17.0	10.3	20.5	0.2	0.0	0.7	0.1	0.0	0.3	17.4	11.3	20.7	0.1	0.0	0.3	4.7	1.8	7.8	4.8	0.0	7.6	9.5	3.5	15.0
1	Region 16	22.0	-	-	2.3	-	-	24.3	-	-	0.0	-	-	0.0	-	-	24.3	-	-	0.0	-	-	4.0	-	-	14.0	-	-	18.0	-	-
3	Region 17	9.9	3.1	14.7	1.7	0.8	2.7	11.6	3.8	17.4	0.2	0.0	0.6	0.2	0.0	0.5	11.9	4.4	17.4	0.0	0.0	0.0	1.0	0.0	2.5	3.0	1.0	4.6	3.9	1.0	7.1
4	Region 18	10.3	8.9	13.0	5.2	2.0	8.0	15.6	14.9	16.8	0.2	0.1	0.3	0.4	0.0	1.4	16.2	15.0	18.5	0.0	0.0	0.1	1.0	0.0	1.8	2.7	0.0	5.2	3.7	0.0	6.0
1	Region 19	4.6	-	-	2.6	-	-	7.2	-	-	0.7	-	-	0.0	-	-	7.9	-	-	0.0	-	-	0.2	-	-	2.7	-	-	2.9	-	-
1	Region 21	2.3	-	-	4.8	-	-	7.1	-	-	0.6	-	-	0.0	-	-	7.7	-	-	0.0	-	-	0.3	-	-	0.1	-	-	0.4	-	-
7	Region 23	13.4	9.0	19.1	3.0	0.9	8.0	16.4	13.2	23.9	0.2	0.0	0.5	0.0	0.0	0.0	16.6	13.2	24.1	0.0	0.0	0.2	4.1	1.6	8.5	4.3	0.0	7.2	8.4	4.1	14.6
4	Region 24	13.0	10.7	16.6	1.5	0.6	2.4	14.5	11.2	18.9	0.2	0.0	0.6	0.0	0.0	0.0	14.7	11.9	18.9	0.0	0.0	0.0	4.4	2.0	6.6	4.7	4.5	5.0	9.1	6.5	11.1
1	Region 26	1.3	-	-	1.9	-	-	3.2	-	-	0.6	-	-	5.2	-	-	9.1	-	-	0.0	-	-	0.0	-	-	0.5	-	-	0.5	-	-
1	Region 30	7.2	-	-	3.6	-	-	10.8	-	-	0.7	-	-	1.6	-	-	13.1	-	-	0.1	-	-	0.2	-	-	5.0	-	-	5.2	-	-
2	Region 31	12.4	11.9	12.9	1.2	0.9	1.4	13.6	13.3	13.8	0.0	0.0	0.0	0.5	0.0	1.0	14.1	13.8	14.3	0.0	0.0	0.0	1.8	1.1	2.5	6.4	4.0	8.7	8.2	6.5	9.9
2	Region 36	8.9	5.5	12.2	1.4	0.7	2.1	10.3	6.2	14.3	0.3	0.0	0.7	1.0	0.4	1.5	11.6	8.4	14.7	0.1	0.0	0.2	0.9	0.7	1.2	1.3	0.9	1.7	2.2	1.6	2.9
51	**Ave. WM3**	**12.0**			**2.3**			**14.2**			**0.2**			**0.3**			**14.7**			**0.0**			**2.4**			**4.0**			**6.5**		
	Min. WM3		**1.3**			**0.1**			**3.2**			**0.0**			**0.0**			**4.4**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM3			**22.0**			**8.0**			**24.3**			**0.7**			**5.2**			**24.3**			**0.3**			**8.5**			**14.0**			**18.0**

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM																															
2	Region 12	11.2	4.4	18.1	1.5	1.4	1.6	12.8	5.8	19.7	0.4	0.0	0.8	0.0	0.0	0.0	13.2	5.8	20.5	0.0	0.0	0.0	2.3	1.0	3.7	4.3	1.4	7.2	6.6	2.3	10.9
4	Region 13	10.1	2.5	15.3	4.5	1.7	7.4	14.5	8.0	22.4	1.9	0.9	4.7	0.8	0.0	3.1	17.3	11.7	27.3	0.0	0.0	0.0	0.2	0.0	0.7	4.2	1.3	9.7	4.4	1.3	9.7
4	Region 14	7.8	0.6	13.6	3.0	0.4	6.6	10.8	3.0	14.0	1.6	0.9	1.9	0.0	0.0	0.2	12.4	4.9	15.8	0.0	0.0	0.0	1.2	0.0	2.2	3.1	0.1	5.2	4.3	0.1	7.0
3	Region 17	4.8	1.6	8.8	1.6	1.0	1.9	6.4	3.5	10.6	0.9	0.8	1.0	0.4	0.0	1.3	7.7	5.8	11.4	0.0	0.0	0.0	0.6	0.0	1.9	1.2	0.5	2.3	1.8	0.5	4.3
3	Region 18	12.7	5.7	17.5	2.1	0.9	4.2	14.7	9.9	18.5	1.3	0.9	2.2	0.8	0.0	2.0	16.9	12.1	19.8	0.2	0.0	0.5	2.2	0.7	3.0	3.8	1.7	6.4	6.0	2.5	9.3
6	Region 19	4.4	2.6	6.9	3.5	1.2	8.6	7.8	3.9	13.6	0.7	0.0	1.3	0.6	0.0	3.1	9.1	4.2	14.6	0.2	0.0	1.0	0.8	0.0	2.0	1.3	0.4	2.0	2.1	0.8	4.0
1	Region 20	1.8	-	-	1.5	-	-	3.3	-	-	1.3	-	-	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-	0.3	-	-	0.3	-	-
3	Region 21	18.3	6.4	27.7	3.1	0.4	5.5	21.4	11.9	31.1	0.8	0.3	1.1	0.0	0.0	0.0	22.2	13.0	31.4	0.1	0.0	0.2	1.3	0.0	3.9	3.6	1.4	5.8	5.0	3.8	5.8
1	Region 22	1.0	-	-	2.3	-	-	3.3	-	-	1.2	-	-	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
6	Region 23	10.6	6.5	16.2	3.2	1.0	6.9	13.8	8.9	23.1	1.0	0.0	2.0	0.1	0.0	0.4	14.8	9.7	23.1	0.0	0.0	0.0	3.9	1.9	6.1	3.3	2.1	4.6	7.2	5.0	9.9
2	Region 24	17.1	3.2	31.0	1.0	0.8	1.2	18.1	4.4	31.8	0.0	0.0	0.1	0.2	0.0	0.4	18.4	4.8	31.9	0.0	0.0	0.0	9.0	0.0	17.9	5.0	1.3	8.7	14.0	1.3	26.6
2	Region 26	3.7	1.1	6.3	3.3	2.3	4.3	7.0	3.4	10.5	0.9	0.9	0.9	1.7	0.5	2.8	9.5	7.1	11.9	1.2	0.0	2.3	0.0	0.0	0.0	0.9	0.0	1.7	0.9	0.0	1.7
1	Region 27	21.9	-	-	9.4	-	-	31.3	-	-	1.3	-	-	1.0	-	-	33.6	-	-	0.0	-	-	1.2	-	-	0.3	-	-	1.5	-	-
1	Region 28	6.9	-	-	0.9	-	-	7.8	-	-	0.9	-	-	0.2	-	-	8.8	-	-	0.0	-	-	5.4	-	-	0.0	-	-	5.4	-	-
2	Region 30	7.2	5.8	8.7	2.2	2.1	2.4	9.5	8.1	10.8	0.1	0.0	0.2	0.4	0.0	0.7	10.0	8.1	11.8	0.0	0.0	0.0	2.7	2.2	3.1	3.5	1.3	5.7	6.2	4.4	7.9
3	Region 32	11.0	2.1	26.4	1.9	1.4	2.3	13.0	4.3	28.6	0.4	0.0	0.8	0.8	0.0	2.0	14.2	4.7	30.7	0.1	0.0	0.2	5.7	0.5	14.4	4.0	0.9	10.1	9.7	1.4	24.5
5	Region 34	5.3	2.1	10.8	3.8	1.3	10.1	9.0	4.8	12.2	1.1	0.0	3.5	0.1	0.0	0.2	10.2	5.5	15.9	0.0	0.0	0.0	1.0	0.0	2.2	1.9	0.6	4.9	2.9	0.6	6.4
1	Region 35	2.2	-	-	1.7	-	-	3.9	-	-	0.0	-	-	0.0	-	-	3.9	-	-	0.0	-	-	0.0	-	-	0.5	-	-	0.5	-	-
2	Region 36	4.1	3.6	4.5	2.2	1.9	2.5	6.3	6.1	6.4	0.0	0.0	0.1	0.0	0.0	0.1	6.3	6.1	6.5	0.1	0.0	0.3	1.5	0.6	2.4	0.7	0.5	0.8	2.2	1.5	2.9
52	**Ave. COM**	**8.6**			**2.9**			**11.5**			**0.9**			**0.4**			**12.8**			**0.1**			**2.0**			**2.6**			**4.6**		
	Min. COM		**0.6**			**0.4**			**3.0**			**0.0**			**0.0**			**3.9**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. COM			**31.0**			**10.1**			**31.8**			**4.7**			**3.1**			**33.6**			**2.3**			**17.9**			**10.1**			**26.6**
524	**Ave. WM**	**5.7**			**1.9**			**7.6**			**0.2**			**0.2**			**8.0**			**0.0**			**1.2**			**1.7**			**2.9**		
	Min. WM		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. WM			**31.0**			**10.1**			**31.8**			**4.7**			**5.2**			**33.6**			**2.3**			**17.9**			**14.0**			**26.6**
1000	**Ave. Maize**	**5.0**			**2.1**			**7.2**			**0.2**			**0.2**			**7.5**			**0.0**			**1.3**			**1.7**			**3.0**		
	Min. Maize		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. Maize			**31.0**			**12.7**			**31.8**			**5.5**			**5.2**			**33.6**			**2.3**			**17.9**			**15.7**			**26.6**

TABLE 3: RSA GRADING OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (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 (Crotolaria spp., Datura spp., Ricinis communis) Max. allowance 1 seed/1000 g	Number of Poisonous seeds (Argemone mexicana L., Convolvulus spp., Ipomoea purpurea Roth., Lolium temulentum, Xanthium spp.) Max. allowance 7 seeds/1000 g
12	6 *Datura spp.*	0
19	0	12 *Xanthium Strumarium*
19	6 *Datura spp.*	0
19	6 *Datura spp.*	50 *Xanthium Strumarium*
19	6 *Datura spp.*	0
19	6 *Datura spp.*	0
21	0	12 *Xanthium Strumarium*
22	6 *Datura spp.*	0
23	6 *Datura spp.*	0
24	6 *Datura spp.*	0
26	0	12 *Xanthium Strumarium*
30	0	12 *Xanthium Strumarium*
30	0	12 *Xanthium Strumarium*
32	0	24 *Xanthium Strumarium & 6 Ipomoea Purpurea*
34	6 *Datura spp.*	0
34	30 *Datura spp.*	0
34	0	12 *Xanthium Strumarium*
35	5 *Datura spp.*	0
36	6 *Datura spp.*	0
36	0	11 *Ipomoea purpurea*

TABLE 4: RSA GRADING OF WHITE MAIZE (2021/22)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WHITE																															
1	Region 11	1.4	-	-	4.2	-	-	5.6	-	-	0.0	-	-	0.0	-	-	5.6	-	-	1.5	-	-	0.0	-	-	0.5	-	-	0.5	-	-
17	Region 12	7.3	1.7	19.8	1.1	0.1	3.3	8.3	2.1	20.9	0.1	0.0	0.8	0.2	0.0	1.8	8.6	2.4	20.9	0.0	0.0	0.3	1.3	0.0	6.0	2.1	0.0	7.2	3.4	0.4	12.3
29	Region 13	5.9	2.3	15.3	2.8	0.4	7.4	8.7	3.1	22.4	0.3	0.0	4.7	0.4	0.0	3.1	9.5	3.1	27.3	0.0	0.0	0.2	0.7	0.0	2.9	2.3	0.0	9.7	2.9	0.5	9.7
62	Region 14	7.2	0.6	14.7	1.5	0.4	6.6	8.7	2.8	18.5	0.2	0.0	1.9	0.1	0.0	1.0	8.9	2.8	18.7	0.0	0.0	0.8	1.1	0.0	6.1	2.2	0.0	7.0	3.3	0.0	10.4
12	Region 15	10.0	1.8	18.9	1.8	0.4	4.0	11.8	3.4	20.5	0.2	0.0	0.7	0.2	0.0	0.7	12.1	3.4	20.7	0.2	0.0	1.4	2.6	0.0	7.8	3.0	0.0	7.6	5.7	1.4	15.0
4	Region 16	13.2	8.8	22.0	1.2	0.1	2.3	14.4	8.9	24.3	0.0	0.0	0.0	0.0	0.0	0.0	14.4	8.9	24.3	0.0	0.0	0.0	3.6	2.2	4.5	5.6	1.1	14.0	9.2	3.4	18.0
40	Region 17	6.6	1.6	14.7	1.8	0.5	5.7	8.4	3.5	17.4	0.1	0.0	1.0	0.2	0.0	1.7	8.7	3.6	17.4	0.0	0.0	0.4	0.9	0.0	3.1	2.2	0.5	5.1	3.1	0.5	7.1
18	Region 18	7.4	0.9	17.5	3.1	0.9	8.3	10.5	2.2	18.5	0.3	0.0	2.2	0.5	0.0	2.0	11.3	2.9	19.8	0.1	0.0	0.7	1.1	0.0	3.3	2.1	0.0	6.4	3.2	0.0	9.3
33	Region 19	4.7	2.2	10.9	2.4	0.5	8.6	7.1	2.8	13.6	0.2	0.0	1.3	0.3	0.0	3.1	7.6	3.5	14.6	0.1	0.0	1.0	0.7	0.0	2.1	1.4	0.0	4.3	2.1	0.6	5.5
22	Region 20	3.3	0.8	9.1	1.3	0.3	3.3	4.6	2.0	9.9	0.1	0.0	1.3	0.3	0.0	1.9	5.0	2.2	10.4	0.0	0.0	0.0	0.3	0.0	1.4	0.7	0.0	2.0	1.0	0.0	2.3
23	Region 21	5.8	0.6	27.7	2.0	0.4	5.5	7.8	3.6	31.1	0.2	0.0	1.1	0.2	0.0	0.8	8.2	4.1	31.4	0.0	0.0	0.2	0.7	0.0	3.9	1.2	0.0	5.8	1.8	0.1	5.8
14	Region 22	5.5	1.0	10.2	2.0	0.9	3.5	7.5	3.3	12.0	0.1	0.0	1.2	0.0	0.0	0.2	7.7	4.4	12.0	0.0	0.0	0.2	2.6	0.0	5.4	1.4	0.0	4.3	4.0	0.0	7.3
53	Region 23	7.7	1.2	19.1	2.4	0.3	8.0	10.0	3.8	23.9	0.2	0.0	2.0	0.0	0.0	0.4	10.2	4.0	24.1	0.0	0.0	0.2	2.9	0.0	8.5	2.4	0.0	7.2	5.2	1.0	14.6
20	Region 24	8.5	2.0	31.0	1.5	0.2	3.0	10.0	4.1	31.8	0.1	0.0	0.6	0.1	0.0	1.2	10.3	4.7	31.9	0.0	0.0	0.0	2.6	0.0	17.9	2.9	0.9	8.7	5.5	1.2	26.6
2	Region 25	3.0	0.9	5.1	2.3	0.7	3.9	5.3	1.5	9.0	0.2	0.0	0.4	0.9	0.5	1.3	6.4	2.8	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.7	0.4	0.2	0.7
12	Region 26	2.4	0.8	6.3	1.6	0.4	4.3	4.0	1.3	10.5	0.3	0.0	0.9	0.8	0.0	5.2	5.1	1.8	11.9	0.2	0.0	2.3	0.3	0.0	2.0	0.6	0.0	1.7	0.9	0.0	2.9
9	Region 27	4.4	1.5	21.9	4.6	2.1	9.4	9.0	3.7	31.3	0.3	0.0	1.3	0.3	0.0	1.0	9.6	4.1	33.6	0.1	0.0	0.4	0.5	0.0	1.2	0.6	0.0	1.8	1.1	0.2	2.2
22	Region 28	3.9	1.7	7.1	1.5	0.4	7.0	5.4	2.5	10.1	0.1	0.0	0.9	0.4	0.0	1.8	5.9	2.7	10.5	0.0	0.0	0.3	1.3	0.0	5.4	0.8	0.0	2.8	2.1	0.1	5.4
14	Region 29	3.8	1.4	6.3	1.4	0.5	2.9	5.2	2.5	8.2	0.1	0.0	0.4	0.2	0.0	1.1	5.5	2.5	8.5	0.0	0.0	0.4	0.9	0.0	3.2	1.0	0.0	2.6	1.8	0.7	4.2
15	Region 30	4.3	0.7	8.7	1.4	0.4	3.6	5.7	2.0	10.8	0.1	0.0	0.7	0.5	0.0	1.6	6.2	2.3	13.1	0.0	0.0	0.1	0.8	0.0	3.1	1.7	0.3	5.7	2.5	0.3	7.9
13	Region 31	4.6	0.2	12.9	1.0	0.2	2.0	5.6	1.2	13.8	0.1	0.0	0.5	0.3	0.0	1.3	6.0	1.2	14.3	0.0	0.0	0.2	0.8	0.0	2.5	1.7	0.0	8.7	2.6	0.1	9.9
15	Region 32	5.5	1.2	26.4	1.8	0.9	4.0	7.3	2.9	28.6	0.2	0.0	0.8	0.4	0.0	2.0	7.8	2.9	30.7	0.0	0.0	0.6	1.7	0.0	14.4	1.8	0.0	10.1	3.6	1.0	24.5
28	Region 33	2.2	0.7	5.7	1.4	0.3	3.0	3.6	1.2	6.6	0.0	0.0	0.4	0.3	0.0	2.9	3.9	1.2	6.9	0.0	0.0	0.3	0.4	0.0	1.5	0.7	0.0	3.0	1.2	0.0	3.6
27	Region 34	3.8	1.0	10.8	2.3	0.4	10.1	6.1	1.8	12.2	0.3	0.0	3.5	0.3	0.0	1.6	6.6	2.4	15.9	0.0	0.0	0.2	0.5	0.0	2.6	1.2	0.0	4.9	1.7	0.0	6.4
7	Region 35	1.9	0.3	2.9	1.6	0.0	4.8	3.4	0.3	6.7	0.1	0.0	0.3	0.0	0.0	0.2	3.5	0.3	6.8	0.0	0.0	0.0	0.3	0.0	1.1	0.2	0.0	0.7	0.6	0.0	1.5
12	Region 36	4.7	2.6	12.2	1.5	0.6	2.7	6.2	3.7	14.3	0.1	0.0	0.7	0.3	0.0	1.5	6.6	3.7	14.7	0.2	0.0	0.5	1.0	0.0	2.4	0.6	0.1	1.7	1.6	0.4	2.9
524	**Ave. White**	**5.7**			**1.9**			**7.6**			**0.2**			**0.2**			**8.0**			**0.0**			**1.2**			**1.7**			**2.9**		
	Min. White		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. White			**31.0**			**10.1**			**31.8**			**4.7**			**5.2**			**33.6**			**2.3**			**17.9**			**14.0**			**26.6**

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM1																															
7	Region 08	3.4	2.0	6.9	2.1	0.8	3.6	5.5	3.1	8.5	0.0	0.0	0.1	0.0	0.0	0.0	5.5	3.1	8.5	0.0	0.0	0.0	0.2	0.0	0.9	1.4	0.3	4.6	1.6	0.5	5.0
14	Region 10	2.9	0.9	6.3	1.7	0.4	3.2	4.6	2.0	8.1	0.0	0.0	0.1	0.0	0.0	0.0	4.6	2.0	8.1	0.0	0.0	0.0	0.5	0.0	3.6	1.0	0.0	2.2	1.5	0.5	4.4
15	Region 11	1.8	0.5	3.5	1.9	0.9	3.2	3.7	1.8	5.7	0.0	0.0	0.2	0.0	0.0	0.0	3.7	1.8	6.0	0.0	0.0	0.0	0.2	0.0	0.8	0.8	0.0	1.9	1.0	0.4	1.9
5	Region 12	3.7	0.8	6.6	1.1	0.2	2.5	4.8	2.6	6.9	0.0	0.0	0.0	0.1	0.0	0.4	4.9	2.9	6.9	0.0	0.0	0.0	1.4	0.3	3.0	1.3	0.0	2.4	2.7	0.3	5.3
6	Region 13	3.9	2.6	6.1	2.0	0.9	3.1	5.9	4.6	7.9	0.0	0.0	0.1	0.2	0.0	1.0	6.1	4.6	7.9	0.0	0.0	0.0	0.8	0.0	1.5	1.3	0.2	2.6	2.1	0.9	2.9
9	Region 14	4.5	2.4	7.7	1.4	0.1	3.2	5.9	3.9	8.3	0.1	0.0	0.2	0.1	0.0	0.4	6.0	3.9	8.5	0.0	0.0	0.0	2.1	0.8	4.4	1.4	0.5	3.0	3.5	1.5	6.8
7	Region 17	5.0	2.4	7.2	1.9	1.0	3.3	6.9	4.3	9.0	0.0	0.0	0.1	0.1	0.0	0.3	7.0	4.3	9.0	0.0	0.0	0.0	2.5	0.4	4.6	1.2	0.5	2.1	3.7	0.9	6.7
3	Region 18	3.8	2.8	5.1	2.0	1.7	2.3	5.9	5.1	7.3	0.0	0.0	0.1	0.1	0.0	0.4	6.0	5.1	7.3	0.0	0.0	0.0	1.3	0.4	2.4	1.2	0.7	1.7	2.5	1.8	3.7
7	Region 19	3.0	1.4	4.0	2.0	0.2	3.8	5.0	3.2	6.5	0.1	0.0	0.1	0.1	0.0	0.3	5.1	3.3	6.6	0.0	0.0	0.0	0.8	0.4	1.3	0.9	0.0	1.7	1.7	0.5	2.5
5	Region 20	4.0	2.6	5.3	1.6	0.8	2.8	5.6	4.2	8.1	0.1	0.0	0.2	0.1	0.0	0.5	5.8	4.2	8.1	0.0	0.0	0.0	0.8	0.0	1.7	2.0	1.1	3.6	2.8	1.4	3.6
4	Region 21	3.4	2.2	5.4	2.5	2.0	3.0	5.9	4.9	7.8	0.0	0.0	0.1	0.0	0.0	0.0	5.9	4.9	7.9	0.0	0.0	0.0	0.8	0.1	1.3	1.1	0.6	2.0	1.9	1.2	2.9
1	Region 23	2.7	-	-	2.2	-	-	5.0	-	-	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-	1.8	-	-	1.8	-	-
3	Region 24	2.3	1.6	2.8	2.7	2.6	2.9	5.0	4.3	5.4	0.1	0.0	0.2	0.1	0.0	0.3	5.3	4.5	5.7	0.0	0.0	0.0	0.2	0.0	0.4	1.0	0.1	2.0	1.3	0.4	2.3
10	Region 25	2.1	0.8	3.0	2.2	0.5	3.7	4.3	2.7	5.8	0.0	0.0	0.1	0.0	0.0	0.0	4.3	2.7	5.9	0.0	0.0	0.0	0.3	0.0	1.6	1.0	0.0	2.0	1.3	0.0	2.5
12	Region 26	3.6	1.0	6.0	2.1	0.3	3.3	5.7	2.7	8.4	0.1	0.0	0.3	0.2	0.0	1.2	6.0	2.7	8.7	0.0	0.0	0.0	0.9	0.0	1.7	1.5	0.3	2.8	2.4	0.7	4.2
15	Region 27	2.2	0.2	4.8	2.1	0.6	3.7	4.2	2.6	7.7	0.0	0.0	0.1	0.0	0.0	0.2	4.3	2.7	7.7	0.0	0.0	0.0	0.6	0.0	1.5	0.8	0.0	2.8	1.4	0.1	4.3
30	Region 28	3.4	0.7	6.7	1.6	0.0	4.0	5.0	1.8	8.9	0.0	0.0	0.2	0.0	0.0	0.9	5.1	1.8	8.9	0.0	0.0	0.0	1.3	0.0	4.1	1.0	0.0	2.9	2.4	0.5	5.6
35	Region 29	4.0	1.7	6.6	1.8	0.5	3.9	5.9	2.9	8.5	0.0	0.0	0.2	0.1	0.0	1.1	6.0	2.9	8.6	0.0	0.0	0.0	1.5	0.0	4.6	1.6	0.1	3.8	3.1	0.6	5.7
18	Region 30	3.3	0.6	6.8	1.9	0.8	3.7	5.2	2.1	9.0	0.0	0.0	0.2	0.0	0.0	0.5	5.3	2.1	9.0	0.0	0.0	0.0	0.9	0.0	2.9	1.2	0.0	2.2	2.1	0.4	4.9
18	Region 31	3.5	1.9	5.6	2.3	1.4	3.8	5.8	3.6	8.2	0.0	0.0	0.2	0.0	0.0	0.0	5.8	3.6	8.2	0.0	0.0	0.0	1.6	0.5	3.5	1.4	0.1	3.3	3.0	1.4	4.8
21	Region 32	3.2	1.0	5.5	2.0	0.9	3.6	5.2	2.2	7.9	0.1	0.0	0.3	0.0	0.0	0.3	5.3	2.2	8.0	0.0	0.0	0.0	1.1	0.0	2.6	1.5	0.0	3.3	2.5	0.6	4.5
20	Region 33	2.2	0.6	4.8	2.1	0.6	4.0	4.3	2.2	7.2	0.0	0.0	0.2	0.3	0.0	1.2	4.6	2.2	7.9	0.0	0.0	0.0	1.0	0.0	4.1	0.7	0.0	2.4	1.7	0.0	4.8
21	Region 34	3.6	1.7	6.4	2.2	0.3	3.2	5.8	3.0	8.2	0.0	0.0	0.2	0.1	0.0	0.6	5.9	3.0	8.2	0.0	0.0	0.0	1.2	0.0	2.3	1.6	0.3	3.9	2.8	1.4	5.2
9	Region 35	1.8	0.2	4.4	2.2	0.1	3.6	4.0	0.3	7.2	0.1	0.0	0.2	0.0	0.0	0.2	4.2	0.3	7.2	0.0	0.0	0.0	0.1	0.0	0.8	0.4	0.0	0.8	0.5	0.0	1.6
15	Region 36	3.4	1.6	5.7	1.5	0.3	2.9	4.9	2.4	7.4	0.1	0.0	0.3	0.0	0.0	0.3	5.0	2.5	7.5	0.0	0.0	0.0	1.3	0.0	3.8	1.0	0.0	3.3	2.3	0.5	4.4
310	**Ave. YM1**	**3.2**			**1.9**			**5.2**			**0.0**			**0.1**			**5.3**			**0.0**			**1.0**			**1.2**			**2.2**		
	Min. YM1		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. YM1			**7.7**			**4.0**			**9.0**			**0.3**			**1.2**			**9.0**			**0.0**			**4.6**			**4.6**			**6.8**

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	% Defective Kernels						% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		Above 6.35 mm sieve			Below 6.35 mm sieve																										
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2																															
3	Region 10	5.4	2.5	7.3	2.3	0.9	3.8	7.7	3.4	10.2	0.3	0.1	0.4	0.0	0.0	0.0	7.9	3.8	10.6	0.0	0.0	0.0	0.0	0.0	0.0	3.2	1.2	5.0	3.2	1.2	5.0
3	Region 11	4.3	1.5	9.3	5.3	4.1	7.6	9.5	5.6	16.8	0.0	0.0	0.1	0.0	0.0	0.0	9.5	5.6	17.0	0.0	0.0	0.0	0.4	0.0	1.2	1.3	0.0	3.3	1.7	0.6	3.3
3	Region 13	9.6	9.0	10.7	2.2	1.6	3.1	11.8	10.6	13.7	0.1	0.0	0.2	0.3	0.0	0.8	12.1	10.6	14.7	0.0	0.0	0.0	3.0	1.6	4.8	4.4	3.0	6.6	7.4	5.3	9.2
4	Region 14	10.7	7.2	13.1	2.9	1.9	4.3	13.6	10.5	15.4	0.1	0.0	0.5	0.2	0.0	0.7	14.0	11.2	15.6	0.0	0.0	0.0	2.2	0.0	3.9	7.0	5.6	10.4	9.2	6.2	11.7
6	Region 17	10.8	8.2	16.9	2.5	0.3	4.7	13.3	10.3	19.1	0.0	0.0	0.0	0.3	0.0	1.3	13.6	10.6	19.1	0.0	0.0	0.0	4.1	1.5	8.7	5.2	2.5	10.8	9.2	6.4	13.5
1	Region 18	1.8	-	-	4.7	-	-	6.6	-	-	0.0	-	-	0.3	-	-	6.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
4	Region 19	8.7	2.4	10.8	2.0	0.9	3.9	10.7	6.2	12.5	0.1	0.0	0.4	0.7	0.0	2.8	11.5	6.6	15.3	0.0	0.0	0.0	2.0	0.7	3.2	4.3	0.8	6.1	6.3	1.5	8.9
3	Region 20	7.2	5.5	8.4	2.4	1.3	4.0	9.6	9.5	9.7	0.0	0.0	0.0	0.0	0.0	0.0	9.6	9.5	9.7	0.0	0.0	0.0	1.4	0.4	2.8	1.7	1.2	2.3	3.1	1.6	4.4
1	Region 22	4.2	-	-	4.5	-	-	8.7	-	-	0.1	-	-	0.7	-	-	9.6	-	-	0.0	-	-	0.5	-	-	2.5	-	-	3.0	-	-
1	Region 24	0.8	-	-	9.0	-	-	9.8	-	-	0.2	-	-	0.2	-	-	10.2	-	-	0.0	-	-	0.0	-	-	0.6	-	-	0.6	-	-
4	Region 25	4.5	1.0	8.9	4.5	3.4	5.2	9.0	5.7	12.2	0.2	0.0	0.5	0.0	0.0	0.0	9.2	5.8	12.4	0.0	0.0	0.0	1.4	0.0	3.4	2.4	0.6	6.0	3.8	0.6	8.2
2	Region 26	9.6	7.8	11.4	2.5	2.1	2.9	12.1	9.9	14.4	0.1	0.0	0.1	0.5	0.0	1.1	12.7	9.9	15.6	0.0	0.0	0.0	1.4	0.0	2.8	2.2	1.0	3.5	3.6	1.0	6.3
4	Region 27	3.2	1.6	6.7	3.4	0.9	4.7	6.7	5.7	7.7	0.1	0.0	0.4	0.1	0.0	0.3	6.9	6.1	8.1	0.0	0.0	0.0	1.9	0.8	4.2	0.6	0.1	1.3	2.5	1.4	5.5
8	Region 28	7.4	2.6	13.3	3.2	2.2	5.3	10.6	6.8	16.1	0.1	0.0	0.4	0.1	0.0	0.3	10.8	7.6	16.1	0.0	0.0	0.0	4.0	0.7	11.0	1.9	0.2	4.0	5.9	0.9	12.0
9	Region 29	8.0	1.3	17.6	3.4	0.8	7.3	11.3	4.1	19.2	0.1	0.0	0.5	0.0	0.0	0.2	11.5	4.7	19.7	0.0	0.0	0.0	4.0	0.8	11.0	2.4	0.0	6.0	6.4	0.8	16.3
10	Region 30	7.4	3.3	9.4	2.2	1.0	4.2	9.6	4.2	12.2	0.2	0.0	0.5	0.1	0.0	0.7	9.9	4.7	12.2	0.0	0.0	0.0	1.7	0.0	3.5	3.2	1.5	6.3	4.9	1.5	7.8
9	Region 31	6.0	2.4	11.0	3.9	1.6	6.2	9.9	5.6	17.2	0.1	0.0	0.4	0.0	0.0	0.3	10.0	6.0	17.2	0.0	0.0	0.0	4.0	0.4	9.9	1.3	0.4	2.8	5.2	1.5	10.8
5	Region 32	6.8	1.1	8.7	2.4	1.0	3.6	9.2	3.4	12.3	0.2	0.0	0.4	0.1	0.0	0.4	9.4	3.8	12.3	0.0	0.0	0.0	3.6	0.9	5.0	2.4	0.2	3.5	6.0	1.1	8.1
6	Region 33	6.6	0.7	11.0	3.9	1.5	6.5	10.5	6.5	14.8	0.1	0.0	0.3	0.5	0.0	1.5	11.0	7.3	15.8	0.0	0.0	0.0	5.0	0.0	9.6	1.1	0.0	2.4	6.1	0.3	10.4
5	Region 34	7.0	3.5	8.6	3.2	1.5	4.5	10.2	8.0	12.8	0.1	0.0	0.5	0.1	0.0	0.5	10.4	8.1	13.4	0.0	0.0	0.0	3.4	1.5	5.3	2.1	0.5	5.4	5.5	2.0	7.6
9	Region 36	5.5	1.1	11.2	3.2	2.2	4.8	8.7	4.0	13.7	0.2	0.0	0.4	0.7	0.0	3.2	9.6	6.2	13.7	0.0	0.0	0.0	1.8	0.0	5.8	1.5	0.2	3.7	3.3	0.6	8.3
100	**Ave. YM2**	**7.0**			**3.2**			**10.2**			**0.1**			**0.2**			**10.5**			**0.0**			**2.7**			**2.5**			**5.2**		
	Min. YM2		**0.7**			**0.3**			**3.4**			**0.0**			**0.0**			**3.8**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. YM2			**17.6**			**9.0**			**19.2**			**0.5**			**3.2**			**19.7**			**0.0**			**11.0**			**10.8**			**16.3**

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	% Defective Kernels						%			%			%			%			%			%			%			%		
		Above 6.35 mm sieve			Below 6.35 mm sieve			Total defective			Foreign matter			Other Colour			Combined Deviations			Pinked Kernels			Diplodia Kernels			Fusarium Kernels			Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3																															
1	Region 11	12.9	-	-	9.9	-	-	22.8	-	-	0.1	-	-	0.0	-	-	23.0	-	-	0.0	-	-	0.0	-	-	11.8	-	-	11.8	-	-
1	Region 13	19.1	-	-	2.4	-	-	21.6	-	-	0.4	-	-	0.0	-	-	22.0	-	-	0.0	-	-	6.7	-	-	12.3	-	-	19.1	-	-
2	Region 14	12.7	2.4	22.9	1.1	0.9	1.2	13.7	3.3	24.1	0.3	0.1	0.6	0.0	0.0	0.0	14.1	3.9	24.2	0.0	0.0	0.0	3.3	1.4	5.2	8.1	0.4	15.7	11.4	1.8	20.9
2	Region 17	12.4	0.9	24.0	2.0	1.6	2.4	14.5	3.4	25.5	0.3	0.0	0.6	0.6	0.0	1.2	15.3	4.0	26.7	0.0	0.0	0.0	5.4	0.5	10.3	6.0	0.0	12.0	11.4	0.5	22.2
2	Region 19	7.8	2.6	13.0	7.3	1.9	12.7	15.1	15.0	15.2	0.3	0.0	0.7	0.2	0.0	0.4	15.6	15.6	15.6	0.0	0.0	0.0	0.6	0.0	1.3	2.8	0.7	4.9	3.5	0.7	6.2
1	Region 25	4.7	-	-	0.5	-	-	5.2	-	-	0.6	-	-	0.0	-	-	5.8	-	-	0.0	-	-	2.0	-	-	2.8	-	-	4.7	-	-
4	Region 26	6.7	1.7	19.6	2.3	1.9	2.8	9.0	3.6	22.4	0.5	0.0	0.7	0.2	0.0	0.6	9.7	4.1	22.9	0.0	0.0	0.0	0.3	0.0	0.8	0.8	0.0	1.7	1.1	0.0	2.1
2	Region 29	11.7	4.8	18.7	2.5	0.7	4.2	14.2	5.5	22.9	0.4	0.1	0.6	1.0	0.0	2.0	15.6	8.2	23.0	0.0	0.0	0.0	8.0	1.0	15.0	1.7	0.8	2.7	9.7	3.7	15.8
1	Region 30	6.6	-	-	2.3	-	-	9.0	-	-	0.6	-	-	0.0	-	-	9.6	-	-	0.0	-	-	4.3	-	-	1.9	-	-	6.1	-	-
16	**Ave. YM3**	**10.0**			**3.1**			**13.1**			**0.4**			**0.3**			**13.8**			**0.0**			**3.0**			**4.3**			**7.4**		
	Min. YM3		**0.9**			**0.5**			**3.3**			**0.0**			**0.0**			**3.9**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. YM3			**24.0**			**12.7**			**25.5**			**0.7**			**2.0**			**26.7**			**0.0**			**15.0**			**15.7**			**22.2**
CLASS: COM																															
1	Region 08	2.5	-	-	1.9	-	-	4.4	-	-	1.0	-	-	0.0	-	-	5.5	-	-	0.0	-	-	0.0	-	-	1.5	-	-	1.5	-	-
1	Region 10	3.7	-	-	4.3	-	-	8.1	-	-	1.1	-	-	0.0	-	-	9.1	-	-	0.0	-	-	0.0	-	-	1.4	-	-	1.4	-	-
1	Region 12	4.7	-	-	2.3	-	-	7.0	-	-	0.0	-	-	0.0	-	-	7.0	-	-	0.0	-	-	2.3	-	-	1.7	-	-	4.0	-	-
1	Region 13	11.5	-	-	6.3	-	-	17.9	-	-	2.0	-	-	0.2	-	-	20.1	-	-	0.0	-	-	1.6	-	-	6.0	-	-	7.6	-	-
2	Region 18	5.4	3.9	7.0	3.2	2.7	3.8	8.7	7.6	9.7	1.3	1.2	1.3	0.0	0.0	0.0	9.9	8.8	11.0	0.0	0.0	0.0	1.4	1.1	1.7	2.4	1.0	3.8	3.8	2.7	4.8
4	Region 19	9.4	0.7	24.0	3.7	2.4	5.6	13.1	4.8	26.4	1.0	0.8	1.4	0.8	0.0	3.1	14.9	5.5	30.9	0.0	0.0	0.0	1.3	0.0	4.0	2.8	0.0	6.6	4.0	0.3	10.6
1	Region 20	0.7	-	-	0.4	-	-	1.1	-	-	1.8	-	-	0.0	-	-	3.0	-	-	0.0	-	-	0.0	-	-	0.1	-	-	0.1	-	-
2	Region 25	3.9	2.9	4.8	1.2	1.0	1.4	5.0	3.9	6.1	2.8	0.2	5.5	0.0	0.0	0.0	7.9	6.3	9.4	0.0	0.0	0.0	2.2	1.2	3.2	1.0	0.7	1.4	3.2	1.9	4.5
3	Region 26	4.0	2.3	5.7	2.8	1.3	4.5	6.8	5.0	8.4	0.1	0.0	0.2	0.0	0.0	0.0	6.9	5.0	8.6	0.0	0.0	0.0	1.7	0.9	2.1	1.2	0.2	2.3	2.8	2.3	3.2
1	Region 27	1.0	-	-	4.5	-	-	5.6	-	-	0.7	-	-	0.0	-	-	6.3	-	-	0.0	-	-	0.0	-	-	0.4	-	-	0.4	-	-
7	Region 28	2.6	1.3	3.7	3.5	2.0	6.4	6.1	4.5	10.1	0.5	0.0	1.2	0.0	0.0	0.0	6.5	4.5	11.1	0.0	0.0	0.0	0.4	0.0	0.7	1.1	0.4	2.4	1.5	0.4	2.7
4	Region 29	4.5	3.2	5.7	1.5	1.1	1.9	5.9	5.0	6.8	0.3	0.0	1.1	0.0	0.0	0.0	6.2	5.4	6.8	0.0	0.0	0.0	2.2	0.7	4.6	1.4	1.1	2.2	3.6	2.8	5.7
3	Region 30	7.3	3.9	13.0	3.2	1.3	4.4	10.5	6.4	16.8	0.4	0.0	0.9	0.0	0.0	0.0	10.8	6.4	17.0	0.0	0.0	0.0	0.9	0.0	1.9	1.7	1.3	2.1	2.5	1.3	3.5
6	Region 31	2.9	1.0	7.6	2.9	1.7	4.0	5.8	3.0	10.5	0.3	0.0	1.6	0.2	0.0	1.0	6.3	3.6	10.7	0.0	0.0	0.0	0.8	0.0	2.0	1.5	0.0	3.9	2.3	0.6	5.9
4	Region 32	3.1	1.4	5.9	1.7	1.3	2.3	4.8	2.9	7.3	0.4	0.0	1.6	0.0	0.0	0.0	5.3	4.5	7.3	0.0	0.0	0.0	1.3	0.5	2.8	1.1	0.0	2.0	2.4	0.9	4.6
2	Region 33	2.2	0.8	3.7	3.3	2.5	4.1	5.5	3.3	7.8	1.3	0.0	2.6	0.0	0.0	0.0	6.8	5.8	7.8	0.0	0.0	0.0	1.0	0.0	1.9	1.0	0.8	1.3	2.0	0.8	3.2
4	Region 34	2.9	0.6	5.4	2.7	1.6	4.3	5.5	4.8	7.0	1.1	0.1	2.7	0.1	0.0	0.4	6.7	5.4	10.1	0.0	0.0	0.0	1.4	0.1	3.7	1.0	0.4	1.6	2.4	0.5	4.9
3	Region 36	5.6	3.5	8.4	3.3	2.5	4.3	8.9	6.0	11.4	0.6	0.1	0.9	0.4	0.0	1.3	9.9	6.9	11.4	0.0	0.0	0.0	1.3	0.2	3.5	1.4	0.4	3.0	2.7	0.6	4.3

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (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.
50	Ave. COM	4.3			2.9			7.1			0.7			0.1			8.0			0.0			1.1			1.5			2.6		
	Min. COM		0.6			0.4			1.1			0.0			0.0			3.0			0.0			0.0			0.0			0.1	
	Max. COM			24.0			6.4			26.4			5.5			3.1			30.9			0.0			4.6			6.6			10.6
476	Ave. YM	4.3			2.3			6.7			0.1			0.1			6.9			0.0			1.5			1.6			3.1		
	Min. YM		0.2			0.0			0.3			0.0			0.0			0.3			0.0			0.0			0.0			0.0	
	Max. YM			24.0			12.7			26.4			5.5			3.2			30.9			0.0			15.0			15.7			22.2
1000	Ave. Maize	5.0			2.1			7.2			0.2			0.2			7.5			0.0			1.3			1.7			3.0		
	Min. Maize		0.2			0.0			0.3			0.0			0.0			0.3			0.0			0.0			0.0			0.0	
	Max. Maize			31.0			12.7			31.8			5.5			5.2			33.6			2.3			17.9			15.7			26.6

TABLE 5: RSA GRADING OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

***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 (Crotolaria spp., Datura spp., Ricinis communis) Max. allowance 1 seed/1000 g	Number of Poisonous seeds (Argemone mexicana L., Convolvulus spp., Ipomoea purpurea Roth., Lolium temulentum, Xanthium spp.) Max. allowance 7 seeds/1000 g
12	6 *Datura spp.*	0
20	6 *Datura spp.*	0
25	5 *Datura spp.*	0
25	0	12 *Xanthium Strumarium*
26	*5 Datura spp.*	0
26	6 *Datura spp.*	0
26	0	34 *Xanthium Strumarium*
27	0	12 *Xanthium Strumarium*
28	0	12 *Xanthium Strumarium*
28	6 *Datura spp.*	0
28	0	24 *Xanthium Strumarium*
28	0	24 *Xanthium Strumarium*
28	0	116 *Xanthium Strumarium*
28	0	12 *Xanthium Strumarium*
29	0	12 *Xanthium Strumarium*
29	0	12 *Xanthium Strumarium*
29	6 *Datura spp.*	0
30	0	22 *Xanthium Strumarium*
30	6 *Datura spp.*	*0*
30	0	12 *Xanthium Strumarium*
31	0	12 *Xanthium Strumarium*
31	0	34 *Xanthium Strumarium*
31	0	12 *Convolvulus*
31	0	12 *Xanthium Strumarium*
31	0	18 *Ipomoea Purpurea*
32	5 *Datura spp.*	0
32	0	12 *Xanthium Strumarium* & 6 *Ipomoea Purpurea*
32	0	12 *Xanthium Strumarium*
33	0	12 *Xanthium Strumarium*
34	0	12 *Xanthium Strumarium*
34	0	12 *Xanthium Strumarium*
36	0	12 *Ipomoea purpurea*
36	0	12 *Xanthium Strumarium*

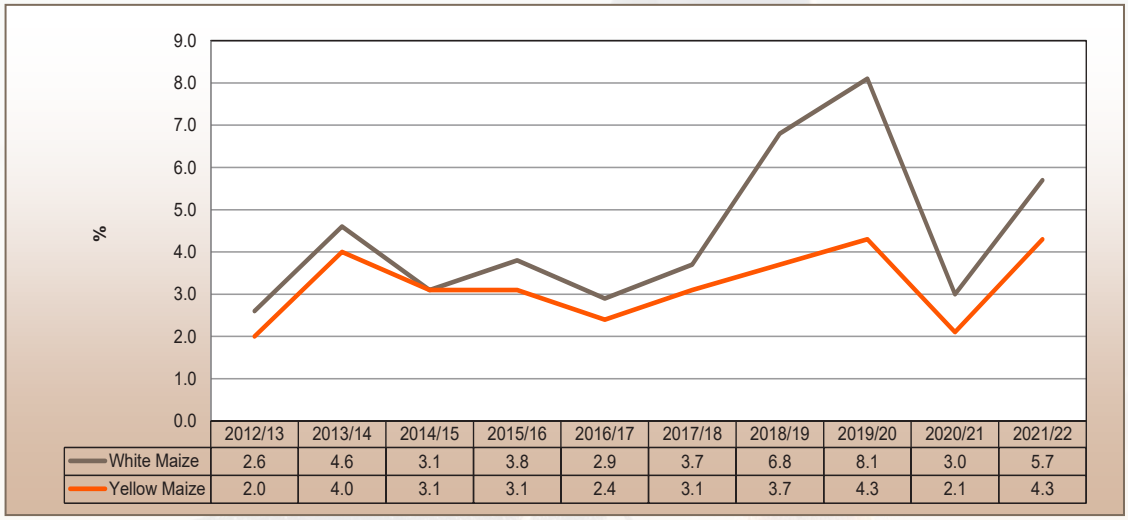
TABLE 6: RSA GRADING OF YELLOW MAIZE (2021/22)

Number of samples	Region	% Defective Kernels: Above 6.35 mm sieve			% Defective Kernels: Below 6.35 mm sieve			% Total defective			% Foreign matter			% Other Colour			% Combined Deviations			% Pinked Kernels			% Diplodia Kernels			% Fusarium Kernels			% Cobrot Kernels		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YELLOW																															
8	Region 08	3.3	2.0	6.9	2.0	0.8	3.6	5.3	3.1	8.5	0.2	0.0	1.0	0.0	0.0	0.0	5.5	3.1	8.5	0.0	0.0	0.0	0.2	0.0	0.9	1.4	0.3	4.6	1.6	0.5	5.0
18	Region 10	3.3	0.9	7.3	2.0	0.4	4.3	5.3	2.0	10.2	0.1	0.0	1.1	0.0	0.0	0.0	5.4	2.0	10.6	0.0	0.0	0.0	0.4	0.0	3.6	1.4	0.0	5.0	1.8	0.5	5.0
19	Region 11	2.8	0.5	12.9	2.9	0.9	9.9	5.6	1.8	22.8	0.0	0.0	0.2	0.0	0.0	0.0	5.6	1.8	23.0	0.0	0.0	0.0	0.2	0.0	1.2	1.4	0.0	11.8	1.7	0.4	11.8
6	Region 12	3.9	0.8	6.6	1.3	0.2	2.5	5.2	2.6	7.0	0.0	0.0	0.0	0.1	0.0	0.4	5.3	2.9	7.0	0.0	0.0	0.0	1.6	0.3	3.0	1.3	0.0	2.4	2.9	0.3	5.3
11	Region 13	7.5	2.6	19.1	2.5	0.9	6.3	10.0	4.6	21.6	0.2	0.0	2.0	0.2	0.0	1.0	10.5	4.6	22.0	0.0	0.0	0.0	2.0	0.0	6.7	3.6	0.2	12.3	5.6	0.9	19.1
15	Region 14	7.3	2.4	22.9	1.7	0.1	4.3	9.0	3.3	24.1	0.1	0.0	0.6	0.1	0.0	0.7	9.2	3.9	24.2	0.0	0.0	0.0	2.3	0.0	5.2	3.8	0.4	15.7	6.1	1.5	20.9
15	Region 17	8.3	0.9	24.0	2.1	0.3	4.7	10.5	3.4	25.5	0.0	0.0	0.6	0.2	0.0	1.3	10.8	4.0	26.7	0.0	0.0	0.0	3.5	0.4	10.3	3.4	0.0	12.0	6.9	0.5	22.2
6	Region 18	4.0	1.8	7.0	2.9	1.7	4.7	6.9	5.1	9.7	0.4	0.0	1.3	0.1	0.0	0.4	7.5	5.1	11.0	0.0	0.0	0.0	1.1	0.0	2.4	1.4	0.0	3.8	2.5	0.0	4.8
17	Region 19	6.4	0.7	24.0	3.0	0.2	12.7	9.4	3.2	26.4	0.3	0.0	1.4	0.4	0.0	3.1	10.2	3.3	30.9	0.0	0.0	0.0	1.2	0.0	4.0	2.3	0.0	6.6	3.5	0.3	10.6
9	Region 20	4.7	0.7	8.4	1.8	0.4	4.0	6.4	1.1	9.7	0.2	0.0	1.8	0.1	0.0	0.5	6.7	3.0	9.7	0.0	0.0	0.0	0.9	0.0	2.8	1.7	0.1	3.6	2.6	0.1	4.4
4	Region 21	3.4	2.2	5.4	2.5	2.0	3.0	5.9	4.9	7.8	0.0	0.0	0.1	0.0	0.0	0.0	5.9	4.9	7.9	0.0	0.0	0.0	0.8	0.1	1.3	1.1	0.6	2.0	1.9	1.2	2.9
1	Region 22	4.2	-	-	4.5	-	-	8.7	-	-	0.1	-	-	0.7	-	-	9.6	-	-	0.0	-	-	0.5	-	-	2.5	-	-	3.0	-	-
1	Region 23	2.7	-	-	2.2	-	-	5.0	-	-	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-	1.8	-	-	1.8	-	-
4	Region 24	2.0	0.8	2.8	4.3	2.6	9.0	6.2	4.3	9.8	0.1	0.0	0.2	0.1	0.0	0.3	6.5	4.5	10.2	0.0	0.0	0.0	0.2	0.0	0.4	0.9	0.1	2.0	1.1	0.4	2.3
17	Region 25	3.0	0.8	8.9	2.5	0.5	5.2	5.5	2.7	12.2	0.4	0.0	5.5	0.0	0.0	0.0	6.0	2.7	12.4	0.0	0.0	0.0	0.9	0.0	3.4	1.4	0.0	6.0	2.3	0.0	8.2
21	Region 26	4.8	1.0	19.6	2.3	0.3	4.5	7.1	2.7	22.4	0.2	0.0	0.7	0.2	0.0	1.2	7.5	2.7	22.9	0.0	0.0	0.0	0.9	0.0	2.8	1.4	0.0	3.5	2.3	0.0	6.3
20	Region 27	2.3	0.2	6.7	2.5	0.6	4.7	4.8	2.6	7.7	0.1	0.0	0.7	0.0	0.0	0.3	4.9	2.7	8.1	0.0	0.0	0.0	0.8	0.0	4.2	0.8	0.0	2.8	1.6	0.1	5.5
45	Region 28	4.0	0.7	13.3	2.2	0.0	6.4	6.2	1.8	16.1	0.1	0.0	1.2	0.0	0.0	0.9	6.3	1.8	16.1	0.0	0.0	0.0	1.7	0.0	11.0	1.2	0.0	4.0	2.8	0.4	12.0
50	Region 29	5.1	1.3	18.7	2.1	0.5	7.3	7.2	2.9	22.9	0.1	0.0	1.1	0.1	0.0	2.0	7.4	2.9	23.0	0.0	0.0	0.0	2.3	0.0	15.0	1.7	0.0	6.0	4.0	0.6	16.3
32	Region 30	5.1	0.6	13.0	2.1	0.8	4.4	7.2	2.1	16.8	0.1	0.0	0.9	0.0	0.0	0.7	7.4	2.1	17.0	0.0	0.0	0.0	1.3	0.0	4.3	1.9	0.0	6.3	3.1	0.4	7.8
33	Region 31	4.1	1.0	11.0	2.9	1.4	6.2	6.9	3.0	17.2	0.1	0.0	1.6	0.0	0.0	1.0	7.1	3.6	17.2	0.0	0.0	0.0	2.1	0.0	9.9	1.4	0.0	3.9	3.5	0.6	10.8
30	Region 32	3.8	1.0	8.7	2.0	0.9	3.6	5.8	2.2	12.3	0.1	0.0	1.6	0.0	0.0	0.4	5.9	2.2	12.3	0.0	0.0	0.0	1.5	0.0	5.0	1.6	0.0	3.5	3.1	0.6	8.1
28	Region 33	3.1	0.6	11.0	2.5	0.6	6.5	5.7	2.2	14.8	0.1	0.0	2.6	0.3	0.0	1.5	6.1	2.2	15.8	0.0	0.0	0.0	1.9	0.0	9.6	0.8	0.0	2.4	2.7	0.0	10.4
30	Region 34	4.1	0.6	8.6	2.4	0.3	4.5	6.5	3.0	12.8	0.2	0.0	2.7	0.1	0.0	0.6	6.8	3.0	13.4	0.0	0.0	0.0	1.6	0.0	5.3	1.6	0.3	5.4	3.2	0.5	7.6
9	Region 35	1.8	0.2	4.4	2.2	0.1	3.6	4.0	0.3	7.2	0.1	0.0	0.2	0.0	0.0	0.2	4.2	0.3	7.2	0.0	0.0	0.0	0.1	0.0	0.8	0.4	0.0	0.8	0.5	0.0	1.6
27	Region 36	4.4	1.1	11.2	2.2	0.3	4.8	6.6	2.4	13.7	0.2	0.0	0.9	0.3	0.0	3.2	7.1	2.5	13.7	0.0	0.0	0.0	1.5	0.0	5.8	1.2	0.0	3.7	2.7	0.5	8.3
476	**Ave. Yellow**	**4.3**			**2.3**			**6.7**			**0.1**			**0.1**			**6.9**			**0.0**			**1.5**			**1.6**			**3.1**		
	Min. Yellow		**0.2**			**0.0**			**0.3**			**0.0**			**0.0**			**0.3**			**0.0**			**0.0**			**0.0**			**0.0**	
	Max. Yellow			**24.0**			**12.7**			**26.4**			**5.5**			**3.2**			**30.9**			**0.0**			**15.0**			**15.7**			**22.2**

TABLE 7: GRADING QUALITY OF SOUTH AFRICAN WHITE AND YELLOW MAIZE 2012/13 - 2021/22

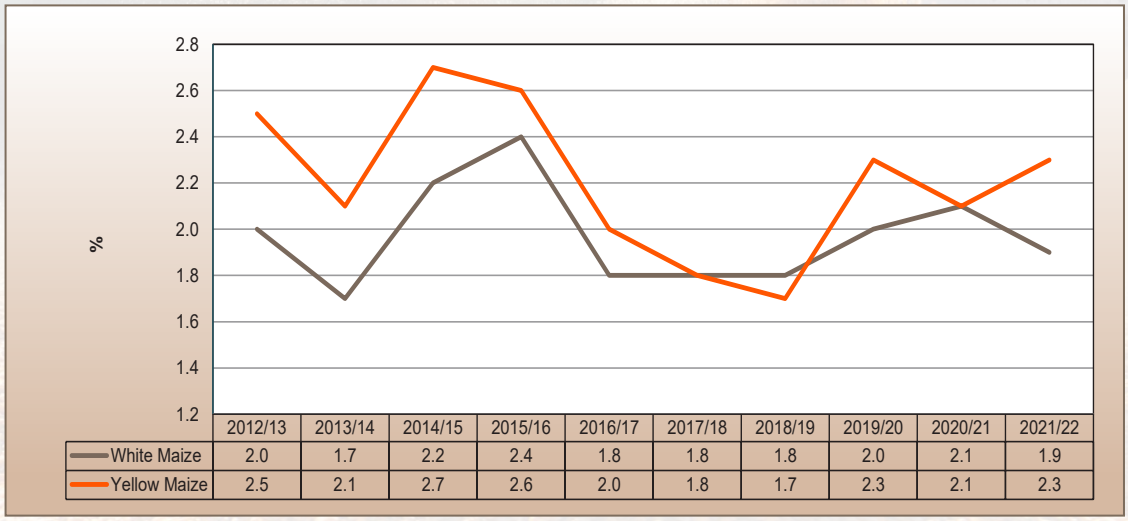
Season	Number of samples	% Defective kernels above 6.35 mm sieve			% Defective kernels below 6.35 mm sieve			% Foreign matter			% Other colour			% Combined deviations		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize																
2012/13	508	2.6	0.0	20.8	2.0	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
2020/21	560	3.0	0.0	55.1	2.1	0.0	21.1	0.2	0.0	3.9	0.4	0.0	12.8	5.6	0.5	58.7
2021/22	524	5.7	0.2	31.0	1.9	0.0	10.1	0.2	0.0	4.7	0.2	0.0	5.2	8.0	0.3	33.6
Weighted Average		**4.4**			**2.0**			**0.2**			**0.3**			**6.8**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.0**	
Maximum				**95.9**			**25.5**			**7.1**			**18.3**			**98.8**
Yellow Maize																
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
2020/21	440	2.1	0.1	22.4	2.1	0.0	30.9	0.1	0.0	4.7	0.2	0.0	9.6	4.5	0.2	34.8
2021/22	476	4.3	0.2	24.0	2.3	0.0	12.7	0.1	0.0	5.5	0.1	0.0	3.2	6.9	0.3	30.9
Weighted Average		**3.2**			**2.2**			**0.1**			**0.2**			**5.7**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.2**	
Maximum				**85.6**			**30.9**			**5.9**			**17.2**			**86.9**
White and Yellow Maize																
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
2020/21	1000	2.6	0.0	55.1	2.1	0.0	30.9	0.2	0.0	4.7	0.3	0.0	12.8	5.1	0.2	58.7
2021/22	1000	5.0	0.2	31.0	2.1	0.0	12.7	0.2	0.0	5.5	0.2	0.0	5.2	7.5	0.3	33.6
Weighted Average		**3.8**			**2.1**			**0.2**			**0.3**			**6.3**		
Minimum			**0.0**			**0.0**			**0.0**			**0.0**			**0.0**	
Maximum				**95.9**			**30.9**			**7.1**			**18.3**			**98.8**

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



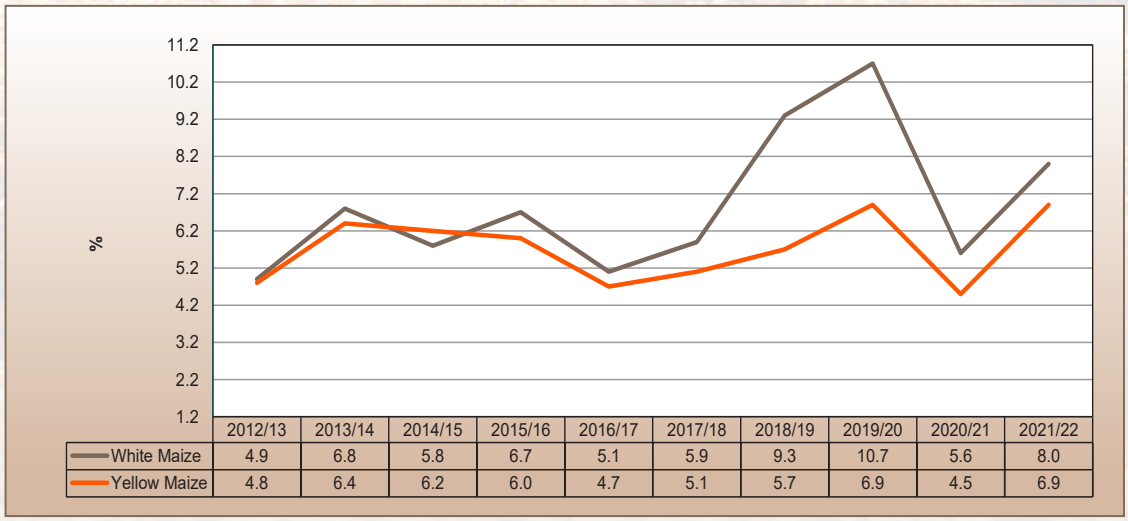
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	2.6	4.6	3.1	3.8	2.9	3.7	6.8	8.1	3.0	5.7
Yellow Maize	2.0	4.0	3.1	3.1	2.4	3.1	3.7	4.3	2.1	4.3

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



	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	2.0	1.7	2.2	2.4	1.8	1.8	1.8	2.0	2.1	1.9
Yellow Maize	2.5	2.1	2.7	2.6	2.0	1.8	1.7	2.3	2.1	2.3

Graph 36: Percentage Combined deviations over 10 seasons



	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	4.9	6.8	5.8	6.7	5.1	5.9	9.3	10.7	5.6	8.0
Yellow Maize	4.8	6.4	6.2	6.0	4.7	5.1	5.7	6.9	4.5	6.9

TABLE 8: USA GRADING OF WHITE MAIZE (2021/22)

Number of samples	Region	Damaged kernels % Heat damaged			Damaged kernels % Total damaged			% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.1																
1	Region 11	0.0	-	-	1.6	-	-	1.5	-	-	62.4	-	-	0.0	-	-
2	Region 12	0.0	0.0	0.0	2.2	1.8	2.6	0.1	0.0	0.1	60.5	60.2	60.7	0.0	0.0	0.0
5	Region 13	0.0	0.0	0.0	2.8	2.5	3.0	0.5	0.0	1.4	58.6	57.5	59.4	0.1	0.0	0.7
4	Region 14	0.0	0.0	0.0	2.0	1.5	2.4	0.5	0.4	0.8	58.8	57.5	59.9	0.0	0.0	0.0
1	Region 15	0.0	-	-	1.9	-	-	0.4	-	-	60.2	-	-	0.0	-	-
4	Region 17	0.0	0.0	0.0	2.3	1.9	3.0	1.0	0.3	1.7	56.9	56.6	57.4	0.4	0.0	1.3
1	Region 18	0.0	-	-	2.9	-	-	0.3	-	-	57.9	-	-	0.0	-	-
4	Region 19	0.0	0.0	0.0	2.6	2.4	2.9	0.8	0.3	1.9	58.4	57.6	59.8	0.2	0.0	0.6
12	Region 20	0.0	0.0	0.0	2.3	1.5	2.9	0.5	0.1	1.4	58.8	57.1	60.5	0.4	0.0	1.9
2	Region 21	0.0	0.0	0.0	1.0	0.7	1.3	1.6	1.5	1.8	59.2	59.0	59.4	0.5	0.3	0.7
2	Region 22	0.0	0.0	0.0	2.2	1.7	2.6	1.1	1.0	1.2	58.3	58.2	58.4	0.0	0.0	0.0
1	Region 23	0.0	-	-	2.7	-	-	0.5	-	-	58.4	-	-	0.0	-	-
1	Region 24	0.0	-	-	2.1	-	-	0.7	-	-	57.3	-	-	0.3	-	-
1	Region 25	0.0	-	-	1.1	-	-	0.0	-	-	57.1	-	-	1.3	-	-
7	Region 26	0.0	0.0	0.0	1.7	1.0	2.4	0.4	0.2	0.6	59.2	56.5	60.0	0.1	0.0	0.3
3	Region 27	0.0	0.0	0.0	2.0	1.8	2.4	1.1	0.3	1.7	58.1	56.2	59.5	0.3	0.2	0.4
4	Region 28	0.0	0.0	0.0	2.5	1.8	3.0	0.4	0.1	1.0	59.6	58.9	60.7	0.4	0.0	1.2
3	Region 29	0.0	0.0	0.0	2.0	1.5	2.5	0.6	0.2	1.0	59.5	57.7	60.5	0.1	0.0	0.2
3	Region 30	0.0	0.0	0.0	1.7	0.8	2.3	0.6	0.3	0.8	58.9	57.7	60.4	0.2	0.0	0.3
5	Region 31	0.0	0.0	0.0	1.7	0.2	2.8	0.4	0.1	0.8	59.4	58.1	60.3	0.4	0.0	0.9
1	Region 32	0.0	-	-	1.7	-	-	0.1	-	-	58.2	-	-	0.0	-	-
20	Region 33	0.0	0.0	0.0	1.9	0.7	2.9	0.4	0.0	1.1	60.0	58.3	62.0	0.2	0.0	1.9
9	Region 34	0.0	0.0	0.0	2.2	1.2	2.9	0.9	0.2	2.0	59.8	58.0	62.9	0.4	0.0	1.0
6	Region 35	0.0	0.0	0.0	2.0	0.4	3.0	0.4	0.0	0.9	58.5	56.0	61.0	0.0	0.0	0.2
102	**Ave. US No.1**	**0.0**			**2.1**			**0.6**			**59.1**			**0.2**		
	Min. US No.1		**0.0**			**0.2**			**0.0**			**56.0**			**0.0**	
	Max. US No.1			**0.0**			**3.0**			**2.0**			**62.9**			**1.9**
GRADE: US No.2																
8	Region 12	0.0	0.0	0.2	3.7	3.1	4.7	0.7	0.0	1.8	59.2	55.4	61.3	0.2	0.0	1.0
7	Region 13	0.0	0.0	0.0	3.7	3.2	4.3	0.7	0.1	1.5	57.0	54.7	59.1	0.4	0.0	1.3
18	Region 14	0.0	0.0	0.0	3.6	0.9	4.8	0.7	0.1	2.8	58.3	54.5	61.8	0.1	0.0	1.0
8	Region 17	0.0	0.0	0.0	3.8	3.1	4.8	0.6	0.1	1.0	58.6	56.9	61.2	0.0	0.0	0.0
3	Region 18	0.0	0.0	0.0	2.7	1.2	3.8	0.4	0.2	0.6	57.2	55.4	58.7	0.6	0.1	1.1
12	Region 19	0.0	0.0	0.0	4.0	2.4	5.0	1.3	0.4	2.7	57.1	54.7	59.1	0.1	0.0	0.4
4	Region 20	0.0	0.0	0.0	3.7	3.3	3.9	0.8	0.4	1.3	59.1	58.5	60.0	0.2	0.0	0.8
13	Region 21	0.0	0.0	0.0	3.9	3.1	5.0	0.6	0.0	1.0	58.9	57.9	60.1	0.2	0.0	0.8
4	Region 22	0.0	0.0	0.0	3.3	1.5	4.5	1.3	0.4	2.3	59.1	58.2	60.1	0.0	0.0	0.0
10	Region 23	0.0	0.0	0.0	3.5	1.2	4.8	1.1	0.1	3.0	59.2	56.5	60.5	0.0	0.0	0.0
3	Region 24	0.0	0.0	0.0	4.1	3.3	4.9	0.8	0.3	1.7	59.3	57.3	62.6	0.2	0.0	0.4
1	Region 25	0.0	-	-	4.9	-	-	2.4	-	-	57.2	-	-	0.5	-	-
1	Region 26	0.0	-	-	4.1	-	-	0.5	-	-	56.0	-	-	0.2	-	-
2	Region 27	0.0	0.0	0.0	2.8	2.5	3.0	2.1	2.1	2.1	59.6	59.3	59.8	0.2	0.0	0.5
9	Region 28	0.0	0.0	0.0	3.6	2.0	4.7	0.6	0.0	2.9	60.0	58.4	62.0	0.5	0.0	1.8
8	Region 29	0.0	0.0	0.0	4.0	3.2	4.6	0.6	0.2	1.6	60.7	59.6	62.9	0.2	0.0	1.1
8	Region 30	0.0	0.0	0.0	4.0	3.2	4.8	0.2	0.1	0.3	59.5	58.5	61.7	0.4	0.0	1.0
5	Region 31	0.0	0.0	0.0	3.8	3.2	4.5	0.3	0.1	0.4	60.3	58.9	61.6	0.3	0.0	1.3
7	Region 32	0.0	0.0	0.0	3.9	3.4	4.8	0.6	0.1	1.2	58.7	57.7	59.8	0.2	0.0	0.8
6	Region 33	0.0	0.0	0.0	3.5	3.1	3.9	0.3	0.1	0.5	58.6	56.5	60.8	0.3	0.0	0.8
8	Region 34	0.0	0.0	0.0	3.7	3.1	4.6	0.7	0.1	1.4	58.7	57.7	60.5	0.4	0.0	1.6
1	Region 35	0.0	-	-	2.2	-	-	2.8	-	-	59.4	-	-	0.0	-	-

TABLE 8: USA GRADING OF WHITE MAIZE (2021/22) (continue)

Number of samples	Region	Damaged kernels % Heat damaged			Damaged kernels % Total damaged			% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.2																
8	Region 36	0.0	0.0	0.0	4.1	3.3	4.8	0.3	0.1	0.8	59.7	59.0	60.7	0.2	0.0	0.8
154	**Ave. US No.2**	**0.0**			**3.7**			**0.7**			**58.8**			**0.2**		
	Min. US No.2		**0.0**			**0.9**			**0.0**			**54.5**			**0.0**	
	Max. US No.2			**0.2**			**5.0**			**3.0**			**62.9**			**1.8**
GRADE: US No.3																
4	Region 13	0.0	0.0	0.0	6.1	5.1	6.6	0.5	0.2	0.8	58.1	57.2	58.6	0.2	0.0	0.4
12	Region 14	0.0	0.0	0.0	6.1	5.4	6.7	0.5	0.1	1.6	58.5	56.0	60.8	0.2	0.0	0.8
1	Region 15	0.0	-	-	6.7	-	-	3.2	-	-	60.6	-	-	0.2	-	-
10	Region 17	0.0	0.0	0.0	6.1	4.7	7.0	0.9	0.1	2.9	58.3	53.9	60.3	0.1	0.0	0.5
1	Region 18	0.0	-	-	6.5	-	-	0.7	-	-	59.6	-	-	0.0	-	-
10	Region 19	0.0	0.0	0.0	5.7	4.4	6.6	0.9	0.2	1.9	56.7	52.9	59.1	0.3	0.0	1.0
4	Region 20	0.0	0.0	0.0	6.0	5.1	6.4	0.3	0.2	0.4	59.1	58.9	59.8	0.4	0.0	1.3
3	Region 21	0.0	0.0	0.0	5.8	5.2	6.7	1.7	0.5	3.6	58.5	56.1	60.1	0.0	0.0	0.0
2	Region 22	0.0	0.0	0.0	5.6	5.5	5.8	0.4	0.3	0.5	59.4	59.4	59.4	0.1	0.0	0.2
14	Region 23	0.0	0.0	0.2	6.0	2.8	7.0	1.1	0.1	3.9	59.2	58.0	59.6	0.0	0.0	0.1
6	Region 24	0.0	0.0	0.0	5.4	3.0	6.4	0.3	0.2	0.5	58.1	53.5	60.6	0.1	0.0	0.4
2	Region 26	0.0	0.0	0.0	6.7	6.6	6.8	1.2	0.0	2.4	58.7	57.9	59.4	0.3	0.0	0.5
3	Region 27	0.0	0.0	0.0	2.8	1.8	3.8	3.5	3.2	3.6	59.2	58.4	59.9	0.2	0.0	0.6
7	Region 28	0.0	0.0	0.3	5.3	3.0	7.0	0.3	0.1	1.1	59.3	58.8	60.1	0.2	0.0	0.6
3	Region 29	0.0	0.0	0.0	6.0	5.4	6.5	0.5	0.1	0.9	60.4	59.4	61.3	0.4	0.0	0.9
1	Region 30	0.0	-	-	6.6	-	-	0.3	-	-	57.7	-	-	0.5	-	-
3	Region 32	0.0	0.0	0.0	5.1	3.6	6.0	1.7	0.5	3.3	59.0	58.2	59.8	0.5	0.0	1.5
1	Region 33	0.0	-	-	5.9	-	-	0.3	-	-	59.6	-	-	0.3	-	-
6	Region 34	0.0	0.0	0.0	5.4	1.6	6.9	1.3	0.5	3.7	59.2	58.2	61.2	0.1	0.0	0.3
3	Region 36	0.2	0.0	0.5	4.5	2.8	5.5	0.3	0.1	0.8	59.6	58.7	60.6	0.6	0.0	1.5
96	**Ave. US No.3**	**0.0**			**5.7**			**0.9**			**58.7**			**0.2**		
	Min. US No.3		**0.0**			**1.6**			**0.0**			**52.9**			**0.0**	
	Max. US No.3			**0.5**			**7.0**			**3.9**			**61.3**			**1.5**
GRADE: US No.4																
3	Region 12	0.0	0.0	0.0	8.5	7.4	9.3	0.0	0.0	0.1	58.5	56.7	59.8	0.6	0.0	1.8
7	Region 13	0.0	0.0	0.0	7.6	6.0	9.2	1.8	0.7	4.3	57.5	52.6	59.6	0.2	0.0	0.5
10	Region 14	0.0	0.0	0.0	8.6	7.2	10.0	0.7	0.1	4.6	58.3	51.4	60.9	0.0	0.0	0.1
6	Region 15	0.0	0.0	0.2	8.7	7.5	9.9	0.7	0.2	1.7	59.5	58.9	60.2	0.2	0.0	0.7
1	Region 16	0.0	-	-	8.9	-	-	0.2	-	-	59.1	-	-	0.0	-	-
12	Region 17	0.0	0.0	0.0	8.6	7.1	9.8	0.9	0.1	1.7	58.3	55.6	60.1	0.4	0.0	1.7
5	Region 18	0.0	0.0	0.0	7.9	6.1	9.5	2.1	0.6	4.5	57.1	55.0	58.6	0.5	0.0	1.4
2	Region 19	0.0	0.0	0.0	7.1	5.8	8.4	2.6	0.9	4.4	56.4	55.0	57.8	0.0	0.0	0.0
2	Region 20	0.0	0.0	0.0	5.3	1.4	9.3	0.8	0.8	0.8	55.8	51.7	59.8	0.0	0.0	0.0
1	Region 21	0.6	-	-	3.7	-	-	1.0	-	-	56.0	-	-	0.2	-	-
5	Region 22	0.0	0.0	0.0	8.3	7.6	9.2	0.8	0.3	1.9	58.2	56.2	60.1	0.0	0.0	0.0
13	Region 23	0.0	0.0	0.0	8.3	3.9	9.8	1.1	0.1	4.2	58.9	57.4	60.0	0.0	0.0	0.2
5	Region 24	0.0	0.0	0.2	8.7	7.4	9.8	0.6	0.2	1.2	58.6	55.8	60.1	0.2	0.0	1.2
1	Region 28	0.0	-	-	7.7	-	-	0.2	-	-	59.3	-	-	0.5	-	-
1	Region 30	0.0	-	-	8.1	-	-	1.5	-	-	59.2	-	-	1.6	-	-
1	Region 31	0.0	-	-	7.7	-	-	0.2	-	-	59.8	-	-	0.0	-	-
2	Region 32	0.4	0.0	0.9	8.2	7.8	8.6	0.8	0.5	1.2	59.3	57.9	60.6	0.2	0.0	0.3
1	Region 34	0.2	-	-	8.0	-	-	2.1	-	-	58.4	-	-	0.3	-	-
78	**Ave. US No.4**	**0.0**			**8.2**			**1.0**			**58.3**			**0.2**		
	Min. US No.4		**0.0**			**1.4**			**0.0**			**51.4**			**0.0**	
	Max. US No.4			**0.9**			**10.0**			**4.6**			**60.9**			**1.8**

TABLE 8: USA GRADING OF WHITE MAIZE (2021/22) (continue)

Number of samples	Region	Damaged kernels % Heat damaged			Damaged kernels % Total damaged			% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.5																
2	Region 12	0.0	0.0	0.0	14.0	13.4	14.7	0.0	0.0	0.0	59.5	59.4	59.6	0.1	0.0	0.1
2	Region 13	0.0	0.0	0.0	11.0	10.4	11.7	2.5	2.4	2.7	56.5	55.3	57.7	0.3	0.0	0.7
17	Region 14	0.0	0.0	0.2	12.7	10.1	14.9	0.7	0.1	1.8	58.1	53.6	60.3	0.0	0.0	0.2
2	Region 16	0.1	0.0	0.2	11.2	10.6	11.8	0.3	0.1	0.5	58.4	58.2	58.6	0.0	0.0	0.0
5	Region 17	0.0	0.0	0.0	10.9	10.1	12.1	0.6	0.3	0.8	57.8	54.8	59.1	0.2	0.0	0.7
4	Region 18	0.0	0.0	0.0	9.7	4.0	13.5	2.5	0.5	5.4	56.5	53.7	58.4	0.3	0.0	0.9
2	Region 19	0.0	0.0	0.0	10.7	10.4	11.0	0.6	0.6	0.6	58.4	57.7	59.0	0.0	0.0	0.0
2	Region 21	0.6	0.0	1.2	7.1	2.8	11.3	1.4	0.6	2.3	57.7	56.5	58.8	0.0	0.0	0.0
1	Region 22	0.0	-	-	10.3	-	-	0.8	-	-	59.1	-	-	0.0	-	-
12	Region 23	0.0	0.0	0.2	11.5	10.2	14.0	1.3	0.1	5.3	58.4	55.6	60.0	0.1	0.0	0.4
3	Region 24	0.0	0.0	0.0	12.0	10.7	13.7	0.6	0.2	0.9	58.7	57.5	60.0	0.0	0.0	0.0
1	Region 28	1.1	-	-	3.7	-	-	3.1	-	-	57.8	-	-	0.3	-	-
2	Region 31	0.0	0.0	0.0	12.6	12.1	13.2	0.2	0.1	0.3	59.2	58.8	59.6	0.5	0.0	1.0
1	Region 34	0.0	-	-	11.1	-	-	3.7	-	-	55.3	-	-	0.2	-	-
1	Region 36	0.0	-	-	12.4	-	-	0.2	-	-	59.8	-	-	0.4	-	-
57	**Ave. US No.5**	**0.1**			**11.5**			**1.1**			**58.1**			**0.1**		
	Min. US No.5		**0.0**			**2.8**			**0.0**			**53.6**			**0.0**	
	Max. US no.5			**1.2**			**14.9**			**5.4**			**60.3**			**1.0**
GRADE: Sample Grade																
2	Region 12	0.0	0.0	0.0	19.2	18.4	20.0	0.7	0.3	1.0	56.9	55.8	57.9	0.0	0.0	0.0
2	Region 13	0.0	0.0	0.0	16.4	15.6	17.1	5.1	2.0	8.2	54.8	52.8	56.7	0.1	0.0	0.2
1	Region 14	0.2	-	-	16.4	-	-	1.9	-	-	59.0	-	-	0.2	-	-
1	Region 15	0.0	-	-	17.8	-	-	0.5	-	-	59.8	-	-	0.1	-	-
1	Region 16	0.0	-	-	22.7	-	-	0.7	-	-	57.2	-	-	0.0	-	-
1	Region 17	0.0	-	-	15.5	-	-	0.6	-	-	58.4	-	-	0.0	-	-
4	Region 18	1.9	0.0	7.2	11.6	2.6	17.9	3.1	1.1	7.1	57.9	57.2	58.6	0.7	0.0	2.0
2	Region 19	0.0	0.0	0.0	5.2	3.1	7.3	0.9	0.3	1.5	57.3	57.2	57.4	0.1	0.0	0.3
2	Region 21	0.3	0.0	0.5	24.8	21.2	28.4	1.3	1.0	1.5	58.5	57.9	59.0	0.0	0.0	0.0
3	Region 23	5.8	0.0	9.0	17.6	16.3	19.4	3.0	0.4	5.1	58.2	57.5	59.2	0.0	0.0	0.0
2	Region 24	0.1	0.0	0.3	24.1	16.9	31.2	0.5	0.1	0.9	58.8	58.4	59.1	0.0	0.0	0.0
1	Region 26	0.0	-	-	1.3	-	-	1.7	-	-	56.8	-	-	2.8	-	-
1	Region 27	4.8	-	-	22.7	-	-	7.3	-	-	52.9	-	-	1.0	-	-
2	Region 30	0.0	0.0	0.0	7.8	6.3	9.3	0.8	0.7	0.8	57.8	57.7	57.8	0.4	0.0	0.7
2	Region 32	0.0	0.0	0.0	14.5	2.2	26.7	0.6	0.4	0.9	60.8	60.2	61.4	1.0	0.0	2.0
2	Region 34	0.0	0.0	0.0	3.5	2.4	4.6	5.5	1.6	9.5	56.5	53.9	59.1	0.2	0.2	0.2
32	**Ave. Sample Grade**	**1.0**			**15.0**			**2.1**			**57.9**			**0.3**		
	Min. Sample Grade		**0.0**			**1.3**			**0.1**			**52.8**			**0.0**	
	Max. Sample Grade			**9.0**			**31.2**			**9.5**			**61.4**			**2.8**
GRADE: Mixed Corn																
2	Region 13	0.0	0.0	0.0	3.7	2.5	4.8	2.0	1.0	2.9	57.2	56.7	57.7	2.8	2.4	3.1
1	Region 19	0.0	-	-	3.0	-	-	1.7	-	-	58.6	-	-	3.1	-	-
1	Region 26	0.0	-	-	1.4	-	-	1.0	-	-	53.9	-	-	5.2	-	-
1	Region 33	0.0	-	-	1.0	-	-	0.0	-	-	60.1	-	-	2.9	-	-
5	**Ave. Mixed Corn**	**0.0**			**2.5**			**1.3**			**57.4**			**3.4**		
	Min. Mixed Corn		**0.0**			**1.0**			**0.0**			**53.9**			**2.4**	
	Max. Mixed Corn			**0.0**			**4.8**			**2.9**			**60.1**			**5.2**

TABLE 8: USA GRADING OF WHITE MAIZE (2021/22) (continue)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
524	Ave. WM	0.1			6.0			0.9			58.6			0.2		
	Min. WM		0.0			0.2			0.0			51.4			0.0	
	Max. WM			9.0			31.2			9.5			62.9			5.2
1000	Ave. Maize	0.0			5.3			0.8			58.6			0.2		
	Min. Maize		0.0			0.2			0.0			47.8			0.0	
	Max. Maize			9.0			31.2			9.5			62.9			5.2

TABLE 8: USA GRADING OF WHITE MAIZE (2021/22) (continue)

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

Region	Cockleburs (Xanthium spp.) exceeding 8 seeds
19	12 *Xanthium Strumarium*
19	50 *Xanthium Strumarium*
21	12 *Xanthium Strumarium*
26	12 *Xanthium Strumarium*
30	12 *Xanthium Strumarium*
30	12 *Xanthium Strumarium*
32	24 *Xanthium Strumarium*
34	12 *Xanthium Strumarium*

TABLE 9: USA GRADING OF YELLOW MAIZE (2021/22)

Number of samples	Region	Damaged kernels						% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		% Heat damaged			% Total damaged											
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.1																
5	Region 08	0.0	0.0	0.0	2.6	2.2	3.0	0.6	0.2	1.4	58.8	57.5	60.3	0.0	0.0	0.0
10	Region 10	0.0	0.0	0.0	2.0	0.9	2.8	0.4	0.0	0.8	59.0	56.7	60.6	0.0	0.0	0.0
16	Region 11	0.0	0.0	0.0	1.9	0.6	2.9	0.6	0.1	1.7	60.4	58.9	62.7	0.0	0.0	0.0
3	Region 12	0.0	0.0	0.0	1.9	1.0	2.4	0.5	0.0	0.8	58.2	57.0	59.1	0.2	0.0	0.4
1	Region 13	0.0	-	-	2.7	-	-	0.9	-	-	58.6	-	-	0.0	-	-
3	Region 14	0.0	0.0	0.0	2.6	2.5	2.8	0.8	0.7	1.0	59.0	58.4	59.5	0.0	0.0	0.0
2	Region 17	0.0	0.0	0.0	1.8	1.1	2.5	1.3	1.3	1.3	58.3	57.6	58.9	0.1	0.0	0.2
5	Region 19	0.0	0.0	0.0	1.9	0.7	2.9	1.2	0.1	2.0	57.4	56.2	58.4	0.1	0.0	0.3
2	Region 20	0.0	0.0	0.0	1.9	0.8	3.0	1.3	0.6	2.0	59.8	59.6	59.9	0.0	0.0	0.0
1	Region 21	0.0	-	-	2.4	-	-	0.6	-	-	58.6	-	-	0.0	-	-
1	Region 23	0.0	-	-	2.9	-	-	1.2	-	-	58.2	-	-	0.0	-	-
2	Region 24	0.0	0.0	0.0	2.3	1.8	2.8	1.0	0.8	1.1	58.9	58.4	59.4	0.0	0.0	0.0
8	Region 25	0.0	0.0	0.0	1.9	0.8	2.9	0.8	0.1	1.9	57.6	56.5	59.0	0.0	0.0	0.0
6	Region 26	0.0	0.0	0.0	2.4	1.0	3.0	0.8	0.1	1.2	59.2	57.9	60.3	0.0	0.0	0.2
12	Region 27	0.0	0.0	0.0	1.8	0.3	3.0	0.8	0.1	1.7	58.7	57.0	59.8	0.0	0.0	0.3
14	Region 28	0.0	0.0	0.0	2.3	0.8	3.0	0.3	0.0	0.7	58.2	56.7	59.6	0.0	0.0	0.0
9	Region 29	0.0	0.0	0.0	2.6	1.8	3.0	0.5	0.1	0.9	60.4	58.3	62.0	0.1	0.0	0.7
9	Region 30	0.0	0.0	0.0	2.2	0.7	3.0	0.5	0.1	1.2	59.7	58.3	60.7	0.1	0.0	0.5
11	Region 31	0.0	0.0	0.0	2.6	2.0	3.0	0.9	0.1	1.5	59.5	58.6	61.2	0.0	0.0	0.3
8	Region 32	0.0	0.0	0.0	1.9	1.0	2.9	0.7	0.1	1.6	58.7	56.6	59.7	0.0	0.0	0.0
15	Region 33	0.0	0.0	0.0	1.6	0.7	2.9	0.5	0.0	1.8	58.1	56.2	59.6	0.3	0.0	1.5
7	Region 34	0.0	0.0	0.0	2.0	1.0	2.6	0.8	0.1	1.3	60.0	58.6	61.4	0.1	0.0	0.3
6	Region 35	0.0	0.0	0.0	1.0	0.2	2.0	0.7	0.0	1.4	58.0	56.4	59.5	0.0	0.0	0.2
7	Region 36	0.0	0.0	0.0	2.4	1.8	3.0	0.5	0.0	1.9	59.2	57.9	60.9	0.0	0.0	0.0
163	**Ave. US No.1**	**0.0**			**2.1**			**0.6**			**59.0**			**0.1**		
	Min. US No.1		**0.0**			**0.2**			**0.0**			**56.2**			**0.0**	
	Max. US No.1			**0.0**			**3.0**			**2.0**			**62.7**			**1.5**
GRADE: US No.2																
2	Region 08	0.0	0.0	0.0	4.1	4.0	4.1	0.6	0.4	0.8	56.0	55.7	56.2	0.0	0.0	0.0
3	Region 10	0.0	0.0	0.0	3.8	3.3	4.1	0.8	0.2	1.4	59.0	57.0	61.0	0.0	0.0	0.0
1	Region 11	0.0	-	-	3.5	-	-	0.4	-	-	59.0	-	-	0.0	-	-
1	Region 12	0.0	-	-	5.0	-	-	0.7	-	-	60.2	-	-	0.0	-	-
4	Region 13	0.0	0.0	0.0	3.7	3.1	4.3	0.7	0.2	1.1	57.8	56.1	59.2	0.3	0.0	1.0
3	Region 14	0.0	0.0	0.0	3.5	3.2	4.1	0.5	0.3	0.6	60.0	59.4	61.2	0.1	0.0	0.3
2	Region 17	0.0	0.0	0.0	3.3	3.3	3.4	1.0	0.3	1.6	58.0	56.6	59.4	0.2	0.0	0.3
2	Region 18	0.0	0.0	0.0	3.3	3.1	3.6	0.5	0.3	0.6	58.8	57.4	60.1	0.2	0.0	0.4
5	Region 19	0.0	0.0	0.0	3.6	2.7	4.1	0.9	0.0	2.2	59.1	57.9	60.3	0.1	0.0	0.2
3	Region 20	0.0	0.0	0.0	4.1	3.3	4.8	0.3	0.2	0.4	59.3	58.9	59.6	0.2	0.0	0.5
2	Region 21	0.0	0.0	0.0	3.4	3.2	3.6	0.5	0.2	0.8	56.7	54.1	59.2	0.0	0.0	0.0
1	Region 22	0.0	-	-	4.6	-	-	0.6	-	-	57.2	-	-	0.7	-	-
2	Region 24	0.0	0.0	0.0	2.0	0.8	3.2	1.6	1.0	2.2	58.1	56.3	59.8	0.2	0.2	0.3
5	Region 25	0.0	0.0	0.0	2.9	1.7	4.7	1.0	0.6	2.2	55.7	54.1	57.2	0.0	0.0	0.0
7	Region 26	0.0	0.0	0.0	4.0	2.6	4.6	0.5	0.2	0.8	57.9	55.1	60.6	0.3	0.0	1.2
5	Region 27	0.0	0.0	0.0	3.3	2.3	4.9	0.9	0.1	2.1	57.9	55.0	59.8	0.0	0.0	0.0
17	Region 28	0.0	0.0	0.0	4.0	2.8	5.0	0.6	0.1	1.6	58.3	54.9	59.8	0.1	0.0	0.9
22	Region 29	0.0	0.0	0.0	3.9	1.8	4.8	0.6	0.1	2.7	59.5	54.6	61.1	0.2	0.0	2.0
6	Region 30	0.0	0.0	0.0	3.9	3.3	4.4	0.5	0.3	0.7	59.7	58.9	60.5	0.1	0.0	0.3
11	Region 31	0.0	0.0	0.0	3.7	1.4	4.9	0.8	0.2	2.0	59.3	54.5	61.3	0.1	0.0	1.0
14	Region 32	0.0	0.0	0.0	3.7	1.3	5.0	0.7	0.1	2.1	59.0	55.5	60.1	0.0	0.0	0.3
8	Region 33	0.0	0.0	0.0	3.1	0.9	4.8	0.7	0.1	3.0	58.0	54.0	61.0	0.4	0.0	1.2

TABLE 9: USA GRADING OF YELLOW MAIZE (2021/22) (continue)

Number of samples	Region	Damaged kernels % Heat damaged			Damaged kernels % Total damaged			% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.2																
11	Region 34	0.0	0.0	0.0	4.0	3.3	5.0	0.9	0.4	1.7	59.8	58.1	60.8	0.1	0.0	0.6
3	Region 35	0.0	0.0	0.0	3.8	3.4	4.6	0.7	0.4	1.1	57.2	56.9	57.6	0.0	0.0	0.1
13	Region 36	0.0	0.0	0.0	3.9	1.3	5.0	0.7	0.0	2.3	58.7	54.9	60.4	0.5	0.0	3.2
153	**Ave. US No.2**	**0.0**			**3.7**			**0.7**			**58.7**			**0.2**		
	Min. US No.2		**0.0**			**0.8**			**0.0**			**54.0**			**0.0**	
	Max. US No.2			**0.0**			**5.0**			**3.0**			**61.3**			**3.2**
GRADE: US No.3																
4	Region 10	0.1	0.0	0.3	6.1	4.7	6.7	0.4	0.0	1.1	58.5	56.5	59.6	0.0	0.0	0.0
2	Region 12	0.0	0.0	0.0	6.5	6.4	6.7	0.1	0.1	0.1	60.2	59.5	60.8	0.0	0.0	0.0
1	Region 13	0.0	-	-	6.9	-	-	0.5	-	-	57.2	-	-	0.0	-	-
3	Region 14	0.0	0.0	0.0	6.1	5.3	7.0	0.3	0.2	0.4	56.5	55.2	58.8	0.2	0.0	0.4
1	Region 17	0.0	-	-	5.2	-	-	0.7	-	-	57.7	-	-	0.0	-	-
3	Region 18	0.0	0.0	0.0	3.8	2.1	5.4	2.3	0.4	3.3	57.0	54.8	59.2	0.1	0.0	0.3
2	Region 20	0.0	0.0	0.0	5.5	5.4	5.6	1.6	0.8	2.3	57.9	57.6	58.2	0.0	0.0	0.0
1	Region 21	0.0	-	-	5.6	-	-	0.7	-	-	58.7	-	-	0.0	-	-
1	Region 25	0.0	-	-	6.9	-	-	2.1	-	-	58.3	-	-	0.0	-	-
4	Region 26	0.0	0.0	0.0	5.0	2.7	6.0	0.6	0.2	1.4	57.9	52.9	61.0	0.0	0.0	0.0
2	Region 27	0.0	0.0	0.0	4.3	1.8	6.8	1.9	0.6	3.1	58.5	58.4	58.5	0.0	0.0	0.0
5	Region 28	0.0	0.0	0.0	6.0	5.2	6.8	0.3	0.1	0.8	58.7	58.5	59.2	0.1	0.0	0.3
11	Region 29	0.0	0.0	0.0	5.2	1.4	6.8	1.0	0.3	3.4	58.7	53.6	60.8	0.0	0.0	0.2
6	Region 30	0.0	0.0	0.0	5.9	5.1	6.9	0.7	0.2	1.2	58.6	56.8	59.6	0.0	0.0	0.1
3	Region 31	0.0	0.0	0.0	5.4	5.1	6.0	0.7	0.4	1.2	58.7	58.1	59.1	0.0	0.0	0.0
2	Region 32	0.0	0.0	0.0	5.8	5.7	6.0	0.5	0.4	0.5	59.2	59.0	59.3	0.0	0.0	0.0
6	Region 34	0.1	0.0	0.4	5.3	3.4	6.3	1.0	0.0	3.2	59.4	58.3	60.3	0.1	0.0	0.4
1	Region 36	0.0	-	-	5.9	-	-	0.2	-	-	58.7	-	-	0.0	-	-
58	**Ave. US No.3**	**0.0**			**5.5**			**0.8**			**58.5**			**0.0**		
	Min. US No.3		**0.0**			**1.4**			**0.0**			**52.9**			**0.0**	
	Max. US No.3			**0.4**			**7.0**			**3.4**			**61.0**			**0.4**
GRADE: US No.4																
1	Region 08	0.0	-	-	7.1	-	-	0.2	-	-	59.9	-	-	0.0	-	-
1	Region 10	0.0	-	-	7.8	-	-	0.5	-	-	57.6	-	-	0.0	-	-
2	Region 13	0.0	0.0	0.0	9.2	9.0	9.4	1.0	0.9	1.1	58.9	58.4	59.4	0.0	0.0	0.0
2	Region 14	0.0	0.0	0.0	7.6	7.3	8.0	0.3	0.0	0.7	55.9	55.3	56.5	0.4	0.2	0.7
6	Region 17	0.0	0.0	0.0	7.9	7.1	8.7	1.1	0.3	2.4	58.5	57.5	60.1	0.3	0.0	1.3
1	Region 18	0.0	-	-	7.3	-	-	1.9	-	-	58.8	-	-	0.0	-	-
2	Region 20	0.0	0.0	0.0	8.0	7.6	8.4	0.8	0.5	1.1	56.2	55.7	56.7	0.0	0.0	0.0
1	Region 25	0.0	-	-	9.0	-	-	0.7	-	-	58.6	-	-	0.0	-	-
1	Region 26	0.0	-	-	8.3	-	-	0.5	-	-	59.3	-	-	0.0	-	-
2	Region 28	0.0	0.0	0.0	9.1	8.5	9.7	0.5	0.1	0.8	58.9	58.4	59.4	0.0	0.0	0.0
2	Region 29	0.0	0.0	0.0	8.2	7.8	8.6	0.5	0.5	0.5	58.8	58.4	59.1	0.0	0.0	0.0
9	Region 30	0.0	0.0	0.0	8.6	7.5	9.4	0.5	0.2	1.0	58.8	57.0	60.3	0.1	0.0	0.7
3	Region 31	0.0	0.0	0.0	8.4	7.7	9.9	0.6	0.3	0.9	58.3	57.9	58.6	0.0	0.0	0.0
4	Region 32	0.0	0.0	0.0	8.3	7.6	8.9	0.6	0.1	1.0	59.0	58.9	59.2	0.1	0.0	0.4
2	Region 33	0.0	0.0	0.0	8.1	7.6	8.6	1.0	0.1	1.9	57.8	56.2	59.3	0.5	0.0	1.0
4	Region 34	0.0	0.0	0.0	8.0	7.3	9.0	1.0	0.4	2.0	58.9	57.4	60.8	0.1	0.0	0.5
4	Region 36	0.0	0.0	0.0	8.6	7.3	9.1	0.6	0.4	1.0	58.2	57.0	59.3	0.1	0.0	0.2
47	**Ave. US No.4**	**0.0**			**8.3**			**0.7**			**58.4**			**0.1**		
	Min. US No.4		**0.0**			**7.1**			**0.0**			**55.3**			**0.0**	
	Max. US No.4			**0.0**			**9.9**			**2.4**			**60.8**			**1.3**

TABLE 9: USA GRADING OF YELLOW MAIZE (2021/22) (continue)

Number of samples	Region	Damaged kernels % Heat damaged			Damaged kernels % Total damaged			% Broken corn and foreign material			Bushel weight (lbs)			% Other colour		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: US No.5																
2	Regtion 11	0.0	0.0	0.0	12.0	10.2	13.8	1.8	0.7	2.8	55.8	55.3	56.2	0.0	0.0	0.0
2	Regtion 13	0.9	0.0	1.7	11.4	11.2	11.6	3.8	0.9	6.7	56.5	55.7	57.2	0.5	0.2	0.8
3	Regtion 14	0.0	0.0	0.0	12.2	11.3	13.5	1.8	0.8	3.5	58.5	57.3	60.5	0.1	0.0	0.2
2	Regtion 17	0.0	0.0	0.0	11.4	10.8	12.0	0.2	0.1	0.4	58.6	57.9	59.2	0.0	0.0	0.0
6	Regtion 19	0.0	0.0	0.0	10.1	3.3	13.3	2.0	0.3	5.4	56.7	53.1	58.3	0.5	0.0	2.8
1	Regtion 25	0.0	-	-	3.1	-	-	5.9	-	-	55.1	-	-	0.0	-	-
1	Regtion 26	0.3	-	-	11.9	-	-	1.7	-	-	56.2	-	-	1.1	-	-
2	Regtion 28	0.0	0.0	0.0	12.8	12.2	13.5	0.9	0.1	1.7	58.5	58.2	58.8	0.0	0.0	0.0
1	Regtion 29	0.0	-	-	12.7	-	-	0.2	-	-	60.5	-	-	0.0	-	-
2	Regtion 31	0.0	0.0	0.0	11.2	10.9	11.5	0.5	0.4	0.7	59.6	59.1	60.1	0.0	0.0	0.0
2	Regtion 33	0.0	0.0	0.0	10.9	10.7	11.0	0.6	0.4	0.8	58.4	57.3	59.5	0.1	0.0	0.2
1	Region 36	0.0	-	-	11.9	-	-	0.4	-	-	47.8	-	-	0.0	-	-
25	**Ave. US No.5**	**0.1**			**11.0**			**1.7**			**57.2**			**0.2**		
	Min. US No.5		**0.0**			**3.1**			**0.1**			**47.8**			**0.0**	
	Max. US No.5			**1.7**			**13.8**			**6.7**			**60.5**			**2.8**
GRADE: Sample Grade																
1	Region 13	0.0	-	-	19.6	-	-	1.0	-	-	57.2	-	-	0.0	-	-
1	Region 14	0.0	-	-	23.1	-	-	0.6	-	-	57.7	-	-	0.0	-	-
2	Region 17	0.0	0.0	0.0	20.6	17.1	24.1	0.5	0.4	0.6	58.3	57.1	59.4	0.6	0.0	1.2
1	Region 19	0.0	-	-	24.0	-	-	1.9	-	-	55.7	-	-	3.1	-	-
1	Region 25	0.0	-	-	4.9	-	-	0.5	-	-	58.4	-	-	0.0	-	-
2	Region 26	0.0	0.0	0.0	12.0	4.1	19.9	1.3	1.3	1.4	55.7	54.3	57.1	0.3	0.0	0.6
1	Region 27	0.0	-	-	1.2	-	-	3.0	-	-	55.3	-	-	0.0	-	-
5	Region 28	0.0	0.0	0.0	2.9	1.6	3.9	1.4	0.3	3.9	56.7	55.0	57.5	0.0	0.0	0.0
5	Region 29	0.0	0.0	0.0	13.1	5.2	18.7	0.9	0.3	2.0	58.2	57.0	59.3	0.0	0.0	0.0
2	Region 30	0.0	0.0	0.0	8.9	4.1	13.7	0.9	0.5	1.3	56.6	55.8	57.4	0.0	0.0	0.0
3	Region 31	0.0	0.0	0.0	2.1	1.1	3.3	1.1	0.8	1.5	59.8	59.0	60.3	0.1	0.0	0.3
2	Region 32	0.0	0.0	0.0	2.9	2.5	3.3	0.6	0.5	0.7	59.5	59.4	59.5	0.0	0.0	0.0
1	Region 33	0.0	-	-	3.7	-	-	1.1	-	-	58.6	-	-	0.0	-	-
2	Region 34	0.0	0.0	0.0	2.9	2.8	3.0	0.9	0.7	1.2	60.1	59.1	61.1	0.0	0.0	0.0
1	Region 36	0.0	-	-	5.2	-	-	2.8	-	-	57.9	-	-	1.3	-	-
30	**Ave. Sample Grade**	**0.0**			**8.7**			**1.2**			**57.8**			**0.2**		
	Min. Sample Grade		**0.0**			**1.1**			**0.3**			**54.3**			**0.0**	
	Max. Sample Grade			**0.0**			**24.1**			**3.9**			**61.1**			**3.1**
476	**Ave. YM**	**0.0**			**4.5**			**0.8**			**58.6**			**0.1**		
	Min. YM		**0.0**			**0.2**			**0.0**			**47.8**			**0.0**	
	Max. YM			**1.7**			**24.1**			**6.7**			**62.7**			**3.2**
1000	**Ave. Maize**	**0.0**			**5.3**			**0.8**			**58.6**			**0.2**		
	Min. Maize		**0.0**			**0.2**			**0.0**			**47.8**			**0.0**	
	Max. Maize			**9.0**			**31.2**			**9.5**			**62.9**			**5.2**

TABLE 9: USA GRADING OF YELLOW MAIZE (2021/22) (continue) *The following yellow maize samples were downgraded to Sample Grade due to the number of poisonous seeds exceeding the maximum allowance	
Region	**Cockleburs (Xanthium spp.) exceeding 8 seeds**
25	12 *Xanthium Strumarium*
26	34 *Xanthium Strumarium*
27	12 *Xanthium Strumarium*
28	12 *Xanthium Strumarium*
28	24 *Xanthium Strumarium*
28	24 *Xanthium Strumarium*
28	116 *Xanthium Strumarium*
28	12 *Xanthium Strumarium*
29	12 *Xanthium Strumarium*
29	12 *Xanthium Strumarium*
30	22 *Xanthium Strumarium*
30	12 *Xanthium Strumarium*
31	12 *Xanthium Strumarium*
31	34 *Xanthium Strumarium*
31	12 *Xanthium Strumarium*
32	12 *Xanthium Strumarium*
32	12 *Xanthium Strumarium*
33	12 *Xanthium Strumarium*
34	12 *Xanthium Strumarium*
34	12 *Xanthium Strumarium*
36	12 *Xanthium Strumarium*

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 spesified
Regulations relating to the Grading, Packing and Marking of Maize intended for sale in the Republic of South Africa as published in the Government Gazette No. 32190, 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 (*Crotalaria spp.*), 2 or more castor beans (*Ricinus communis L.*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cockleburs (*Xanthium spp.*) or similar seeds singly or in combination, or animal filth in excess of 0.20 percent in 1,000 grams; or

c) Has a musty, sour, or commercially objectionable foreign odor; or

d) Is heating or otherwise of distinctly low quality.

Mixed corn class	When % other colour in yellow maize samples > 5% and white maize samples > 2%

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

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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: WM1																															
1	Region 11	80.3	-	-	33.1	-	-	3.7	-	-	68.6	-	-	27.7	-	-	1.8	-	-	1.5	-	-	16	-	-	92	-	-	68	-	-
8	Region 12	75.0	72.9	78.8	34.1	29.1	41.1	29.3	9.9	56.6	62.2	40.8	76.1	8.6	2.6	17.4	0.7	0.1	1.4	0.5	0.0	1.2	9	4	29	64	52	74	61	58	63
10	Region 13	73.9	71.3	75.6	33.9	32.7	35.7	26.5	16.0	36.9	65.1	56.3	74.8	8.4	6.2	11.3	0.8	0.0	1.5	0.6	0.0	1.3	10	5	23	66	60	76	61	60	64
24	Region 14	74.3	68.4	76.9	34.2	32.5	38.2	20.3	4.4	46.1	69.2	50.2	80.4	10.5	3.7	21.1	0.9	0.0	3.3	0.7	0.0	1.9	10	1	24	69	55	79	62	59	65
2	Region 15	75.4	66.5	77.9	33.3	22.3	39.3	16.8	0.0	51.9	68.1	44.2	78.6	15.1	2.2	38.0	0.9	0.0	3.3	0.7	0.0	2.6	8	2	19	67	12	79	62	48	65
12	Region 17	75.0	72.9	78.8	34.1	29.1	41.1	29.3	9.9	56.6	62.2	40.8	76.1	8.6	2.6	17.4	0.7	0.1	1.4	0.5	0.0	1.2	9	4	29	64	52	74	61	58	63
4	Region 18	73.9	71.3	75.6	33.9	32.7	35.7	26.5	16.0	36.9	65.1	56.3	74.8	8.4	6.2	11.3	0.8	0.0	1.5	0.6	0.0	1.3	10	5	23	66	60	76	61	60	64
15	Region 19	74.3	68.4	76.9	34.2	32.5	38.2	20.3	4.4	46.1	69.2	50.2	80.4	10.5	3.7	21.1	0.9	0.0	3.3	0.7	0.0	1.9	10	1	24	69	55	79	62	59	65
17	Region 20	75.4	66.5	77.9	33.3	22.3	39.3	16.8	0.0	51.9	68.1	44.2	78.6	15.1	2.2	38.0	0.9	0.0	3.3	0.7	0.0	2.6	8	2	19	67	12	79	62	48	65
16	Region 21	75.7	72.1	77.4	34.3	30.3	38.5	24.6	3.9	49.3	65.6	48.5	79.0	9.8	2.2	22.0	0.9	0.1	2.1	0.8	0.1	2.1	10	2	30	64	47	77	61	57	64
4	Region 22	75.8	74.9	76.9	33.4	31.6	35.1	28.7	22.3	39.6	63.6	57.7	68.8	7.8	2.7	14.6	1.2	0.5	1.5	0.9	0.4	1.2	12	7	16	66	62	70	61	60	62
14	Region 23	76.4	72.7	77.9	34.4	14.6	42.7	33.8	1.1	53.1	57.2	42.5	71.0	9.0	2.5	41.2	0.7	0.1	1.4	0.6	0.0	1.4	9	2	24	70	54	84	62	58	66
4	Region 24	74.2	68.9	78.0	37.1	32.9	42.7	27.7	4.5	49.8	63.0	49.5	76.9	9.4	0.5	19.6	3.3	0.0	6.3	2.2	0.0	4.2	26	0	50	56	40	66	59	55	61
1	Region 25	73.5	-	-	29.3	-	-	22.6	-	-	69.5	-	-	7.9	-	-	0.4	-	-	0.4	-	-	18	-	-	68	-	-	62	-	-
8	Region 26	75.7	72.1	77.2	35.0	32.6	37.0	22.6	14.1	34.5	67.2	60.3	75.5	10.3	5.2	13.3	0.8	0.1	1.9	0.6	0.1	1.8	12	8	20	60	41	71	60	55	63
4	Region 27	75.3	72.3	77.0	34.1	30.3	36.4	38.6	21.3	50.4	54.8	48.4	63.8	6.6	1.2	14.9	1.5	0.4	3.0	1.2	0.4	2.2	15	3	36	74	71	78	63	63	64
18	Region 28	76.9	75.1	79.8	36.0	32.9	41.3	28.2	10.6	49.1	64.5	45.2	76.9	7.4	1.9	12.5	0.5	0.0	1.5	0.3	0.0	1.0	12	2	37	70	59	81	62	60	65
12	Region 29	77.8	74.3	80.9	36.7	32.7	39.4	20.9	2.6	59.9	66.9	39.0	77.5	12.2	1.1	28.1	0.7	0.0	1.5	0.5	0.0	1.3	9	0	16	77	63	100	64	61	70
12	Region 30	76.2	74.2	79.4	31.9	29.6	34.5	17.5	7.4	29.2	68.1	60.9	74.4	14.4	8.2	23.1	0.5	0.1	1.0	0.4	0.0	0.8	12	5	19	72	66	78	63	61	64
9	Region 31	77.0	74.8	79.3	34.4	23.8	42.1	18.7	4.3	30.1	71.4	62.4	79.9	9.9	3.6	19.1	0.6	0.1	1.2	0.4	0.0	1.2	9	1	17	74	70	77	63	62	64
9	Region 32	75.3	74.3	76.0	34.5	31.2	37.6	21.7	17.0	27.0	68.9	62.1	74.1	9.4	6.4	13.4	0.9	0.1	1.9	0.7	0.1	1.6	12	1	28	69	65	77	62	61	64
27	Region 23	76.8	72.8	79.8	33.6	28.9	38.3	12.2	2.1	35.6	69.9	55.1	80.1	17.9	5.7	32.1	0.6	0.0	1.8	0.5	0.0	1.6	9	1	30	68	54	85	62	58	66
18	Region 34	76.3	74.2	81.0	36.2	28.3	42.0	25.3	12.6	43.8	66.3	52.3	79.5	8.4	2.1	17.0	0.7	0.0	2.2	0.6	0.0	1.7	10	0	30	71	53	81	63	58	65
6	Region 35	75.5	72.1	78.6	30.8	28.0	36.6	20.6	13.6	26.9	65.3	58.5	70.4	14.1	10.1	19.4	0.3	0.1	0.6	0.2	0.0	0.5	6	3	10	75	60	88	64	60	67
8	Region 36	76.7	75.6	78.0	34.1	31.7	37.1	14.1	1.6	26.4	67.5	58.9	76.1	18.5	7.1	39.5	0.9	0.1	3.5	0.7	0.1	1.9	10	2	16	78	70	83	64	62	65
263	**Ave. WM1**	**75.9**			**34.5**			**23.1**			**65.5**			**11.3**			**0.8**			**0.6**			**10**			**69**			**62**		
	Min. WM1		**66.5**			**14.6**			**0.0**			**39.0**			**0.5**			**0.0**			**0.0**			**0**			**12**			**48**	
	Max. WM1			**81.0**			**42.7**			**59.9**			**81.6**			**41.2**			**6.3**			**4.2**			**50**			**100**			**70**

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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: WM2																															
4	Region 12	76.0	73.0	78.1	38.1	33.8	43.8	39.0	7.0	54.1	52.6	44.9	65.5	8.4	1.0	27.5	1.1	0.1	2.0	0.7	0.0	1.4	9	2	17	71	58	88	62	59	67
12	Region 13	74.7	72.7	76.7	35.9	28.5	38.7	28.9	3.7	43.6	60.6	50.6	71.7	10.4	3.6	24.6	2.1	0.4	6.4	0.8	0.3	1.4	10	4	19	67	45	77	62	56	64
21	Region 14	75.5	70.9	78.4	37.0	30.0	40.6	40.9	11.0	58.1	52.6	40.0	72.9	6.4	1.8	17.6	1.0	0.1	3.0	0.7	0.0	2.1	8	2	18	63	45	87	61	56	67
5	Region 15	76.5	75.9	77.5	37.1	27.8	40.8	39.9	2.7	53.5	50.9	43.1	67.1	9.2	2.9	30.2	1.0	0.4	1.5	0.8	0.4	1.1	8	3	12	71	65	73	63	61	63
3	Region 16	75.5	74.9	76.1	37.7	35.2	41.3	44.2	40.9	48.7	51.3	48.9	53.7	4.5	2.4	5.6	1.3	0.3	2.6	1.2	0.3	2.3	7	0	19	69	63	74	62	61	63
22	Region 17	74.9	69.4	77.6	35.9	30.4	40.2	38.1	13.8	55.0	55.2	43.1	74.6	6.7	1.6	17.1	1.0	0.0	5.3	0.8	0.0	4.0	11	2	30	65	53	77	61	58	64
7	Region 18	75.2	74.1	76.7	35.9	32.7	37.8	31.0	16.1	48.4	62.9	48.8	74.8	6.1	2.8	9.1	1.0	0.3	2.1	0.9	0.2	2.1	10	4	17	68	55	78	62	59	64
11	Region 19	72.8	68.1	75.9	34.5	28.4	38.5	22.3	3.2	46.9	66.0	46.7	77.8	11.7	5.2	31.6	2.4	0.0	7.5	1.6	0.0	4.1	16	2	45	66	51	83	61	58	66
4	Region 20	76.4	75.8	76.9	37.7	33.4	40.8	46.6	32.3	61.3	48.2	36.5	60.2	5.3	2.2	7.5	0.5	0.2	0.8	0.3	0.1	0.6	8	3	11	65	61	72	61	60	63
3	Region 21	75.8	75.4	76.3	36.8	32.5	40.9	35.4	18.0	54.1	55.5	42.9	67.1	9.1	3.0	14.9	1.9	1.5	2.4	1.5	0.9	2.1	12	3	24	69	67	73	62	62	63
9	Region 22	75.5	72.3	77.3	33.4	27.2	39.3	25.4	7.2	47.5	62.3	51.3	75.5	12.2	1.2	31.5	0.9	0.1	3.5	0.7	0.0	2.7	8	2	16	66	47	77	61	57	64
26	Region 23	75.7	72.1	77.2	36.0	30.6	41.6	36.6	3.7	63.7	55.7	35.1	71.3	7.8	1.2	29.1	1.9	0.1	20.2	1.2	0.0	9.2	12	1	30	71	60	86	63	60	66
10	Region 24	75.1	71.8	77.3	36.0	29.3	38.9	33.0	4.2	49.7	57.8	46.2	70.5	9.2	3.2	25.7	1.7	0.8	4.1	1.4	0.8	3.3	16	3	27	70	54	77	62	59	64
1	Region 25	73.7	-	-	30.3	-	-	13.6	-	-	74.6	-	-	11.8	-	-	4.0	-	-	3.4	-	-	28	-	-	54	-	-	59	-	-
1	Region 26	76.9	-	-	34.2	-	-	29.8	-	-	62.6	-	-	7.6	-	-	0.8	-	-	0.8	-	-	7	-	-	77	-	-	64	-	-
4	Region 27	76.3	75.1	77.1	34.3	32.4	35.7	27.8	24.2	34.0	64.2	58.7	70.3	8.0	5.5	11.2	0.9	0.5	1.7	0.9	0.5	1.7	5	0	17	71	62	76	63	60	64
3	Region 28	75.4	74.4	76.3	34.5	29.6	38.2	31.2	11.2	46.9	57.8	49.5	65.8	11.0	3.6	23.0	1.1	0.0	2.5	0.6	0.0	1.5	14	6	25	66	63	68	61	61	62
2	Region 29	77.3	76.7	77.9	36.2	32.2	40.1	42.7	20.1	65.3	46.5	32.8	60.2	10.8	1.9	19.7	0.8	0.6	1.0	0.4	0.4	0.5	9	6	12	73	67	79	63	62	65
2	Region 31	77.3	76.9	77.7	33.2	31.4	34.9	10.3	8.1	12.5	73.6	72.6	74.6	16.1	12.9	19.3	1.0	0.4	1.6	0.9	0.3	1.4	16	12	20	72	70	73	63	62	63
3	Region 32	76.5	74.6	77.9	33.0	31.9	34.1	13.8	10.5	19.9	67.6	62.3	74.2	18.6	13.8	26.6	0.5	0.4	0.7	0.5	0.3	0.7	17	13	19	78	75	80	64	63	65
1	Region 33	77.8	-	-	36.2	-	-	15.4	-	-	74.6	-	-	10.0	-	-	0.5	-	-	0.4	-	-	18	-	-	79	-	-	64	-	-
4	Region 34	75.6	74.7	76.4	34.5	32.0	36.5	15.1	9.7	26.1	73.9	68.4	78.7	11.1	5.5	16.8	1.5	0.2	2.4	1.1	0.2	1.8	19	13	28	73	66	81	63	61	65
158	**Ave. WM2**	**75.3**			**35.8**			**33.4**			**58.0**			**8.7**			**1.4**			**1.0**			**11**			**68**			**62**		
	Min. WM2		**68.1**			**27.2**			**2.7**			**32.8**			**1.0**			**0.0**			**0.0**			**0**			**45**			**56**	
	Max. WM2			**78.4**			**43.8**			**65.3**			**78.7**			**31.6**			**20.2**			**9.2**			**45**			**88**			**67**

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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																															
3	Region 12	75.0	71.8	76.8	38.8	36.7	41.4	50.7	36.9	68.6	44.8	29.2	58.2	4.5	2.2	6.3	1.7	0.8	3.5	1.6	0.7	3.3	11	8	14	73	73	74	63	63	63
3	Region 13	73.6	71.2	75.3	33.2	32.3	34.9	19.4	10.1	34.6	68.6	56.6	79.1	12.0	7.3	19.8	1.9	0.1	4.5	1.6	0.1	3.7	18	6	33	67	62	72	62	60	63
13	Region 14	75.5	69.0	77.7	37.1	33.9	41.4	41.9	18.0	57.8	53.8	39.7	72.9	4.3	0.9	9.1	1.4	0.0	2.7	1.1	0.0	2.0	9	2	23	67	53	82	62	58	65
5	Region 15	77.2	75.7	78.9	38.0	36.3	39.8	43.8	40.9	48.4	52.3	49.3	55.6	3.9	2.3	5.2	1.5	0.9	2.0	1.1	0.7	1.5	10	5	16	73	59	82	63	60	65
1	Region 16	73.6	-	-	35.0	-	-	28.5	-	-	58.9	-	-	12.6	-	-	1.5	-	-	1.5	-	-	9	-	-	61	-	-	60	-	-
3	Region 17	74.1	70.5	76.7	34.7	32.7	36.6	32.9	14.8	44.5	61.0	52.3	75.3	6.2	3.2	9.9	3.1	0.8	6.5	2.2	0.7	4.3	18	5	42	65	59	74	61	60	63
4	Region 18	71.5	69.1	74.0	31.8	27.4	34.2	22.5	7.9	45.8	65.3	50.9	72.8	12.3	3.3	19.3	2.1	0.7	2.9	1.4	0.3	1.9	16	8	24	57	47	69	59	57	62
1	Region 19	74.6	-	-	34.4	-	-	10.6	-	-	79.5	-	-	9.9	-	-	0.2	-	-	0.1	-	-	5	-	-	68	-	-	62	-	-
1	Region 21	72.7	-	-	32.7	-	-	31.1	-	-	57.3	-	-	11.6	-	-	2.0	-	-	1.2	-	-	32	-	-	78	-	-	64	-	-
7	Region 23	74.9	71.6	76.3	35.9	26.3	45.9	36.5	1.2	53.7	52.8	36.4	68.2	10.6	1.7	30.6	2.3	0.6	8.2	1.6	0.6	5.5	10	0	28	67	48	77	62	57	64
4	Region 24	75.7	74.0	77.2	39.8	38.2	43.1	50.6	41.1	62.3	46.6	36.2	56.2	2.8	1.5	3.8	1.3	0.5	1.6	1.2	0.4	1.5	11	0	16	67	62	70	62	60	62
1	Region 26	69.4	-	-	30.1	-	-	14.4	-	-	76.1	-	-	9.5	-	-	3.3	-	-	2.4	-	-	10	-	-	63	-	-	61	-	-
1	Region 30	76.2	-	-	30.4	-	-	10.1	-	-	72.8	-	-	17.1	-	-	0.7	-	-	0.7	-	-	5	-	-	67	-	-	62	-	-
2	Region 31	76.3	75.7	76.8	34.2	33.9	34.5	23.7	15.6	31.7	68.1	59.9	76.3	8.3	8.1	8.4	0.8	0.4	1.2	0.7	0.4	0.9	8	4	12	73	73	74	63	63	63
2	Region 36	76.7	76.4	77.0	36.5	36.5	36.5	18.4	15.6	21.2	70.2	62.0	78.4	11.4	6.0	16.8	1.4	1.2	1.5	0.9	0.7	1.2	16	15	17	82	77	87	65	64	67
51	**Ave. WM3**	**74.9**			**36.0**			**35.3**			**57.3**			**7.4**			**1.7**			**1.3**			**12**			**68**			**62**		
	Min. WM3		**69.0**			**26.3**			**1.2**			**29.2**			**0.9**			**0.0**			**0.0**			**0**			**47**			**57**	
	Max. WM3			**78.9**			**45.9**			**68.6**			**79.5**			**30.6**			**8.2**			**5.5**			**42**			**87**			**67**

TABLE 12: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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	75.5	74.5	76.4	38.2	36.9	39.4	34.7	20.5	48.9	57.8	47.1	68.4	7.6	4.0	11.1	1.5	0.4	2.5	1.2	0.4	2.0	8	6	10	73	68	78	63	62	64
4	Region 13	70.4	67.7	73.0	33.9	31.4	36.2	28.7	11.6	51.1	62.7	46.5	76.2	8.6	2.4	13.5	2.8	1.0	4.2	2.1	0.8	3.0	19	9	31	68	60	78	62	60	64
4	Region 14	71.3	66.1	74.6	36.9	34.8	41.1	46.1	38.5	59.0	50.4	38.5	55.2	3.5	1.7	7.5	2.3	0.1	4.4	1.7	0.0	3.3	15	6	32	65	60	74	61	60	63
3	Region 17	74.6	72.9	75.9	33.3	31.8	34.2	34.2	29.4	43.5	56.3	52.8	59.4	9.5	3.7	13.6	1.1	0.8	1.3	1.1	0.8	1.2	4	1	7	61	59	63	60	60	61
3	Region 18	73.3	71.1	75.1	36.2	32.9	41.8	42.4	31.6	54.1	51.8	42.0	59.5	5.7	3.9	8.9	1.4	0.1	3.0	1.1	0.0	2.3	7	4	9	64	50	80	61	58	65
6	Region 19	73.7	70.9	75.9	34.5	32.1	40.7	27.8	6.5	54.2	62.8	44.3	76.1	9.4	1.5	17.4	1.7	0.1	2.8	1.3	0.1	2.3	12	2	18	66	56	79	61	59	65
1	Region 20	74.2	-	-	29.6	-	-	3.2	-	-	72.8	-	-	24.0	-	-	0.7	-	-	0.6	-	-	9	-	-	64	-	-	61	-	-
3	Region 21	74.2	72.2	75.9	37.7	34.7	41.1	52.7	41.7	66.2	44.8	33.6	54.0	2.5	0.2	4.3	4.8	2.1	8.0	3.3	1.0	5.9	29	0	46	72	67	76	63	61	64
1	Region 22	75.1	-	-	33.0	-	-	5.3	-	-	79.5	-	-	15.2	-	-	0.4	-	-	0.4	-	-	7	-	-	70	-	-	62	-	-
6	Region 23	75.4	73.7	76.6	35.7	33.8	37.4	37.1	24.6	53.8	56.1	41.4	65.0	6.8	4.3	10.4	1.4	0.5	2.1	1.3	0.4	1.7	13	6	18	70	65	81	62	61	65
2	Region 24	77.9	75.1	80.6	37.7	37.1	38.2	31.1	9.6	52.6	60.6	45.4	75.7	8.4	2.0	14.7	0.8	0.6	1.1	0.7	0.5	0.9	13	6	19	78	60	95	64	60	69
2	Region 26	73.8	73.1	74.5	34.7	33.5	35.8	27.8	15.5	40.0	63.9	56.2	71.6	8.4	3.8	12.9	2.9	2.3	3.5	2.2	1.5	2.9	11	4	18	75	71	79	64	63	65
1	Region 27	68.0	-	-	32.0	-	-	34.6	-	-	60.9	-	-	4.5	-	-	11.0	-	-	7.4	-	-	4	-	-	56	-	-	59	-	-
1	Region 28	76.1	-	-	36.5	-	-	44.1	-	-	44.9	-	-	11.0	-	-	0.2	-	-	0.1	-	-	18	-	-	64	-	-	61	-	-
2	Region 30	74.3	74.2	74.4	32.3	32.0	32.5	18.5	15.4	21.5	69.0	65.4	72.6	12.6	12.0	13.1	1.1	0.2	1.9	0.9	0.1	1.6	14	10	17	65	64	66	61	61	61
3	Region 32	77.8	77.0	79.0	34.1	32.6	35.8	10.4	1.8	19.4	65.1	62.0	67.4	24.5	14.8	36.2	0.8	0.1	2.2	0.6	0.0	1.6	16	8	28	72	65	83	63	61	65
5	Region 34	74.0	69.4	78.8	34.3	26.9	41.5	27.6	7.2	66.6	62.8	33.0	79.7	9.6	0.4	13.8	1.0	0.2	2.4	0.9	0.2	2.1	16	9	24	64	55	70	61	59	62
1	Region 35	75.7	-	-	41.1	-	-	47.3	-	-	47.2	-	-	5.5	-	-	0.4	-	-	0.4	-	-	7	-	-	83	-	-	65	-	-
2	Region 36	77.5	76.8	78.1	31.3	29.8	32.8	12.3	11.2	13.4	69.1	66.8	71.3	18.7	15.3	22.0	0.8	0.4	1.2	0.6	0.3	0.9	17	8	26	80	80	80	65	65	65
52	**Ave. COM**	**74.2**			**35.0**			**31.3**			**59.2**			**9.4**			**1.8**			**1.4**			**13**			**68**			**62**		
	Min. COM		**66.1**			**26.9**			**1.8**			**33.0**			**0.2**			**0.1**			**0.0**			**0**			**50**			**58**	
	Max. COM			**80.6**			**41.8**			**66.6**			**79.7**			**36.2**			**11.0**			**7.4**			**46**			**95**			**69**
524	**Ave. WM**	**75.5**			**35.1**			**28.2**			**61.8**			**10.0**			**1.2**			**0.9**			**11**			**68**			**62**		
	Min. WM		**66.1**			**14.6**			**0.0**			**29.2**			**0.2**			**0.0**			**0.0**			**0**			**12**			**48**	
	Max. WM			**81.0**			**45.9**			**68.6**			**81.6**			**41.2**			**20.2**			**9.2**			**50**			**100**			**70**
1000	**Ave. Maize**	**75.4**			**33.2**			**19.3**			**63.7**			**17.1**			**1.2**			**0.9**			**11**			**70**			**63**		
	Min. Maize		**61.5**			**14.6**			**0.0**			**14.1**			**0.2**			**0.0**			**0.0**			**0**			**12**			**48**	
	Max. Maize			**81.0**			**45.9**			**68.6**			**82.1**			**85.9**			**20.2**			**9.2**			**50**			**100**			**70**

TABLE 13: PHYSICAL QUALITY CHARACTERISTICS OF WHITE MAIZE (2021/22)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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.
WHITE																															
1	Region 11	80.3	80.3	80.3	33.1	33.1	33.1	3.7	3.7	3.7	68.6	68.6	68.6	27.7	27.7	27.7	1.8	1.8	1.8	1.5	1.5	1.5	16	16	16	92	92	92	68	68	68
17	Region 12	75.9	71.3	78.9	37.7	27.1	43.8	36.6	7.0	68.6	55.9	29.2	80.0	7.5	1.0	27.5	1.0	0.1	3.5	0.9	0.0	3.3	9	2	20	73	50	88	63	58	67
29	Region 13	73.9	67.7	76.7	34.6	27.2	38.7	24.0	3.7	51.1	64.6	46.5	79.1	11.4	2.4	28.2	1.8	0.0	6.4	1.0	0.0	3.7	13	4	33	67	45	78	62	56	64
62	Region 14	75.1	66.1	79.6	36.2	26.1	41.4	38.0	1.9	59.0	55.4	38.5	81.6	6.6	0.9	29.4	1.1	0.0	4.4	0.8	0.0	3.3	9	2	32	64	34	87	61	54	67
12	Region 15	76.9	75.7	78.9	37.3	27.8	40.8	39.2	1.4	53.5	53.1	43.1	75.0	7.8	2.3	30.2	1.2	0.4	2.0	0.9	0.4	1.5	9	3	16	71	59	82	63	60	65
4	Region 16	75.0	73.6	76.1	37.0	35.0	41.3	40.3	28.5	48.7	53.2	48.9	58.9	6.5	2.4	12.6	1.4	0.3	2.6	1.3	0.3	2.3	8	0	19	67	61	74	62	60	63
40	Region 17	74.8	69.4	78.8	35.1	29.1	41.1	34.8	9.9	56.6	57.8	40.8	76.1	7.4	1.6	17.4	1.1	0.0	6.5	0.8	0.0	4.3	10	1	42	64	52	77	61	58	64
18	Region 18	73.8	69.1	76.7	34.6	27.4	41.8	30.0	7.9	54.1	62.1	42.0	74.8	7.9	2.8	19.3	1.3	0.0	3.0	1.0	0.0	2.3	11	4	24	65	47	80	61	57	65
33	Region 19	73.7	68.1	76.9	34.4	28.4	40.7	22.0	3.2	54.2	67.3	44.3	80.4	10.7	1.5	31.6	1.5	0.0	7.5	1.1	0.0	4.1	12	1	45	67	51	83	62	58	66
22	Region 20	75.5	66.5	77.9	33.9	22.3	40.8	21.6	0.0	61.3	64.7	36.5	78.6	13.7	2.2	38.0	0.8	0.0	3.3	0.6	0.0	2.6	8	2	19	66	12	79	61	48	65
23	Region 21	75.4	72.1	77.4	35.0	30.3	41.1	30.0	3.9	66.2	61.2	33.6	79.0	8.8	0.2	22.0	1.6	0.1	8.0	1.3	0.1	5.9	13	0	46	66	47	78	61	57	64
14	Region 22	75.5	72.3	77.3	33.4	27.2	39.3	24.9	5.3	47.5	63.9	51.3	79.5	11.2	1.2	31.5	1.0	0.1	3.5	0.7	0.0	2.7	9	2	16	66	47	77	61	57	64
53	Region 23	75.7	71.6	77.9	35.5	14.6	45.9	35.9	1.1	63.7	55.8	35.1	71.3	8.3	1.2	41.2	1.6	0.1	20.2	1.1	0.0	9.2	11	0	30	70	48	86	62	57	66
20	Region 24	75.3	68.9	80.6	37.2	29.3	43.1	35.3	4.2	62.3	56.9	36.2	76.9	7.9	0.5	25.7	1.8	0.0	6.3	1.4	0.0	4.2	17	0	50	67	40	95	62	55	69
2	Region 25	73.6	73.5	73.7	29.8	29.3	30.3	18.1	13.6	22.6	72.1	69.5	74.6	9.9	7.9	11.8	2.2	0.4	4.0	1.9	0.4	3.4	23	18	28	61	54	68	60	59	62
12	Region 26	74.9	69.4	77.2	34.5	30.1	37.0	23.4	14.1	40.0	67.0	56.2	76.1	9.7	3.8	13.3	1.3	0.1	3.5	1.1	0.1	2.9	12	4	20	64	41	79	61	55	65
9	Region 27	74.9	68.0	77.1	34.0	30.3	36.4	33.4	21.3	50.4	59.6	48.4	70.3	7.0	1.2	14.9	2.3	0.4	11.0	1.7	0.4	7.4	9	0	36	71	56	78	63	59	64
22	Region 28	76.7	74.4	79.8	35.8	29.6	41.3	29.3	10.6	49.1	62.7	44.9	76.9	8.0	1.9	23.0	0.5	0.0	2.5	0.4	0.0	1.5	13	2	37	70	59	81	62	60	65
14	Region 29	77.7	74.3	80.9	36.7	32.2	40.1	24.0	2.6	65.3	64.0	32.8	77.5	12.0	1.1	28.1	0.7	0.0	1.5	0.5	0.0	1.3	9	0	16	76	63	100	64	61	70
15	Region 30	75.9	74.2	79.4	31.9	29.6	34.5	17.1	7.4	29.2	68.5	60.9	74.4	14.3	8.2	23.1	0.6	0.1	1.9	0.4	0.0	1.6	11	5	19	70	64	78	62	61	64
13	Region 31	76.9	74.8	79.3	34.1	23.8	42.1	18.1	4.3	31.7	71.3	59.9	79.9	10.6	3.6	19.3	0.7	0.1	1.6	0.5	0.0	1.4	10	1	20	74	70	77	63	62	64
15	Region 32	76.0	74.3	79.0	34.1	31.2	37.6	17.9	1.8	27.0	67.9	62.0	74.2	14.3	6.4	36.2	0.8	0.1	2.2	0.6	0.0	1.6	14	1	28	72	65	83	63	61	65
28	Region 33	76.8	72.8	79.8	33.7	28.9	38.3	12.3	2.1	35.6	70.1	55.1	80.1	17.6	5.7	32.1	0.6	0.0	1.8	0.5	0.0	1.6	10	1	30	69	54	85	62	58	66
27	Region 34	75.8	69.4	81.0	35.6	26.9	42.0	24.2	7.2	66.6	66.8	33.0	79.7	9.0	0.4	17.0	0.9	0.0	2.4	0.7	0.0	2.1	12	0	30	70	53	81	62	58	65
7	Region 35	75.5	72.1	78.6	32.2	28.0	41.1	24.4	13.6	47.3	62.7	47.2	70.4	12.9	5.5	19.4	0.4	0.1	0.6	0.3	0.0	0.5	6	3	10	76	60	88	64	60	67
12	Region 36	76.8	75.6	78.1	34.1	29.8	37.1	14.5	1.6	26.4	68.2	58.9	78.4	17.3	6.0	39.5	1.0	0.1	3.5	0.7	0.1	1.9	12	2	26	79	70	87	64	62	67
524	**Ave. White**	**75.5**			**35.1**			**28.2**			**61.8**			**10.0**			**1.2**			**0.9**			**11**			**68**			**62**		
	Min. White		**66.1**			**14.6**			**0.0**			**29.2**			**0.2**			**0.0**			**0.0**			**0**			**12**			**48**	
	Max. White			**81.0**			**45.9**			**68.6**			**81.6**			**41.2**			**20.2**			**9.2**			**50**			**100**			**70**

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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: YM1																															
7	Region 08	75.1	71.7	77.7	35.7	33.4	39.3	6.5	1.0	14.5	66.4	56.9	75.0	27.1	12.5	40.6	0.5	0.1	1.3	0.4	0.0	1.2	13	8	18	67	58	77	62	60	64
14	Region 10	76.1	73.0	78.6	32.9	27.8	35.7	2.2	0.9	6.2	63.6	36.8	78.7	34.2	17.1	62.0	1.1	0.1	3.5	0.9	0.0	2.9	11	0	26	63	49	88	61	57	67
15	Region 11	77.6	75.8	80.8	33.5	27.1	37.6	1.5	0.0	5.5	62.4	48.9	73.9	36.1	24.3	50.6	1.0	0.4	1.6	0.9	0.2	1.5	6	1	21	60	36	84	60	54	66
5	Region 12	75.9	73.3	78.2	33.4	30.0	36.9	12.2	4.7	22.3	71.9	66.4	78.6	15.9	7.3	28.0	1.4	0.6	2.2	1.2	0.6	2.2	12	3	40	76	66	84	64	61	66
6	Region 13	74.5	72.2	76.2	30.2	26.3	33.1	10.9	7.9	16.1	69.0	61.4	73.0	20.0	13.1	30.7	1.7	0.7	3.5	1.5	0.6	2.9	10	7	14	78	70	86	64	62	66
9	Region 14	74.7	71.0	78.8	34.2	32.5	35.5	15.1	6.1	30.5	72.9	62.6	80.2	12.0	3.8	21.0	0.8	0.1	1.4	0.7	0.1	1.2	11	3	20	72	55	85	63	59	66
7	Region 17	74.5	72.9	76.5	31.9	29.6	39.1	14.8	6.9	37.1	67.6	59.5	75.0	17.6	3.4	24.9	1.6	0.7	3.2	1.3	0.7	2.5	10	3	23	76	67	87	64	62	66
3	Region 18	75.8	73.9	77.4	30.7	28.9	33.1	10.7	5.7	16.0	71.4	68.4	75.0	17.9	13.2	25.9	1.3	0.1	2.9	1.3	0.1	2.8	11	7	17	76	66	86	64	61	66
7	Region 19	75.7	73.2	77.6	29.6	25.7	34.0	11.7	3.8	29.4	65.9	59.6	72.8	22.4	10.5	31.6	1.3	0.5	4.4	1.1	0.5	3.4	8	4	15	78	69	90	64	62	67
5	Region 20	76.0	74.1	76.8	29.6	25.4	32.7	15.2	11.2	19.2	65.5	59.8	71.9	19.3	16.3	24.6	1.1	0.4	1.5	0.7	0.4	1.2	7	2	13	74	69	80	63	62	65
4	Region 21	74.2	69.7	76.2	29.3	26.3	31.3	8.3	2.8	10.7	65.8	62.2	73.5	25.9	15.8	35.0	1.0	0.3	2.0	1.0	0.3	1.8	7	3	14	65	32	80	61	53	65
1	Region 23	74.9	-	-	31.0	-	-	13.5	-	-	70.2	-	-	16.3	-	-	0.7	-	-	0.7	-	-	9	-	-	87	-	-	66	-	-
3	Region 24	76.2	75.2	76.9	31.9	30.1	34.4	10.3	6.1	13.7	66.3	63.0	70.2	23.4	18.6	30.9	0.6	0.6	0.7	0.5	0.3	0.7	15	12	20	76	65	83	64	61	66
10	Region 25	73.4	69.7	75.9	31.4	27.4	35.9	13.0	6.8	26.8	71.4	62.4	76.4	15.6	10.4	23.1	1.3	0.4	3.5	1.1	0.4	2.5	19	9	35	73	65	80	63	61	65
12	Region 26	75.0	68.0	78.5	30.1	23.1	37.2	11.0	4.4	46.2	69.7	49.0	82.1	19.3	4.8	36.9	1.4	0.1	4.4	1.0	0.0	3.1	11	4	25	70	32	89	62	53	67
15	Region 27	75.3	70.8	77.0	29.6	26.2	33.8	8.6	2.3	13.5	67.0	58.2	74.3	24.3	16.0	37.5	0.7	0.1	1.4	0.6	0.1	1.4	6	0	16	73	52	82	63	58	65
30	Region 28	75.1	72.9	76.9	30.9	25.6	37.0	7.3	1.7	17.8	68.7	58.8	77.5	24.0	6.4	37.3	0.7	0.0	2.8	0.6	0.0	1.8	12	1	33	72	61	81	63	60	65
35	Region 29	77.1	74.0	79.9	31.3	26.7	36.6	11.8	0.8	35.3	65.6	49.9	76.4	22.6	5.7	47.3	0.9	0.1	2.8	0.7	0.0	2.2	9	0	27	78	65	88	64	61	67
18	Region 30	76.4	73.1	78.1	30.6	24.9	38.0	11.6	1.2	27.8	64.6	56.1	71.2	23.8	7.5	41.6	0.7	0.1	1.7	0.6	0.0	1.5	7	0	14	75	64	83	64	61	66
18	Region 31	76.6	74.8	78.9	29.7	27.4	33.1	7.5	2.5	15.8	65.2	52.2	73.0	27.3	11.2	43.9	0.8	0.1	1.9	0.7	0.1	1.4	9	0	17	74	63	84	63	61	66
21	Region 32	75.8	71.5	77.8	32.1	26.8	36.6	13.0	0.9	27.8	63.4	39.3	74.9	23.6	9.0	59.8	0.9	0.1	2.6	0.7	0.0	1.8	13	0	32	75	52	86	64	58	66
20	Region 33	75.4	71.9	78.5	30.0	23.6	35.3	7.8	2.3	14.5	65.4	52.5	77.2	26.7	14.9	45.2	1.1	0.1	2.7	0.8	0.0	1.9	10	1	25	69	54	84	62	58	66
21	Region 34	77.0	75.0	78.7	32.1	28.9	42.1	11.2	2.6	54.0	66.2	43.1	74.6	22.7	2.9	40.6	0.7	0.1	1.5	0.6	0.0	1.2	8	0	22	77	70	84	64	62	66
9	Region 35	74.3	72.6	76.6	30.6	26.1	36.0	4.5	0.2	11.4	67.1	56.9	75.9	28.4	20.0	42.9	1.4	0.1	4.2	1.1	0.0	3.3	11	5	17	73	53	85	63	58	66
15	Region 36	75.8	74.1	78.4	33.2	27.9	39.9	6.5	0.6	24.9	60.4	50.0	71.5	33.1	3.6	48.8	1.0	0.1	2.6	0.7	0.0	1.6	12	0	27	72	64	84	63	61	66
310	**Ave. YM1**	**75.8**			**31.4**			**9.4**			**66.2**			**24.5**			**1.0**			**0.8**			**10**			**73**			**63**		
	Min. YM1		**68.0**			**23.1**			**0.0**			**36.8**			**2.9**			**0.0**			**0.0**			**0**			**32**			**53**	
	Max. YM1			**80.8**			**42.1**			**54.0**			**82.1**			**62.0**			**4.4**			**3.4**			**40**			**90**			**67**

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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: YM2																															
3	Region 10	74.6	72.8	76.9	31.9	26.2	37.0	3.1	0.1	7.0	63.6	56.1	67.5	33.3	25.8	43.8	1.4	1.0	1.7	1.3	0.9	1.5	9	1	17	52	37	75	58	54	64
3	Region 11	75.6	72.3	77.7	29.9	21.9	34.1	1.6	0.0	2.8	45.0	14.1	60.8	53.4	36.4	85.9	2.8	2.3	3.0	2.1	1.6	2.3	16	7	30	61	51	67	60	58	62
3	Region 13	75.0	73.6	76.4	31.7	29.6	33.8	12.0	7.0	17.7	73.2	69.3	78.1	14.8	13.0	16.4	1.6	1.2	2.2	1.3	1.2	1.4	8	4	11	78	73	82	64	63	65
4	Region 14	74.7	72.8	77.9	31.7	28.7	34.5	14.2	4.5	32.9	63.6	47.8	74.9	22.2	9.3	47.7	2.2	1.4	2.8	1.6	1.1	2.1	6	2	10	68	62	74	62	60	63
6	Region 17	75.3	73.5	77.3	30.8	29.9	32.4	11.9	10.8	13.8	71.0	67.9	75.9	17.1	12.4	20.4	1.6	0.5	2.4	1.2	0.5	1.7	9	5	14	74	69	79	63	62	64
1	Region 18	73.3	-	-	28.7	-	-	6.5	-	-	69.1	-	-	24.4	-	-	2.5	-	-	1.9	-	-	4	-	-	79	-	-	65	-	-
4	Region 19	72.9	68.4	75.0	31.4	29.8	34.3	14.7	9.2	22.3	71.4	66.9	73.8	13.9	10.8	17.0	2.5	0.6	4.1	1.9	0.2	3.3	17	4	39	77	76	80	64	64	65
3	Region 20	73.2	71.7	74.9	33.4	31.3	36.6	14.2	9.7	20.4	68.6	64.4	70.8	17.2	15.2	19.7	2.9	1.4	3.9	2.3	1.1	3.0	11	7	13	83	80	86	66	65	66
1	Region 22	73.6	-	-	31.2	-	-	0.6	-	-	60.1	-	-	39.3	-	-	1.0	-	-	0.5	-	-	12	-	-	42	-	-	56	-	-
1	Region 24	72.5	-	-	27.2	-	-	10.8	-	-	69.5	-	-	19.7	-	-	4.1	-	-	2.7	-	-	21	-	-	60	-	-	60	-	-
4	Region 25	74.3	72.9	75.4	29.1	28.0	32.4	3.2	2.3	3.6	64.1	63.0	67.2	32.7	29.4	34.6	1.3	0.4	2.5	0.9	0.4	1.7	20	9	31	65	63	67	61	61	62
2	Region 26	74.3	72.3	76.3	30.8	30.4	31.1	8.1	6.5	9.6	70.9	68.5	73.3	21.1	20.2	21.9	2.3	1.0	3.6	2.1	1.0	3.1	12	10	13	70	70	70	63	63	63
4	Region 27	75.2	73.4	76.9	30.8	29.2	34.1	10.6	2.1	19.8	66.6	58.4	73.5	22.9	18.4	30.5	0.7	0.4	0.9	0.6	0.4	0.9	10	0	16	71	61	78	63	60	64
8	Region 28	75.1	70.7	76.4	28.9	26.6	31.2	5.8	1.5	10.5	64.3	55.2	72.5	30.0	18.5	40.9	0.8	0.1	1.7	0.6	0.0	1.1	16	8	46	72	68	75	63	62	64
9	Region 29	73.9	69.0	77.9	30.3	25.5	34.0	10.3	1.5	24.2	66.8	47.0	73.7	22.9	8.9	51.5	1.3	0.0	3.3	1.0	0.0	2.2	13	2	28	74	60	85	63	60	66
10	Region 30	75.7	73.3	77.6	30.7	27.1	39.6	18.2	5.4	50.5	62.4	43.9	73.3	19.4	4.3	31.9	0.8	0.5	1.5	0.6	0.4	0.9	9	1	19	73	67	81	63	62	65
9	Region 31	76.4	74.5	78.4	28.0	24.9	29.6	4.4	0.6	7.2	53.1	24.5	67.2	42.5	25.9	74.9	1.0	0.4	1.9	0.7	0.3	1.2	10	4	16	72	60	82	63	60	65
5	Region 32	76.1	75.9	76.7	31.1	30.0	32.1	6.3	1.9	15.2	65.1	61.7	72.2	28.6	19.3	36.4	1.1	0.1	2.8	0.9	0.0	2.2	16	4	45	70	65	77	62	61	64
6	Region 33	74.5	72.3	76.6	28.7	23.8	30.7	4.2	0.4	12.0	60.9	49.5	68.3	34.9	19.7	50.1	1.7	1.0	2.6	1.2	0.5	1.7	9	2	23	67	59	72	62	60	63
5	Region 34	75.6	73.9	78.2	29.6	27.1	31.9	4.8	1.5	9.3	64.0	54.2	69.1	31.2	21.6	43.3	1.3	0.7	2.4	1.2	0.5	2.0	16	5	27	73	66	81	63	61	65
9	Region 36	73.7	61.5	76.9	31.4	28.1	33.7	9.4	1.0	28.9	57.2	39.0	70.4	33.4	11.1	60.0	2.0	0.7	3.3	1.5	0.3	2.4	18	0	38	67	51	79	62	58	65
100	**Ave. YM2**	**74.8**			**30.3**			**8.9**			**63.2**			**27.8**			**1.5**			**1.1**			**13**			**71**			**62**		
	Min. YM2		**61.5**			**21.9**			**0.0**			**14.1**			**4.3**			**0.0**			**0.0**			**0**			**37**			**54**	
	Max. YM2			**78.4**			**39.6**			**50.5**			**78.1**			**85.9**			**4.1**			**3.3**			**46**			**86**			**66**

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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: YM3																															
1	Region 11	71.2	-	-	28.1	-	-	1.0	-	-	48.7	-	-	50.3	-	-	3.0	-	-	2.7	-	-	13	-	-	56	-	-	59	-	-
1	Region 13	73.7	-	-	31.3	-	-	10.9	-	-	71.3	-	-	17.8	-	-	3.9	-	-	3.1	-	-	23	-	-	78	-	-	64	-	-
2	Region 14	75.5	74.3	76.6	34.6	33.7	35.5	20.8	13.0	28.5	68.4	64.2	72.6	10.9	7.3	14.4	1.6	0.8	2.4	1.5	0.8	2.2	5	3	6	79	78	81	65	64	65
2	Region 17	76.2	75.9	76.5	29.8	29.6	30.0	8.3	7.9	8.7	77.1	72.4	81.7	14.7	9.6	19.7	1.8	1.4	2.1	1.4	1.3	1.4	20	13	27	80	72	87	65	63	67
2	Region 19	73.3	72.5	74.0	29.5	26.0	32.9	20.0	17.0	22.9	66.5	65.9	67.1	13.6	10.0	17.1	2.0	1.6	2.4	1.7	1.0	2.4	6	5	6	76	71	81	64	63	65
1	Region 25	71.0	-	-	35.0	-	-	5.7	-	-	76.7	-	-	17.6	-	-	0.7	-	-	0.7	-	-	15	-	-	76	-	-	64	-	-
4	Region 26	74.0	69.9	75.8	29.1	24.9	32.5	10.6	2.8	18.6	70.1	66.5	77.2	19.4	11.8	28.6	1.7	0.7	2.9	1.4	0.6	2.2	6	3	9	59	30	74	60	53	63
2	Region 29	75.5	74.0	77.0	33.2	31.6	34.8	9.2	1.0	17.3	65.5	55.5	75.5	25.4	7.2	43.5	0.6	0.4	0.8	0.6	0.3	0.8	5	2	8	68	51	84	62	58	66
1	Region 30	76.7	76.7	76.7	29.6	29.6	29.6	1.0	1.0	1.0	61.4	61.4	61.4	37.6	37.6	37.6	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6	60	60	60	60	60	60
16	**Ave. YM3**	**74.3**			**30.9**			**11.1**			**68.3**			**20.6**			**1.6**			**1.4**			**10**			**70**			**62**		
	Min. YM3		**69.9**			**24.9**			**1.0**			**48.7**			**7.2**			**0.0**			**0.0**			**2**			**30**			**53**	
	Max. YM3			**77.0**			**35.5**			**28.5**			**81.7**			**50.3**			**3.9**			**3.1**			**27**			**87**			**67**
CLASS: COM																															
1	Region 08	74.0	-	-	36.2	-	-	3.5	-	-	75.0	-	-	21.5	-	-	0.4	-	-	0.3	-	-	13	-	-	56	-	-	59	-	-
1	Region 10	73.3	-	-	28.6	-	-	0.1	-	-	56.0	-	-	43.9	-	-	1.3	-	-	1.1	-	-	10	-	-	47	-	-	57	-	-
1	Region 12	77.5	-	-	32.4	-	-	15.8	-	-	70.3	-	-	13.9	-	-	1.0	-	-	0.4	-	-	13	-	-	88	-	-	67	-	-
1	Region 13	71.7	-	-	29.6	-	-	7.6	-	-	66.8	-	-	25.6	-	-	2.6	-	-	2.1	-	-	13	-	-	77	-	-	64	-	-
2	Region 18	73.1	70.5	75.7	30.8	27.9	33.7	18.3	15.6	20.9	71.2	65.8	76.6	10.6	7.8	13.3	0.6	0.2	1.0	0.6	0.2	1.0	9	7	10	79	79	79	64	64	64
4	Region 19	73.3	71.7	74.7	31.7	30.8	32.7	12.4	3.0	18.1	71.2	68.4	75.5	16.4	10.6	25.3	2.3	1.0	3.7	1.8	0.6	3.0	13	4	17	74	54	84	63	59	66
1	Region 20	77.1	-	-	31.3	-	-	7.2	-	-	71.7	-	-	21.1	-	-	0.6	-	-	0.6	-	-	1	-	-	80	-	-	65	65	65
2	Region 25	73.0	70.9	75.1	33.5	32.0	34.9	18.5	14.2	22.7	69.9	66.7	73.0	11.7	10.6	12.8	0.4	0.2	0.5	0.4	0.2	0.5	11	7	15	73	70	76	63	62	64
3	Region 26	74.7	73.5	76.3	30.3	29.5	31.5	9.9	6.9	12.8	68.6	64.8	71.7	21.5	17.8	28.3	0.8	0.6	1.0	0.8	0.6	1.0	9	9	10	67	65	72	62	61	63
1	Region 27	71.2	-	-	28.3	-	-	12.9	-	-	64.2	-	-	22.9	-	-	1.2	-	-	1.0	-	-	21	-	-	79	-	-	64	-	-
7	Region 28	73.5	70.9	76.2	29.4	27.8	32.5	7.1	0.3	17.0	70.3	67.7	73.5	22.6	10.9	31.1	1.0	0.1	1.5	0.7	0.0	1.4	17	1	37	73	63	80	63	61	65
4	Region 29	75.8	75.0	76.3	33.4	31.0	36.7	12.7	5.6	16.9	68.0	63.0	77.0	19.3	17.1	24.2	0.9	0.2	1.4	0.7	0.0	1.1	9	4	13	80	79	82	65	65	65
3	Region 30	73.7	71.8	75.5	27.2	25.4	29.8	5.9	2.8	10.3	60.9	58.1	62.8	33.3	26.9	37.4	1.2	0.7	1.7	1.1	0.6	1.6	12	8	18	67	56	76	62	59	64
6	Region 31	75.4	70.1	77.7	28.4	19.0	35.9	3.3	1.0	5.4	65.7	55.3	75.1	31.0	19.5	41.6	1.5	0.6	1.9	1.1	0.3	1.6	15	6	37	70	65	78	62	61	64
4	Region 32	76.2	75.2	76.6	32.5	29.6	35.6	17.1	4.6	24.0	65.1	63.1	67.5	17.9	9.5	32.3	0.5	0.1	0.9	0.4	0.0	0.8	19	16	21	74	64	79	63	61	65
2	Region 33	72.5	69.5	75.5	27.5	27.2	27.8	4.0	3.1	4.8	64.2	53.9	74.4	31.9	20.8	43.0	2.6	1.0	4.2	1.6	0.3	2.8	6	1	11	65	62	68	61	60	62

TABLE 14: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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																															
4	Region 34	77.4	75.8	79.0	33.6	28.9	37.6	19.7	5.2	52.6	63.1	42.7	72.9	17.3	4.7	29.0	1.1	0.6	1.9	0.7	0.4	1.4	15	0	33	78	72	87	64	63	66
3	Region 36	75.7	74.6	77.8	32.2	30.3	33.3	4.4	1.5	6.2	57.4	41.1	70.8	38.3	23.0	53.5	1.5	1.2	1.8	1.2	0.9	1.5	21	10	28	74	68	80	63	62	65
50	**Ave. COM**	**74.6**			**30.8**			**10.1**			**66.6**			**23.3**			**1.2**			**0.9**			**14**			**73**			**63**		
	Min. COM		**69.5**			**19.0**			**0.1**			**41.1**			**4.7**			**0.1**			**0.0**			**0**			**47**			**57**	
	Max. COM			**79.0**			**37.6**			**52.6**			**77.0**			**53.5**			**4.2**			**3.0**			**37**			**88**			**67**
476	**Ave. YM**	**75.4**			**31.1**			**9.4**			**65.7**			**24.9**			**1.1**			**0.9**			**11**			**72**			**63**		
	Min. YM		**61.5**			**19.0**			**0.0**			**14.1**			**2.9**			**0.0**			**0.0**			**0**			**30**			**53**	
	Max. YM			**80.8**			**42.1**			**54.0**			**82.1**			**85.9**			**4.4**			**3.4**			**46**			**90**			**67**
1000	**Ave. Maize**	**75.4**			**33.2**			**19.3**			**63.7**			**17.1**			**1.2**			**0.9**			**11**			**70**			**63**		
	Min. Maize		**61.5**			**14.6**			**0.0**			**14.1**			**0.2**			**0.0**			**0.0**			**0**			**12**			**48**	
	Max. Maize			**81.0**			**45.9**			**68.6**			**82.1**			**85.9**			**20.2**			**9.2**			**50**			**100**			**70**

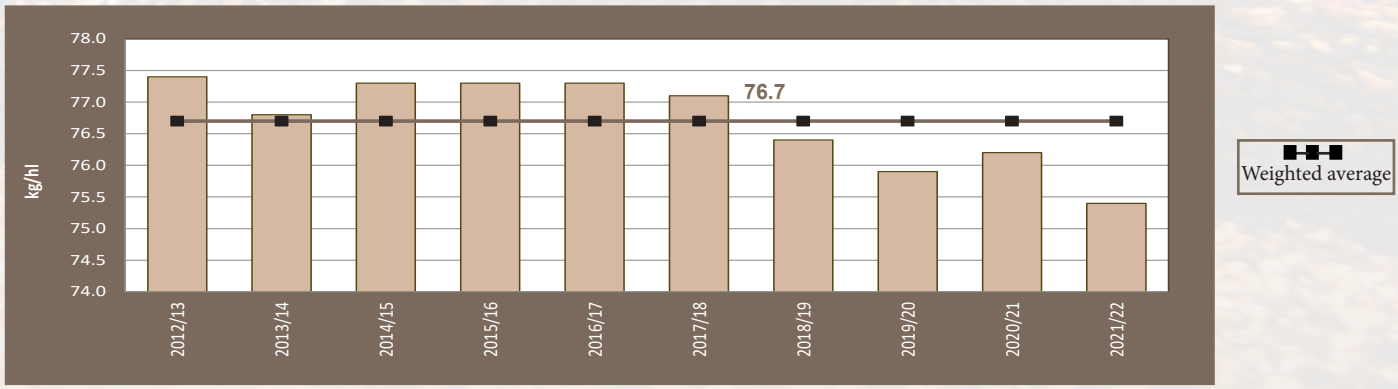
TABLE 15: PHYSICAL QUALITY CHARACTERISTICS OF YELLOW MAIZE (2021/22)

Number of samples	Region	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)			SAGL Milling index 2022			GYA		
								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.
YELLOW																															
8	Region 08	74.9	71.7	77.7	35.7	33.4	39.3	6.2	1.0	14.5	67.5	56.9	75.0	26.4	12.5	40.6	0.5	0.1	1.3	0.4	0.0	1.2	13	8	18	65	56	77	61	59	64
18	Region 10	75.7	72.8	78.6	32.5	26.2	37.0	2.2	0.1	7.0	63.2	36.8	78.7	34.6	17.1	62.0	1.2	0.1	3.5	1.0	0.0	2.9	11	0	26	60	37	88	60	54	67
19	Region 11	77.0	71.2	80.8	32.6	21.9	37.6	1.5	0.0	5.5	58.9	14.1	73.9	39.6	24.3	85.9	1.4	0.4	3.0	1.2	0.2	2.7	8	1	30	60	36	84	60	54	66
6	Region 12	76.2	73.3	78.2	33.3	30.0	36.9	12.8	4.7	22.3	71.7	66.4	78.6	15.6	7.3	28.0	1.4	0.6	2.2	1.1	0.4	2.2	12	3	40	78	66	88	64	61	67
11	Region 13	74.3	71.7	76.4	30.7	26.3	33.8	10.9	7.0	17.7	70.2	61.4	78.1	18.9	13.0	30.7	2.0	0.7	3.9	1.7	0.6	3.1	11	4	23	78	70	86	64	62	66
15	Region 14	74.8	71.0	78.8	33.6	28.7	35.5	15.6	4.5	32.9	69.8	47.8	80.2	14.6	3.8	47.7	1.3	0.1	2.8	1.0	0.1	2.2	8	2	20	72	55	85	63	59	66
15	Region 17	75.0	72.9	77.3	31.2	29.6	39.1	12.8	6.9	37.1	70.2	59.5	81.7	17.0	3.4	24.9	1.6	0.5	3.2	1.3	0.5	2.5	11	3	27	76	67	87	64	62	67
6	Region 18	74.5	70.5	77.4	30.4	27.9	33.7	12.5	5.7	20.9	71.0	65.8	76.6	16.5	7.8	25.9	1.3	0.1	2.9	1.2	0.1	2.8	9	4	17	77	66	86	64	61	66
17	Region 19	74.2	68.4	77.6	30.5	25.7	34.3	13.6	3.0	29.4	68.5	59.6	75.5	17.9	10.0	31.6	1.9	0.5	4.4	1.5	0.2	3.4	11	4	39	77	54	90	64	59	67
9	Region 20	75.2	71.7	77.1	31.1	25.4	36.6	14.0	7.2	20.4	67.2	59.8	71.9	18.8	15.2	24.6	1.7	0.4	3.9	1.2	0.4	3.0	8	1	13	78	69	86	64	62	66
4	Region 21	74.2	69.7	76.2	29.3	26.3	31.3	8.3	2.8	10.7	65.8	62.2	73.5	25.9	15.8	35.0	1.0	0.3	2.0	1.0	0.3	1.8	7	3	14	65	32	80	61	53	65
1	Region 22	73.6	-	-	31.2	-	-	0.6	-	-	60.1	-	-	39.3	-	-	1.0	-	-	0.5	-	-	12	-	-	42	-	-	56	-	-
1	Region 23	74.9	-	-	31.0	-	-	13.5	-	-	70.2	-	-	16.3	-	-	0.7	-	-	0.7	-	-	9	-	-	87	-	-	66	-	-
4	Region 24	75.3	72.5	76.9	30.7	27.2	34.4	10.5	6.1	13.7	67.1	63.0	70.2	22.5	18.6	30.9	1.5	0.6	4.1	1.1	0.3	2.7	16	12	21	72	60	83	63	60	66
17	Region 25	73.4	69.7	75.9	31.3	27.4	35.9	10.9	2.3	26.8	69.8	62.4	76.7	19.3	10.4	34.6	1.1	0.2	3.5	0.9	0.2	2.5	18	7	35	71	63	80	63	61	65
21	Region 26	74.7	68.0	78.5	30.0	23.1	37.2	10.5	2.8	46.2	69.7	49.0	82.1	19.8	4.8	36.9	1.5	0.1	4.4	1.1	0.0	3.1	10	3	25	68	30	89	62	53	67
20	Region 27	75.1	70.8	77.0	29.8	26.2	34.1	9.2	2.1	19.8	66.8	58.2	74.3	24.0	16.0	37.5	0.8	0.1	1.4	0.6	0.1	1.4	7	0	21	73	52	82	63	58	65
45	Region 28	74.9	70.7	76.9	30.3	25.6	37.0	7.0	0.3	17.8	68.2	55.2	77.5	24.8	6.4	40.9	0.8	0.0	2.8	0.6	0.0	1.8	14	1	46	72	61	81	63	60	65
50	Region 29	76.4	69.0	79.9	31.4	25.5	36.7	11.5	0.8	35.3	66.0	47.0	77.0	22.5	5.7	51.5	1.0	0.0	3.3	0.8	0.0	2.2	10	0	28	77	51	88	64	58	67
32	Region 30	76.0	71.8	78.1	30.3	24.9	39.6	12.8	1.0	50.5	63.4	43.9	73.3	23.8	4.3	41.6	0.8	0.0	1.7	0.6	0.0	1.6	8	0	19	73	56	83	63	59	66
33	Region 31	76.3	70.1	78.9	29.0	19.0	35.9	5.9	0.6	15.8	62.0	24.5	75.1	32.1	11.2	74.9	1.0	0.1	1.9	0.8	0.1	1.6	10	0	37	73	60	84	63	60	66
30	Region 32	75.9	71.5	77.8	32.0	26.8	36.6	12.4	0.9	27.8	63.9	39.3	74.9	23.7	9.0	59.8	0.9	0.1	2.8	0.7	0.0	2.2	14	0	45	74	52	86	63	58	66
28	Region 33	75.0	69.5	78.5	29.5	23.6	35.3	6.8	0.4	14.5	64.4	49.5	77.2	28.9	14.9	50.1	1.3	0.1	4.2	0.9	0.0	2.8	10	1	25	68	54	84	62	58	66
30	Region 34	76.8	73.9	79.0	31.9	27.1	42.1	11.2	1.5	54.0	65.4	42.7	74.6	23.4	2.9	43.3	0.9	0.1	2.4	0.7	0.0	2.0	10	0	33	77	66	87	64	61	66
9	Region 35	74.3	72.6	76.6	30.6	26.1	36.0	4.5	0.2	11.4	67.1	56.9	75.9	28.4	20.0	42.9	1.4	0.1	4.2	1.1	0.0	3.3	11	5	17	73	53	85	63	58	66
27	Region 36	75.1	61.5	78.4	32.5	27.9	39.9	7.2	0.6	28.9	59.0	39.0	71.5	33.8	3.6	60.0	1.4	0.1	3.3	1.0	0.0	2.4	15	0	38	70	51	84	62	58	66
476	**Ave. Yellow**	**75.4**			**31.1**			**9.4**			**65.7**			**24.9**			**1.1**			**0.9**			**11**			**72**			**63**		
	Min. Yellow		**61.5**			**19.0**			**0.0**			**14.1**			**2.9**			**0.0**			**0.0**			**0**			**30**			**53**	
	Max. Yellow			**80.8**			**42.1**			**54.0**			**82.1**			**85.9**			**4.4**			**3.4**			**46**			**90**			**67**

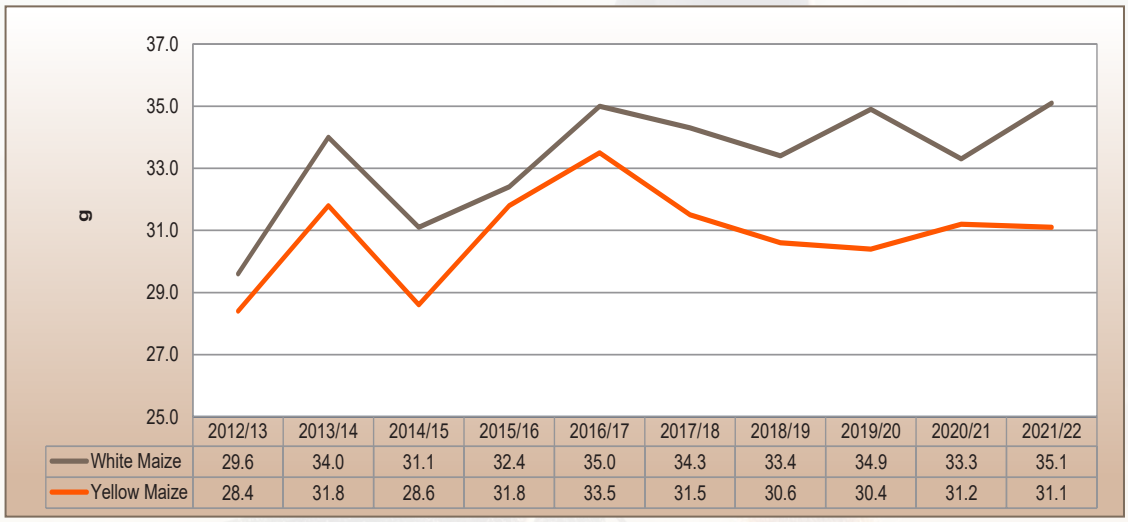
TABLE 16: PHYSICAL QUALITY CHARACTERISTICS OF WHITE AND YELLOW MAIZE 2012/13 - 2021/22

Season	Number of samples	Test weight (kg/hl)			100 kernel mass (g)			Kernel size (%)									Breakage susceptibility (%)						Stress cracks (%)		
								Above 10 mm sieve			Above 8 mm sieve			Below 8 mm sieve			< 6.35 mm sieve			< 4.75 mm sieve					
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize																									
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
2020/21	560	75.9	68.5	81.1	33.3	18.9	42.6	21.6	0.0	55.1	65.1	41.8	83.6	13.3	1.3	55.7	0.8	0.0	4.3	0.6	0.0	3.3	12	1	41
2021/22	524	75.5	66.1	81.0	35.1	14.6	45.9	28.2	0.0	68.6	61.8	29.2	81.6	10.0	0.2	41.2	1.2	0.0	20.2	0.9	0.0	9.2	11	0	50
Weighted Average		**77.0**			**33.3**			**22.1**			**64.1**			**13.7**			**1.1**			**0.8**			**10**		
Minimum			**61.0**			**14.6**			**0.0**			**0.1**			**0.0**			**0.0**			**0.0**			**0**	
Maximum				**83.9**			**51.1**			**99.4**			**89.5**			**83.5**			**20.2**			**9.2**			**61**
Yellow Maize																									
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
2020/21	440	76.5	70.7	82.6	31.2	19.9	43.8	7.4	0.0	32.5	65.9	5.6	81.8	26.7	6.1	88.1	0.8	0.0	3.5	0.6	0.0	2.5	12	1	49
2021/22	476	75.4	61.5	80.8	31.1	19.0	42.1	9.4	0.0	54.0	65.7	14.1	82.1	24.9	2.9	85.9	1.1	0.0	4.4	0.9	0.0	3.4	11	0	46
Weighted Average		**76.5**			**30.9**			**10.2**			**65.4**			**24.4**			**1.2**			**0.8**			**8**		
Minimum			**56.6**			**15.0**			**0.0**			**5.6**			**0.2**			**0.0**			**0.0**			**0**	
Maximum				**83.3**			**43.8**			**72.4**			**93.6**			**90.4**			**14.5**			**9.9**			**56**
White & Yellow Maize																									
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
2020/21	1000	76.2	68.5	82.6	32.4	18.9	43.8	15.4	0.0	55.1	65.5	5.6	83.6	19.2	1.3	88.1	0.8	0.0	4.3	0.6	0.0	3.3	12	1	49
2021/22	1000	75.4	61.5	81.0	33.2	14.6	45.9	19.3	0.0	68.6	63.7	14.1	82.1	17.1	0.2	85.9	1.2	0.0	20.2	0.9	0.0	9.2	11	0	50
Weighted Average		**76.7**			**32.1**			**16.4**			**64.7**			**18.9**			**1.2**			**0.8**			**10**		
Minimum			**56.6**			**14.6**			**0.0**			**0.1**			**0.0**			**0.0**			**0.0**			**0**	
Maximum				**83.9**			**51.1**			**99.4**			**93.6**			**90.4**			**20.2**			**9.9**			**61**

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

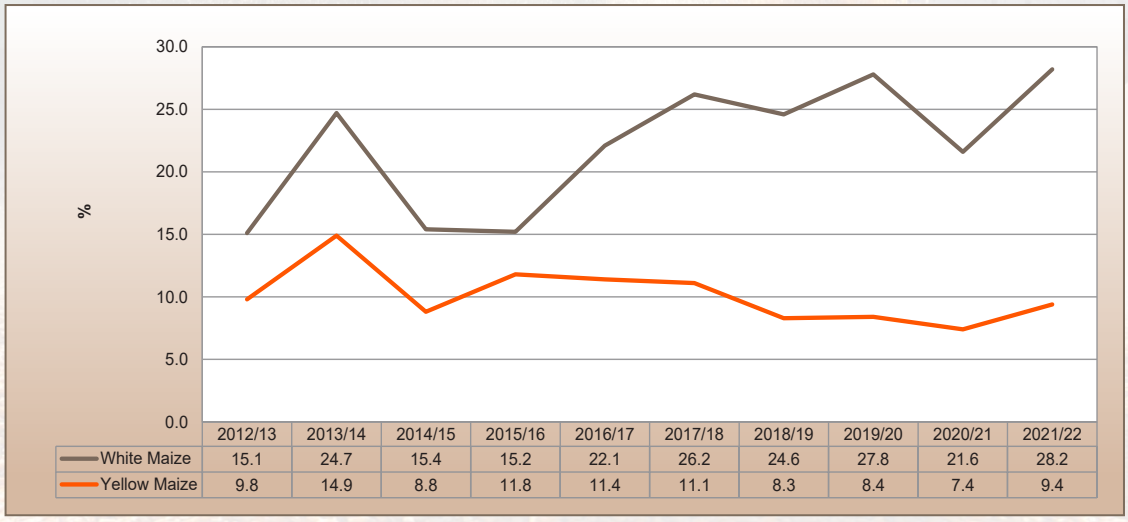


Graph 38: 100 Kernel mass over 10 seasons



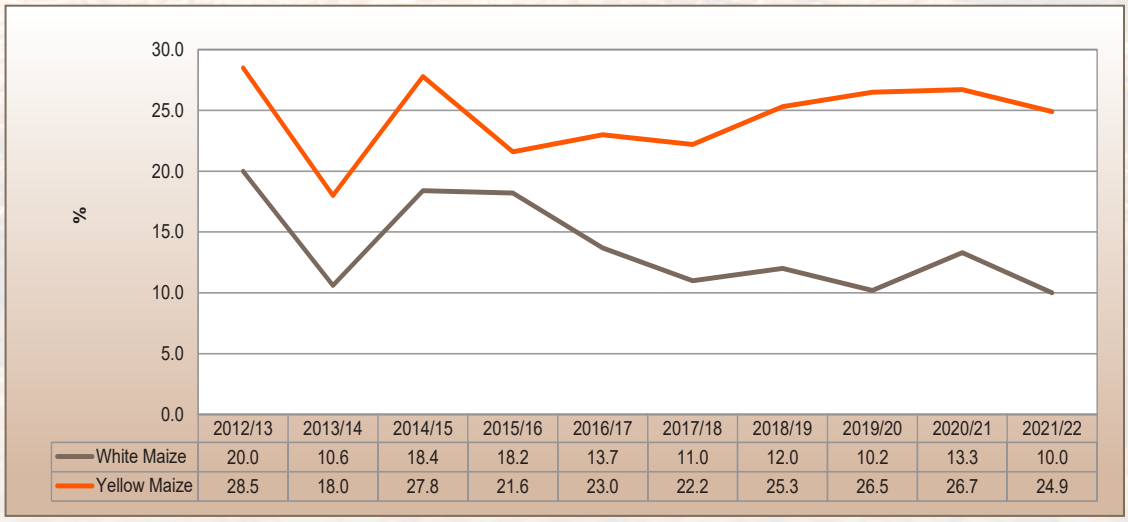
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	29.6	34.0	31.1	32.4	35.0	34.3	33.4	34.9	33.3	35.1
Yellow Maize	28.4	31.8	28.6	31.8	33.5	31.5	30.6	30.4	31.2	31.1

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



	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	15.1	24.7	15.4	15.2	22.1	26.2	24.6	27.8	21.6	28.2
Yellow Maize	9.8	14.9	8.8	11.8	11.4	11.1	8.3	8.4	7.4	9.4

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



	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	20.0	10.6	18.4	18.2	13.7	11.0	12.0	10.2	13.3	10.0
Yellow Maize	28.5	18.0	27.8	21.6	23.0	22.2	25.3	26.5	26.7	24.9

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2021/22)

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																									
1	Region 11	11.8	-	-	7.6	-	-	15.4	-	-	45.3	-	-	19.9	-	-	80.1	-	-	31.7	-	-	21.6	-	-
8	Region 12	14.4	12.9	17.7	8.2	7.4	8.7	13.5	11.8	14.7	40.2	33.8	44.4	23.7	21.8	25.8	76.3	74.2	78.2	38.6	36.4	40.6	35.4	29.5	40.2
10	Region 13	15.6	13.3	17.6	8.1	7.3	8.9	12.8	10.7	14.0	38.4	34.9	42.9	25.0	22.7	28.4	75.0	71.6	77.3	39.0	35.9	41.9	37.2	26.8	42.1
24	Region 14	16.0	14.0	18.3	8.5	7.4	10.5	13.5	11.3	15.8	37.8	29.4	42.0	24.2	20.3	32.3	75.8	67.7	79.7	40.2	33.4	46.2	38.5	28.0	46.8
2	Region 15	15.0	14.9	15.1	8.7	8.7	8.8	14.1	12.8	15.3	39.7	39.1	40.3	22.5	21.8	23.2	77.5	76.8	78.2	38.2	37.6	38.9	37.5	36.8	38.1
12	Region 17	16.2	14.4	18.3	8.5	7.3	9.2	13.2	11.2	15.2	37.3	33.8	40.9	24.6	21.2	28.6	75.4	71.4	78.8	41.5	38.4	44.9	39.8	32.1	44.3
4	Region 18	16.1	15.0	17.5	8.4	7.8	8.6	13.2	12.2	15.0	38.0	37.6	38.9	24.4	22.3	26.0	75.6	74.0	77.7	39.7	37.9	40.6	36.8	30.9	41.7
15	Region 19	15.2	13.2	17.3	8.2	7.4	9.1	13.3	12.2	14.7	38.4	33.7	41.6	25.0	22.0	29.4	75.0	70.6	78.0	39.5	34.7	45.6	37.2	30.9	45.5
17	Region 20	15.0	12.8	22.9	8.1	7.4	9.0	13.0	10.6	14.4	38.1	21.4	42.5	25.8	22.9	36.5	74.2	63.5	77.1	40.7	35.9	47.0	39.8	28.6	47.8
16	Region 21	16.3	13.6	20.6	8.8	7.7	10.3	13.5	12.2	14.9	37.8	31.2	42.2	23.5	21.1	26.0	76.5	74.0	78.9	40.3	36.9	45.7	36.7	29.9	44.3
4	Region 22	16.9	16.2	18.7	9.2	8.6	9.7	13.4	13.2	13.7	38.1	36.8	38.9	22.5	21.1	23.2	77.5	76.8	78.9	41.0	39.5	44.0	36.2	32.9	39.3
14	Region 23	15.8	14.0	17.3	8.7	7.5	9.4	13.9	12.1	15.0	39.3	36.6	42.1	22.3	19.9	24.9	77.7	75.1	80.1	40.0	37.4	43.0	33.8	28.6	43.4
4	Region 24	17.5	16.0	19.2	9.1	8.5	10.0	13.4	11.5	15.3	33.8	28.3	37.8	26.1	21.7	32.5	73.9	67.5	78.3	40.1	39.4	40.7	40.0	39.0	41.0
1	Region 25	15.5	-	-	8.8	-	-	13.7	-	-	36.8	-	-	25.1	-	-	74.9	-	-	40.2	-	-	31.8	-	-
8	Region 26	16.0	14.1	18.9	8.6	8.4	8.9	13.8	12.2	14.7	37.0	32.1	39.3	24.6	21.9	28.2	75.4	71.8	78.1	39.6	37.7	41.5	37.9	30.2	41.3
4	Region 27	14.7	13.7	15.9	8.7	8.4	8.8	14.8	14.5	15.3	39.3	38.2	40.7	22.5	21.9	23.6	77.5	76.4	78.1	40.7	38.1	44.2	37.9	34.6	40.5
18	Region 28	14.8	12.1	17.6	8.7	7.9	9.6	14.2	12.8	16.4	40.0	36.9	43.7	22.2	18.6	24.6	77.8	75.4	81.4	38.6	34.4	44.7	33.9	26.8	41.6
12	Region 29	13.1	9.9	15.5	8.0	7.0	9.7	13.2	11.9	14.1	42.5	38.9	48.4	23.2	21.6	24.5	76.8	75.5	78.4	36.0	29.0	41.1	31.7	20.0	40.3
12	Region 30	13.9	11.9	15.6	8.3	7.4	9.3	13.5	12.1	14.4	40.6	38.2	44.7	23.8	20.3	26.5	76.2	73.5	79.7	38.3	34.2	42.1	35.1	28.0	42.4
9	Region 31	13.3	10.9	14.8	8.0	7.2	8.7	13.7	12.6	16.2	41.1	38.1	43.3	23.9	21.3	26.3	76.1	73.7	78.7	37.2	34.2	41.8	33.7	27.3	41.7
9	Region 32	15.2	13.4	16.6	8.4	7.4	9.4	13.9	12.5	16.4	39.1	35.8	43.5	23.4	21.1	26.0	76.6	74.0	78.9	37.3	32.2	39.8	34.3	26.5	40.9
27	Region 33	14.2	11.3	18.2	8.1	7.2	9.4	13.7	12.1	16.3	40.2	35.1	45.0	23.8	21.2	26.0	76.2	74.0	78.8	38.5	30.8	45.7	34.8	21.7	44.3
18	Region 34	14.5	9.6	18.9	8.4	7.2	10.2	13.5	11.8	14.5	39.8	34.4	46.9	23.7	22.3	25.3	76.3	74.7	77.7	38.2	31.7	44.4	35.5	24.2	44.4
6	Region 35	14.9	12.4	17.8	8.1	7.8	8.4	12.9	12.4	13.1	41.0	35.5	46.0	23.1	20.8	25.2	76.9	74.8	79.2	39.7	34.1	42.4	35.2	26.9	41.3
8	Region 36	14.0	13.0	16.1	8.3	7.9	8.7	13.4	12.7	14.4	40.8	38.7	42.7	23.5	22.0	25.0	76.5	75.0	78.0	38.2	35.3	41.3	36.1	31.1	41.3
263	**Ave. WM1**	**15.0**			**8.4**			**13.5**			**39.2**			**23.8**			**76.2**			**39.1**			**36.1**		
	Min. WM1		**9.6**			**7.0**			**10.6**			**21.4**			**18.6**			**63.5**			**29.0**			**20.0**	
	Max. WM1			**22.9**			**10.5**			**16.4**			**48.4**			**36.5**			**81.4**			**47.0**			**47.8**

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (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																									
4	Region 12	14.2	12.2	15.4	8.2	7.8	8.7	13.7	12.9	14.7	39.9	37.8	42.4	24.0	23.0	26.1	76.0	73.9	77.0	38.3	36.2	40.8	33.8	28.8	37.1
12	Region 13	15.8	14.4	19.7	8.4	7.7	9.3	13.4	12.3	15.0	37.9	32.6	41.2	24.5	22.5	26.3	75.5	73.7	77.5	38.5	35.7	41.2	37.0	31.1	41.6
21	Region 14	16.1	13.7	18.9	9.0	8.1	10.8	13.9	11.6	15.5	37.7	30.9	42.0	23.3	19.7	27.6	76.7	72.4	80.3	39.6	32.7	42.2	37.6	26.8	42.9
5	Region 15	14.8	14.3	15.4	8.7	8.0	9.1	14.3	13.2	15.4	40.2	38.7	41.8	22.0	20.9	22.7	78.0	77.3	79.1	39.1	35.9	40.5	35.5	30.5	40.9
3	Region 16	15.6	15.2	16.1	8.7	8.5	8.8	14.3	14.2	14.5	37.9	37.5	38.3	23.5	23.4	23.5	76.5	76.5	76.6	39.8	39.1	40.5	38.1	35.3	39.9
22	Region 17	15.9	13.9	18.0	8.7	7.7	9.7	13.6	11.9	15.4	37.6	32.1	42.4	24.1	21.6	29.2	75.9	70.8	78.4	39.7	34.7	43.1	38.0	30.0	43.0
7	Region 18	14.8	12.6	17.5	7.9	7.0	8.9	14.3	13.1	15.3	39.5	34.8	43.2	23.4	22.4	24.2	76.6	75.8	77.6	37.5	33.0	42.5	33.0	24.3	39.2
11	Region 19	15.6	13.2	18.6	8.5	7.9	9.3	13.0	12.3	14.3	37.7	33.5	40.5	25.2	22.2	28.0	74.8	72.0	77.8	39.7	36.0	43.3	38.6	30.1	44.6
4	Region 20	15.3	14.3	16.1	8.6	8.5	8.8	14.2	13.8	15.1	38.0	37.1	38.9	24.0	23.0	24.5	76.0	75.5	77.0	39.8	38.6	40.8	35.1	31.6	39.7
3	Region 21	15.8	15.0	17.0	8.7	8.3	9.2	14.1	12.7	15.5	38.5	36.0	39.8	22.9	22.3	23.9	77.1	76.1	77.7	37.8	37.3	39.0	30.3	27.9	34.6
9	Region 22	16.1	14.4	18.2	9.1	8.3	9.8	13.3	12.0	14.8	38.4	33.6	42.4	23.1	20.8	27.1	76.9	72.9	79.2	39.1	37.0	41.6	35.4	29.6	43.3
26	Region 23	15.7	14.3	17.0	8.9	7.8	10.7	13.8	12.1	15.5	38.7	35.0	42.0	22.9	20.8	27.0	77.1	73.0	79.2	39.8	34.9	45.2	35.4	27.2	44.2
10	Region 24	15.3	13.8	17.3	8.8	8.4	9.8	13.8	11.7	15.1	38.2	33.5	40.6	24.0	22.3	28.4	76.0	71.6	77.7	39.6	36.0	42.8	36.3	25.9	42.3
1	Region 25	18.4	-	-	9.2	-	-	14.2	-	-	33.6	-	-	24.6	-	-	75.4	-	-	43.8	-	-	39.6	-	-
1	Region 26	14.8	-	-	7.7	-	-	12.7	-	-	41.0	-	-	23.7	-	-	76.3	-	-	41.0	-	-	30.3	-	-
4	Region 27	15.5	14.7	16.6	8.4	8.3	8.5	15.0	14.4	15.4	39.2	37.0	40.5	21.9	20.9	23.0	78.1	77.0	79.1	40.4	39.6	41.2	35.8	33.7	40.5
3	Region 28	15.7	14.6	16.3	8.9	8.8	9.0	13.6	13.0	14.3	38.8	35.8	40.7	23.0	20.7	26.4	77.0	73.6	79.3	40.4	38.5	43.8	35.0	31.0	41.5
2	Region 29	14.3	13.7	14.8	8.6	8.2	9.0	13.6	13.2	14.0	41.9	39.8	43.9	21.7	21.0	22.4	78.3	77.6	79.0	37.5	33.5	41.4	36.1	29.8	42.4
2	Region 31	13.4	13.3	13.5	7.8	7.3	8.2	13.1	12.6	13.6	41.6	41.0	42.2	24.2	23.6	24.7	75.8	75.3	76.4	37.5	34.3	40.7	31.8	30.6	32.9
3	Region 32	13.8	12.7	14.8	8.2	7.7	8.6	13.8	13.1	14.8	40.6	38.5	42.2	23.6	22.6	24.9	76.4	75.1	77.4	37.6	34.8	39.7	34.2	29.9	39.8
1	Region 33	12.4	-	-	8.1	-	-	14.5	-	-	40.9	-	-	24.1	-	-	75.9	-	-	37.4	-	-	28.3	-	-
4	Region 34	14.0	12.2	16.1	8.9	7.8	10.7	13.8	13.3	14.5	39.2	36.2	42.2	24.2	23.8	24.8	75.8	75.2	76.2	41.0	38.3	46.7	38.7	34.6	45.9
158	**Ave. WM2**	**15.5**			**8.7**			**13.7**			**38.4**			**23.7**			**76.3**			**39.4**			**36.2**		
	Min. WM2		**12.2**			**7.0**			**11.6**			**30.9**			**19.7**			**70.8**			**32.7**			**24.3**	
	Max. WM2			**19.7**			**10.8**			**15.5**			**43.9**			**29.2**			**80.3**			**46.7**			**45.9**

TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Roff Milling																		Whiteness index					
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Chop, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3																									
3	Region 12	14.3	13.6	15.3	8.4	8.2	8.8	13.8	12.5	15.7	40.6	40.0	41.7	22.8	19.9	25.7	77.2	74.3	80.1	35.5	33.6	38.7	34.4	33.0	37.0
3	Region 13	15.5	14.6	16.0	8.4	8.1	8.6	13.3	12.7	13.7	38.5	36.6	40.3	24.3	23.5	25.2	75.7	74.8	76.5	38.5	38.0	38.8	37.6	35.9	40.1
13	Region 14	15.5	13.9	19.5	8.8	7.6	9.7	14.2	12.7	15.3	38.6	32.8	43.4	22.9	21.0	26.4	77.1	73.6	79.0	38.7	34.0	45.9	34.6	25.1	47.2
5	Region 15	14.5	12.6	16.2	8.9	8.3	9.4	14.2	13.2	15.5	40.8	36.5	44.9	21.7	21.0	22.7	78.3	77.3	79.0	36.7	32.5	40.1	30.4	26.1	33.5
1	Region 16	16.4	-	-	8.2	-	-	14.5	-	-	37.6	-	-	23.3	-	-	76.7	-	-	32.8	-	-	26.0	-	-
3	Region 17	16.1	15.9	16.4	8.6	8.0	9.1	12.5	11.2	13.1	37.9	34.5	40.7	25.0	23.3	27.4	75.0	72.6	76.7	38.6	36.2	41.5	33.6	29.9	40.5
4	Region 18	16.4	14.5	18.4	8.3	7.6	8.9	12.9	12.4	13.4	36.1	33.5	38.1	26.3	24.8	28.1	73.7	71.9	75.2	37.9	35.6	40.8	35.3	31.9	39.3
1	Region 19	13.1	-	-	7.6	-	-	12.1	-	-	41.3	-	-	25.8	-	-	74.2	-	-	37.4	-	-	36.5	-	-
1	Region 21	14.4	-	-	9.3	-	-	12.5	-	-	38.9	-	-	24.9	-	-	75.1	-	-	43.3	-	-	41.5	-	-
7	Region 23	15.9	14.5	16.9	8.6	7.9	9.2	13.9	12.8	14.7	38.4	33.6	41.8	23.2	21.2	28.8	76.8	71.2	78.8	38.2	35.9	41.3	34.2	29.1	40.1
4	Region 24	15.1	13.6	16.0	8.9	8.5	9.3	14.0	13.2	14.5	39.5	38.8	40.8	22.5	21.9	23.1	77.5	76.9	78.1	36.3	35.0	37.9	30.2	25.0	35.8
1	Region 26	17.0	-	-	9.3	-	-	13.8	-	-	32.5	-	-	27.4	-	-	72.6	-	-	36.1	-	-	36.0	-	-
1	Region 30	14.9	-	-	8.3	-	-	13.7	-	-	39.8	-	-	23.3	-	-	76.7	-	-	35.6	-	-	26.3	-	-
2	Region 31	13.5	12.6	14.4	7.7	7.5	7.8	13.2	12.6	13.7	42.5	41.8	43.2	23.1	22.2	24.1	76.9	75.9	77.8	33.4	32.2	34.6	28.0	26.6	29.3
2	Region 36	12.8	11.4	14.1	8.3	8.1	8.5	13.0	12.7	13.3	44.0	42.0	46.0	21.9	21.8	22.1	78.1	77.9	78.2	30.8	27.4	34.1	26.1	21.7	30.4
51	**Ave. WM3**	**15.3**			**8.6**			**13.7**			**39.0**			**23.4**			**76.6**			**37.3**			**33.2**		
	Min. WM3		**11.4**			**7.5**			**11.2**			**32.5**			**19.9**			**71.2**			**27.4**			**21.7**	
	Max. WM3			**19.5**			**9.7**			**15.7**			**46.0**			**28.8**			**80.1**			**45.9**			**47.2**

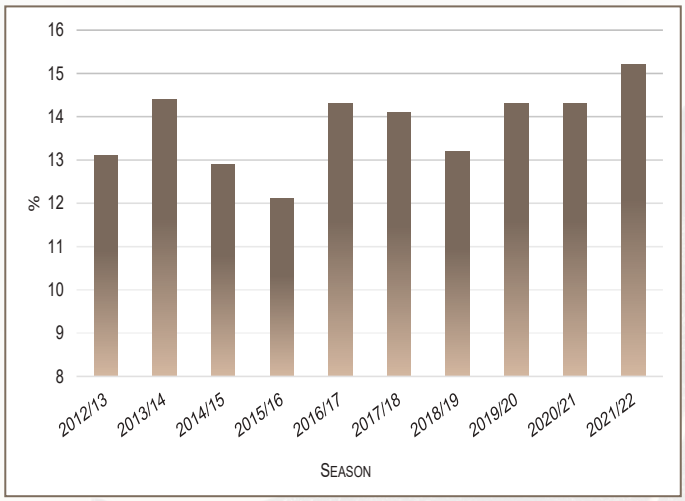
TABLE 17: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

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	13.5	12.9	14.1	8.0	7.8	8.1	12.9	12.9	12.9	41.7	41.1	42.2	23.9	23.8	24.1	76.1	75.9	76.2	37.6	36.6	38.6	36.3	35.0	37.6
4	Region 13	15.2	13.5	16.4	8.5	7.5	9.2	13.2	12.0	14.3	37.4	35.6	41.0	25.7	25.0	26.6	74.3	73.4	75.0	35.6	33.9	36.8	33.5	25.4	36.9
4	Region 14	15.3	14.4	15.9	8.7	8.2	9.4	13.3	11.7	14.5	36.9	35.4	39.4	25.8	22.8	28.6	74.2	71.4	77.2	41.1	40.2	42.1	38.2	31.7	41.3
3	Region 17	16.5	15.6	18.3	8.6	8.0	9.6	13.9	13.1	14.7	37.1	34.9	39.4	23.8	22.5	24.9	76.2	75.1	77.5	40.3	38.4	42.8	40.0	38.2	42.3
3	Region 18	15.5	13.8	16.6	8.4	7.9	9.0	13.8	13.3	14.7	38.5	36.6	41.3	23.7	22.2	25.0	76.3	75.0	77.8	39.4	34.4	42.9	37.3	27.8	42.3
6	Region 19	15.2	12.8	17.2	8.4	8.0	9.3	13.8	11.9	14.9	37.9	33.4	41.9	24.7	22.1	28.2	75.3	71.8	77.9	39.1	30.0	43.6	35.3	27.3	41.6
1	Region 20	14.2	-	-	7.1	-	-	12.7	-	-	39.3	-	-	26.7	-	-	73.3	-	-	40.4	-	-	39.8	-	-
3	Region 21	15.0	14.3	15.6	8.7	8.4	9.1	13.4	12.5	14.8	37.4	36.2	38.4	25.6	23.6	28.6	74.4	71.4	76.4	36.6	32.1	41.4	33.6	30.8	36.1
1	Region 22	15.0	-	-	7.9	-	-	12.0	-	-	41.0	-	-	24.2	-	-	75.8	-	-	34.1	-	-	31.4	-	-
6	Region 23	16.2	14.7	17.9	9.2	8.2	10.4	14.0	13.2	14.5	38.0	35.5	41.3	22.5	21.5	23.8	77.5	76.2	78.5	39.0	33.5	42.9	35.7	30.4	42.6
2	Region 24	14.2	11.7	16.7	8.8	8.2	9.4	13.7	13.3	14.1	41.5	36.8	46.2	21.8	20.6	23.0	78.2	77.0	79.4	33.2	32.2	34.3	28.5	22.8	34.1
2	Region 26	13.8	13.7	13.8	8.5	8.5	8.6	14.3	13.2	15.4	39.8	39.3	40.3	23.6	22.0	25.2	76.4	74.8	78.0	35.8	34.6	37.1	32.3	30.5	34.1
1	Region 27	16.9	-	-	8.8	-	-	13.4	-	-	34.1	-	-	26.8	-	-	73.2	-	-	35.6	-	-	34.0	-	-
1	Region 28	16.8	-	-	9.0	-	-	13.5	-	-	38.7	-	-	21.9	-	-	78.1	-	-	39.2	-	-	30.8	-	-
2	Region 30	15.4	15.2	15.6	8.7	8.5	8.9	13.5	13.0	14.1	37.4	37.0	37.9	24.9	24.3	25.6	75.1	74.4	75.7	35.3	35.3	35.4	29.1	28.3	29.8
3	Region 32	14.0	13.5	14.4	8.2	7.6	8.7	14.3	13.1	15.8	40.9	38.3	42.9	22.6	21.0	23.6	77.4	76.4	79.0	33.8	24.6	39.3	29.7	23.2	36.1
5	Region 34	15.3	13.5	17.6	8.5	8.2	9.0	13.3	12.6	14.8	37.7	32.1	40.4	25.1	21.7	30.1	74.9	69.9	78.3	39.4	36.2	43.6	36.4	27.8	44.6
1	Region 35	14.9	-	-	8.3	-	-	12.8	-	-	41.2	-	-	22.8	-	-	77.2	-	-	38.0	-	-	31.0	-	-
2	Region 36	13.4	13.0	13.8	8.2	8.1	8.3	12.8	12.6	13.1	41.6	41.3	41.9	24.0	23.5	24.5	76.0	75.5	76.5	36.6	35.5	37.7	32.2	27.0	37.4
52	**Ave. COM**	**15.2**			**8.6**			**13.6**			**38.5**			**24.2**			**75.8**			**37.8**			**34.6**		
	Min. COM		**11.7**			**7.1**			**11.7**			**32.1**			**20.6**			**69.9**			**24.6**			**22.8**	
	Max. COM			**18.3**			**10.4**			**15.8**			**46.2**			**30.1**			**79.4**			**43.6**			**44.6**
524	**Ave. WM**	**15.2**			**8.5**			**13.6**			**38.9**			**23.8**			**76.2**			**38.9**			**35.7**		
	Min. WM		**9.6**			**7.0**			**10.6**			**21.4**			**18.6**			**63.5**			**24.6**			**20.0**	
	Max. WM			**22.9**			**10.8**			**16.4**			**48.4**			**36.5**			**81.4**			**47.0**			**47.8**

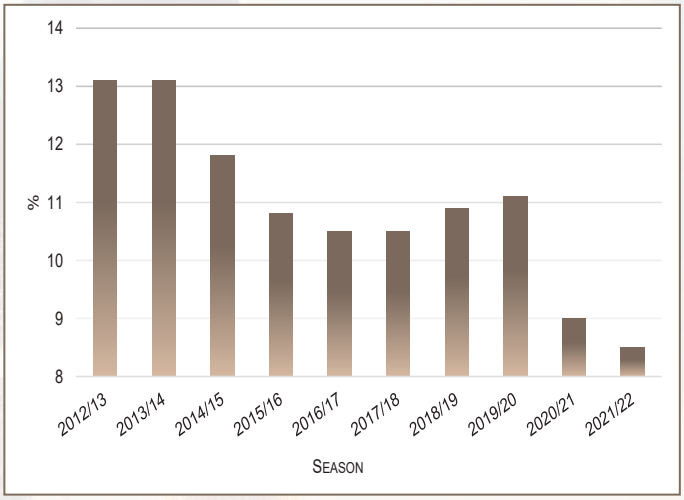
TABLE 18: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE (2021/22) (continue)

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.
WHITE																									
1	Region 11	11.8	-	-	7.6	-	-	15.4	-	-	45.3	-	-	19.9	-	-	80.1	-	-	31.7	-	-	21.6	-	-
17	Region 12	14.2	12.2	17.7	8.2	7.4	8.8	13.5	11.8	15.7	40.4	33.8	44.4	23.6	19.9	26.1	76.4	73.9	80.1	37.9	33.6	40.8	35.0	28.8	40.2
29	Region 13	15.6	13.3	19.7	8.3	7.3	9.3	13.2	10.7	15.0	38.1	32.6	42.9	24.8	22.5	28.4	75.2	71.6	77.5	38.3	33.9	41.9	36.6	25.4	42.1
62	Region 14	15.9	13.7	19.5	8.7	7.4	10.8	13.8	11.3	15.8	37.9	29.4	43.4	23.7	19.7	32.3	76.3	67.7	80.3	39.7	32.7	46.2	37.3	25.1	47.2
12	Region 15	14.7	12.6	16.2	8.8	8.0	9.4	14.2	12.8	15.5	40.4	36.5	44.9	21.9	20.9	23.2	78.1	76.8	79.1	38.0	32.5	40.5	33.7	26.1	40.9
4	Region 16	15.8	15.2	16.4	8.6	8.2	8.8	14.3	14.2	14.5	37.9	37.5	38.3	23.4	23.3	23.5	76.6	76.5	76.7	38.1	32.8	40.5	35.1	26.0	39.9
40	Region 17	16.0	13.9	18.3	8.7	7.3	9.7	13.4	11.2	15.4	37.5	32.1	42.4	24.3	21.2	29.2	75.7	70.8	78.8	40.2	34.7	44.9	38.4	29.9	44.3
18	Region 18	15.6	12.6	18.4	8.2	7.0	9.0	13.7	12.2	15.3	38.2	33.5	43.2	24.3	22.2	28.1	75.7	71.9	77.8	38.4	33.0	42.9	35.1	24.3	42.3
33	Region 19	15.2	12.8	18.6	8.3	7.4	9.3	13.3	11.9	14.9	38.1	33.4	41.9	25.0	22.0	29.4	75.0	70.6	78.0	39.4	30.0	45.6	37.3	27.3	45.5
22	Region 20	15.0	12.8	22.9	8.1	7.1	9.0	13.2	10.6	15.1	38.1	21.4	42.5	25.5	22.9	36.5	74.5	63.5	77.1	40.6	35.9	47.0	38.9	28.6	47.8
23	Region 21	16.0	13.6	20.6	8.8	7.7	10.3	13.5	12.2	15.5	37.9	31.2	42.2	23.8	21.1	28.6	76.2	71.4	78.9	39.7	32.1	45.7	35.7	27.9	44.3
14	Region 22	16.3	14.4	18.7	9.0	7.9	9.8	13.2	12.0	14.8	38.5	33.6	42.4	23.0	20.8	27.1	77.0	72.9	79.2	39.3	34.1	44.0	35.4	29.6	43.3
53	Region 23	15.8	14.0	17.9	8.9	7.5	10.7	13.9	12.1	15.5	38.7	33.6	42.1	22.7	19.9	28.8	77.3	71.2	80.1	39.6	33.5	45.2	34.9	27.2	44.2
20	Region 24	15.6	11.7	19.2	8.9	8.2	10.0	13.7	11.5	15.3	37.9	28.3	46.2	23.9	20.6	32.5	76.1	67.5	79.4	38.4	32.2	42.8	35.0	22.8	42.3
2	Region 25	17.0	15.5	18.4	9.0	8.8	9.2	14.0	13.7	14.2	35.2	33.6	36.8	24.9	24.6	25.1	75.1	74.9	75.4	42.0	40.2	43.8	35.7	31.8	39.6
12	Region 26	15.6	13.7	18.9	8.6	7.7	9.3	13.8	12.2	15.4	37.4	32.1	41.0	24.6	21.9	28.2	75.4	71.8	78.1	38.8	34.6	41.5	36.2	30.2	41.3
9	Region 27	15.3	13.7	16.9	8.6	8.3	8.8	14.7	13.4	15.4	38.7	34.1	40.7	22.7	20.9	26.8	77.3	73.2	79.1	40.0	35.6	44.2	36.6	33.7	40.5
22	Region 28	15.0	12.1	17.6	8.8	7.9	9.6	14.1	12.8	16.4	39.8	35.8	43.7	22.3	18.6	26.4	77.7	73.6	81.4	38.9	34.4	44.7	33.9	26.8	41.6
14	Region 29	13.3	9.9	15.5	8.1	7.0	9.7	13.2	11.9	14.1	42.4	38.9	48.4	23.0	21.0	24.5	77.0	75.5	79.0	36.2	29.0	41.4	32.3	20.0	42.4
15	Region 30	14.2	11.9	15.6	8.4	7.4	9.3	13.5	12.1	14.4	40.1	37.0	44.7	23.9	20.3	26.5	76.1	73.5	79.7	37.7	34.2	42.1	33.7	26.3	42.4
13	Region 31	13.3	10.9	14.8	7.9	7.2	8.7	13.6	12.6	16.2	41.4	38.1	43.3	23.8	21.3	26.3	76.2	73.7	78.7	36.6	32.2	41.8	32.5	26.6	41.7
15	Region 32	14.7	12.7	16.6	8.3	7.4	9.4	14.0	12.5	16.4	39.8	35.8	43.5	23.3	21.0	26.0	76.7	74.0	79.0	36.7	24.6	39.8	33.4	23.2	40.9
28	Region 33	14.2	11.3	18.2	8.1	7.2	9.4	13.7	12.1	16.3	40.2	35.1	45.0	23.8	21.2	26.0	76.2	74.0	78.8	38.5	30.8	45.7	34.6	21.7	44.3
27	Region 34	14.6	9.6	18.9	8.5	7.2	10.7	13.5	11.8	14.8	39.3	32.1	46.9	24.1	21.7	30.1	75.9	69.9	78.3	38.8	31.7	46.7	36.2	24.2	45.9
7	Region 35	14.9	12.4	17.8	8.1	7.8	8.4	12.9	12.4	13.1	41.1	35.5	46.0	23.1	20.8	25.2	76.9	74.8	79.2	39.4	34.1	42.4	34.6	26.9	41.3
12	Region 36	13.7	11.4	16.1	8.3	7.9	8.7	13.2	12.6	14.4	41.5	38.7	46.0	23.3	21.8	25.0	76.7	75.0	78.2	36.7	27.4	41.3	33.8	21.7	41.3
524	**Ave. White**	**15.2**			**8.5**			**13.6**			**38.9**			**23.8**			**76.2**			**38.9**			**35.7**		
	Min. White		**9.6**			**7.0**			**10.6**			**21.4**			**18.6**			**63.5**			**24.6**			**20.0**	
	Max. Whtie			**22.9**			**10.8**			**16.4**			**48.4**			**36.5**			**81.4**			**47.0**			**47.8**

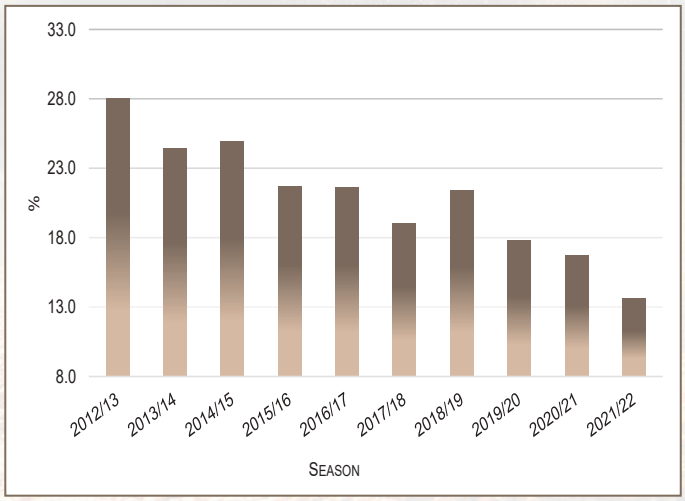
Graph 41: Roff Mill Break 1 meal fraction % since 2012/13



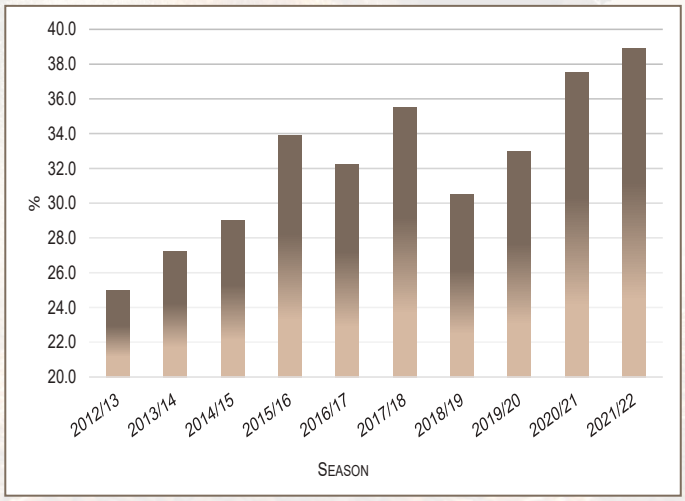
Graph 42: Roff Mill Break 2 meal fraction % since 2012/13



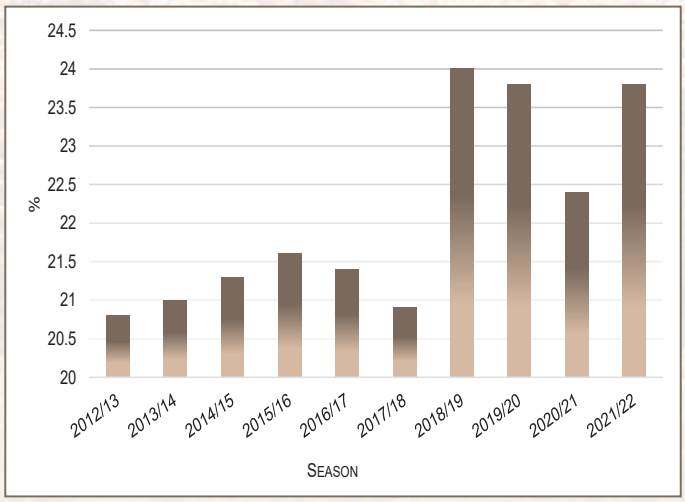
Graph 43: Roff Mill Break 3 meal fraction % since 2012/13



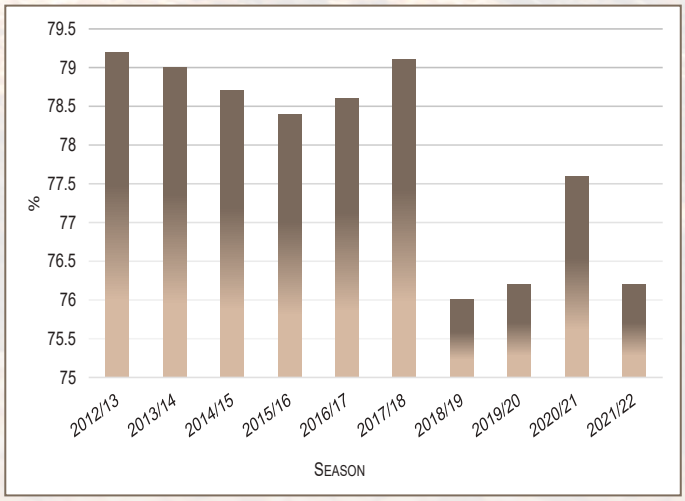
Graph 44: Roff Mill Grits fraction % since 2012/13



Graph 45: Roff Mill Chop fraction % since 2012/13



Graph 46: Roff Mill Total meal extraction % since 2012/13



Figures provided by the CEC.

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM1													
-	Region 08	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 11	3.7	-	-	8.8	-	-	75.6	-	-	2.0	-	-
8	Region 12	4.1	3.9	4.4	8.3	8.0	8.8	75.8	75.4	76.2	2.2	2.0	2.6
10	Region 13	4.3	4.0	4.5	7.8	7.2	8.6	75.9	75.0	76.6	2.3	2.2	2.5
24	Region 14	4.1	3.6	4.8	7.8	7.3	9.1	76.2	74.8	76.9	2.2	1.9	2.6
2	Region 15	3.9	3.8	4.1	8.0	7.5	8.6	76.1	76.0	76.1	2.3	2.3	2.3
12	Region 17	4.0	3.7	4.5	7.8	7.1	8.9	76.2	75.2	76.7	2.2	1.9	2.5
4	Region 18	4.3	4.0	4.7	8.0	7.7	8.2	76.2	75.6	76.7	2.3	2.2	2.3
15	Region 19	4.2	3.8	4.4	8.1	7.2	8.6	75.8	74.5	76.9	2.3	2.0	2.4
17	Region 20	4.2	3.5	5.2	8.1	6.1	9.0	75.6	74.3	76.6	2.3	2.0	2.7
16	Region 21	4.2	3.5	4.7	7.7	6.6	9.1	76.3	75.3	76.8	2.2	2.0	2.5
4	Region 22	3.9	3.7	4.1	7.9	7.1	8.4	76.5	76.0	76.8	2.3	2.2	2.4
14	Region 23	4.0	3.8	4.2	8.1	7.3	8.8	76.4	75.9	76.7	2.2	2.0	2.4
4	Region 24	4.2	3.7	4.8	7.0	6.6	7.9	76.2	75.6	76.8	2.2	2.0	2.4
1	Region 25	4.0	-	-	7.8	-	-	76.3	-	-	2.1	-	-
8	Region 26	4.2	4.0	4.7	7.8	7.0	8.9	76.2	75.2	76.7	2.4	2.3	2.5
4	Region 27	3.8	3.6	4.1	8.4	8.0	8.7	76.4	76.1	76.7	2.2	2.0	2.4
18	Region 28	3.8	3.4	4.1	8.2	7.3	9.3	75.9	73.9	76.8	2.2	2.1	2.5
12	Region 29	4.0	3.7	4.5	8.4	7.7	9.2	75.3	73.5	76.5	2.2	2.1	2.4
12	Region 30	3.8	3.5	4.0	8.2	7.6	9.3	75.8	74.1	76.6	2.2	2.1	2.3
9	Region 31	4.0	3.7	4.2	8.5	7.6	9.3	75.2	73.6	76.7	2.2	2.1	2.5
9	Region 32	3.9	3.7	4.3	8.1	7.4	8.8	76.1	75.2	76.8	2.2	2.1	2.4
27	Region 33	4.0	3.7	4.5	8.1	7.0	9.3	75.5	73.8	76.9	2.3	1.9	2.5
18	Region 34	4.0	3.8	4.5	8.2	7.5	9.8	75.7	72.8	76.9	2.2	2.1	2.5
6	Region 35	3.9	3.8	4.0	9.0	8.1	10.0	75.1	73.9	76.5	2.3	2.2	2.5
8	Region 36	4.0	3.8	4.4	8.3	7.7	8.7	75.6	74.7	75.8	2.2	2.0	2.4
263	**Ave. WM1**	**4.0**			**8.1**			**75.9**			**2.2**		
	Min. WM1		**3.4**			**6.1**			**72.8**			**1.9**	
	Max. WM1			**5.2**			**10.0**			**76.9**			**2.7**

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2021/22)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM1													
7	Region 08	3.9	3.5	4.1	8.3	7.4	8.7	75.6	74.2	76.7	2.3	1.9	2.5
14	Region 10	3.8	3.7	4.0	8.2	7.7	8.8	75.8	74.3	76.8	2.2	1.7	2.4
15	Region 11	3.7	3.4	4.0	8.3	7.4	8.9	76.1	74.6	76.7	2.3	2.1	2.5
5	Region 12	3.9	3.6	4.2	8.6	8.0	9.0	74.8	73.7	76.0	2.2	1.9	2.4
6	Region 13	3.9	3.7	4.1	8.6	8.2	8.9	74.6	74.3	75.2	2.1	2.0	2.3
9	Region 14	4.0	3.8	4.1	8.3	6.7	9.2	74.5	73.4	75.6	2.2	2.1	2.3
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
7	Region 17	4.0	4.0	4.0	8.4	7.9	8.8	74.8	73.8	75.6	2.2	2.0	2.4
3	Region 18	3.8	3.7	4.0	8.3	8.0	8.6	75.3	74.6	75.6	2.2	2.1	2.3
7	Region 19	3.8	3.4	4.0	8.6	7.6	9.1	74.9	74.1	75.6	2.2	2.0	2.3
5	Region 20	3.9	3.7	4.0	8.7	8.3	9.1	74.2	73.4	75.1	2.3	2.1	2.4
4	Region 21	3.9	3.6	4.1	9.0	8.1	9.5	74.6	73.5	76.1	2.3	2.2	2.4
-	Region 22	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 23	4.3	4.3	4.3	9.9	9.9	9.9	73.5	73.5	73.5	2.3	2.3	2.3
3	Region 24	4.3	4.0	4.7	8.4	7.5	9.0	75.3	74.5	76.1	2.2	2.0	2.3
10	Region 25	3.8	3.5	4.0	8.5	7.7	9.1	75.0	73.6	75.7	2.2	2.0	2.3
12	Region 26	4.0	3.7	4.4	8.4	7.7	9.2	74.9	74.2	75.9	2.3	2.2	2.6
15	Region 27	3.9	3.7	4.1	8.5	7.6	9.6	75.2	74.2	76.1	2.3	2.1	2.5
30	Region 28	3.9	3.6	4.2	8.6	7.4	10.0	75.0	73.6	76.3	2.3	2.1	2.6
35	Region 29	3.9	3.5	4.2	8.5	7.0	9.7	74.8	73.4	76.5	2.2	1.9	2.4
18	Region 30	3.9	3.5	4.2	8.6	8.3	9.2	74.8	74.0	76.1	2.3	2.1	2.4
18	Region 31	3.8	3.6	4.0	8.5	7.6	10.0	75.0	73.2	76.0	2.2	2.1	2.4
21	Region 32	3.9	3.5	4.5	8.7	8.0	9.3	75.0	73.3	76.5	2.3	2.0	2.5
20	Region 33	3.8	3.4	4.2	8.1	7.3	8.7	75.8	74.5	76.7	2.3	2.0	2.5
21	Region 34	3.8	3.5	4.1	8.4	7.5	9.1	75.1	74.1	76.2	2.2	2.0	2.4
9	Region 35	4.2	3.6	4.6	8.3	6.9	9.0	75.2	73.9	76.5	2.4	2.0	2.7
15	Region 36	3.9	3.6	4.2	8.3	7.3	9.4	75.6	72.9	76.8	2.3	2.0	2.5
310	**Ave. YM1**	**3.9**			**8.5**			**75.1**			**2.3**		
	Min. YM1		**3.4**			**6.7**			**72.9**			**1.7**	
	Max. YM1			**4.7**			**10.0**			**76.8**			**2.7**

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM2													
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 11	-	-	-	-	-	-	-	-	-	-	-	-
4	Region 12	3.9	3.6	4.2	8.1	7.0	9.2	76.1	75.6	76.4	2.2	2.0	2.3
12	Region 13	4.2	3.9	4.8	7.8	7.2	8.8	76.1	75.5	76.6	2.2	1.9	2.4
21	Region 14	3.9	3.5	4.3	7.9	7.4	8.6	76.2	75.5	76.7	2.2	2.0	2.4
5	Region 15	3.8	3.7	3.8	8.4	8.0	8.8	76.1	75.8	76.8	2.2	1.9	2.3
3	Region 16	3.8	3.7	3.9	8.0	7.8	8.2	76.4	76.4	76.5	2.1	1.9	2.2
22	Region 17	3.9	3.3	4.7	8.0	7.3	8.7	76.3	75.5	76.8	2.2	1.9	2.3
7	Region 18	3.9	3.8	4.3	8.1	7.4	8.9	76.1	74.7	76.8	2.2	2.1	2.2
11	Region 19	4.2	3.8	5.1	7.9	7.1	8.7	76.1	75.5	76.7	2.2	1.9	2.4
4	Region 20	3.8	3.7	3.9	8.1	7.8	8.4	76.3	76.1	76.4	2.2	2.1	2.3
3	Region 21	4.0	3.9	4.1	8.0	7.8	8.3	76.0	75.6	76.5	2.2	2.1	2.3
9	Region 22	4.0	3.6	4.2	7.7	6.6	8.1	76.4	76.0	76.9	2.2	2.0	2.4
26	Region 23	3.9	3.5	4.2	8.0	7.4	8.6	76.4	74.7	76.7	2.2	1.9	2.4
10	Region 24	4.0	3.5	4.4	8.1	6.9	8.7	76.0	75.4	76.7	2.2	2.0	2.5
1	Region 25	4.1	-	-	7.4	-	-	76.6	-	-	2.4	-	-
1	Region 26	4.2	-	-	8.2	-	-	76.5	-	-	2.3	-	-
4	Region 27	3.9	3.8	4.0	7.9	7.8	8.2	76.5	76.1	76.9	2.2	2.1	2.3
3	Region 28	3.8	3.7	3.9	7.4	7.3	7.5	76.7	76.6	76.8	2.3	2.2	2.4
2	Region 29	3.8	3.5	4.0	8.2	7.7	8.6	76.4	76.2	76.6	2.1	2.1	2.2
-	Region 30	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 31	3.9	3.8	3.9	8.4	8.3	8.5	74.8	74.6	74.9	2.2	2.2	2.2
3	Region 32	3.8	3.7	3.9	7.8	7.7	8.0	75.9	75.5	76.3	2.0	2.0	2.1
1	Region 33	3.9	-	-	9.0	-	-	74.1	-	-	2.3	-	-
4	Region 34	4.1	3.9	4.3	7.9	7.6	8.1	76.0	75.6	76.3	2.1	1.9	2.3
-	Region 36	-	-	-	-	-	-	-	-	-	-	-	-
158	**Ave. WM2**	**4.0**			**8.0**			**76.2**			**2.2**		
	Min. WM2		**3.3**			**6.6**			**74.1**			**1.9**	
	Max. WM2			**5.1**			**9.2**			**76.9**			**2.5**

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM2													
3	Region 10	3.5	3.3	3.7	8.5	8.2	8.7	75.8	75.0	76.3	2.2	2.0	2.4
3	Region 11	3.7	3.4	3.9	8.6	8.1	9.2	75.6	74.4	76.4	2.4	2.2	2.5
-	Region 12	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 13	3.9	3.6	4.1	8.6	8.5	8.7	74.9	74.7	75.1	2.2	2.1	2.3
4	Region 14	3.9	3.8	4.1	7.8	7.0	8.5	74.9	74.3	76.5	2.2	2.1	2.2
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
6	Region 17	3.8	3.7	3.9	8.3	7.8	8.6	75.1	74.5	75.5	2.2	2.1	2.3
1	Region 18	4.1	-	-	8.9	-	-	75.0	-	-	2.2	-	-
4	Region 19	3.8	3.6	4.0	8.2	7.8	8.8	75.2	74.6	75.6	2.2	2.0	2.2
3	Region 20	4.1	3.9	4.3	8.8	8.2	9.4	74.3	72.8	75.0	2.2	2.0	2.4
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 22	3.9	-	-	9.3	-	-	74.6	-	-	2.1	-	-
-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 24	4.1	-	-	6.4	-	-	76.8	-	-	2.2	-	-
4	Region 25	3.8	3.8	3.9	8.0	7.5	8.4	75.6	74.7	75.9	2.4	2.2	2.5
2	Region 26	3.9	3.7	4.0	8.4	8.3	8.4	75.5	75.3	75.6	2.4	2.3	2.5
4	Region 27	4.0	3.7	4.2	8.3	8.0	8.8	75.0	74.1	76.2	2.3	2.3	2.4
8	Region 28	3.8	3.6	4.2	8.4	8.1	8.7	75.1	74.2	75.9	2.3	2.2	2.4
9	Region 29	3.8	3.7	4.0	8.2	7.0	9.1	75.2	73.6	76.6	2.3	2.1	2.4
10	Region 30	3.8	3.5	4.0	8.4	7.9	9.2	74.8	73.6	76.1	2.2	2.0	2.4
9	Region 31	3.8	3.7	3.9	8.1	7.3	8.7	75.2	74.2	75.9	2.3	2.2	2.4
5	Region 32	3.7	3.4	3.9	8.4	7.8	8.8	75.4	74.3	76.5	2.2	2.0	2.3
6	Region 33	3.7	3.5	3.9	8.2	7.0	8.8	75.5	74.6	76.3	2.3	2.1	2.4
5	Region 34	3.9	3.7	4.1	8.4	6.9	9.5	75.0	73.2	76.4	2.2	2.2	2.3
9	Region 36	3.8	3.4	4.2	8.2	7.7	8.6	75.6	74.6	76.6	2.3	2.1	2.5
100	**Ave. YM2**	**3.8**			**8.3**			**75.2**			**2.3**		
	Min. YM2		**3.3**			**6.4**			**72.8**			**2.0**	
	Max. YM2			**4.3**			**9.5**			**76.8**			**2.5**

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: WM3													
-	Region 11	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 12	3.7	3.6	3.7	8.2	8.0	8.4	76.0	75.6	76.3	2.0	1.8	2.2
3	Region 13	4.0	3.9	4.1	7.8	7.7	8.0	76.1	75.9	76.3	2.2	2.1	2.4
13	Region 14	3.8	3.5	4.4	8.2	7.7	8.8	76.0	75.3	76.7	2.1	1.9	2.4
5	Region 15	3.7	3.5	3.9	8.3	7.7	9.0	76.1	75.2	76.7	2.1	2.0	2.2
1	Region 16	3.7	-	-	8.3	-	-	75.7	-	-	2.1	-	-
3	Region 17	3.9	3.7	4.1	8.0	7.4	8.4	76.4	76.3	76.7	2.2	2.1	2.4
4	Region 18	3.9	3.7	4.0	7.9	7.3	8.5	75.9	75.1	76.7	2.3	2.2	2.3
1	Region 19	4.3	-	-	8.0	-	-	76.3	-	-	2.4	-	-
1	Region 21	4.1	-	-	8.1	-	-	76.4	-	-	2.2	-	-
7	Region 23	3.7	3.5	4.0	8.0	7.4	9.2	76.2	75.5	76.9	2.2	1.9	2.5
4	Region 24	3.6	3.5	4.0	8.4	7.8	8.6	76.0	75.3	76.7	2.1	2.0	2.2
-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 26	4.2	-	-	8.1	-	-	76.5	-	-	2.5	-	-
-	Region 29	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 30	3.7	-	-	7.4	-	-	76.4	-	-	2.2	-	-
2	Region 31	3.7	3.7	3.7	8.4	8.2	8.6	75.7	75.2	76.2	2.1	2.1	2.1
2	Region 36	4.0	3.8	4.1	8.2	7.5	8.8	75.9	75.3	76.5	2.0	2.0	2.1
51	**Ave. WM3**	**3.8**			**8.1**			**76.1**			**2.2**		
	Min. WM3		**3.5**			**7.3**			**75.1**			**1.8**	
	Max. WM3			**4.4**			**9.2**			**76.9**			**2.5**

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
GRADE: YM3													
1	Region 11	3.7	-	-	8.1	-	-	75.3	-	-	2.4	-	-
-	Region 12	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 13	3.7	-	-	8.7	-	-	73.7	-	-	2.1	-	-
2	Region 14	4.1	3.9	4.2	9.0	8.8	9.2	73.7	73.6	73.8	2.1	2.1	2.2
-	Region 15	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 16	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 17	4.0	3.8	4.1	8.6	8.4	8.8	74.4	73.7	75.1	2.2	2.2	2.2
-	Region 18	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 19	3.9	3.9	3.9	8.9	8.8	9.0	73.8	73.2	74.3	2.1	2.0	2.2
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 24	-	-	-	-	-	-	-	-	-	-	-	-
1	Region 25	3.6	-	-	9.2	-	-	74.6	-	-	2.1	-	-
4	Region 26	4.0	4.0	4.1	8.4	8.3	8.6	74.3	72.4	75.1	2.4	2.2	2.7
2	Region 29	3.8	3.4	4.2	8.4	7.6	9.1	74.6	73.9	75.3	2.2	2.2	2.3
1	Region 30	3.3	3.3	3.3	8.3	8.3	8.3	75.2	75.2	75.2	2.3	2.3	2.3
-	Region 31	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 36	-	-	-	-		-	-	-	-	-	-	-
16	**Ave. YM3**	**3.9**			**8.6**			**74.3**			**2.2**		
	Min. YM3		**3.3**			**7.6**			**72.4**			**2.0**	
	Max. YM3			**4.2**			**9.2**			**75.3**			**2.7**

TABLE 19: NUTRITIONAL VALUES OF WHITE MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM													
-	Region 08	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 10	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 12	4.0	3.7	4.3	8.6	8.5	8.6	76.0	75.6	76.4	2.2	2.2	2.3
4	Region 13	4.1	3.9	4.1	7.9	7.5	8.1	76.0	75.6	76.3	2.3	2.2	2.3
4	Region 14	4.1	3.5	4.8	7.9	7.3	8.8	76.1	74.6	76.9	2.2	2.0	2.6
3	Region 17	4.0	3.9	4.0	8.0	7.7	8.2	76.4	76.1	76.6	2.3	2.2	2.4
3	Region 18	3.9	3.9	4.0	8.1	7.4	8.7	76.2	75.6	76.7	2.2	2.0	2.3
6	Region 19	4.0	3.9	4.1	8.0	7.4	8.9	76.2	75.4	76.8	2.3	2.1	2.6
1	Region 20	4.3	-	-	7.6	-	-	75.7	-	-	2.4	-	-
3	Region 21	3.8	3.6	4.0	8.2	8.0	8.5	75.4	74.4	75.9	1.9	1.7	2.3
1	Region 22	4.2	-	-	7.7	-	-	75.6	-	-	2.3	-	-
6	Region 23	3.8	3.6	4.0	8.0	7.7	8.3	76.3	75.5	76.6	2.2	2.0	2.3
2	Region 24	3.6	3.4	3.7	8.2	7.6	8.8	76.2	75.6	76.8	2.1	2.0	2.1
-	Region 25	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 26	3.9	3.6	4.2	8.4	8.3	8.4	76.6	76.5	76.7	2.4	2.2	2.6
1	Region 27	4.1	-	-	7.8	-	-	76.0	-	-	2.4	-	-
1	Region 28	3.9	-	-	7.1	-	-	76.9	-	-	2.3	-	-
-	Region 29	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 30	3.8	3.8	3.8	7.7	7.5	7.8	76.4	76.3	76.5	2.2	2.2	2.3
-	Region 31	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 32	3.7	3.3	3.9	7.6	7.3	7.9	76.0	75.8	76.3	2.1	1.9	2.2
-	Region 33	-	-	-	-	-	-	-	-	-	-	-	-
5	Region 34	4.0	3.7	4.2	8.1	7.6	8.7	75.9	75.4	76.6	2.2	2.1	2.3
1	Region 35	4.3	-	-	8.9	-	-	75.6	-	-	2.4	-	-
2	Region 36	3.8	3.8	3.9	8.5	8.4	8.7	75.1	74.8	75.3	2.2	2.2	2.2
52	Ave. COM	3.9			8.0			76.1			2.2		
	Min. COM		3.3			7.1			74.4			1.7	
	Max. COM			4.8			8.9			76.9			2.6
524	Ave. White	4.0			8.0			76.0			2.2		
	Min. White		3.3			6.1			72.8			1.7	
	Max. White			5.2			10.0			76.9			2.7
1 000	Ave. Maize	3.9			8.2			75.6			2.2		
	Min. Maize		3.3			6.1			72.4			1.7	
	Max. Maize			5.2			10.0			76.9			2.7

TABLE 20: NUTRITIONAL VALUES OF YELLOW MAIZE ACCORDING TO GRADE (2021/22) (continue)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
CLASS: COM													
1	Region 08	3.8	-	-	8.6	-	-	75.7	-	-	2.3	-	-
1	Region 10	3.3	-	-	8.6	-	-	76.2	-	-	2.3	-	-
1	Region 12	4.0	-	-	9.4	-	-	73.5	-	-	2.3	-	-
1	Region 13	3.9	-	-	8.3	-	-	74.6	-	-	2.2	-	-
-	Region 14	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 17	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 18	4.0	4.0	4.0	8.7	8.6	8.7	75.4	74.9	75.9	2.3	2.1	2.4
4	Region 19	3.8	-	-	8.5	-	-	75.0	-	-	2.2	-	-
1	Region 20	3.8	-	-	9.7	-	-	72.8	-	-	2.2	-	-
-	Region 21	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 22	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 23	-	-	-	-	-	-	-	-	-	-	-	-
-	Region 24	-	-	-	-	-	-	-	-	-	-	-	-
2	Region 25	4.0	3.8	4.1	8.9	8.8	9.0	74.7	74.5	74.8	2.4	2.3	2.4
3	Region 26	3.7	3.6	3.8	8.3	8.2	8.5	75.1	74.9	75.3	2.3	2.2	2.4
1	Region 27	4.1	-	-	7.9	-	-	76.0	-	-	2.3	-	-
7	Region 28	3.9	3.7	4.1	8.5	7.5	9.0	75.2	74.1	76.5	2.3	2.3	2.5
4	Region 29	3.9	3.9	3.9	8.5	8.2	8.9	74.7	74.4	75.3	2.2	2.1	2.2
3	Region 30	3.8	3.6	3.9	8.6	8.3	9.2	74.9	73.8	75.4	2.4	2.3	2.4
6	Region 31	3.6	3.4	3.8	8.4	8.0	9.0	75.5	75.0	75.9	2.2	2.0	2.4
4	Region 32	3.9	3.6	4.3	8.8	8.4	9.1	74.5	73.2	75.5	2.3	2.2	2.4
2	Region 33	3.7	3.6	3.7	8.0	7.7	8.3	75.7	75.6	75.9	2.3	2.3	2.3
4	Region 34	3.9	3.8	4.0	8.4	8.1	8.9	74.8	74.2	75.7	2.1	1.9	2.2
-	Region 34	-	-	-	-	-	-	-	-	-	-	-	-
3	Region 36	3.8	3.7	3.9	8.6	8.2	9.0	75.2	74.6	76.1	2.4	2.3	2.4
50	Ave. COM	3.8			8.5			75.0			2.3		
	Min. COM		3.3			7.5			72.8			1.9	
	Max. COM			4.3			9.7			76.8			2.5
476	Min. Yellow	3.9			8.4			75.1			2.3		
	Min. Yellow		3.3			6.4			72.4			1.7	
	Max. Yellow			4.7			10.0			76.8			2.7
1 000	Ave. Maize	3.9			8.2			75.6			2.2		
	Min .Maize		3.3			6.1			72.4			1.7	
	Max. Maize			5.2			10.0			76.9			2.7

TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2021/22)

Number of samples	Region	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
WHITE													
1	Region 11	3.7	3.7	3.7	8.8	8.8	8.8	75.6	75.6	75.6	2.0	2.0	2.0
17	Region 12	4.0	3.6	4.4	8.3	7.0	9.2	75.9	75.4	76.4	2.2	1.8	2.6
29	Region 13	4.2	3.9	4.8	7.8	7.2	8.8	76.0	75.0	76.6	2.2	1.9	2.5
62	Region 14	4.0	3.5	4.8	7.9	7.3	9.1	76.2	74.6	76.9	2.2	1.9	2.6
12	Region 15	3.8	3.5	4.1	8.3	7.5	9.0	76.1	75.2	76.8	2.2	1.9	2.3
4	Region 16	3.8	3.7	3.9	8.1	7.8	8.3	76.3	75.7	76.5	2.1	1.9	2.2
40	Region 17	3.9	3.3	4.7	7.9	7.1	8.9	76.3	75.2	76.8	2.2	1.9	2.5
18	Region 18	4.0	3.7	4.7	8.0	7.3	8.9	76.1	74.7	76.8	2.2	2.0	2.3
33	Region 19	4.1	3.8	5.1	8.0	7.1	8.9	76.0	74.5	76.9	2.3	1.9	2.6
22	Region 20	4.1	3.5	5.2	8.1	6.1	9.0	75.8	74.3	76.6	2.2	2.0	2.7
23	Region 21	4.1	3.5	4.7	7.8	6.6	9.1	76.2	74.4	76.8	2.2	1.7	2.5
14	Region 22	4.0	3.6	4.2	7.7	6.6	8.4	76.4	75.6	76.9	2.3	2.0	2.4
53	Region 23	3.9	3.5	4.2	8.1	7.3	9.2	76.3	74.7	76.9	2.2	1.9	2.5
20	Region 24	3.9	3.4	4.8	8.0	6.6	8.8	76.1	75.3	76.8	2.2	2.0	2.5
2	Region 25	4.1	4.0	4.1	7.6	7.4	7.8	76.5	76.3	76.6	2.3	2.1	2.4
12	Region 26	4.2	3.6	4.7	8.0	7.0	8.9	76.3	75.2	76.7	2.4	2.2	2.6
9	Region 27	3.9	3.6	4.1	8.1	7.8	8.7	76.4	76.0	76.9	2.2	2.0	2.4
22	Region 28	3.8	3.4	4.1	8.0	7.1	9.3	76.0	73.9	76.9	2.2	2.1	2.5
14	Region 29	3.9	3.5	4.5	8.4	7.7	9.2	75.4	73.5	76.6	2.2	2.1	2.4
15	Region 30	3.8	3.5	4.0	8.1	7.4	9.3	75.9	74.1	76.6	2.2	2.1	2.3
13	Region 31	3.9	3.7	4.2	8.5	7.6	9.3	75.2	73.6	76.7	2.2	2.1	2.5
15	Region 32	3.8	3.3	4.3	7.9	7.3	8.8	76.1	75.2	76.8	2.2	1.9	2.4
28	Region 33	4.0	3.7	4.5	8.1	7.0	9.3	75.4	73.8	76.9	2.3	1.9	2.5
27	Region 34	4.0	3.7	4.5	8.2	7.5	9.8	75.8	72.8	76.9	2.2	1.9	2.5
7	Region 35	4.0	3.8	4.3	9.0	8.1	10.0	75.2	73.9	76.5	2.4	2.2	2.5
12	Region 36	3.9	3.8	4.4	8.3	7.5	8.8	75.5	74.7	76.5	2.2	2.0	2.4
524	**Ave. white**	**4.0**			**8.0**			**76.0**			**2.2**		
	Min. white		**3.3**			**6.1**			**72.8**			**1.7**	
	Max. white			**5.2**			**10.0**			**76.9**			**2.7**
YELLOW													
8	Region 08												
18	Region 10	3.7	3.3	4.0	8.3	7.7	8.8	75.8	74.3	76.8	2.2	1.7	2.4
19	Region 11	3.7	3.4	4.0	8.4	7.4	9.2	76.0	74.4	76.7	2.3	2.1	2.5
6	Region 12	3.9	3.6	4.2	8.7	8.0	9.4	74.6	73.5	76.0	2.2	1.9	2.4
11	Region 13	3.9	3.6	4.1	8.6	8.2	8.9	74.6	73.7	75.2	2.2	2.0	2.3
15	Region 14	4.0	3.8	4.2	8.2	6.7	9.2	74.5	73.4	76.5	2.2	2.1	2.3
15	Region 17	3.9	3.7	4.1	8.4	7.8	8.8	74.9	73.7	75.6	2.2	2.0	2.4
6	Region 18	3.9	3.7	4.1	8.5	8.0	8.9	75.3	74.6	75.9	2.2	2.1	2.4
17	Region 19	3.8	3.4	4.0	8.5	7.6	9.3	74.8	73.2	76.8	2.2	2.0	2.3
9	Region 20	3.9	3.7	4.3	8.9	8.2	9.7	74.0	72.8	75.1	2.2	2.0	2.4
4	Region 21	3.9	3.6	4.1	9.0	8.1	9.5	74.6	73.5	76.1	2.3	2.2	2.4
1	Region 22	3.9	3.9	3.9	9.3	9.3	9.3	74.6	74.6	74.6	2.1	2.1	2.1
1	Region 23	4.3	4.3	4.3	9.9	9.9	9.9	73.5	73.5	73.5	2.3	2.3	2.3
4	Region 24	4.2	4.0	4.7	7.9	6.4	9.0	75.7	74.5	76.8	2.2	2.0	2.3
17	Region 25	3.8	3.5	4.1	8.5	7.5	9.2	75.0	73.6	75.9	2.2	2.0	2.5

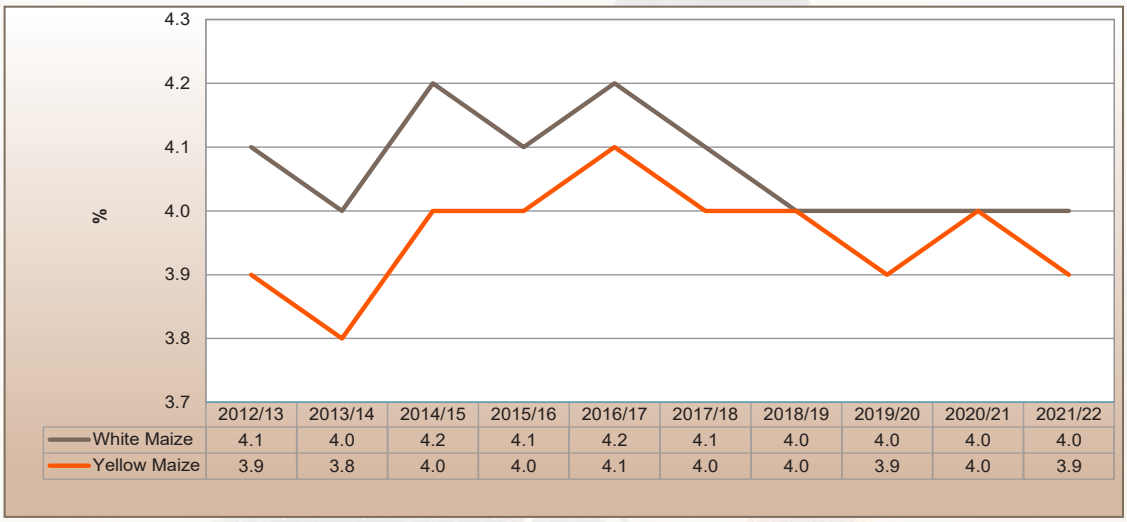
TABLE 21: NUTRITIONAL VALUES OF WHITE AND YELLOW MAIZE (2021/22) (continue)

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													
21	Region 26	3.9	3.6	4.4	8.4	7.7	9.2	74.9	72.4	75.9	2.3	2.2	2.7
20	Region 27	3.9	3.7	4.2	8.4	7.6	9.6	75.2	74.1	76.2	2.3	2.1	2.5
45	Region 28	3.9	3.6	4.2	8.6	7.4	10.0	75.1	73.6	76.5	2.3	2.1	2.6
50	Region 29	3.9	3.4	4.2	8.4	7.0	9.7	74.8	73.4	76.6	2.2	1.9	2.4
32	Region 30	3.8	3.3	4.2	8.5	7.9	9.2	74.8	73.6	76.1	2.2	2.0	2.4
33	Region 31	3.8	3.4	4.0	8.4	7.3	10.0	75.1	73.2	76.0	2.2	2.0	2.4
30	Region 32	3.9	3.4	4.5	8.7	7.8	9.3	75.0	73.2	76.5	2.3	2.0	2.5
28	Region 33	3.7	3.4	4.2	8.1	7.0	8.8	75.7	74.5	76.7	2.3	2.0	2.5
30	Region 34	3.9	3.5	4.1	8.4	6.9	9.5	75.1	73.2	76.4	2.2	1.9	2.4
9	Region 35	4.2	3.6	4.6	8.3	6.9	9.0	75.2	73.9	76.5	2.4	2.0	2.7
27	Region 36	3.8	3.4	4.2	8.3	7.3	9.4	75.6	72.9	76.8	2.3	2.0	2.5
476	**Ave. yellow**	**3.9**			**8.4**			**75.1**			**2.3**		
	Min. yellow		**3.3**			**6.4**			**72.4**			**1.7**	
	Max. yellow			**4.7**			**10.0**			**76.8**			**2.7**
WHITE AND YELLOW													
8	Region 08	3.9	3.5	4.1	8.3	7.4	8.7	75.6	74.2	76.7	2.3	1.9	2.5
18	Region 10	3.7	3.3	4.0	8.3	7.7	8.8	75.8	74.3	76.8	2.2	1.7	2.4
20	Region 11	3.7	3.4	4.0	8.4	7.4	9.2	76.0	74.4	76.7	2.3	2.0	2.5
23	Region 12	4.0	3.6	4.4	8.4	7.0	9.4	75.6	73.5	76.4	2.2	1.8	2.6
40	Region 13	4.1	3.6	4.8	8.0	7.2	8.9	75.6	73.7	76.6	2.2	1.9	2.5
77	Region 14	4.0	3.5	4.8	8.0	6.7	9.2	75.8	73.4	76.9	2.2	1.9	2.6
12	Region 15	3.8	3.5	4.1	8.3	7.5	9.0	76.1	75.2	76.8	2.2	1.9	2.3
4	Region 16	3.8	3.7	3.9	8.1	7.8	8.3	76.3	75.7	76.5	2.1	1.9	2.2
55	Region 17	3.9	3.3	4.7	8.1	7.1	8.9	75.9	73.7	76.8	2.2	1.9	2.5
24	Region 18	4.0	3.7	4.7	8.1	7.3	8.9	75.9	74.6	76.8	2.2	2.0	2.4
50	Region 19	4.0	3.4	5.1	8.2	7.1	9.3	75.6	73.2	76.9	2.2	1.9	2.6
31	Region 20	4.1	3.5	5.2	8.3	6.1	9.7	75.3	72.8	76.6	2.2	2.0	2.7
27	Region 21	4.1	3.5	4.7	8.0	6.6	9.5	75.9	73.5	76.8	2.2	1.7	2.5
15	Region 22	4.0	3.6	4.2	7.8	6.6	9.3	76.2	74.6	76.9	2.2	2.0	2.4
54	Region 23	3.9	3.5	4.3	8.1	7.3	9.9	76.3	73.5	76.9	2.2	1.9	2.5
24	Region 24	4.0	3.4	4.8	8.0	6.4	9.0	76.0	74.5	76.8	2.2	2.0	2.5
19	Region 25	3.8	3.5	4.1	8.4	7.4	9.2	75.2	73.6	76.6	2.2	2.0	2.5
33	Region 26	4.0	3.6	4.7	8.2	7.0	9.2	75.4	72.4	76.7	2.4	2.2	2.7
29	Region 27	3.9	3.6	4.2	8.3	7.6	9.6	75.6	74.1	76.9	2.3	2.0	2.5
67	Region 28	3.9	3.4	4.2	8.4	7.1	10.0	75.4	73.6	76.9	2.3	2.1	2.6
64	Region 29	3.9	3.4	4.5	8.4	7.0	9.7	75.0	73.4	76.6	2.2	1.9	2.4
47	Region 30	3.8	3.3	4.2	8.4	7.4	9.3	75.2	73.6	76.6	2.2	2.0	2.4
46	Region 31	3.8	3.4	4.2	8.4	7.3	10.0	75.2	73.2	76.7	2.2	2.0	2.5
45	Region 32	3.9	3.3	4.5	8.4	7.3	9.3	75.3	73.2	76.8	2.2	1.9	2.5
56	Region 33	3.9	3.4	4.5	8.1	7.0	9.3	75.6	73.8	76.9	2.3	1.9	2.5
57	Region 34	3.9	3.5	4.5	8.3	6.9	9.8	75.4	72.8	76.9	2.2	1.9	2.5
16	Region 35	4.1	3.6	4.6	8.6	6.9	10.0	75.2	73.9	76.5	2.4	2.0	2.7
39	Region 36	3.9	3.4	4.4	8.3	7.3	9.4	75.5	72.9	76.8	2.3	2.0	2.5
1 000	**Ave. W & Y**	**3.9**			**8.2**			**75.6**			**2.2**		
	Min. W & Y		**3.3**			**6.1**			**72.4**			**1.7**	
	Max. W & Y			**5.2**			**10.0**			**76.9**			**2.7**

TABLE 22: NUTRITIONAL VALUES OF SOUTH AFRICAN WHITE AND YELLOW MAIZE 2012/13 - 2021/22

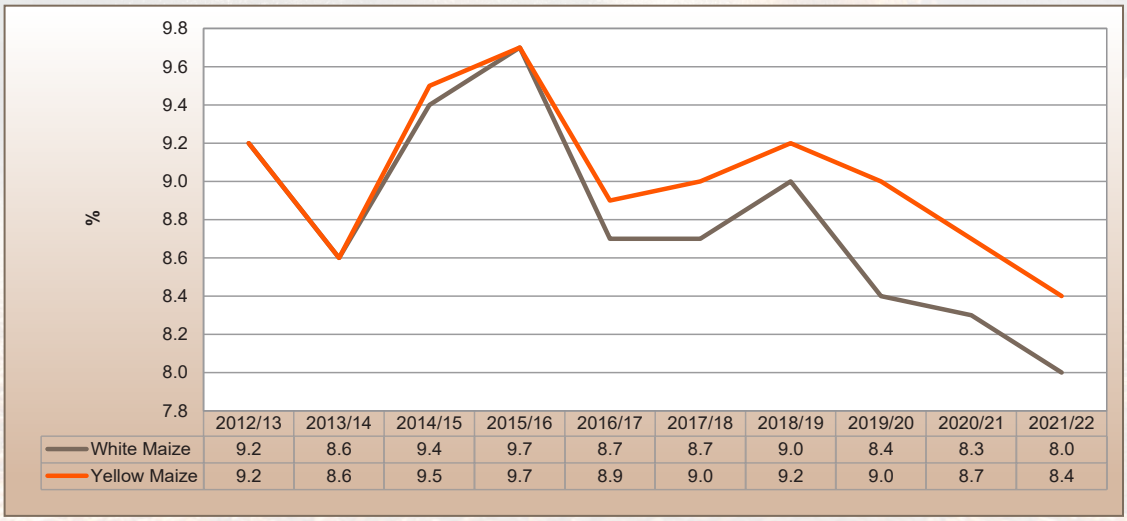
Season	Number of samples	Fat % (db)			Protein % (db)			Starch % (db)			Crude Fibre % (db)		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
White Maize													
2012/13	508	4.1	3.3	5.3	9.2	6.4	11.5	71.4	68.5	73.6	-	-	-
2013/14	451	4.0	3.4	5.0	8.6	6.7	10.1	72.9	70.9	75.1	-	-	-
2014/15	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
2020/21	560	4.0	3.4	5.1	8.3	6.0	11.3	75.5	71.4	77.3	2.3	2.1	2.5
2021/22	524	4.0	3.3	5.2	8.0	6.1	10.0	76.0	72.8	76.9	2.2	1.7	2.7
Weighted Average		**4.1**			**8.8**			**73.6**			**2.1**		
Minimum			**3.0**			**6.0**			**68.5**			**1.6**	
Maximum				**5.8**			**12.3**			**77.3**			**2.8**
Yellow Maize													
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
2020/21	440	4.0	3.2	5.1	8.7	7.1	10.3	74.7	71.9	76.5	2.3	2.0	2.6
2021/22	476	3.9	3.3	4.7	8.4	6.4	10.0	75.1	72.4	76.8	2.3	1.7	2.7
Weighted Average		**4.0**			**9.0**			**73.1**			**2.2**		
Minimum			**2.9**			**6.0**			**68.3**			**1.6**	
Maximum				**5.1**			**12.8**			**76.8**			**2.7**
White and Yellow Maize													
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
2020/21	1000	4.0	3.2	5.1	8.5	6.0	11.3	75.2	71.4	77.3	2.3	2.0	2.6
2021/22	1000	3.9	3.3	5.2	8.2	6.1	10.0	75.6	72.4	76.9	2.2	1.7	2.7
Weighted Average		**4.0**			**8.9**			**73.3**			**2.1**		
Minimum			**2.9**			**6.0**			**68.3**			**1.6**	
Maximum				**5.8**			**12.8**			**77.3**			**2.8**

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



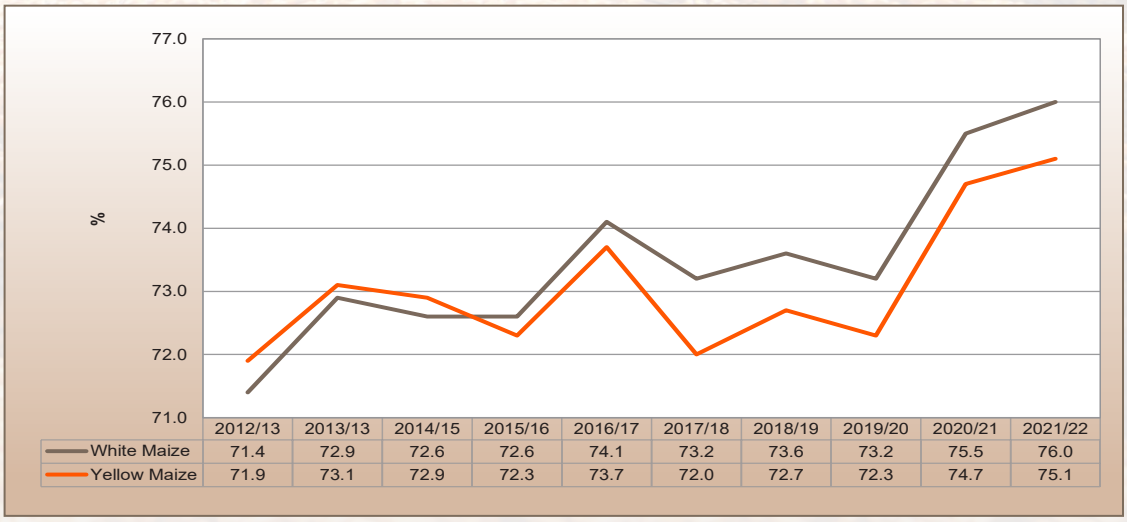
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	4.1	4.0	4.2	4.1	4.2	4.1	4.0	4.0	4.0	4.0
Yellow Maize	3.9	3.8	4.0	4.0	4.1	4.0	4.0	3.9	4.0	3.9

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



	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	9.2	8.6	9.4	9.7	8.7	8.7	9.0	8.4	8.3	8.0
Yellow Maize	9.2	8.6	9.5	9.7	8.9	9.0	9.2	9.0	8.7	8.4

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



	2012/13	2013/13	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
White Maize	71.4	72.9	72.6	72.6	74.1	73.2	73.6	73.2	75.5	76.0
Yellow Maize	71.9	73.1	72.9	72.3	73.7	72.0	72.7	72.3	74.7	75.1

TABLE 23: PRESENCE OF GENETICALLY MODIFIED MAIZE (2021/22)

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	19	W	<0.4	<0.5	<0.25	29	W	>5.0	>5.0	>5.0
10	Y	>5.0	>5.0	>5.0	20	Y	>5.0	>5.0	>5.0	29	W	>5.0	>5.0	>5.0
10	Y	>5.0	>5.0	>5.0	20	W	>5.0	1.8	>5.0	30	Y	<0.4	<0.5	0.75
11	W	>5.0	>5.0	>5.0	21	W	>5.0	>5.0	>5.0	30	W	>5.0	>5.0	>5.0
11	Y	<0.4	0.61	4.5	21	Y	>5.0	>5.0	>5.0	31	Y	>5.0	>5.0	>5.0
12	W	3.6	>5.0	>5.0	22	W	>5.0	>5.0	>5.0	31	W	>5.0	>5.0	>5.0
13	Y	3.3	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	32	Y	>5.0	>5.0	>5.0
13	W	>5.0	>5.0	>5.0	23	W	>5.0	>5.0	>5.0	32	W	4.3	4.0	>5.0
14	W	<0.4	<0.5	0.58	24	W	>5.0	>5.0	>5.0	33	Y	>5.0	>5.0	>5.0
14	Y	>5.0	>5.0	>5.0	25	Y	>5.0	>5.0	>5.0	33	Y	>5.0	>5.0	>5.0
14	Y	>5.0	>5.0	>5.0	26	Y	>5.0	>5.0	>5.0	33	W	>5.0	>5.0	>5.0
14	W	>5.0	>5.0	>5.0	26	W	>5.0	>5.0	>5.0	33	W	>5.0	>5.0	>5.0
15	W	<0.4	1.0	>5.0	27	W	>5.0	>5.0	>5.0	34	Y	>5.0	>5.0	>5.0
16	W	>5.0	>5.0	>5.0	27	Y	>5.0	>5.0	>5.0	34	Y	>5.0	>5.0	>5.0
17	Y	<0.4	<0.5	0.51	28	Y	>5.0	>5.0	>5.0	34	W	>5.0	>5.0	>5.0
17	W	>5.0	>5.0	>5.0	28	Y	0.38	0.42	2.1	34	W	>5.0	>5.0	>5.0
17	W	0.72	1.7	>5.0	28	W	>5.0	>5.0	>5.0	35	W	<0.4	<0.5	0.33
18	Y	>5.0	>5.0	>5.0	28	W	>5.0	>5.0	>5.0	35	Y	>5.0	>5.0	>5.0
18	W	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	36	W	>5.0	>5.0	>5.0
19	Y	>5.0	>5.0	>5.0	29	Y	>5.0	>5.0	>5.0	36	Y	>5.0	>5.0	>5.0
n	**Season**	**% Samples positive for Cry1Ab**			**n**	**Season**	**% Samples positive for Cry2Ab**			**n**	**Season**	**% Samples positive for CP4 EPSPS**		
60	**2021/22**	**88**			**60**	**92**	**92**			**60**	**2021/22**	**98**		
100	**2021/22**	90			100	2020/21	96			100	2020/21	98		
70	2020/21	86			70	2019/20	97			70	2019/20	91		
70	2019/20	91			70	2018/19	83			70	2018/19	96		
100	2018/19	91			100	2017/18	83			100	2017/18	100		

LOD: Limit of Detection

Mycotoxins

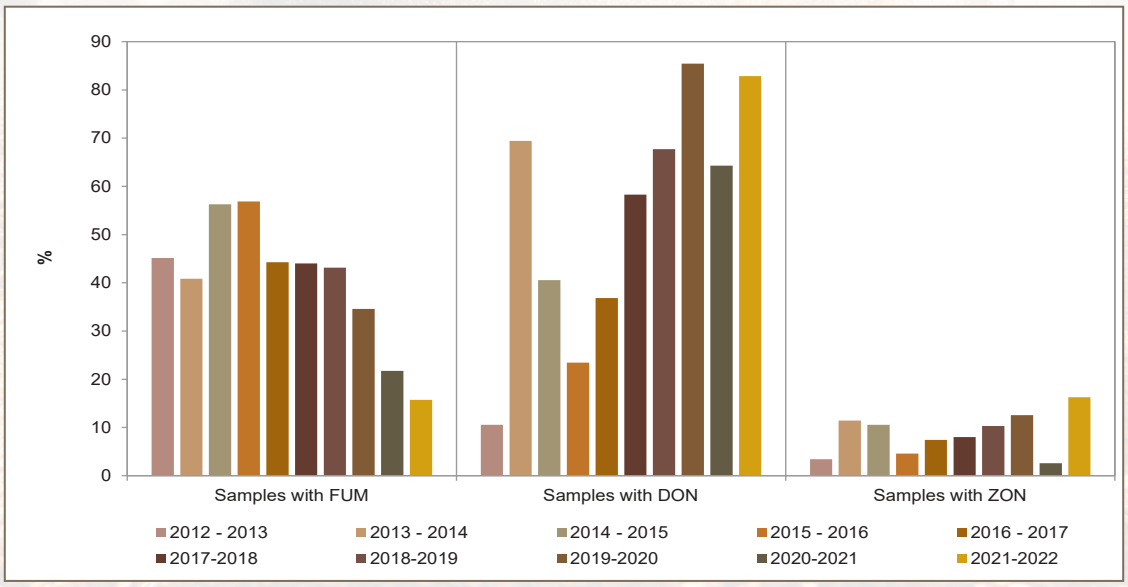
Monitoring of multi-mycotoxins in locally produced maize is included in the annual maize crop quality surveys since the 2010/11 production season. The mycotoxin results and trends highlight the advantages of long-term monitoring of mycotoxin occurrence in South African maize.

Thirteen mycotoxins including Aflatoxin B_1, B_2, G_1 and G_2, Fumonisin (FUM) B_1, B_2 and B_3, Deoxynivalenol (DON), 15-acetyl-deoxynivalenol (15-ADON), Ochratoxin A, T2-toxin, HT-2 toxin and Zearalenone (ZON) are analysed with an accredited LC-MS/MS method. Every season 350 maize crop samples are selected, representing approximately 35 to 40% of the survey samples. The samples are selected to represent white and yellow maize from all the production regions.

This season, 85% of the samples (297 samples) contained at least one mycotoxin, mainly DON (83%), FUM (16%) and ZON (16%). Mycotoxin occurrence varied slightly between the three main production regions, ranging from 78% in the Free State, 86% in Mpumalanga to 92% in North West. In KwaZulu Natal, Gauteng and Limpopo mycotoxins were found in 89%, 80% and 50% of the samples respectively. All the samples tested that originated from the Northern Cape contained DON.

Compared to the 69% of samples which contained at least one mycotoxin in the previous season, the observed increase this season was due to an increase in the DON and ZON occurrence, as illustrated by Graph 50. The fumonisin prevalence (16%) reported this season, is the smallest in both white and yellow maize over the 12 consecutive seasons starting in 2010/11.

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



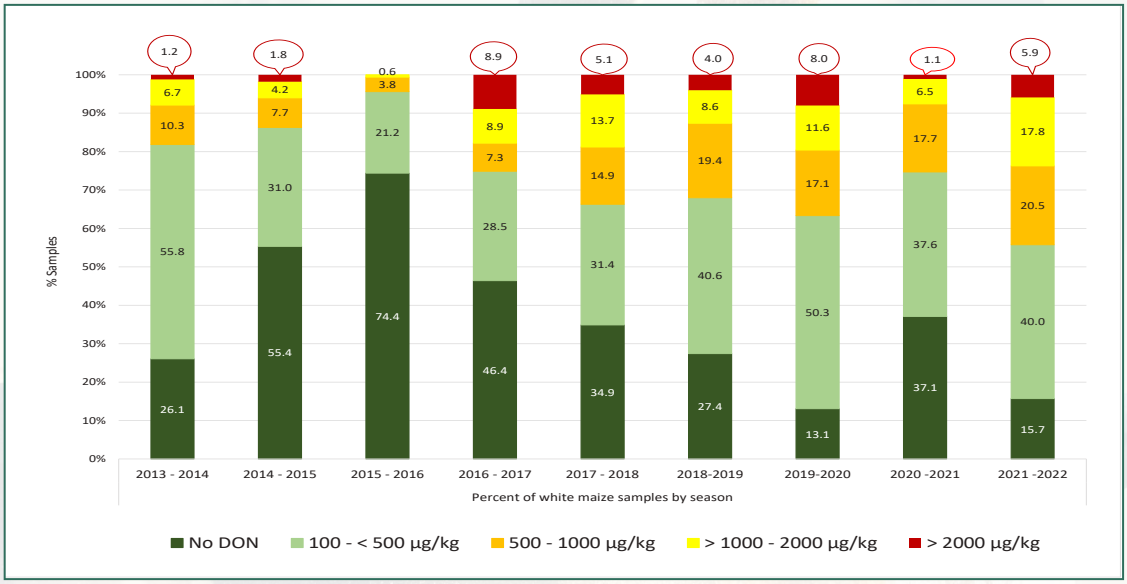
The results of the 13 mycotoxins analysed, including the range of concentration levels and notable trends in the mean concentration levels in white and yellow maize in the different provinces, are summarised as follows:

- No aflatoxins were found this season. In the 12 years of this survey (350 samples/year), aflatoxins were found in only one yellow maize and four white maize samples.
- No ochratoxin A was reported since the survey began in 2010/11.
- For the first time, T2- toxin and HT-2 toxin, were found in two samples this season. A yellow maize sample collected in Mpumalanga reported 28 µg/kg T2-toxin and 93 µg/kg HT-2 toxin and a white maize sample from KwaZulu Natal contained 30 µg/kg T2-toxin and 47 µg/kg HT-2 toxin.

- ## DON and 15-ADON

  - Approximately 84% of the white maize and 81% of the yellow maize samples were contaminated with DON, an increase compared to the previous season but similar to the 2019/20 results. The DON concentration ranges are summarised in Graph 51 (white maize) and Graph 52 (yellow maize). The ten-year mean DON concentrations in the seven provinces are illustrated in Graphs 53 and 54.

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

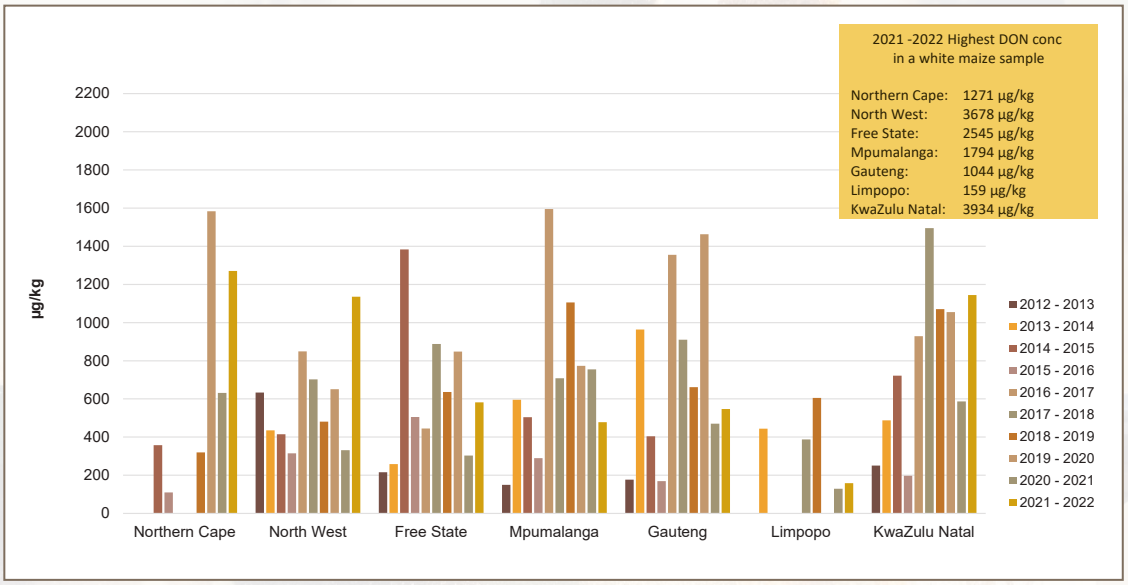


Graph 52: DON concentration range in yellow maize samples over nine seasons

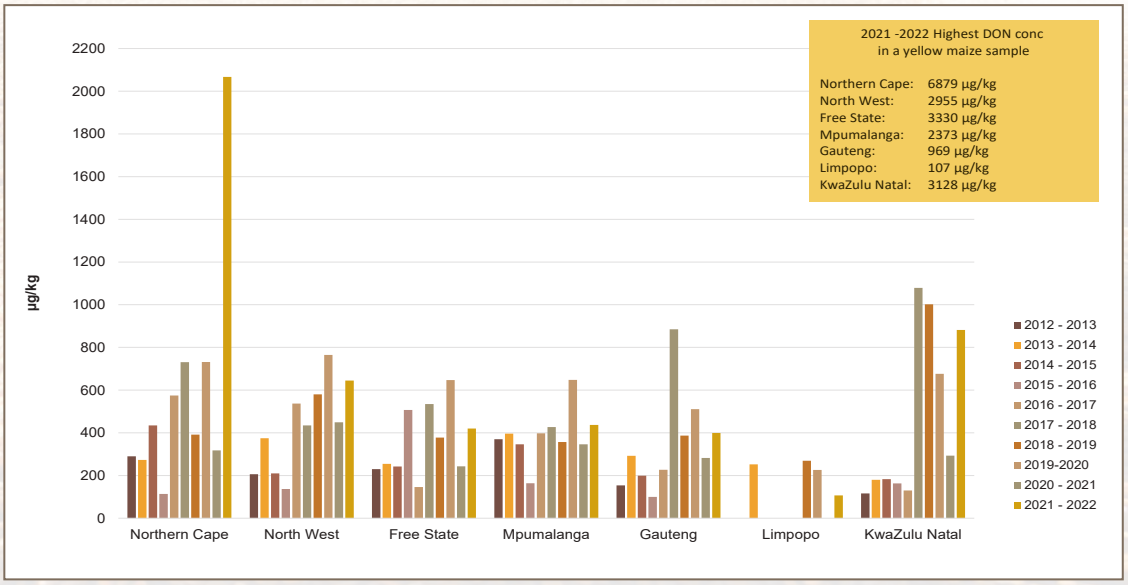
  - 5.9% of the white maize samples collected in North West, the Free State and KwaZulu Natal contained more than 2 000 µg/kg DON (the South African regulated maximum allowable level in unprocessed maize for human consumption). This is an increase of 4.8% compared to the previous season.
  - The white maize samples with the highest DON concentrations were collected in the Northern Cape (1 271 µg/kg), North West (3 678 µg/kg), the Free State (2 545 µg/kg), Mpumalanga (1 794 µg/kg), Gauteng (1 044 µg/kg) and KwaZulu Natal (3 934 µg/kg).

- In yellow maize, only 18.8% of the samples did not contain DON, while 6.1% contained more than 2 000 µg/kg DON. Samples with DON concentrations exceeding 2 000 µg/kg were found in five provinces.
- Higher mean DON concentrations compared to the previous season, were observed in white and yellow maize samples in six provinces.

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



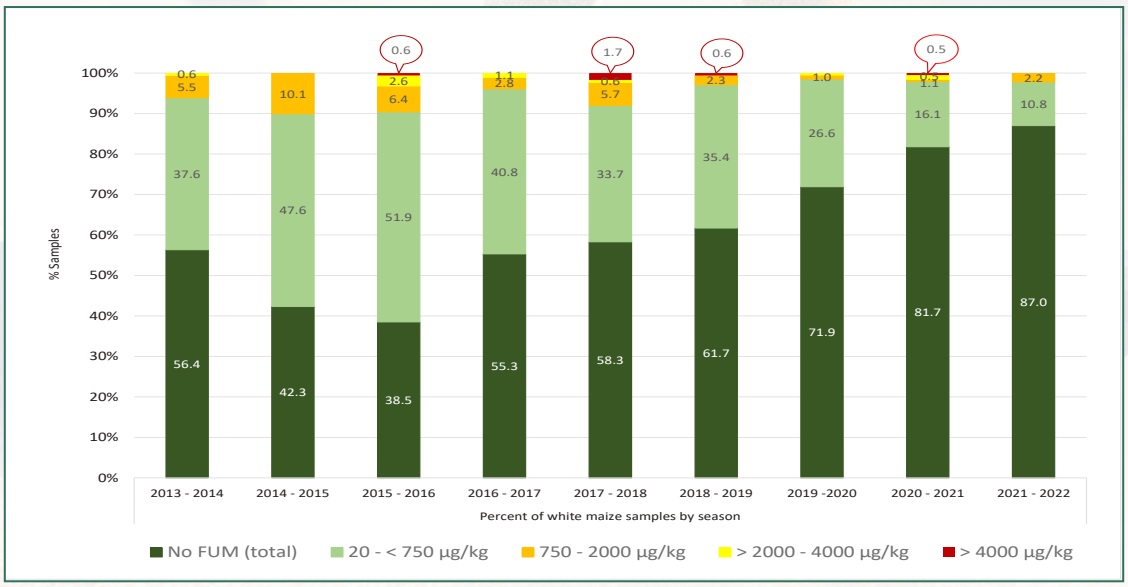
Graph 54: Yellow maize DON mean concentration (µg/kg) per province over ten seasons



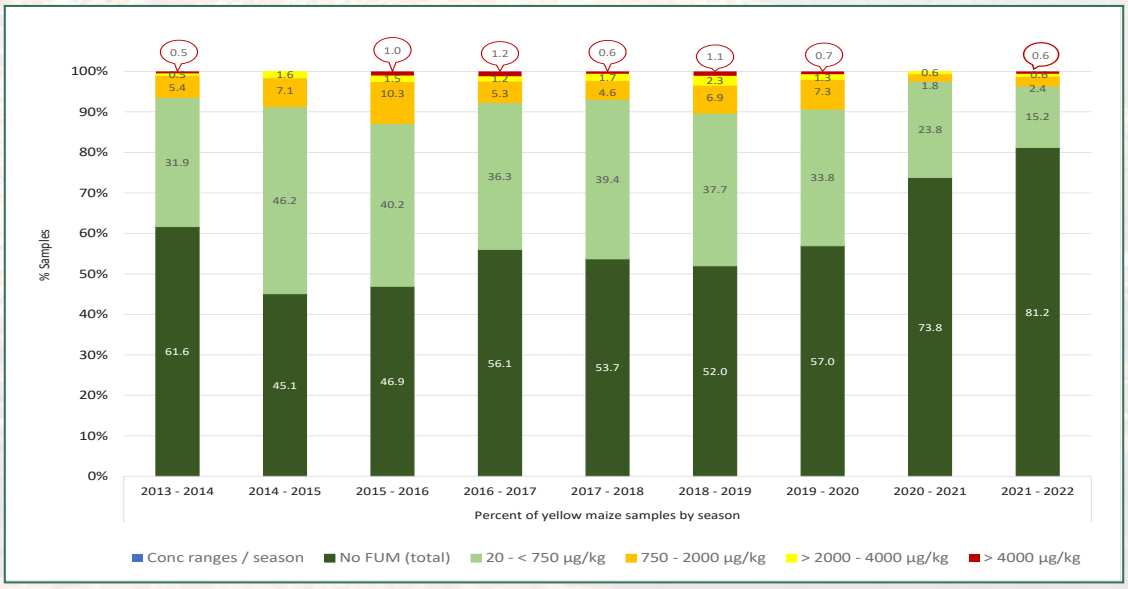
- As a rule of thumb, when a sample is found to contain 15-ADON, the sample most often also contains DON, mostly when the DON concentration exceeds 500 µg/kg. This season, 84% of the samples did not contain 15-ADON. The mean 15-ADON concentration of the positive samples was 158 µg/kg.
- It is important to take note of the steady increase in DON occurrence. This season, 23.7% of the white maize samples were found to contain concentration levels exceeding 1 000 µg/kg.

- ## Fumonisins (FUM Total = $FB_1 + FB_2 + FB_3$)
  - This season, only 13% of the white maize samples contained fumonisins, showing a continual decrease in contamination level from 62% in 2015/16. The yellow maize samples that contained fumonisins decreased from approximately 53% in 2015/16 to 19% this season.
  - The maximum FUM in individual white maize samples also decreased when compared to the previous season. The highest levels were 1 333 µg/kg found in North West and 1 113 µg/kg in KwaZulu Natal. Only one yellow maize sample was found with FUM more than 4 000 µg/kg (the South African regulated maximum allowable level FUM $B_1 + B_2$ in unprocessed maize for human consumption). This sample was from the Northern Cape and contaminated with 18 301 µg/kg FUM.
  - The concentration ranges of the samples with FUM over the past nine seasons are summarised in Graph 55 (white maize) and Graph 56 (yellow maize).

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

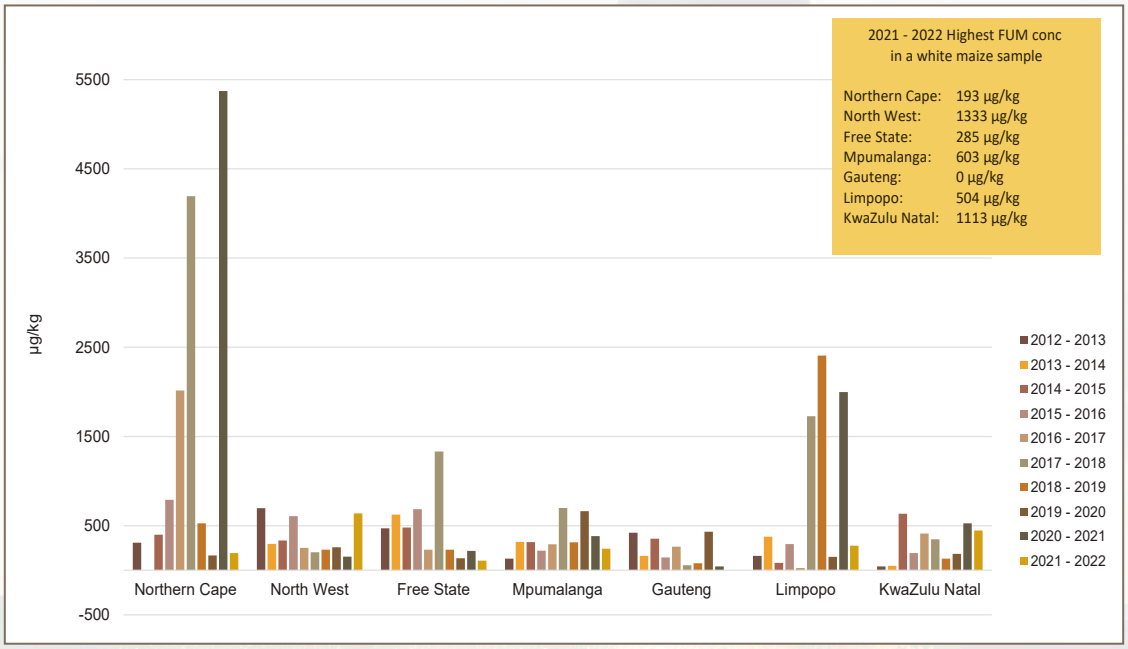


Graph 56: FUM concentration range in yellow maize samples over nine seasons

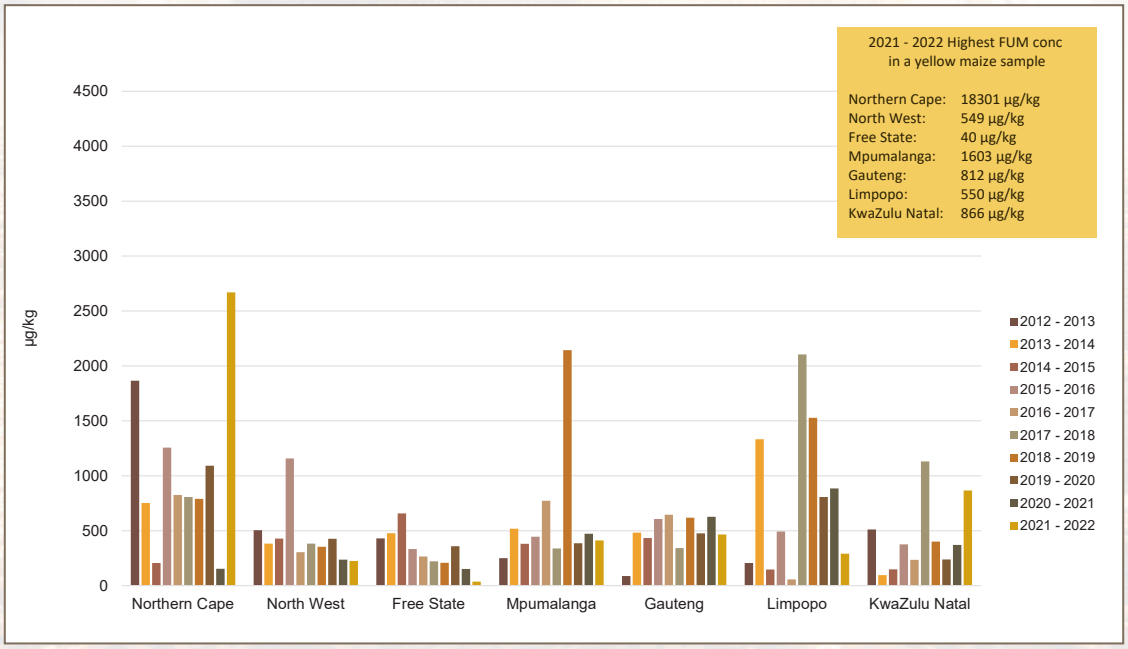


  - The white maize mean FUM concentrations decreased in all six of the provinces, except in North West. The ten-year FUM mean concentration variations in white maize in the seven provinces are illustrated in Graph 57.
  - The mean FUM concentration in the yellow maize samples increased only in the Northern Cape and KwaZulu Natal. These trends are illustrated in Graph 58.

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

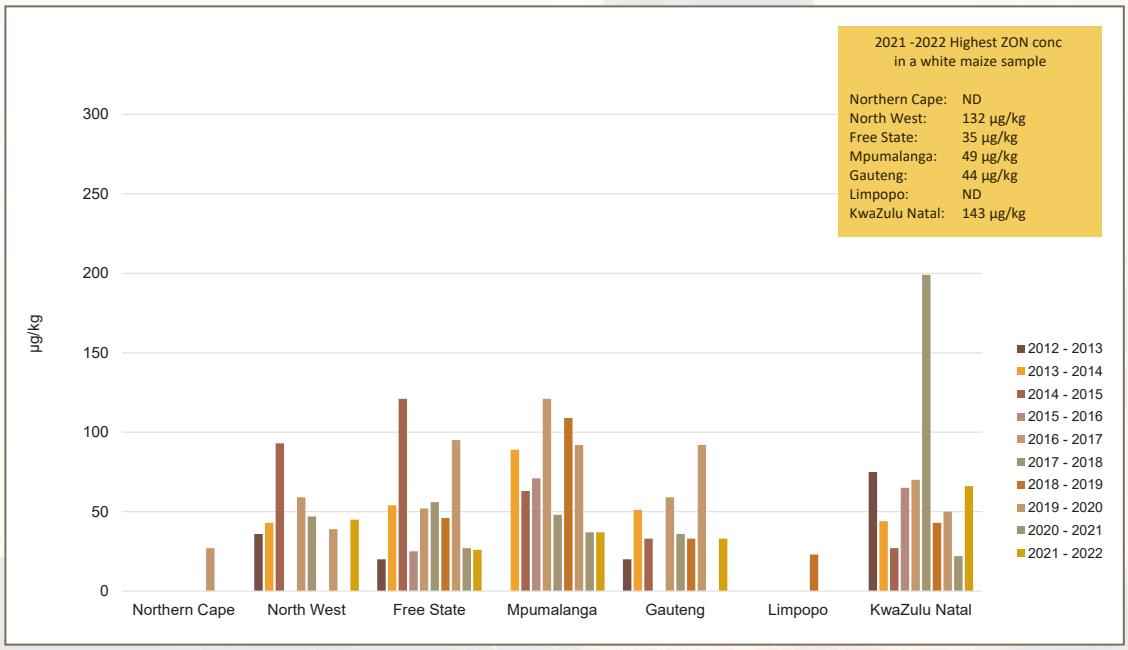


Graph 58: Yellow maize FUM (total) mean concentration (µg/kg) per province over ten seasons

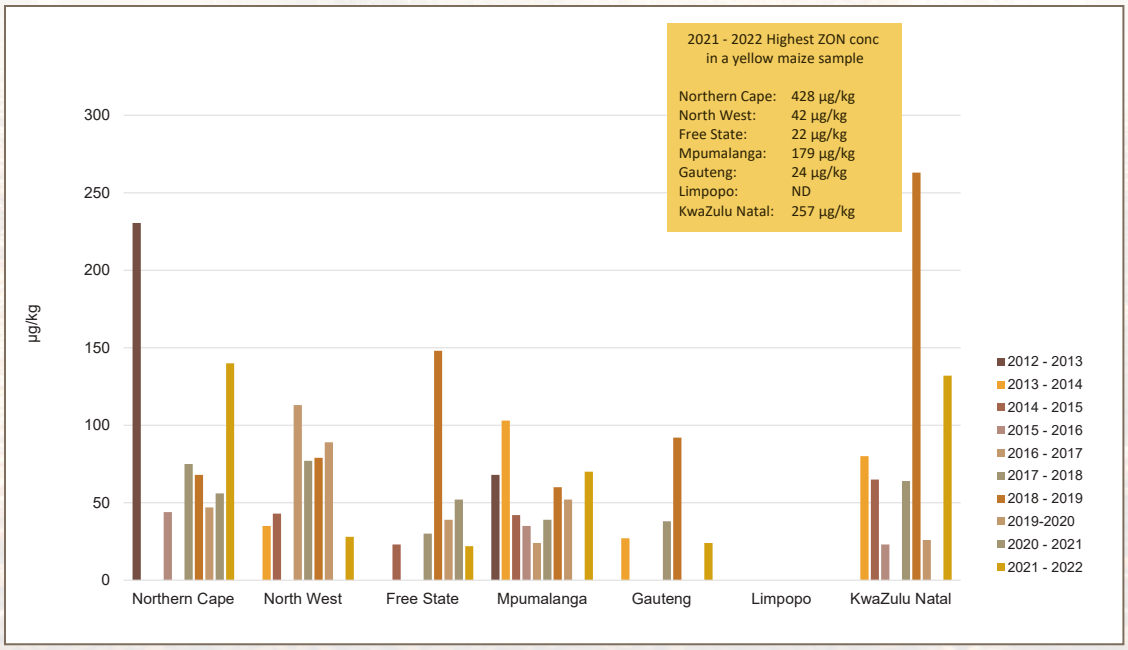


- ## Zearalenone
  - No zearalenone was found in white maize samples from the Northern Cape and Limpopo and also none in yellow maize sampled in Limpopo. The ZON occurrences in the seven provinces are illustrated in Graphs 59 and 60.
  - The highest concentration ZON measured in individual samples were in yellow maize samples from the Northern Cape (428 µg/kg) and KwaZulu Natal (257 µg/kg).

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



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 B_1 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 Deoxinyvalenol.
- 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 Deoxinyvalenol.
- Raw maize grain, intended for further processing, may not contain more than 4 000 µg/kg of Fumonisins (B_1 + B_2), the whole commodity.
- Maize flour and maize meal, ready for human consumption, may not contain more than 2 000 µg/kg of Fumonisins (B_1 + B_2), the whole commodity.

Further processing means any other treatment or processing method that has been proven to reduce levels of fungus produced toxins in foodstuffs intended for human consumption.

According to the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) as well as amendments published in Government Notices No. R. 70 of 12 February 2010 and R. 789 of 10 September 2010, the maximum allowable levels of mycotoxins in animal feeds, are as follows:

Substance, Products	Farm Feeds	MAXIMUM CONTENT IN mg/kg (ppm) relative to a farm feed with a moisture content of 120 g/kg	MAXIMUM CONTENT IN µg/kg (ppb) relative to a farm feed with a moisture content of 120 g/kg
Aflatoxin B_1	Feed ingredients with the exception of:	0.05	50
	groundnut, copra, palm-kernel cotton seed, maize and products derived from the processing thereof	0.02	20
	Complete farm feeds for cattle, sheep and goats with the exeption of:	0.05	50
	dairy cattle	0.005	5
	calves and lambs	0.01	10
	complete feeds for pigs and poultry (except young animals)	0.02	20
	other complete farm feeds (including pets)	0.01	10
	maize products intended for feedlots	0.3	300
	supplement/cncentrates for cattle, sheep and goats (except for dairy animals, calves and lambs)	0.05	50
Deoxynivalenol (DON)	Feeding stuffs on a full ration basis for:		
	Pigs	1	1 000
	cattle	5	5 000
	calves up tp 4 months	2	2 000
	dairy cattle	3	3 000
	poultry	4	4 000
	pets	1	1 000
Fumonisin B_1	Horses and pets	5	5 000
	Pigs	10	10 000
	Beef and poultry	50	50 000
	Fish	10	10 000
Ochratoxin A	Feeding stuffs on full ration basis for:		
	Pigs	0.05	50
	poultry	0.2	200
Zearalenone	Feeding stuffs on full ration basis for:		
	sows and pigs	5	5 000
	piglets	3	3 000
	calves and dairy cattle	0.5	500

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
8	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 001	220	ND	ND	ND	ND
8	Y	ND	ND	ND	ND	ND	62	23	ND	85	1 059	111	ND	ND	ND	ND
8	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	430	ND	ND	ND	ND	ND
10	Y	ND	ND	ND	ND	ND	1 683	472	131	2 286	1 521	207	ND	ND	ND	ND
10	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	828	181	ND	ND	ND	ND
10	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 839	515	ND	148	ND	ND
10	Y	ND	ND	ND	ND	ND	111	21	ND	132	1 628	296	ND	31	ND	ND
10	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 292	201	ND	ND	ND	ND
10	Y	ND	ND	ND	ND	ND	481	132	35	648	6 421	835	ND	148	ND	ND
10	Y	ND	ND	ND	ND	ND	236	47	23	306	1 021	172	ND	53	ND	ND
11	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	810	131	ND	ND	ND	ND
11	Y	ND	ND	ND	ND	ND	346	112	21	479	139	ND	ND	ND	ND	ND
11	Y	ND	ND	ND	ND	ND	11 535	5 660	1 106	18 301	1 212	118	ND	ND	ND	ND
11	W	ND	ND	ND	ND	ND	147	46	ND	193	1 271	265	ND	ND	ND	ND
11	Y	ND	ND	ND	ND	ND	379	183	23	585	511	137	ND	ND	ND	ND
11	Y	ND	ND	ND	ND	ND	47	21	ND	68	772	119	ND	29	ND	ND
11	Y	ND	ND	ND	ND	ND	798	356	63	1 217	6 879	1 115	ND	428	ND	ND
12	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	668	116	ND	ND	ND	ND
12	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	219	ND	ND	ND	ND	ND
12	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	348	ND	ND	ND	ND	ND
12	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	114	107	ND	ND	ND	ND
12	Y	ND	ND	ND	ND	ND	273	101	ND	374	294	ND	ND	ND	ND	ND
12	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	810	124	ND	22	ND	ND
12	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	444	149	ND	ND	ND	ND
12	W	ND	ND	ND	ND	ND	757	520	56	1 333	2 013	237	ND	ND	ND	ND
13	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	788	177	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	341	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	44	ND	ND	44	ND	ND	ND	ND	ND	ND
13	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	362	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	617	252	63	932	2 946	279	ND	42	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
13	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	121	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	634	227	77	938	3 524	276	ND	28	ND	ND
13	Y	ND	ND	ND	ND	ND	379	91	33	503	313	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	613	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 005	ND	ND	ND	ND	ND
13	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Y	ND	ND	ND	ND	ND	25	ND	ND	25	2 408	581	ND	35	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 894	164	ND	92	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 095	491	ND	42	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	280	ND	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	22	ND	ND	22	414	128	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 576	223	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	673	161	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	603	116	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	163	ND	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	380	ND	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 012	145	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 517	184	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	739	269	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 240	262	ND	34	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	537	109	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 245	176	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	451	ND	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 646	176	ND	ND	ND	ND
14	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 808	268	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 023	274	ND	ND	ND	ND
14	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	761	145	ND	ND	ND	ND
15	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 492	225	ND	26	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
15	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 135	ND	ND	ND	ND	ND
15	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 454	264	ND	34	ND	ND
15	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 639	228	ND	ND	ND	ND
16	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	378	ND	ND	ND	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	945	ND	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	152	ND	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	559	163	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	924	108	ND	21	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 085	196	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	468	140	ND	ND	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	699	107	ND	ND	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 730	212	ND	37	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 497	228	ND	22	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 678	344	ND	54	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	485	115	ND	ND	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	451	125	ND	ND	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 742	250	ND	41	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 605	330	ND	108	ND	ND
17	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	803	ND	ND	ND	ND	ND
17	Y	ND	ND	ND	ND	ND	191	70	ND	261	1 098	286	ND	ND	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	764	243	ND	ND	ND	ND
18	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	511	153	ND	21	ND	ND
18	W	ND	ND	ND	ND	ND	212	125	ND	337	1 123	114	ND	ND	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	249	ND	ND	ND	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 569	206	ND	26	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	769	116	ND	ND	ND	ND
18	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 122	194	ND	ND	ND	ND
18	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
18	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	659	132	ND	21	ND	ND
19	Y	ND	ND	ND	ND	ND	397	152	ND	549	457	159	ND	ND	ND	ND
19	Y	ND	ND	ND	ND	ND	40	ND	ND	40	2 955	787	ND	42	ND	ND
19	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	457	ND	ND	ND	ND	ND
19	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	339	ND	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	179	ND	ND	ND	ND	ND
19	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 053	128	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	177	61	ND	238	169	ND	ND	ND	ND	ND
19	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	257	ND	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	700	184	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 913	268	ND	132	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 683	254	ND	25	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	292	ND	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 157	162	ND	ND	ND	ND
19	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	807	146	ND	31	ND	ND
19	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	101	ND	ND	ND	ND	ND
20	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 135	114	ND	28	ND	ND
20	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	434	ND	ND	ND	ND	ND
20	Y	ND	ND	ND	ND	ND	20	ND	ND	20	478	121	ND	ND	ND	ND
20	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	211	ND	ND	ND	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	194	ND	ND	ND	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	164	ND	ND	ND	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	667	131	ND	ND	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	630	ND	ND	22	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	517	115	ND	ND	ND	ND
20	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 502	292	ND	ND	ND	ND
20	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	279	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	358	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	134	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 442	301	ND	21	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	383	ND	ND	ND	ND	ND
21	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	166	ND	ND	ND	ND	ND
21	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	209	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	ND	ND	ND	ND	ND
21	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	713	ND	ND	22	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	236	ND	ND	ND	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	700	ND	ND	ND	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	109	ND	ND	ND	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	199	ND	ND	ND	ND	ND
22	Y	ND	ND	ND	ND	ND	40	ND	ND	40	3 330	211	ND	22	ND	ND
22	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	119	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	114	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	562	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	438	113	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	987	202	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 501	215	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND
23	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	242	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	514	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 356	198	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	150	ND	ND	ND	ND	ND
23	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	477	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
23	W	ND	ND	ND	ND	ND	63	34	ND	97	915	110	ND	ND	ND	ND
24	Y	ND	ND	ND	ND	ND	31	ND	ND	31	590	170	ND	ND	ND	ND
24	W	ND	ND	ND	ND	ND	203	82	ND	285	2 545	137	ND	35	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	455	ND	ND	ND	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	485	ND	ND	ND	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 285	190	ND	20	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	254	ND	ND	ND	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	980	147	ND	ND	ND	ND
24	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	271	ND	ND	ND	ND	ND
24	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	445	ND	ND	ND	ND	ND
25	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	240	ND	ND	ND	ND	ND
25	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	133	ND	ND	ND	ND	ND
25	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	222	ND	ND	ND	ND	ND
25	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	153	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 044	247	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	316	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	262	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	241	ND	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	332	ND	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	172	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	144	ND	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	108	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	122	ND	ND	ND	ND	ND
26	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	137	ND	ND	ND	ND	ND
27	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	261	ND	ND	ND	ND	ND
27	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	165	ND	ND	ND	ND	ND
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	232	ND	ND	ND	ND	ND
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	109	ND	ND	ND	ND	ND
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	337	ND	ND	ND	ND	ND
27	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	541	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 032	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	167	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	390	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	26	ND	ND	26	ND	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	331	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	185	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	22	ND	ND	22	221	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	350	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	768	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	325	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	390	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	156	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	488	ND	ND	30	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	943	132	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	537	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	655	ND	ND	ND	ND	ND
28	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	379	ND	ND	ND	ND	ND
28	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	453	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	119	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	247	ND	ND	50	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	560	ND	ND	25	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	453	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	466	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	135	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	797	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	801	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	777	106	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	114	32	ND	146	332	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	98	52	ND	150	248	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	154	43	ND	197	ND	ND	ND	ND	ND	ND
29	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 089	ND	ND	ND	ND	ND
29	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	208	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	179	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	354	ND	ND	ND	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	413	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	380	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	162	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	990	117	ND	64	93	28
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 111	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 373	160	ND	179	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	600	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	115	ND	ND	ND	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	275	ND	ND	ND	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 794	100	ND	25	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 132	ND	ND	49	ND	ND
30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	414	ND	ND	ND	ND	ND
30	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	458	ND	ND	28	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	318	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	393	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	688	111	ND	ND	ND	ND
31	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	352	ND	ND	ND	ND	ND
31	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	125	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	73	35	ND	108	175	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	337	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	139	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	211	ND	ND	ND	ND	ND
31	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	315	ND	ND	ND	ND	ND
31	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	150	ND	ND	ND	ND	ND
31	W	ND	ND	ND	ND	ND	64	ND	ND	64	123	ND	ND	ND	ND	ND
31	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	209	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	203	ND	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	493	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	755	118	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	534	ND	ND	47	ND	ND
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	242	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	793	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	183	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	507	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	ND	ND	75	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	308	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	309	ND	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	114	35	ND	149	151	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	176	ND	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	43	ND	ND	43	494	ND	ND	ND	ND	ND
32	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	131	ND	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	178	ND	ND	ND	ND	ND
32	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	592	ND	ND	35	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	595	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	229	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	1 095	457	51	1 603	360	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 738	240	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	393	ND	ND	29	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	308	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	35	20	ND	55	128	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	425	134	44	603	245	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	329	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	114	22	ND	136	ND	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	832	141	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	462	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	W	ND	ND	ND	ND	ND	394	65	45	504	119	ND	ND	ND	ND	ND
33	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	221	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	372	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 044	168	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	44	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	619	114	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	539	243	30	812	969	137	ND	24	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	437	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	96	22	ND	118	313	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	668	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	305	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	673	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	417	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	132	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	371	ND	ND	ND	ND	ND
34	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	227	ND	ND	ND	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	471	ND	ND	22	ND	ND
34	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	331	126	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	W	ND	ND	ND	ND	ND	222	54	ND	276	ND	ND	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	W	ND	ND	ND	ND	ND	379	105	20	504	159	ND	ND	ND	ND	ND
35	W	ND	ND	ND	ND	ND	47	ND	ND	47	ND	ND	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	20	ND	ND	20	ND	ND	ND	ND	ND	ND
35	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	210	67	26	303	107	ND	ND	ND	ND	ND
35	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	Y	ND	ND	ND	ND	ND	361	169	20	550	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2021/22 (continue)

Region	Colour maize	Aflatoxin µg/kg					Fumonisin µg/kg				DON µg/kg	15-ADON µg/kg	Ochratoxin A µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B_1	B_2	G_1	G_2	Total	B_1	B_2	B_3	Total						
		LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg	LOQ: 5 µg/kg		LOQ: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg		LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg
35	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	56	30	ND	86	3 934	315	ND	42	ND	ND
36	Y	ND	ND	ND	ND	ND	551	256	59	866	2 069	132	ND	257	ND	ND
36	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	969	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 128	420	ND	98	ND	ND
36	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	392	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	685	347	81	1 113	215	ND	ND	143	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	153	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	ND	ND	41	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	292	ND	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	453	ND	ND	40	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	529	107	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 659	205	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	859	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	593	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	205	93	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	829	ND	ND	ND	ND	ND
36	Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	W	ND	ND	ND	ND	ND	87	51	ND	138	668	ND	ND	38	47	30
Total number of samples		**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**
Average of total number of samples		**0**	**0**	**0**	**0**	**0**	**74**	**32**	**6**	**111**	**621**	**65**	**0**	**10**	**0**	**0**
Number of positive results		**0**	**0**	**0**	**0**	**0**	**55**	**42**	**20**	**55**	**290**	**107**	**0**	**57**	**2**	**2**
Average of positive results		**-**	**-**	**-**	**-**	**-**	**472**	**263**	**100**	**709**	**749**	**211**	**-**	**58**	**-**	**-**
Maximum of positive results		**-**	**-**	**-**	**-**	**-**	**11 535**	**5 660**	**1 106**	**18 301**	**6 879**	**1 115**	**-**	**428**	**93**	**30**

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 2012/13 TO 2021/22

Season	Total Number of samples represented in crop survey	Number of samples tested for mycotoxins	Aflatoxin* µg/kg		Fumonisin** µg/kg		Deoxynivalenol µg/kg		15-acetyl-deoxynivalenol µg/kg		Ochratoxin A µg/kg		Zearalenone µg/kg		T-2 Toxin µg/kg	
			ave.	max.	ave.	max.	ave.	max.	ave.	max.	ave.	max.	ave.	max.	ave.	max.
2012/13	1 000	350	0	0	530	11 243	186	1 175	-	-	0	0	30	426	2	232
2013/14	930	350	0	0	451	5 357	243	6 134	142	861	0	0	38	445	0	0
2014/15	1 000	350	2	48	357	3 382	397	9 736	144	1 768	0	0	36	337	0	0
2015/16	920	350	0	0	444	11 347	175	1 585	34	310	0	0	16	127	0	0
2016/17	1 000	350	0	0	471	6 059	513	7 698	131	964	0	0	36	399	0	0
2017/18	900	350	0	0	991	8 356	656	3 510	127	394	0	0	51	361	0	0
2018/19	808	350	10	143	666	34 740	550	11 181	179	737	0	0	64	957	0	0
2019/20	890	350	1	10	361	5 928	898	7 700	195	1 173	0	0	43	539	0	0
2020/21	1 000	350	0	0	724	5 373	321	3 256	128	571	0	0	12	101	0	0
2021/22	1 000	350	0	0	434	18 301	715	6 879	160	1 115	0	0	39	428	0	30
Total	**9 448**	**3 500**														
Weighted ave.			**1**		**543**		**465**		**1**		**0**		**37**		**0**	
Max.			**143**		**34 740**		**11 181**		**1 768**		**0**		**957**		**232**	

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

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
15-ADON	100	50
Ochratoxin A	5	2.5
Zearalenone	20	10
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.

Description of deviations relating to RSA grading:

Defective maize kernels

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

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

Provided that –

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

Foreign matter

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

Other colour

"Other colour maize kernels" in relation to -

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

Combined deviation

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

Pinked kernels

The term "pinked maize kernels" means kernels and pieces of kernels of white maize of which the pericarp or part thereof is shaded red or pink in colour. The specification, according to the Grading Regulations for classes 1 to 3 of white maize is a maximum of 12%. No specification for 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.

Water Damaged Maize Kernels

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

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 2022, 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 2021/22 season maize samples were measured with the NIT on the SAGL Milling Index 2022 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: In-House method 031, based on AACCI method 32-10.01 using the Velp FIWE Advance fibre AutoExtractor.

The results obtained by the Infratec 1241 Grain Analyser (NIT) on the 2021/22 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 1 000 maize crop samples were tested for Aflatoxin B_1, B_2, G_1, G_2, Fumonisin B_1, B_2 and B_3, Deoxynivalenol, 15-ADON, HT-2 Toxin, T-2 Toxin, Zearalenone and Ochratoxin A by means of a multi-mycotoxin screening method (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.

60 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 ®

sanas
South African National Accreditation System

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 Laboratories NPC
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The Willows
Pretoria
0040

Technical Signatories:

Ms J Nortje (All Methods excl. In-house method 029)
Ms M Bothma (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)
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Nominated Representative:

Mrs H Meyer

Issue No.: 32
Date of Issue: 19 November 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^{0}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^{0}C)
Animal feed, Plant tissue and Sunflower (Milled)	Moisture (Oven Method)	AgriLASA 2.1, Latest Edition (5 hours, 105^{0}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)

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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 shriveled, obviously immature, frost-damaged, heat damaged, water damaged, mouldy or chalky;

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

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

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

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

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

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

Provided that:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Scope of regulations

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

(a) maize in retail quantities; and

(b) maize for seed production purposes.

Restrictions on sale of maize

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

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

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

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

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

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

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

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

PART I
QUALITY STANDARDS

Classes of maize

4. The classes of Maize shall be -

(a) Class White Maize;

(b) Class Yellow Maize; and

(c) Class Other Maize.

Standards for classes of maize

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

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

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

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

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

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

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

Grades of maize

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

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

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

Standards for grades of Class White Maize and Class Yellow Maize

7. All grades of maize -

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

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

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

(d) shall be free from insects;

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

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

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

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

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

PART II
PACKING AND MARKING REQUIREMENTS

Packing requirements

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

Marking requirements

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

(a) the class of the maize;

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

PART III
SAMPLING

Obtaining sample

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

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

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

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

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

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

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

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

Sampling if contents differ

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

(a) the bags concerned shall be placed separately;

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

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

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

Working sample

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

PART IV
DETERMINATION OF OTHER SUBSTANCES

Determination of undesirable odours and harmful substances

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

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

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

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

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

Determination of percentage of foreign matter

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

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

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

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

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

PART V
MAIZE KERNELS

Determination of percentage of defective maize kernels

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

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

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

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

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

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

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

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

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

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

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

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

Determination of percentage of other colour maize kernels

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

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

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

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

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

Determination of percentage of pinked maize kernels

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

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

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

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

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

PART VI
MOISTURE CONTENT

Determination of moisture content

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

OFFENCE AND PENALTIES

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

ANNEXURE/AANHANGSEL
TABLE/TABEL

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

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

* Not specified/Nie gespesifiseer nie.