

**TABLE 17: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE ACCORDING TO GRADE 2007/2008**

Number of samples	Region	Hectolitre mass			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			Milling index					
		kg/hl			kernel mass (g)			Above 10 mm sieve		Above 8 mm sieve		Below 8 mm sieve		< 6.3 mm sieve		< 4.75 mm sieve		ave.			ave.							
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.			
<b>GRADE: YM 1</b>																												
25	Region 10	76.8	74.4	78.3	34.6	29.1	37.0	5.0	2.4	7.5	70.3	56.3	77.6	24.7	18.5	41.3	1.4	0.4	2.5	1.0	0.3	1.7	4	0	12	91.5	76.6	103.7
14	Region 11	77.6	75.5	79.3	32.9	29.2	36.6	4.5	1.2	9.1	67.8	56.5	75.3	27.7	15.6	38.5	1.9	1.2	2.7	1.4	0.6	2.3	4	0	11	84.7	76.6	100.9
6	Region 12	77.6	76.5	79.0	35.3	30.0	42.9	14.5	5.9	21.8	69.6	66.3	74.5	15.9	6.9	24.1	1.5	0.4	2.6	1.1	0.4	1.7	6	1	23	100.8	90.5	109.0
4	Region 13	77.0	75.4	77.9	31.6	30.5	32.6	14.9	8.4	20.5	68.8	62.1	71.6	16.3	11.8	20.1	2.2	1.7	3.2	1.6	1.2	2.5	2	0	3	103.9	99.7	108.4
12	Region 14	77.5	73.9	78.9	31.8	26.2	36.9	19.5	2.2	46.7	66.0	48.6	71.7	14.5	4.7	32.6	1.7	0.4	4.8	1.2	0.3	3.3	3	1	8	102.1	91.7	113.4
6	Region 16	77.2	75.4	78.9	33.0	30.4	35.1	18.4	15.3	23.0	70.1	61.9	75.7	11.6	7.8	15.1	1.5	0.8	2.1	1.0	0.7	1.6	7	2	13	100.5	94.9	103.7
10	Region 17	76.9	75.0	77.9	33.0	29.9	37.1	18.0	8.0	33.9	67.7	56.0	73.6	14.3	7.6	20.2	1.4	0.4	2.8	0.9	0.4	1.6	4	2	9	100.3	89.2	107.2
7	Region 18	77.7	77.0	78.1	32.1	26.9	35.0	20.9	5.0	40.3	62.6	53.4	72.1	16.5	6.3	38.6	1.3	0.5	2.3	0.9	0.5	1.4	3	0	6	98.2	94.9	104.5
7	Region 19	76.8	75.4	77.9	31.5	28.3	35.5	16.8	10.9	22.2	68.7	63.5	72.6	14.5	10.2	24.0	1.3	0.5	2.6	0.9	0.4	1.7	4	3	6	102.4	93.1	109.6
8	Region 20	76.3	74.4	77.9	31.9	30.1	34.0	13.6	5.6	32.4	65.4	56.9	69.7	21.0	10.7	29.0	2.2	1.1	3.4	1.6	0.6	2.4	4	1	7	91.1	69.7	101.6
2	Region 21	76.9	76.3	77.5	29.6	28.6	30.5	10.8	7.3	14.3	65.4	63.9	66.9	23.8	18.8	28.8	1.4	0.7	2.1	0.7	0.5	1.0	3	1	4	92.9	89.9	95.8
2	Region 22	76.2	74.4	78.0	32.5	31.6	33.4	25.1	19.2	30.9	63.2	60.2	66.1	11.8	8.9	14.7	1.2	0.9	1.5	1.0	0.9	1.1	2	1	3	92.8	83.1	102.5
7	Region 23	76.6	75.7	78.1	32.0	29.2	33.7	13.7	10.8	18.4	70.8	67.7	76.0	15.5	11.5	20.0	1.5	0.7	2.1	1.3	0.4	1.9	4	1	14	97.2	92.2	99.6
7	Region 24	77.4	76.5	78.4	33.4	29.5	36.2	16.1	4.8	24.5	67.9	65.1	74.0	16.0	7.0	22.9	1.2	0.8	1.7	0.8	0.3	1.2	2	0	5	93.7	80.9	100.8
41	Region 25	75.2	69.3	78.5	30.9	26.0	33.8	9.7	0.3	29.5	65.8	39.6	75.9	24.5	7.7	60.1	3.2	1.0	11.1	2.2	0.5	7.9	11	0	40	89.4	68.7	104.2
23	Region 26	77.2	73.2	79.4	31.6	29.2	34.2	15.6	5.1	24.9	66.9	61.5	75.6	17.5	8.3	30.2	1.4	0.3	2.4	1.1	0.2	1.8	4	0	7	99.5	91.7	110.3
2	Region 27	77.3	77.1	77.4	32.3	31.8	32.7	13.5	5.6	21.4	68.0	64.6	71.4	18.5	14.0	23.0	4.2	0.4	8.0	2.4	0.2	4.5	24	13	34	93.3	86.9	99.6
9	Region 28	76.8	74.8	78.4	31.5	28.1	34.9	16.1	3.7	27.5	66.3	61.2	72.2	17.6	9.2	35.1	1.7	0.3	2.7	1.1	0.3	1.8	4	1	12	95.0	78.4	103.7
47	Region 29	77.5	73.9	79.8	31.8	26.8	37.6	16.8	4.3	43.5	65.3	53.2	75.8	17.8	3.3	32.6	1.4	0.3	3.6	1.0	0.1	2.5	5	0	32	96.9	78.0	110.4
63	Region 30	77.2	74.0	79.9	32.0	25.7	37.6	15.9	2.4	30.8	64.6	44.8	73.6	19.5	8.3	47.6	1.5	0.5	3.5	1.0	0.3	2.0	4	0	13	96.1	81.1	107.0
14	Region 31	76.7	75.7	77.9	32.6	28.6	37.3	19.8	7.5	40.4	64.4	54.8	72.2	15.7	4.8	28.3	2.0	1.1	4.2	1.2	0.7	2.1	6	2	19	99.9	83.2	110.8
17	Region 32	77.7	76.1	79.3	34.7	30.6	38.2	26.3	16.9	42.9	63.2	54.2	73.5	10.5	2.9	15.8	1.9	0.5	2.8	1.4	0.3	2.4	6	1	12	105.3	94.4	118.5
24	Region 33	75.7	73.1	77.5	32.3	26.0	36.9	17.1	6.4	27.5	65.3	56.0	75.0	17.7	8.6	29.0	2.4	0.6	4.4	1.7	0.4	3.5	5	2	15	93.5	78.0	106.8
11	Region 34	77.9	74.4	79.4	34.7	26.7	38.0	22.2	6.2	41.1	64.1	53.3	76.9	13.6	5.6	29.4	1.6	1.0	2.8	1.2	0.6	2.1	5	0	9	105.9	87.4	118.3
12	Region 35	76.1	74.1	79.2	33.3	32.2	34.8	12.7	5.3	28.6	70.1	58.7	78.6	17.2	8.8	23.9	1.2	0.5	1.9	0.9	0.5	1.6	4	0	10	83.3	63.6	108.5
9	Region 36	76.4	75.6	77.8	33.9	29.5	40.2	11.1	1.8	27.0	67.1	62.9	70.1	21.8	8.5	33.0	1.0	0.4	1.5	0.7	0.2	1.2	4	2	11	85.2	79.3	103.1
<b>389</b>	<b>Ave YM 1</b>	<b>76.8</b>			<b>32.4</b>			<b>15.1</b>			<b>66.2</b>			<b>18.7</b>			<b>1.8</b>			<b>1.2</b>			<b>5</b>			<b>95.5</b>		
	<b>Min YM 1</b>	<b>69.3</b>			<b>25.7</b>			<b>0.3</b>			<b>39.6</b>			<b>2.9</b>			<b>0.3</b>			<b>0.1</b>			<b>0</b>			<b>63.5</b>		
	<b>Max YM 1</b>	<b>79.9</b>			<b>42.9</b>			<b>46.7</b>			<b>78.6</b>			<b>60.1</b>			<b>11.1</b>			<b>7.9</b>			<b>40</b>			<b>118.5</b>		

**TABLE 17: PHYSICAL QUALITY FACTORS OF YELLOW MAIZE ACCORDING TO GRADE 2007/2008**  
(continue)

Number of samples	Region	Hectolitre mass kg/hl			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			Milling index							
		ave.	min.	max.	ave.	min.	max.	Above 10 mm sieve ave.	min.	max.	Above 8 mm sieve ave.	min.	max.	Below 8 mm sieve ave.	min.	max.	< 6.3 mm sieve ave.	min.	max.	< 4.75 mm sieve ave.	min.	max.	ave.	min.	max.	ave.	min.	max.		
<b>GRADE: YM 2</b>																														
1	Region 11	75.9	75.9	75.9	30.0	30.0	30.0	5.9	5.9	5.9	70.7	70.7	70.7	23.4	23.4	23.4	2.7	2.7	2.7	1.8	1.8	1.8	9	9	9	82.5	82.5	85.2		
1	Region 16	77.1	77.1	77.1	32.4	32.4	32.4	20.7	20.7	20.7	66.7	66.7	66.7	12.6	12.6	12.6	0.9	0.9	0.9	0.6	0.6	0.6	4	4	4	96.2	96.2	96.2		
1	Region 23	79.4	79.4	79.4	35.8	35.8	35.8	27.7	27.7	27.7	66.5	66.5	66.5	5.8	5.8	5.8	1.5	1.5	1.5	1.2	1.2	1.2	2	2	2	109.0	109.0	109.0		
6	Region 25	73.8	69.9	76.6	30.4	26.9	32.9	12.6	0.8	22.2	63.0	47.7	71.1	24.4	10.7	51.5	3.0	2.0	4.5	2.6	1.8	3.6	4	1	8	85.1	73.2	93.3		
1	Region 26	74.9	74.9	74.9	26.5	26.5	26.5	1.8	1.8	1.8	44.5	44.5	44.5	53.7	53.7	53.7	2.0	2.0	2.0	1.5	1.5	1.5	3	3	3	86.0	86.0	86.0		
1	Region 28	75.2	75.2	75.2	27.7	27.7	27.7	6.8	6.8	6.8	56.9	56.9	56.9	36.3	36.3	36.3	0.8	0.8	0.8	0.8	0.8	0.8	1	1	1	81.8	81.8	81.8		
3	Region 29	74.3	71.1	76.7	30.5	24.4	34.4	13.9	3.7	23.4	67.5	64.8	71.5	18.6	11.8	30.1	4.3	1.1	10.2	2.9	0.9	6.6	13	0	38	85.5	67.0	95.7		
1	Region 30	76.3	76.3	76.3	30.6	30.6	30.6	4.7	4.7	4.7	60.4	60.4	60.4	34.9	34.9	34.9	2.6	2.6	2.6	1.3	1.3	1.3	4	4	4	94.9	94.9	94.9		
1	Region 31	74.4	74.4	74.4	25.6	25.6	25.6	14.1	14.1	14.1	60.5	60.5	60.5	25.4	25.4	25.4	4.5	4.5	4.5	2.5	2.5	2.5	1	1	1	93.1	93.1	93.1		
2	Region 32	76.2	75.6	76.8	33.2	30.8	35.6	13.1	9.4	16.8	66.1	64.6	67.5	20.9	15.7	26.0	2.6	2.4	2.7	2.1	2.0	2.2	10	7	13	92.7	88.6	96.7		
5	Region 33	73.8	70.9	75.9	35.6	31.7	41.2	25.9	13.7	50.9	65.3	45.6	73.5	8.8	2.8	16.8	7.2	1.5	15.2	4.1	1.2	8.3	19	5	58	106.1	98.1	113.6		
3	Region 34	77.5	76.3	78.7	33.5	31.0	35.9	21.9	17.2	30.1	62.6	61.4	63.3	15.5	8.5	19.8	2.1	0.8	3.0	1.4	0.6	1.9	7	5	8	102.7	96.9	108.5		
1	Region 35	72.6	72.6	72.6	26.1	26.1	26.1	5.9	5.9	5.9	54.6	54.6	54.6	39.5	39.5	39.5	4.2	4.2	4.2	3.6	3.6	3.6	3	3	3	67.3	67.3	67.3		
27	Ave YM 2	75.0			31.6			15.8			63.2			21.0			3.6			2.5			8			92.7				
	Min YM 2	69.9			24.4			0.8			44.5			2.8			0.8			0.6			0			67.0				
	Max YM 2	79.4			41.2			50.9			73.5			53.7			15.2			8.3			58			113.6				
<b>GRADE: COM</b>																														
1	Region 34	78.4	78.4	78.4	39.1	39.1	39.1	32.1	32.1	32.1	60.0	60.0	60.0	7.9	7.9	7.9	0.6	0.6	0.6	0.5	0.5	0.5	2	2	2	109.4	109.4	109.4		
	Ave COM	78.4			39.1			32.1			60.0			7.9			0.6			0.5			2			109.4				
	Min COM	78.4			39.1			32.1			60.0			7.9			0.6			0.5			2			109.4				
	Max COM	78.4			39.1			32.1			60.0			7.9			0.6			0.5			2			109.4				
417	Ave yellow maize	76.7			32.4			15.2			66.0			18.8			1.9			1.3			5			95.3				
	Min yellow maize	69.3			24.4			0.3			39.6			2.8			0.3			0.1			0			63.6				
	Max yellow maize	79.9			42.9			50.9			78.6			60.1			15.2			8.3			58			118.5				
900	Ave maize	77.5			33.5			20.2			64.8			15.0			1.5			1.1			4			96.9				
	Min maize	65.3			17.0			0.3			23.3			1.0			0.1			0.0			0			63.5				
	Max maize	81.6			45.6			69.7			84.2			76.2			15.2			8.3			58			118.5				

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Number of samples	Region	Hectolitre mass			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			Milling index							
		kg/htl		kernel mass (g)	min.		max.	Above 10 mm sieve		Above 8 mm sieve		Below 8 mm sieve		< 6.3 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.	ave.	min.	max.		
<b>YELLOW</b>																														
25	Region 10	76.8	74.4	78.3	34.6	29.1	37.0	5.0	2.4	7.5	70.3	56.3	77.6	24.7	18.5	41.3	1.4	0.4	2.5	1.0	0.3	1.7	4	0	12	91.5	76.6	103.7		
15	Region 11	77.5	75.5	79.3	32.7	29.2	36.6	4.6	1.2	9.1	68.0	56.5	75.3	27.4	15.6	38.5	1.9	1.2	2.7	1.4	0.6	2.3	5	0	11	84.5	76.6	100.9		
6	Region 12	77.6	76.5	79.0	35.3	30.0	42.9	14.5	5.9	21.8	69.6	66.3	74.5	15.9	6.9	24.1	1.5	0.4	2.6	1.1	0.4	1.7	6	1	23	100.8	90.5	109.0		
4	Region 13	77.0	75.4	77.9	31.6	30.5	32.6	14.9	8.4	20.5	68.8	62.1	71.6	16.3	11.8	20.1	2.2	1.7	3.2	1.6	1.2	2.5	2	0	3	103.9	99.7	108.4		
12	Region 14	77.5	73.9	78.9	31.8	26.2	36.9	19.5	2.2	46.7	66.0	48.6	71.7	14.5	4.7	32.6	1.7	0.4	4.8	1.2	0.3	3.3	3	1	8	102.1	91.7	113.4		
7	Region 16	77.2	75.4	78.9	32.9	30.4	35.1	18.7	15.3	23.0	69.6	61.9	75.7	11.7	7.8	15.1	1.4	0.8	2.1	1.0	0.6	1.6	6	2	13	99.9	94.9	103.7		
10	Region 17	76.9	75.0	77.9	33.0	29.9	37.1	18.0	8.0	33.9	67.7	56.0	73.6	14.3	7.6	20.2	1.4	0.4	2.8	0.9	0.4	1.6	4	2	9	100.3	89.2	107.2		
7	Region 18	77.7	77.0	78.1	32.1	26.9	35.0	20.9	5.0	40.3	62.6	53.4	72.1	16.5	6.3	38.6	1.3	0.5	2.3	0.9	0.5	1.4	3	0	6	98.2	94.9	104.5		
7	Region 19	76.8	75.4	77.9	31.5	28.3	35.5	16.8	10.9	22.2	68.7	63.5	72.6	14.5	10.2	24.0	1.3	0.5	2.6	0.9	0.4	1.7	4	3	6	102.4	93.1	109.6		
8	Region 20	76.3	74.4	77.9	31.9	30.1	34.0	13.6	5.6	32.4	65.4	56.9	69.7	21.0	10.7	29.0	2.2	1.1	3.4	1.6	0.6	2.4	4	1	7	91.1	69.7	101.6		
2	Region 21	76.9	76.3	77.5	29.6	28.6	30.5	10.8	7.3	14.3	65.4	63.9	66.9	23.8	18.8	28.8	1.4	0.7	2.1	0.7	0.5	1.0	3	1	4	92.9	89.9	95.8		
2	Region 22	76.2	74.4	78.0	32.5	31.6	33.4	25.1	19.2	30.9	63.2	60.2	66.1	11.8	8.9	14.7	1.2	0.9	1.5	1.0	0.9	1.1	2	1	3	92.8	83.1	102.5		
8	Region 23	76.9	75.7	79.4	32.4	29.2	35.8	15.4	10.8	27.7	70.2	66.5	76.0	14.3	5.8	20.0	1.5	0.7	2.1	1.3	0.4	1.9	4	1	14	98.7	92.2	109.0		
7	Region 24	77.4	76.5	78.4	33.4	29.5	36.2	16.1	4.8	24.5	67.9	65.1	74.0	16.0	7.0	22.9	1.2	0.8	1.7	0.8	0.3	1.2	2	0	5	93.7	80.9	100.8		
47	Region 25	75.0	69.3	78.5	30.8	26.0	33.8	10.1	0.3	29.5	65.4	39.6	75.9	24.5	7.7	60.1	3.2	1.0	11.1	2.3	0.5	7.9	10	0	40	88.8	68.7	104.2		
24	Region 26	77.1	73.2	79.4	31.4	26.5	34.2	15.0	1.8	24.9	66.0	44.5	75.6	19.0	8.3	53.7	1.4	0.3	2.4	1.1	0.2	1.8	4	0	7	98.9	86.0	110.3		
2	Region 27	77.3	77.1	77.4	32.3	31.8	32.7	13.5	5.6	21.4	68.0	64.6	71.4	18.5	14.0	23.0	4.2	0.4	8.0	2.4	0.2	4.5	24	13	34	93.3	86.9	99.6		
10	Region 28	76.7	74.8	78.4	31.1	27.7	34.9	15.2	3.7	27.5	65.4	56.9	72.2	19.5	9.2	36.3	1.6	0.3	2.7	1.1	0.3	1.8	4	1	12	93.7	78.4	103.7		
50	Region 29	77.3	71.1	79.8	31.7	24.4	37.6	16.6	3.7	43.5	65.5	53.2	75.8	17.9	3.3	32.6	1.5	0.3	10.2	1.1	0.1	6.6	5	0	38	96.2	67.0	110.4		
64	Region 30	77.1	74.0	79.9	32.0	25.7	37.6	15.7	2.4	30.8	64.5	44.8	73.6	19.7	8.3	47.6	1.6	0.5	3.5	1.1	0.3	2.0	4	0	13	96.1	81.1	107.0		
15	Region 31	76.6	74.4	77.9	32.1	25.6	37.3	19.4	7.5	40.4	64.2	54.8	72.2	16.4	4.8	28.3	2.1	1.1	4.5	1.3	0.7	2.5	6	1	19	99.4	83.2	110.8		
19	Region 32	77.6	75.6	79.3	34.6	30.6	38.2	24.9	9.4	42.9	63.5	54.2	73.5	11.6	2.9	26.0	1.9	0.5	2.8	1.4	0.3	2.4	6	1	13	104.0	88.6	118.5		
29	Region 33	75.4	70.9	77.5	32.9	26.0	41.2	18.6	6.4	50.9	65.3	45.6	75.0	16.1	2.8	29.0	3.2	0.6	15.2	2.1	0.4	8.3	7	2	58	95.7	78.0	113.6		
15	Region 34	77.8	74.4	79.4	34.8	26.7	39.1	22.8	6.2	41.1	63.5	53.3	76.9	13.6	5.6	29.4	1.6	0.6	3.0	1.2	0.5	2.1	5	0	9	105.5	87.4	118.3		
13	Region 35	75.8	72.6	79.2	32.7	26.1	34.8	12.1	5.3	28.6	68.9	54.6	78.6	18.9	8.8	39.5	1.5	0.5	4.2	1.1	0.5	3.6	4	0	10	82.0	63.6	108.5		
9	Region 36	76.4	75.6	77.8	33.9	29.5	40.2	11.1	1.8	27.0	67.1	62.9	70.1	21.8	8.5	33.0	1.0	0.4	1.5	0.7	0.2	1.2	4	2	11	85.2	79.3	103.1		
417	Ave yellow	76.7	69.3	79.9	32.4	24.4	42.9	15.2	0.3	50.9	66.0	39.6	78.6	18.8	2.8	60.1	1.9	0.3	15.2	1.3	0.1	8.3	5	0	58	95.3	63.6	118.5		
	Min yellow																													
	Max yellow																													

**TABLE 18: PHYSICAL QUALITY FACTORS OF MAIZE IN TOTAL FOR 2007/2008**

Number of samples	Region	Hectolitre mass			100 kernel mass (g)			Kernel size (%)						Breakage susceptibility (%)						Stress cracks (%)			Milling index						
		kg/hl		max.	kernel mass (g)		max.	Above 10 mm sieve		Above 8 mm sieve		Below 8 mm sieve		< 6.3 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.	ave.	min.	max.	
<b>WHITE AND YELLOW</b>																													
25	Region 10	76.8	74.4	78.3	34.6	29.1	37.0	5.0	2.4	7.5	70.3	56.3	77.6	24.7	18.5	41.3	1.4	0.4	2.5	1.0	0.3	1.7	4	0	12	91.5	76.6	103.7	
15	Region 11	77.5	75.5	79.3	32.7	29.2	36.6	4.6	1.2	9.1	68.0	56.5	75.3	27.4	15.6	38.5	1.9	1.2	2.7	1.4	0.6	2.3	5	0	11	84.5	76.6	100.9	
11	Region 12	77.3	70.8	79.0	35.3	30.0	42.9	17.5	5.9	30.5	69.0	61.8	76.7	13.5	6.9	24.1	1.7	0.4	2.8	1.2	0.4	1.8	6	1	23	102.3	90.5	109.0	
12	Region 13	76.7	72.6	79.6	32.4	30.2	37.9	21.8	8.4	36.5	64.9	54.0	71.6	13.3	6.9	20.1	2.4	0.5	9.7	1.5	0.2	7.3	3	0	8	102.0	85.3	111.1	
30	Region 14	78.2	65.3	81.6	32.9	17.0	38.3	23.8	1.0	46.7	63.8	34.8	71.7	12.4	2.1	64.2	1.3	0.2	4.8	0.9	0.1	3.3	3	0	8	101.3	63.5	113.4	
2	Region 15	80.0	79.8	80.1	32.9	32.8	32.9	27.0	25.4	28.6	62.7	60.3	65.1	10.3	9.5	11.1	0.8	0.8	0.8	0.6	0.6	0.6	1	0	2	101.0	99.0	102.9	
26	Region 16	78.0	74.8	79.9	34.0	25.4	39.3	25.1	14.9	40.0	65.1	55.2	76.2	9.9	4.7	15.1	1.1	0.1	2.1	0.8	0.1	1.8	4	0	13	99.2	87.5	108.0	
27	Region 17	77.8	75.0	79.4	33.9	29.9	38.3	23.0	8.0	35.4	65.1	55.0	73.6	11.9	5.2	20.2	1.2	0.3	2.8	0.9	0.3	2.0	3	0	9	100.4	89.2	111.9	
26	Region 18	78.3	77.0	79.3	34.6	26.9	38.6	22.4	5.0	40.3	63.8	53.4	72.1	13.7	6.3	38.6	1.1	0.5	2.3	0.8	0.4	1.4	3	0	8	97.0	91.1	106.5	
17	Region 19	77.2	70.9	79.6	33.2	28.3	39.9	21.5	10.9	37.7	66.3	58.1	73.6	12.2	3.9	24.0	1.6	0.5	4.1	1.2	0.4	2.9	4	1	9	101.9	93.1	111.1	
21	Region 20	77.3	74.4	79.8	34.0	30.1	37.7	21.3	5.6	43.1	64.5	53.0	72.9	14.1	3.9	29.0	1.7	0.3	3.4	1.2	0.3	2.8	3	0	13	94.1	69.7	105.5	
21	Region 21	78.3	75.7	79.8	33.2	24.7	36.9	22.3	5.6	32.2	64.3	59.2	73.7	13.4	7.5	28.8	1.1	0.5	2.1	0.8	0.3	1.7	3	0	10	96.4	82.5	109.5	
18	Region 22	78.1	74.4	79.6	33.7	28.6	36.7	26.5	11.9	37.3	62.9	55.5	70.2	10.7	6.9	19.4	1.3	0.6	3.0	1.0	0.4	2.6	2	0	6	93.0	82.9	102.5	
55	Region 23	78.7	75.7	81.2	34.0	29.2	36.6	24.9	7.8	40.3	64.2	52.7	76.0	10.9	3.9	23.3	1.0	0.1	3.1	0.8	0.1	2.3	3	0	16	97.6	80.2	109.3	
52	Region 24	78.8	76.5	80.6	34.1	28.2	38.1	26.0	4.8	48.3	64.0	48.1	74.0	10.0	3.6	22.9	1.2	0.5	5.7	0.9	0.3	4.4	4	0	29	96.0	80.9	111.3	
64	Region 25	75.8	69.3	80.2	31.2	26.0	37.3	12.6	0.3	40.6	64.6	39.6	75.9	22.7	6.9	60.1	2.9	0.4	11.1	2.0	0.4	7.9	10	0	44	89.8	68.7	114.6	
38	Region 26	77.3	70.2	80.1	31.8	24.7	35.2	15.5	0.5	26.6	65.5	23.3	84.2	19.0	6.1	76.2	1.4	0.3	3.0	1.0	0.2	2.2	3	0	13	99.1	86.0	110.3	
3	Region 27	76.5	75.0	77.4	33.9	31.8	37.3	14.1	5.6	21.4	70.2	64.6	74.6	15.7	10.2	23.0	5.0	0.4	8.0	2.8	0.2	4.5	30	13	43	95.5	86.9	100.1	
21	Region 28	77.0	74.5	79.0	32.4	27.7	37.1	19.3	3.7	31.9	65.4	56.9	76.5	15.3	7.2	36.3	1.4	0.3	2.7	1.0	0.0	2.2	3	0	12	95.3	78.4	103.7	
89	Region 29	77.7	71.1	80.8	33.3	24.4	44.7	21.5	3.7	69.7	64.3	28.9	75.8	14.2	1.4	32.6	1.4	0.1	10.2	1.0	0.0	6.6	4	0	38	97.9	67.0	115.4	
112	Region 30	77.4	74.0	80.6	32.8	25.7	39.2	16.8	2.4	35.2	65.9	44.8	79.3	17.3	5.7	47.6	1.4	0.3	3.5	0.9	0.2	2.0	3	0	13	96.0	81.1	111.7	
20	Region 31	76.5	71.7	78.8	32.6	25.6	38.6	18.8	4.7	40.4	64.4	54.8	72.2	16.9	4.8	35.0	2.2	0.6	4.5	1.4	0.5	2.5	5	1	19	97.4	80.3	110.8	
43	Region 32	77.8	74.8	80.7	35.8	30.6	41.2	26.6	9.4	47.9	63.4	49.0	74.3	10.0	2.9	26.0	1.7	0.2	3.7	1.4	0.2	3.0	5	0	13	103.5	88.6	118.5	
58	Region 33	76.1	70.9	78.9	34.1	26.0	41.2	21.4	5.1	50.9	64.7	45.6	75.0	14.0	2.8	33.2	2.4	0.6	15.2	1.6	0.3	8.3	6	0	58	97.3	78.0	113.6	
43	Region 34	78.0	74.4	80.3	36.1	26.7	45.6	26.4	6.2	57.1	63.2	41.3	76.9	10.4	1.6	29.4	1.5	0.2	3.4	1.1	0.1	2.5	5	0	13	100.7	83.2	118.3	
27	Region 35	77.8	72.6	81.6	33.7	26.1	43.7	15.3	0.4	55.6	63.8	43.4	78.6	20.9	1.0	46.2	1.2	0.2	4.2	0.9	0.0	3.6	3	0	10	93.3	63.6	117.4	
24	Region 36	77.3	75.4	79.9	34.6	28.8	40.2	19.2	0.5	44.2	64.0	48.1	71.0	16.8	1.5	51.4	0.9	0.3	1.7	0.6	0.2	1.5	6	0	20	95.0	79.3	106.1	
<b>900</b>	<b>Ave w &amp; y</b>	<b>77.5</b>	<b>65.3</b>	<b>81.6</b>	<b>33.5</b>	<b>17.0</b>	<b>45.6</b>	<b>20.2</b>	<b>0.3</b>	<b>69.7</b>	<b>64.8</b>	<b>23.3</b>	<b>84.2</b>	<b>15.0</b>	<b>1.0</b>	<b>76.2</b>	<b>1.5</b>	<b>0.1</b>	<b>15.2</b>	<b>1.1</b>	<b>0.0</b>	<b>8.3</b>	<b>4</b>	<b>0</b>	<b>58</b>	<b>96.9</b>	<b>63.5</b>	<b>118.5</b>	
	<b>Min white &amp; yellow</b>																												
	<b>Max white &amp; yellow</b>																												

**TABLE 19: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2007/2008)**

Number of samples	Region	Roff Milling												Whiteness index											
		Break 1, %		Break 2, %		Break 3, %		Grits, %		Bran/Germ, %		Extraction, % (Total meal)		Whiteness index unsifted			Whiteness index sifted 87:13								
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.						
<b>GRADE: WM 1</b>																									
5	Region 12	13.1	11.6	14.1	10.2	9.8	10.6	28.0	27.5	29.6	27.7	26.9	28.5	21.1	20.5	21.7	78.9	78.3	79.5	28.2	21.7	32.3	20.9	18.8	24.4
6	Region 13	12.2	11.9	12.6	10.0	9.8	10.3	29.2	27.6	31.0	28.5	27.2	30.5	20.1	16.0	22.1	79.9	77.9	84.0	28.5	26.4	30.3	19.4	17.7	20.9
17	Region 14	13.1	11.3	15.1	10.3	9.8	10.7	30.8	28.4	33.1	26.3	23.3	30.6	19.5	14.8	22.1	80.5	77.9	85.2	26.8	20.3	30.2	18.0	12.3	20.7
2	Region 15	12.3	11.8	12.7	9.6	9.5	9.8	25.6	24.7	26.4	32.5	32.4	32.7	20.0	19.9	20.1	80.0	79.9	80.1	31.5	30.7	32.3	24.7	24.3	25.1
19	Region 16	13.3	12.0	15.1	9.9	9.1	11.1	29.3	25.7	31.2	26.7	23.7	33.8	20.7	18.6	23.0	79.3	77.0	81.4	26.9	23.0	34.6	18.5	15.1	26.3
16	Region 17	12.2	10.2	14.0	9.6	8.0	11.5	27.7	24.8	31.3	30.5	26.9	34.1	19.9	15.0	23.0	80.1	77.0	85.0	28.3	24.7	32.0	20.0	16.1	26.3
19	Region 18	12.7	11.8	14.1	9.6	8.9	10.8	26.8	25.1	30.5	30.5	26.6	33.2	20.4	19.4	22.1	79.6	77.9	80.6	27.9	25.9	31.2	19.8	15.9	26.7
9	Region 19	13.5	12.2	16.1	10.5	9.5	12.2	28.8	28.0	30.0	27.3	25.4	30.4	19.9	15.6	22.6	80.1	77.4	84.4	29.3	25.4	32.6	20.7	18.3	23.9
11	Region 20	14.0	11.9	16.5	10.3	9.8	11.4	29.4	27.2	31.5	26.0	22.9	29.5	20.3	15.4	22.8	79.7	77.2	84.6	25.9	22.3	30.3	17.0	12.2	21.2
18	Region 21	12.2	9.3	13.8	9.5	8.7	10.7	27.6	25.2	37.3	30.4	21.1	34.9	20.3	18.8	22.0	79.7	78.0	81.2	29.7	21.8	37.7	22.1	17.7	31.2
15	Region 22	12.9	12.0	14.6	9.7	9.2	10.1	27.6	25.4	29.9	29.4	26.2	31.6	20.4	18.6	22.4	79.6	77.6	81.4	30.9	24.6	37.6	21.6	18.1	26.1
46	Region 23	12.1	10.2	15.3	9.6	8.9	10.7	28.0	24.8	31.7	30.4	24.9	33.5	19.8	15.6	22.5	80.2	77.5	84.4	29.6	22.6	35.7	20.6	13.4	29.3
45	Region 24	12.2	10.2	14.9	9.5	7.9	10.7	28.1	21.6	31.2	30.2	26.7	34.1	20.0	18.3	22.2	80.0	77.8	81.7	28.2	21.6	41.7	20.7	15.1	37.4
16	Region 25	14.7	11.7	17.7	10.6	9.1	11.9	28.7	25.6	31.6	25.7	21.2	30.7	20.3	15.9	23.2	79.7	76.8	84.1	28.2	22.5	34.2	18.2	12.9	24.5
12	Region 26	12.3	10.8	14.4	9.5	8.5	10.1	27.4	25.1	29.0	29.9	26.7	33.9	20.9	18.3	23.1	79.1	76.9	81.7	27.7	22.4	31.5	20.3	12.6	25.4
1	Region 27	11.8	11.8	11.8	9.9	9.9	9.9	25.7	25.7	25.7	33.0	33.0	33.0	19.6	19.6	19.6	80.4	80.4	80.4	27.2	27.2	27.2	19.1	19.1	19.1
9	Region 28	13.6	12.4	15.8	10.4	9.5	12.1	27.4	26.4	28.8	28.1	26.0	30.9	20.4	16.8	24.8	79.6	75.2	83.2	30.8	25.6	34.9	21.9	15.6	25.7
33	Region 29	13.4	11.4	15.8	10.4	9.1	11.7	29.8	25.7	31.9	25.9	23.4	29.8	20.5	15.0	28.2	79.5	71.8	85.0	26.7	22.2	32.0	17.0	13.4	22.2
41	Region 30	13.9	11.2	16.6	10.6	9.8	13.3	30.2	28.0	33.0	24.7	21.8	32.5	20.6	14.5	22.9	79.4	77.1	85.5	25.5	22.3	33.0	18.2	11.0	26.3
5	Region 31	14.7	13.7	16.3	10.8	10.7	11.0	29.0	26.3	30.9	23.8	21.8	25.2	21.7	19.3	24.6	78.3	75.4	80.7	24.8	22.1	27.3	14.5	12.7	18.3
19	Region 32	13.1	11.0	15.1	10.5	9.6	14.5	27.7	25.4	29.9	28.0	25.2	30.5	20.7	15.3	23.7	79.3	76.3	84.7	27.6	23.8	31.2	19.5	16.1	25.6
26	Region 33	13.6	12.1	16.0	10.7	9.8	11.9	29.0	26.4	31.8	26.4	23.5	30.4	20.4	15.4	24.5	79.6	75.5	84.6	27.7	21.8	31.9	17.2	11.6	21.4
25	Region 34	13.6	11.2	17.5	10.4	9.2	12.4	27.8	24.7	30.8	27.2	21.2	35.4	20.9	16.6	24.0	79.1	76.0	83.4	28.1	25.1	33.0	18.6	12.3	25.4
14	Region 35	11.7	8.6	13.4	9.5	8.4	10.1	27.1	25.0	30.1	30.4	26.1	35.1	21.3	16.5	24.8	78.7	75.2	83.5	32.0	25.0	36.5	21.8	16.8	27.0
15	Region 36	12.9	11.2	14.7	10.2	9.6	11.1	29.9	27.8	31.7	25.4	23.1	27.9	21.6	20.1	24.8	78.4	75.2	79.9	25.8	20.7	28.8	16.4	12.9	20.3
<b>444</b>	<b>Ave WM 1</b>	<b>13.0</b>			<b>10.1</b>	<b>7.9</b>	<b>14.5</b>	<b>28.6</b>	<b>21.6</b>	<b>37.3</b>	<b>28.0</b>	<b>21.1</b>	<b>35.4</b>	<b>20.4</b>	<b>14.5</b>	<b>28.2</b>	<b>79.6</b>	<b>71.8</b>	<b>85.5</b>	<b>28.0</b>	<b>20.3</b>	<b>41.7</b>	<b>19.3</b>	<b>11.0</b>	<b>37.4</b>
	<b>Min WM 1</b>	<b>8.6</b>																							
	<b>Max WM 1</b>	<b>17.7</b>																							

**TABLE 19: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE ACCORDING TO GRADE (2007/2008)**  
(continue)

Number of samples	Region	Roff Milling															Whiteness index									
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran/Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87-13			
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	
<b>GRADE: WM 2</b>																										
1	Region 13	18.0	18.0	18.0	12.1	12.1	12.1	27.4	27.4	27.4	24.2	24.2	24.2	18.3	18.3	18.3	81.7	81.7	81.7	36.1	36.1	36.1	25.4	25.4	25.4	
1	Region 17	12.5	12.5	12.5	10.0	10.0	10.0	26.6	26.6	26.6	29.3	29.3	29.3	21.5	21.5	21.5	78.5	78.5	78.5	29.3	29.3	29.3	18.0	18.0	18.0	
1	Region 19	12.5	12.5	12.5	10.3	10.3	10.3	29.3	29.3	29.3	31.3	31.3	31.3	16.6	16.6	16.6	83.4	83.4	83.4	31.2	31.2	31.2	21.8	21.8	21.8	
2	Region 20	14.5	14.5	14.6	10.1	9.9	10.2	27.1	26.6	27.6	26.0	25.4	26.5	22.3	22.3	22.3	77.7	77.7	77.7	29.7	29.0	30.4	21.0	19.8	22.2	
1	Region 21	12.9	12.9	12.9	9.7	9.7	9.7	27.1	27.1	27.1	30.5	30.5	30.5	19.9	19.9	19.9	80.1	80.1	80.1	21.1	21.1	21.1	8.6	8.6	8.6	
1	Region 22	13.8	13.8	13.8	10.0	10.0	10.0	26.2	26.2	26.2	27.8	27.8	27.8	22.2	22.2	22.2	77.8	77.8	77.8	31.0	31.0	31.0	19.2	19.2	19.2	
1	Region 23	12.9	12.9	12.9	9.5	9.5	9.5	27.2	27.2	27.2	30.1	30.1	30.1	20.2	20.2	20.2	79.8	79.8	79.8	30.0	30.0	30.0	24.6	24.6	24.6	
2	Region 26	13.7	12.9	14.6	10.7	10.4	11.1	27.7	27.3	28.1	30.9	30.3	31.4	17.0	16.8	17.2	83.0	82.8	83.2	27.9	25.8	30.0	19.5	18.3	20.6	
2	Region 28	13.9	13.3	14.5	10.1	9.9	10.3	26.6	26.5	26.8	28.7	28.6	28.9	20.6	19.8	21.4	79.4	78.6	80.2	27.7	27.4	27.9	19.7	19.7	19.7	
5	Region 29	12.3	8.6	14.3	10.5	9.1	11.5	29.9	28.9	30.9	26.7	23.9	32.2	20.6	19.7	21.1	79.4	78.9	80.3	25.4	19.6	30.1	14.1	8.5	16.9	
6	Region 30	14.2	12.6	15.2	10.4	9.6	10.9	29.7	28.3	30.9	24.4	23.0	26.4	21.3	19.5	23.9	78.7	76.1	80.5	24.9	23.1	26.9	15.2	12.4	17.3	
4	Region 32	12.7	11.5	13.7	10.8	10.3	11.3	27.8	27.3	28.2	27.8	27.2	29.0	21.0	19.9	21.6	79.0	78.4	80.1	26.5	23.2	31.1	16.5	13.0	18.2	
3	Region 33	15.2	13.9	16.3	11.6	11.1	12.1	29.5	28.5	31.4	26.8	22.1	30.5	16.9	15.2	19.7	83.1	80.3	84.8	30.2	29.1	31.0	18.7	17.0	20.5	
3	Region 34	11.4	10.9	12.1	10.7	10.2	11.4	29.5	28.5	30.0	29.2	27.5	31.7	19.3	16.4	21.2	80.7	78.8	83.6	25.4	21.9	30.8	15.6	9.9	23.6	
<b>33</b>	<b>Ave WM 2</b>	<b>13.4</b>			<b>10.5</b>			<b>28.6</b>	<b>26.2</b>	<b>31.4</b>	<b>27.4</b>			<b>20.1</b>			<b>79.9</b>	<b>76.1</b>	<b>84.8</b>	<b>27.2</b>			<b>17.2</b>			
	<b>Min WM 2</b>	<b>8.6</b>			<b>9.1</b>			<b>26.2</b>		<b>31.4</b>	<b>22.1</b>			<b>15.2</b>			<b>76.1</b>		<b>84.8</b>	<b>19.6</b>			<b>8.5</b>			
	<b>Max WM 2</b>	<b>18.0</b>			<b>12.1</b>			<b>31.4</b>		<b>32.2</b>	<b>32.2</b>			<b>23.9</b>			<b>84.8</b>			<b>36.1</b>			<b>25.4</b>			
<b>GRADE: WM 3</b>																										
1	Region 13	15.3	15.3	15.3	10.3	10.3	10.3	28.3	28.3	28.3	30.6	30.6	30.6	15.5	15.5	15.5	84.5	84.5	84.5	27.8	27.8	27.8	17.4	17.4	17.4	
1	Region 14	16.9	16.9	16.9	10.9	10.9	10.9	27.9	27.9	27.9	23.9	23.9	23.9	20.5	20.5	20.5	79.5	79.5	79.5	34.9	34.9	34.9	24.7	24.7	24.7	
1	Region 25	15.7	15.7	15.7	11.3	11.3	11.3	30.4	30.4	30.4	21.6	21.6	21.6	21.0	21.0	21.0	79.0	79.0	79.0	28.0	28.0	28.0	17.3	17.3	17.3	
1	Region 29	14.3	14.3	14.3	10.2	10.2	10.2	26.7	26.7	26.7	25.1	25.1	25.1	23.7	23.7	23.7	76.3	76.3	76.3	32.8	32.8	32.8	21.4	21.4	21.4	
1	Region 30	14.6	14.6	14.6	10.2	10.2	10.2	28.0	28.0	28.0	24.5	24.5	24.5	22.7	22.7	22.7	77.3	77.3	77.3	20.7	20.7	20.7	12.6	12.6	12.6	
1	Region 32	13.2	13.2	13.2	10.2	10.2	10.2	27.1	27.1	27.1	27.0	27.0	27.0	22.5	22.5	22.5	77.5	77.5	77.5	22.7	22.7	22.7	11.6	11.6	11.6	
<b>6</b>	<b>Ave WM 3</b>	<b>15.0</b>			<b>10.5</b>			<b>28.1</b>	<b>26.7</b>	<b>30.4</b>	<b>25.5</b>			<b>21.0</b>			<b>79.0</b>	<b>76.3</b>	<b>84.5</b>	<b>27.8</b>			<b>17.5</b>			
	<b>Min WM 3</b>	<b>13.2</b>			<b>10.2</b>			<b>26.7</b>		<b>30.4</b>	<b>21.6</b>			<b>15.5</b>			<b>76.3</b>		<b>84.5</b>	<b>20.7</b>			<b>11.6</b>			
	<b>Max WM 3</b>	<b>16.9</b>			<b>11.3</b>			<b>30.4</b>		<b>32.2</b>	<b>30.6</b>			<b>23.7</b>			<b>84.5</b>			<b>34.9</b>			<b>24.7</b>			
<b>483</b>	<b>Ave white maize</b>	<b>13.1</b>			<b>10.1</b>			<b>28.5</b>	<b>21.6</b>	<b>37.3</b>	<b>27.9</b>			<b>20.4</b>			<b>79.6</b>	<b>71.8</b>	<b>85.5</b>	<b>27.9</b>			<b>19.1</b>			
	<b>Min white maize</b>	<b>8.6</b>			<b>7.9</b>			<b>21.6</b>		<b>35.4</b>	<b>21.1</b>			<b>14.5</b>			<b>71.8</b>		<b>85.5</b>	<b>19.6</b>			<b>8.5</b>			
	<b>Max white maize</b>	<b>18.0</b>			<b>14.5</b>			<b>37.3</b>		<b>41.7</b>	<b>35.4</b>			<b>28.2</b>			<b>85.5</b>			<b>41.7</b>			<b>37.4</b>			

**TABLE 19: ROFF MILLING AND WHITENESS INDEX OF WHITE MAIZE (2007/2008)**

Number of samples	Region	Roff Milling												Whiteness index											
		Break 1, %			Break 2, %			Break 3, %			Grits, %			Bran/Germ, %			Extraction, % (Total meal)			Whiteness index unsifted			Whiteness index sifted 87:13		
		ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.	ave.	min.	max.
<b>GRADE: WHITE</b>																									
5	Region 12	13.1	11.6	14.1	10.2	9.8	10.6	28.0	27.5	29.6	27.7	26.9	28.5	21.1	20.5	21.7	78.9	78.3	79.5	28.2	21.7	32.3	20.9	18.8	24.4
8	Region 13	13.3	11.9	18.0	10.3	9.8	12.1	28.8	27.4	31.0	28.3	24.2	30.6	19.3	15.5	22.1	80.7	77.9	84.5	29.3	26.4	36.1	19.9	17.4	25.4
18	Region 14	13.3	11.3	16.9	10.3	9.8	10.9	30.6	27.9	33.1	26.2	23.3	30.6	19.6	14.8	22.1	80.4	77.9	85.2	27.2	20.3	34.9	18.4	12.3	24.7
2	Region 15	12.3	11.8	12.7	9.6	9.5	9.8	25.6	24.7	26.4	32.5	32.4	32.7	20.0	19.9	20.1	80.0	79.9	80.1	31.5	30.7	32.3	24.7	24.3	25.1
19	Region 16	13.3	12.0	15.1	9.9	9.1	11.1	29.3	25.7	31.2	26.7	23.7	33.8	20.7	18.6	23.0	79.3	77.7	81.4	26.9	23.0	34.6	18.5	15.1	26.3
17	Region 17	12.2	10.2	14.0	9.6	8.0	11.5	27.7	24.8	31.3	30.4	26.9	34.1	20.0	15.0	23.0	80.0	77.0	85.0	28.4	24.7	32.0	19.9	16.1	26.3
19	Region 18	12.7	11.8	14.1	9.6	8.9	10.8	26.8	25.1	30.5	30.5	26.6	33.2	20.4	19.4	22.1	79.6	77.9	80.6	27.9	25.9	31.2	19.8	15.9	26.7
10	Region 19	13.4	12.2	16.1	10.4	9.5	12.2	28.9	28.0	30.0	27.7	25.4	31.3	19.6	15.6	22.6	80.4	77.4	84.4	29.5	25.4	32.6	20.9	18.3	23.9
13	Region 20	14.1	11.9	16.5	10.3	9.8	11.4	29.0	26.6	31.5	26.0	22.9	29.5	20.6	15.4	22.8	79.4	77.2	84.6	26.4	22.3	30.4	17.6	12.2	22.2
19	Region 21	12.2	9.3	13.8	9.5	8.7	10.7	27.6	25.2	37.3	30.4	21.1	34.9	20.3	18.8	22.0	79.7	78.0	81.2	29.2	21.1	37.7	21.4	8.6	31.2
16	Region 22	13.0	12.0	14.6	9.7	9.2	10.1	27.5	25.4	29.9	29.3	26.2	31.6	20.5	18.6	22.4	79.5	77.6	81.4	30.9	24.6	37.6	21.5	18.1	26.1
47	Region 23	12.2	10.2	15.3	9.6	8.9	10.7	28.0	24.8	31.7	30.4	24.9	33.5	19.8	15.6	22.5	80.2	77.5	84.4	29.6	22.6	35.7	20.6	13.4	29.3
45	Region 24	12.2	10.2	14.9	9.5	7.9	10.7	28.1	21.6	31.2	30.2	26.7	34.1	20.0	18.3	22.2	80.0	77.8	81.7	28.2	21.6	41.7	20.7	15.1	37.4
17	Region 25	14.7	11.7	17.7	10.6	9.1	11.9	28.8	25.6	31.6	25.4	21.2	30.7	20.4	15.9	23.2	79.6	76.8	84.1	28.2	22.5	34.2	18.2	12.9	24.5
14	Region 26	12.5	10.8	14.6	9.7	8.5	11.1	27.4	25.1	29.0	30.0	26.7	33.9	20.3	16.8	23.1	79.7	76.9	83.2	27.7	22.4	31.5	20.2	12.6	25.4
1	Region 27	11.8	11.8	11.8	9.9	9.9	9.9	25.7	25.7	25.7	33.0	33.0	33.0	19.6	19.6	19.6	80.4	80.4	80.4	27.2	27.2	27.2	19.1	19.1	19.1
11	Region 28	13.7	12.4	15.8	10.4	9.5	12.1	27.3	26.4	28.8	28.2	26.0	30.9	20.5	16.8	24.8	79.5	75.2	83.2	30.2	25.6	34.9	21.5	15.6	25.7
39	Region 29	13.3	8.6	15.8	10.4	9.1	11.7	29.7	25.7	31.9	26.0	23.4	32.2	20.6	15.0	28.2	79.4	71.8	85.0	26.7	19.6	32.8	16.7	8.5	22.2
48	Region 30	13.9	11.2	16.6	10.6	9.6	13.3	30.1	28.0	33.0	24.7	21.8	32.5	20.7	14.5	23.9	79.3	76.1	85.5	25.4	20.7	33.0	17.7	11.0	26.3
5	Region 31	14.7	13.7	16.3	10.8	10.7	11.0	29.0	26.3	30.9	23.8	21.8	25.2	21.7	19.3	24.6	78.3	75.4	80.7	24.8	22.1	27.3	14.5	12.7	18.3
24	Region 32	13.0	11.0	15.1	10.5	9.6	14.5	27.7	25.4	29.9	27.9	25.2	30.5	20.8	15.3	23.7	79.2	76.3	84.7	27.2	22.7	31.2	18.7	11.6	25.6
29	Region 33	13.8	12.1	16.3	10.8	9.8	12.1	29.1	26.4	31.8	26.4	22.1	30.5	20.0	15.2	24.5	80.0	75.5	84.8	27.9	21.8	31.9	17.3	11.6	21.4
28	Region 34	13.4	10.9	17.5	10.5	9.2	12.4	28.0	24.7	30.8	27.4	21.2	35.4	20.7	16.4	24.0	79.3	76.0	83.6	27.8	21.9	33.0	18.3	9.9	25.4
14	Region 35	11.7	8.6	13.4	9.5	8.4	10.1	27.1	25.0	30.1	30.4	26.1	35.1	21.3	16.5	24.8	78.7	75.2	83.5	32.0	25.0	36.5	21.8	16.8	27.0
15	Region 36	12.9	11.2	14.7	10.2	9.6	11.1	29.9	27.8	31.7	25.4	23.1	27.9	21.6	20.1	24.8	78.4	75.2	79.9	25.8	20.7	28.8	16.4	12.9	20.3
483	Ave white	13.1			10.1			28.5			27.9			20.4			79.6			27.9			19.1		
	Min white	8.6			7.9			21.6			21.1			14.5			71.8			19.6			8.5		
	Max white	18.0			14.5			37.3			35.4			28.2			85.5			41.7			37.4		

## Genetic modification

Eleven percent (100 samples) of this crop samples (crop samples are made up of individual deliveries) were tested for the presence of MON810 (Bt maize event) and NK603 (RUR). The limit of detection for the MON810 methodology used is 0,15 %. The highest reference standard is 2,0 % and the accuracy of results can only be guaranteed up to 2,0 %. Ninety-five percent of the samples tested positive for

MON810 with values larger than 0,15 % (LOD).

The limit of detection for the NK603 methodology used is 0,25 %. The highest reference standard is 1,8 % and the accuracy of the results can only be guaranteed up to 1,8 %. Sixty-nine percent of the samples tested positive with values larger than 0,25 % (LOD).

**TABLE 20: PRESENCE OF GENETICALLY MODIFIED MAIZE (2007/2008)**

REGION	RSA Final Grade	% MON810, (LOD: 0.15%)	% NK603 (Roundup Ready) (LOD: 0.25%)	REGION	RSA Final Grade	% MON810, (LOD: 0.15%)	% NK603 (Roundup Ready) (LOD: 0.25%)
10	YM1	>2	>1.8	25	YM1	0.2	<0.25
11	YM1	>2	>1.8	25	YM1	>2	>1.8
11	YM1	>2	0.3	25	YM1	>2	>1.8
11	YM1	<0.15	<0.25	26	WM1	>2	<0.25
12	WM1	>2	>1.8	26	WM1	>2	>1.8
13	WM3	0.5	<0.25	26	WM1	>2	<0.25
14	WM1	>2	<0.25	26	YM1	>2	0.4
14	WM1	>2	>1.8	26	YM1	>2	<0.25
14	YM1	>2	<0.25	27	WM1	>2	<0.25
15	WM1	>2	>1.8	27	WM1	>2	>1.8
16	WM1	>2	<0.25	28	WM1	>2	<0.25
16	WM1	>2	>1.8	28	YM1	>2	>1.8
16	YM1	0.4	<0.25	29	WM1	>2	0.6
17	WM1	>2	0.4	29	WM1	<0.15	<0.25
17	WM1	>2	>1.8	29	WM1	>2	>1.8
17	WM1	>2	>1.8	29	WM2	0.8	>1.8
17	WM1	>2	>1.8	29	WM2	<0.15	>1.8
17	YM1	>2	>1.8	29	YM1	>2	>1.8
18	WM1	1.8	<0.25	29	YM1	>2	>1.8
18	WM1	>2	>1.8	29	YM1	0.3	>1.8
18	WM1	>2	>1.8	29	YM1	>2	>1.8
18	WM1	>2	>1.8	29	YM1	1.9	>1.8
18	YM1	>2	>1.8	30	WM1	>2	<0.25
19	YM1	>2	>1.8	30	WM1	0.2	>1.8
20	WM1	>2	>1.8	30	WM1	1.1	<0.25
20	WM2	>2	>1.8	30	WM1	<0.15	<0.25
21	WM1	>2	>1.8	30	WM1	>2	>1.8
21	WM1	>2	>1.8	30	WM2	0.5	1.3
21	WM1	>2	>1.8	30	YM1	>2	>1.8
21	WM1	>2	>1.8	30	YM1	>2	0.7
21	WM1	>2	<0.25	30	YM1	>2	>1.8
22	WM1	>2	>1.8	30	YM1	>2	<0.25
22	WM1	>2	>1.8	31	YM1	0.7	>1.8
22	WM2	>2	>1.8	32	WM1	>2	<0.25
22	YM1	>2	<0.25	33	WM1	>2	>1.8
23	WM1	>2	1.3	33	WM1	>2	>1.8
23	WM1	>2	<0.25	33	WM2	0.2	>1.8
23	WM1	>2	>1.8	33	YM1	0.8	0.3
23	WM1	>2	>1.8	33	YM1	>2	1.1
23	WM1	>2	1.3	33	YM1	>2	>1.8
23	YM2	>2	>1.8	34	WM1	>2	<0.25
24	WM1	>2	>1.8	34	WM1	>2	1.7
24	WM1	>2	>1.8	34	YM2	>2	>1.8
24	WM1	>2	>1.8	35	WM1	>2	<0.25
24	WM1	>2	>1.8	35	WM1	>2	<0.25
24	WM1	>2	1.1	35	YM1	>2	<0.25
25	WM1	>2	<0.25	35	YM1	>2	>1.8
25	WM1	>2	<0.25	36	WM1	<0.15	<0.25
25	WM1	>2	<0.25	36	WM1	>2	>1.8
25	WM3	>2	<0.25	36	YM1	>2	>1.8
<b>% Samples positive for MON810 (Bt)</b>				<b>% Samples positive for NK603 (RUR)</b>			
2007/2008		95,0%		2007/2008		69,0%	
2006/2007		97,0%		2006/2007		59,0%	
2005/2006		91,0%		2005/2006		31,0%	
2004/2005		78,0%		2004/2005		31,0%	



**TABLE 21: MYCOTOXIN RESULTS 2007/2008**

Region	Grade	Aflatoxin ppb (LOD: 2 ppb)	Fumonisin ppm (LOD: 0.1 ppm)	Deoxynivalenol ppm (LOD: 0.25 ppm)	Zearalenone ppm (LOD: 0.025 ppm)	Ochratoxin A ppb (LOD: 1 ppb)
10	YM1	0	0.00	0.46	0.00	1.00
11	YM1	0	0.40	0.00	0.00	1.00
11	YM1	0	4.70	0.38	0.00	0.00
11	YM1	0	0.75	0.31	0.00	0.00
12	WM1	0	0.00	0.74	0.09	0.00
13	WM3	0	1.90	0.50	0.00	0.00
14	WM1	0	0.00	0.00	0.00	1.00
14	WM1	0	0.00	0.00	0.00	0.00
14	YM1	0	2.50	0.00	0.00	0.00
15	WM1	0	0.15	0.00	0.00	0.00
16	WM1	0	0.00	0.00	0.00	0.00
16	WM1	0	1.20	0.00	0.00	0.00
16	YM1	0	0.10	0.00	0.00	0.00
17	WM1	0	0.00	0.00	0.00	0.00
17	WM1	0	0.00	0.00	0.00	0.00
17	WM1	0	0.10	0.00	0.00	1.00
17	WM1	0	0.00	0.00	0.00	0.00
17	YM1	0	0.30	0.00	0.00	1.00
18	WM1	0	0.00	0.00	0.00	0.00
18	WM1	0	0.00	0.00	0.00	1.00
18	WM1	0	0.00	0.36	0.00	0.00
18	WM1	0	0.00	0.00	0.00	0.00
18	YM1	0	0.25	0.00	0.00	0.00
19	YM1	0	0.30	0.00	0.00	0.00
20	WM1	0	0.16	0.00	0.00	0.00
20	WM2	0	0.00	0.00	0.00	0.00
21	WM1	0	0.20	0.00	0.00	1.00
21	WM1	0	0.60	0.00	0.00	0.00
21	WM1	0	0.55	0.00	0.00	1.00
21	WM1	0	0.00	0.00	0.00	0.00
21	WM1	2	0.10	0.00	0.00	0.00
22	WM1	0	2.70	0.00	0.00	1.00
22	WM1	0	3.20	0.00	0.00	1.00
22	WM2	0	0.40	0.00	0.00	1.00
22	YM1	0	1.00	0.00	0.00	1.00
23	WM1	0	0.61	0.00	0.00	1.00
23	WM1	0	0.10	0.00	0.00	0.00
23	WM1	0	0.00	0.00	0.00	0.00
23	WM1	0	0.55	0.28	0.00	1.00
23	WM1	0	0.85	0.00	0.00	0.00
23	YM2	0	0.36	0.00	0.00	0.00
24	WM1	0	0.47	0.00	0.00	0.00
24	WM1	0	0.00	0.00	0.00	1.00
24	WM1	0	0.45	0.00	0.00	0.00
24	WM1	0	0.15	0.00	0.00	0.00
24	WM1	0	0.15	0.00	0.00	1.00
25	WM1	0	0.00	0.00	0.00	0.00
25	WM1	0	0.10	0.00	0.00	0.00
25	WM1	0	0.00	0.00	0.00	1.00
25	WM3	0	0.00	0.98	0.00	0.00
25	YM1	0	0.20	0.00	0.00	0.00

**TABLE 21: MYCOTOXIN RESULTS 2007/2008 (continue)**

Region	Grade	Aflatoxin ppb (LOD: 2 ppb)	Fumonisin ppm (LOD: 0.1 ppm)	Deoxynivalenol ppm (LOD: 0.25 ppm)	Zearalenone ppm (LOD: 0.025 ppm)	Ochratoxin A ppb (LOD: 1 ppb)
25	YM1	0	3.70	0.74	0.00	0.00
25	YM1	0	0.00	0.00	0.00	0.00
26	WM1	0	0.00	0.70	0.00	2.00
26	WM1	0	0.10	0.00	0.00	1.00
26	WM1	0	0.00	0.31	0.10	0.00
26	YM1	0	0.00	0.00	0.00	0.00
26	YM1	0	0.00	0.61	0.00	0.00
27	WM1	0	0.00	0.00	0.00	0.00
27	WM1	0	0.15	0.00	0.00	1.00
28	WM1	0	0.00	0.77	0.00	0.00
28	YM1	0	0.00	0.00	0.00	0.00
29	WM1	0	0.00	0.34	0.00	0.00
29	WM1	0	1.00	0.47	0.00	0.00
29	WM1	0	1.70	0.56	0.00	0.00
29	WM2	0	0.18	0.00	0.00	0.00
29	WM2	0	0.00	1.70	0.05	0.00
29	YM1	0	0.00	0.00	0.00	1.00
29	YM1	0	0.00	0.00	0.00	0.00
29	YM1	0	0.00	0.00	0.00	0.00
29	YM1	0	0.00	0.39	0.00	0.00
29	YM1	0	0.25	0.00	0.00	0.00
30	WM1	0	0.00	1.20	0.00	0.00
30	WM1	0	0.00	0.85	0.00	0.00
30	WM1	0	0.00	0.36	0.00	0.00
30	WM1	0	0.00	0.53	0.00	0.00
30	WM1	0	0.00	0.30	0.00	0.00
30	WM2	0	0.00	0.73	0.00	0.00
30	YM1	0	0.10	0.79	0.00	0.00
30	YM1	0	0.00	0.61	0.00	0.00
30	YM1	0	0.00	0.39	0.00	0.00
30	YM1	0	0.00	0.54	0.00	0.00
31	YM1	0	0.00	0.44	0.00	0.00
32	WM1	0	0.00	0.61	0.00	0.00
33	WM1	0	1.00	0.83	0.00	0.00
33	WM1	0	0.00	0.49	0.00	0.00
33	WM2	0	0.10	1.70	0.00	0.00
33	YM1	0	0.00	0.48	0.00	0.00
33	YM1	0	0.00	0.00	0.00	0.00
33	YM1	0	1.80	0.49	0.00	0.00
34	WM1	0	0.00	0.00	0.04	0.00
34	WM1	0	0.15	1.00	0.00	0.00
34	YM2	0	0.00	0.00	0.00	1.00
35	WM1	0	0.00	0.00	0.00	1.00
35	WM1	0	2.50	0.00	0.00	0.00
35	YM1	0	0.00	0.54	0.00	1.00
35	YM1	0	2.30	0.00	0.00	0.00
36	WM1	0	5.50	0.00	0.00	0.00
36	WM1	0	0.00	0.00	0.00	0.00
36	YM1	0	0.55	0.54	0.00	1.00
<b>N = 100 2007/2008 Average</b>		0	0.47	0.24	0.00	0.26
<b>2007/2008 Max</b>		2	5.50	1.70	0.10	2.00
<b>Average 2006/2007</b>		0	0.97	2.74	0.03	0.12
<b>Average 2005/2006</b>		0	0.97	2.74	0.03	0.12
<b>Average 2004/2005</b>		0	1.06	0.53	0.04	0.02

**Note:** All results <LOD and zero are reported as 0 or 0.00

**LOD:** Limit of detection

## Methods

### 1. Grading

#### 1.1 RSA grading

RSA grading was done in accordance with the Grading Regulations for maize, as published in the Government Gazette No. 19131 of 14 August 1998, regulation No. R.1013.

#### Description of deviations relating to RSA grading

##### a. Defective maize kernels

The term “defective kernels” means all maize kernels and pieces of maize kernels which are shrivelled, obviously immature, frost-damaged, heat-damaged, mouldy or discoloured, have sprouted (including kernels whose growing point in the germ is visibly discoloured), have cavities in the germ or endosperm caused by insects or rodents, are visibly contaminated by smut, soil, smoke or coal-dust, can pass through the 6,35 mm round-hole sieve, are clearly of inferior quality and of subspecies other than *Zea mays indentata* or *Zea Mays indurata*.

##### b. Foreign matter

The term “foreign matter” means all matter other than maize, glass, stone, coal, dung or metal.

##### c. Other colour

The term “other colour” means maize kernels of a colour other than white (in a white sample) or yellow (in a yellow sample), but excludes pinked maize kernels.

##### d. Total deviation

The term “total deviation” means the total defective kernels plus foreign matter plus other colour kernels.

##### e. Pinked kernels

The term “pinked kernels” means maize kernels whose endosperm is white or yellow and whose pericarp or part thereof is red or pink in colour.

The specification, according to the Grading Regulations for classes 1 to 3 of white and yellow maize is a maximum of 12 %.

#### Fungal infection

All samples were inspected for the visual symptoms of Diplodia and Fusarium cobrot. There are four fungi which cause cobrot in South Africa namely *Stenocarpella maydis* (*Diplodia maydis*), *Fusarium moniliforme*, *Fusarium graminearum* and *Stenocarpella macrospora* (*Diplodia Macrospora*).

*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.

#### 1.2 USA grading

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

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

#### Description of deviations relating to USA grading

##### a. 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.

##### b. Heat-damaged kernels

Kernels and pieces of kernels which are materially discoloured by excessive respiration, with the dark discoloration extending out of the germ through the sides