SOUTH AFRICAN

Wheat Crop Quality Report 2005/2006 Season

INDEX

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SOUTH AFRICAN
COMMERCIAL WHEAT QUALITY FOR THE 2005/2006 SEASON

Acknowledgements

With gratitude to:

- ***The Winter Cereal Trust for its financial support in conducting this survey.***
- ***The Grain Silo Industry and its members for their cooperation in providing the samples to make this survey possible.***
- ***The National Chamber of Milling and its members for providing samples of wheat that were delivered directly to the mills.***

Introduction

The wheat production for the 2005/2006 season (1 886 400 tons) was 11 % better than the previous season (1 699 280 tons), but 7.9 % lower than the 5-year average of 2 035 069 tons (2000/2001 to 2004/2005 seasons).

The Western Cape province produced 645 000 tons and the Free State province followed with 570 000 tons. (Final estimate by the Crop Estimates Committee, CEC). These two provinces were responsible for 64 % of the total wheat produced.

The average yield in the Western Cape Province (winter rainfall area) was 2.15 tons per hectare. The Free State (summer rainfall area) was 1.5 tons per hectare. The summer rainfall areas (dry land cultivation) in the Eastern Cape gave on average 3.6 tons per hectare, Mpumalanga gave on average 5.0 tons per hectare and Gauteng gave on average 5.6 tons per hectare. KwaZulu-Natal gave 5.4, North West 5.35 and Limpopo Province gave 4.25 tons per hectare. The irrigation areas in the Northern Cape yielded on average the highest yield of 6.5 tons per hectare. (CEC)

The total production is not enough for domestic requirements, and South Africa has to import wheat to meet its domestic consumption of approximately 2.7 million tons this year.

South Africa has three major wheat-breeding programmes and one company that plants introduction cultivars from other countries. The wheat industry has set up a release criteria document with stringent quality evaluation norms. The South African breeders can only release a new cultivar or an introduction cultivar if it has better agronomical as well as better flour quality characteristics than the cultivars planted commercially in a specific area. Producers continuously try to improve the wheat yield and quality by selecting the best cultivars that can be grown commercially in a specific area. Grading standards are also set high to ensure adequate quality control.

The Southern African Grain Laboratory (SAGL), receives samples from all the production areas, and determines the quality of the annual wheat crop. The results are then published in this report and are also made available on the website www.sagl.co.za.

The SAGL has ISO 17025 accreditation and is also used as the reference laboratory for grain quality analyses in Southern Africa.

Samples, representing the production of each region, are fully graded and thousand kernel mass is done. Small samples are milled on the quadromat mill, after which a mixogram analysis is done.

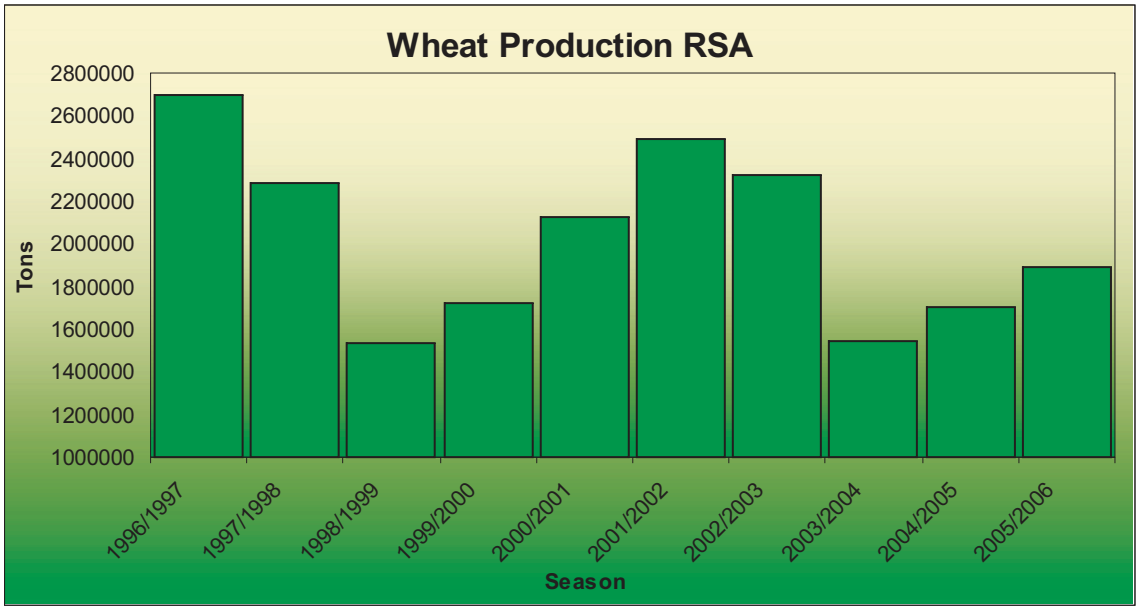
Cultivar identification is done on these samples and seed sales figures by the commercial grain silo owners are obtained.

Composite samples are made up per class and grade for each production region and milled on the Bühler mill. Rheological tests, such as a mixogram, farinogram, alveogram, extensogram and 100-gram baking test, are then performed.

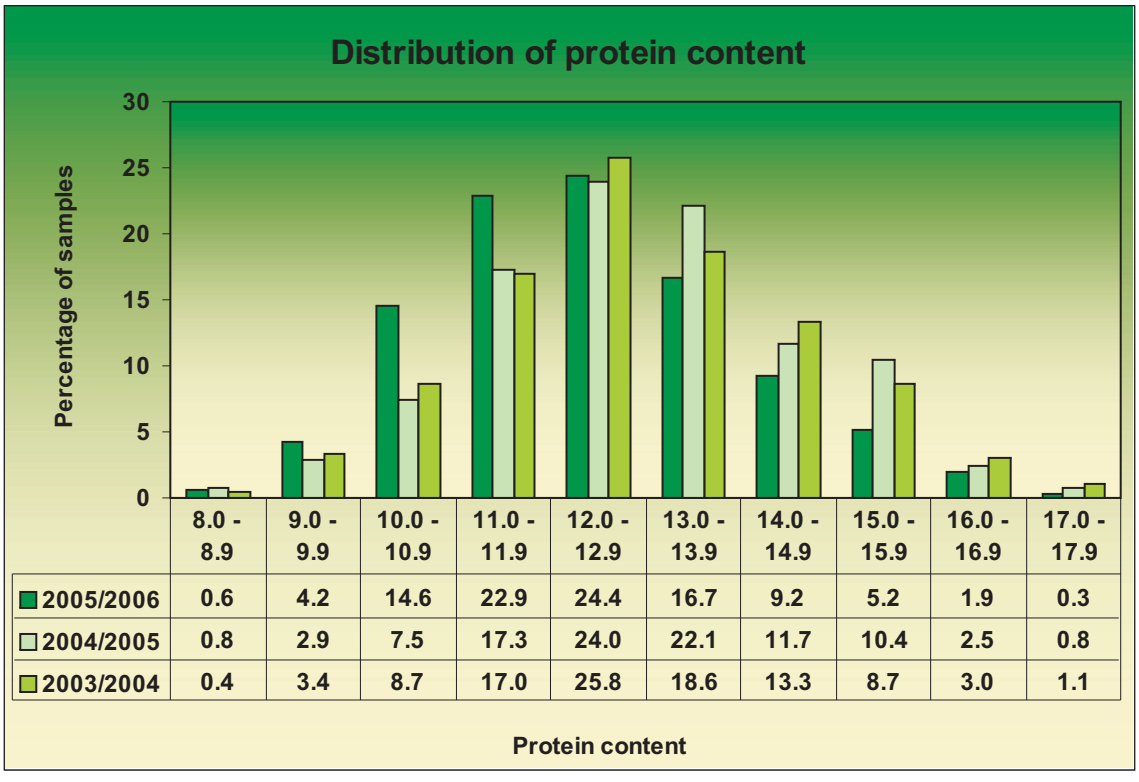
Quality of imported wheat (1 Oct 2004 - 30 Sept 2005)

At the request of the wheat industry, the SAGL is also monitoring the quality of all wheat imported into South Africa through South African harbours. The same analyses which are done on the local crop are also done on the imported wheat. The last twelve pages of this report contain summaries of imported wheat from specific countries during the 2004/2005 season compared to a summary of the local crop quality for the same 2004/2005 season. Summaries of the quality of the local wheat are also provided for the 2003/2004 and 2005/2006 seasons.

WHEAT PRODUCTION IN THE RSA OVER THE LAST 10 SEASONS



DIFFERENCES IN THE DISTRIBUTION OF PROTEIN CONTENT OVER THE LAST 3 SEASONS



	8.0 - 8.9	9.0 - 9.9	10.0 - 10.9	11.0 - 11.9	12.0 - 12.9	13.0 - 13.9	14.0 - 14.9	15.0 - 15.9	16.0 - 16.9	17.0 - 17.9
2005/2006	0.6	4.2	14.6	22.9	24.4	16.7	9.2	5.2	1.9	0.3
2004/2005	0.8	2.9	7.5	17.3	24.0	22.1	11.7	10.4	2.5	0.8
2003/2004	0.4	3.4	8.7	17.0	25.8	18.6	13.3	8.7	3.0	1.1

Crop quality for 2005/2006 season

The protein average dropped to 12.4 % (12 % mb) (13.0 % in the previous season). The protein distribution graph of all the wheat produced was slightly skewed to the lower proteins between 10.0 % to 11.9 % (12 % mb). Irrespective of quality analyses on Utility grade (UT) and Class Other Wheat (COW) included in the survey as from this year, the dough quality was slightly better than the previous year.

The average hectolitre mass was 78.2 kg/hl (normal average). An average thousand kernel mass of 35.5 g was obtained.

The average screenings (1.8 mm sieve) was 1.68 %.

For the past two years (two previous seasons) the Western Cape experienced drought as did the Free State the previous season, but this season was a normal year. However, there were a few exceptions in some areas (see page 9 for Free State).

Although the average falling number was 375 seconds, there were a few samples that gave falling number values of less than 250 seconds and some were even less than 150 seconds. This was because of some rain during the harvest period mainly in the Eastern-Free State and Northern KwaZulu-Natal.

The mixogram peak time, milled on the Quadromat and Bühler averaged 2.8 and 2.5 minutes respectively.

The average Bühler extraction was 75.5 %, with an average Kent Jones colour of -1.7 KJ. (Both are better than the previous year.)

The farinogram had an average water absorption of 62.3 % (61.0 % the previous year) and an average development time of 5.0 minutes (5.2 minutes last season). The average alveogram strength was 40.6 cm^2 and the average P/L value 0.81 (40.0 cm^2 and 0.62 the previous season). The average extensogram strength was 107 cm^2.

Quality of imported wheat for 2004/2005 season (previous season)

During the 2004/2005 season, 1 226 496 tons of wheat were imported. The biggest quantity was imported from Argentina, namely 574 600 tons, followed by the United States with 281 165 tons, then Australia with 154 112 tons and Germany with 115 332 tons. Smaller quantities were imported from Canada (43 766 tons), Ukraine (29 935 tons) and UK (27 586 tons). (SAGIS web site) (No imported wheat samples from the UK was received by SAGL.)

For grading as well as dough and baking quality of the imported wheat, please see pages 50 to 61.

Wheat grades

Representative samples (480) of the crop were graded as follows: 38 % was graded B1, 22 % was graded B2, 18 % was graded B3, 4 % was graded B4 and UT and COW made up 18 %. This is very similar to the previous season.

Grade B1 wheat in the Free State province amounted to 59 % and grade B1 in other summer rainfall areas amounted to 44 %. In the irrigation areas 32 % of the wheat graded as B1 and in the Western Cape Province only 21% graded as B1.

Cultivars

In the winter rainfall area, two cultivars dominated the market. These two cultivars were SST 88 and SST 57. The Western Cape produced 34.2 % of all wheat grown in South Africa during the 2005/2006 season.

Two cultivars dominated the market in the Free State. These cultivars were SST 806 and Elands. Betta DN was also planted but in lesser quantities as well as SST 399, Gariep and PAN 3377.

The cultivar SST 806 dominated the market in the North West Province, the Vaal and the Orange River areas. Smaller quantities of SST 876, SST 826 and Olifants were planted.

In Limpopo, Gauteng, Mpumalanga and KwaZulu-Natal SST 806 and CRN 826 were planted mainly. This was followed by SST 825 and SST 876.

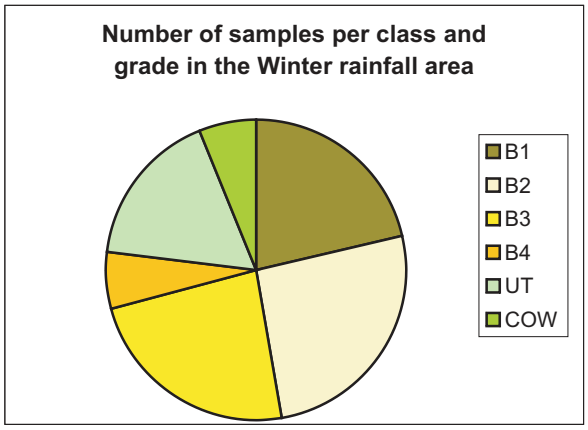
Mycotoxins

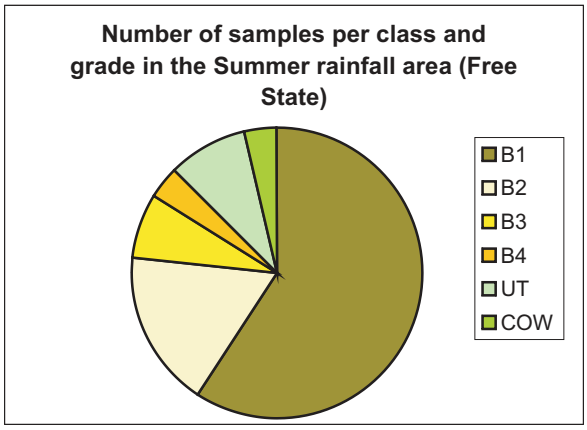
Mycotoxins, as secondary metabolites of moulds or fungi, can cause toxic effects in humans and animals consuming contaminated foods or feeds. Thirty samples (representing the different regions) were selected randomly for mycotoxin analyses. These samples were tested for aflatoxin, deoxynivalenol and ochratoxin.

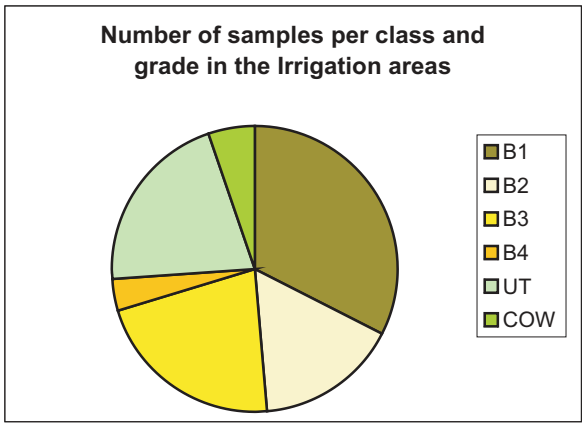
Tests are no longer done for T2, as the fungi producing this mycotoxin only grows at very low temperatures. As from the 2004/2005 season, the SAGL no longer tests for fumonisin and zearalenone, because the fungi producing these toxins do not grow on wheat.

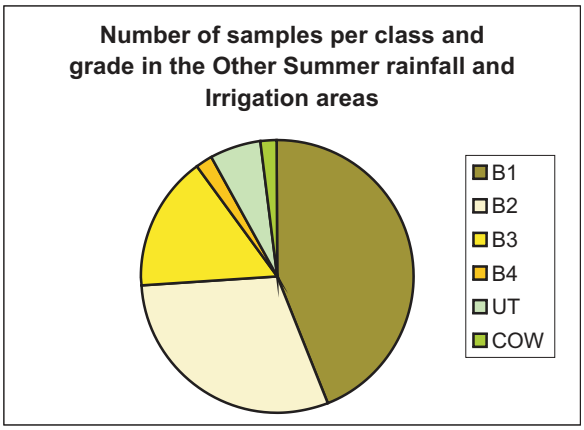
No aflatoxin was found on the 30 samples tested. In accordance with Act 54 of 1972, Foodstuffs, Cosmetics and Disinfectants, the allowable level of total aflatoxin is 10 ppb (µg/kg). In accordance with Act 36 of 1947, Fertilizers, Farm Feeds, Agricultural and Stock Remedies, the allowable level of total aflatoxin is 10 to 50 ppb (µg/kg).

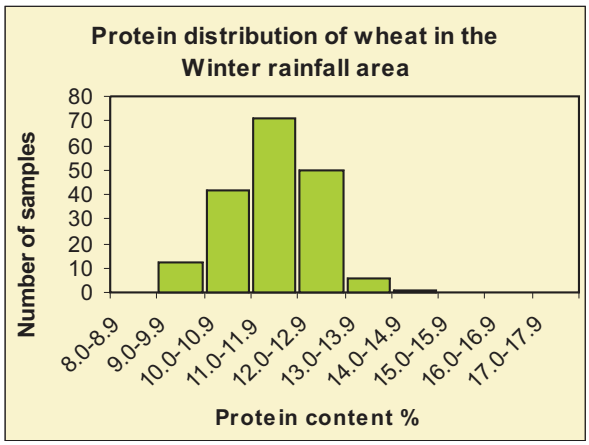
No ochratoxin was found. In 28 of the 30 samples tested, levels of deoxynivalenol were found, averaging 1.01 ppm.

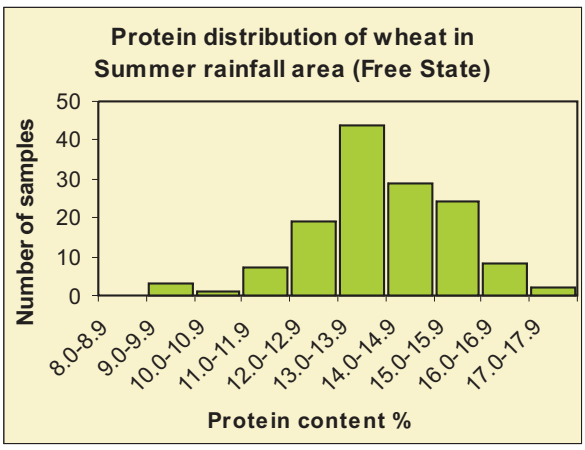

Number of samples per class and grade in the Winter rainfall area
B1
B2
B3
B4
UT
COW

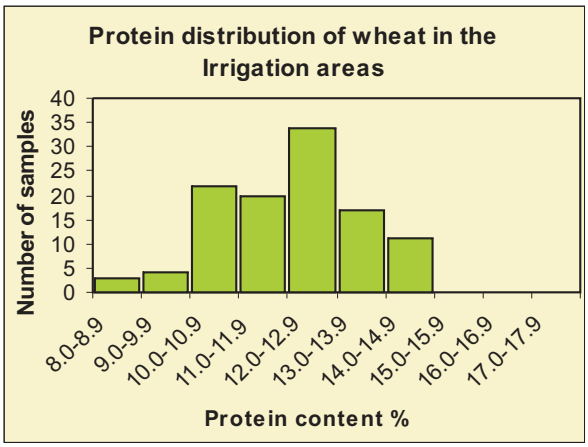

Number of samples per class and grade in the Summer rainfall area (Free State)
B1
B2
B3
B4
UT
COW

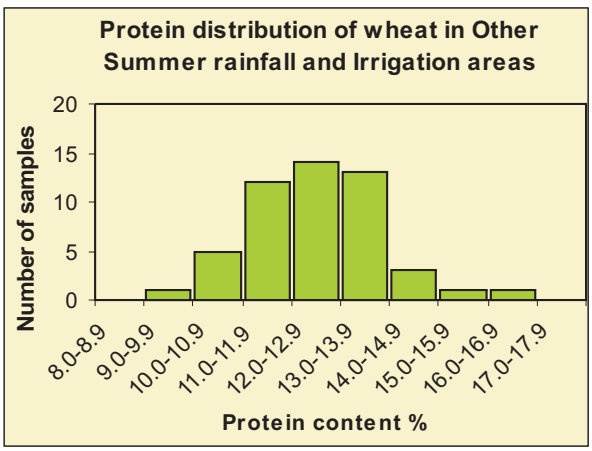

Number of samples per class and grade in the Irrigation areas
B1
B2
B3
B4
UT
COW


Number of samples per class and grade in the Other Summer rainfall and Irrigation areas
B1
B2
B3
B4
UT
COW


Protein distribution of wheat in the Winter rainfall area
Number of samples
0
10
20
30
40
50
60
70
80
8.0-8.9
9.0-9.9
10.0-10.9
11.0-11.9
12.0-12.9
13.0-13.9
14.0-14.9
15.0-15.9
16.0-16.9
17.0-17.9
Protein content %


Protein distribution of wheat in Summer rainfall area (Free State)
Number of samples
0
10
20
30
40
50
8.0-8.9
9.0-9.9
10.0-10.9
11.0-11.9
12.0-12.9
13.0-13.9
14.0-14.9
15.0-15.9
16.0-16.9
17.0-17.9
Protein content %


Protein distribution of wheat in the Irrigation areas
Number of samples
0
5
10
15
20
25
30
35
40
8.0-8.9
9.0-9.9
10.0-10.9
11.0-11.9
12.0-12.9
13.0-13.9
14.0-14.9
15.0-15.9
16.0-16.9
17.0-17.9
Protein content %


Protein distribution of wheat in Other Summer rainfall and Irrigation areas
Number of samples
0
5
10
15
20
8.0-8.9
9.0-9.9
10.0-10.9
11.0-11.9
12.0-12.9
13.0-13.9
14.0-14.9
15.0-15.9
16.0-16.9
17.0-17.9
Protein content %

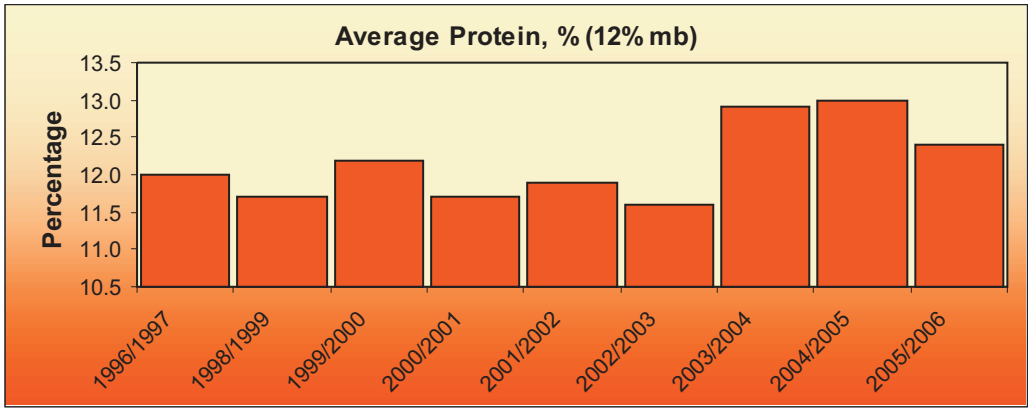
REGIONAL QUALITY WEIGHTED AVERAGES

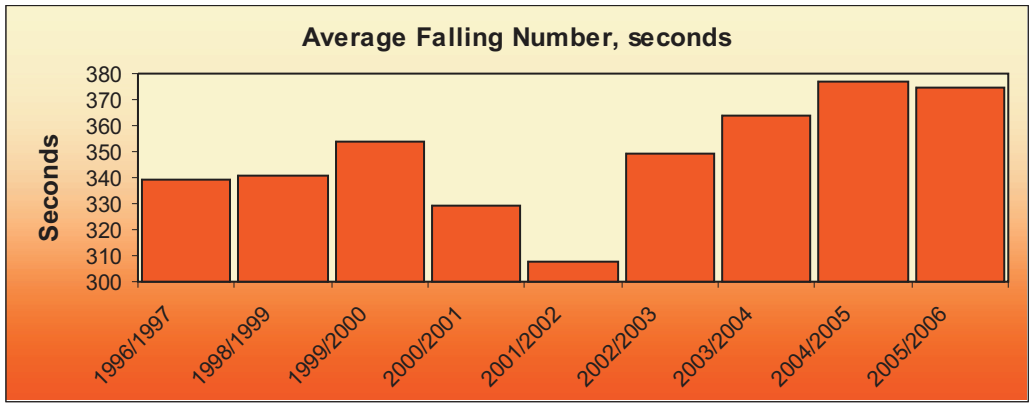
	Winter rainfall area			*Summer rainfall area (Free State)*			*Irrigation areas*			*Other Summer rainfall and Irrigation areas*			*RSA average*		
Individual samples n	***182***			***137***			***111***			***50***			***480***		
Regions	1 - 6			21 - 28			10-12,14-20, 36			30 - 35			All		
Hectolitre mass dirty, kg/hl	78.5			77.5			75.7			78.4			78.2		
1000 kernel mass (13 % mb), g	35.8			34.3			35.8			37			35.5		
Falling number, sec	401			331			329			414			375		
Screenings (1,8 mm), %	1.53			1.50			2.06			1.83			1.68		
Protein (12 % mb), %	11.53			13.95			11.56			12.50			12.40		
Mixogram peak time, min (Quadromat)	2.7			3.1			2.6			2.8			2.8		
Composite samples per grade n = 100	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***
	B4	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***
Individual samples n	***6***	***5***	***6***	***8***	***7***	***4***	***11***	***5***	***7***	***5***	***5***	***2***	***30***	***22***	***19***
	4	***4***	***1***	***4***	***3***	***2***	***2***	***6***	***1***	***1***	***1***	***0***	***11***	***14***	***4***
Bühler extraction, %	75.5	75.6	75.3	74.5	74.6	73.6	75.6	76.4	76.6	76.3	77.6	75.3	75.4	75.9	75.4
	75.7	75.2	75.5	74.7	75.2	73.7	76.5	75.7	75.7	77.5	72.3	-	75.6	75.2	74.6
Flour colour, KJ	-1.8	-1.8	-1.9	-1.1	-1.5	-1.2	-2.1	-2.1	-2.1	-1.8	-2.5	-2.7	-1.7	-1.9	-1.9
	-2.2	-1.9	-1.7	-1.1	-0.3	0.9	-2.8	-1.8	-1.3	-1.6	-0.7	-	-1.8	-1.4	-0.3
Farinogram:	62.8	62.2	61.4	63.6	63.2	63.1	62.7	62.5	61.0	63.4	62.1	61.2	63.1	62.6	61.6
Water absorption, %	61.1	61.7	61.4	63.6	61.9	62.4	60.5	61.6	61.9	59.5	64.3	-	61.7	61.9	62.0
Farinogram:	5.1	4.1	3.6	7.3	6.1	6.0	5.5	4.2	3.6	5.9	4.9	4.7	6.0	4.9	4.2
Development time, min	2.7	3.6	5.0	6.0	4.6	6.5	3.2	5.2	5.2	4.0	7.0	-	4.1	4.7	5.8
Alveogram:	38.4	32.9	32.0	52.0	50.9	49.1	42.2	34.8	34.4	45.1	36.8	35.7	44.5	39.9	36.9
Strength, cm²	28.1	34.1	39.8	55.4	42.0	54.6	24.6	41.1	37.6	31.2	44.8	-	37.6	39.6	46.7
Alveogram:	0.76	0.90	1.03	0.78	0.71	0.83	0.67	0.83	0.66	0.74	0.77	0.99	0.73	0.79	0.84
P/L	1.16	1.00	0.75	1.32	0.71	0.46	1.04	0.63	0.62	0.74	0.70	-	1.16	0.75	0.57
Extensogram:	94	86	79	131	128	122	116	95	102	122	103	96	116	105	98
Strenght, cm²	68	85	106	140	118	163	68	118	117	86	131	-	96	110	137
Mixogram peak time,	2.4	2.4	2.4	2.6	2.7	2.6	2.4	2.3	2.5	2.4	2.3	2.8	2.4	2.5	2.5
min	2.5	2.5	2.2	2.8	2.6	2.7	2.3	2.6	2.5	2.5	2.3	-	2.6	2.5	2.5
Relationship between	VG	VG	VG	VG	EX	VG	EX	EX	EX	EX	EX	EX	EX	EX	VG
protein and bread volume	EX	VG	EX	G	VG	G	EX	EX	EX	EX	EX	-	VG	EX	VG

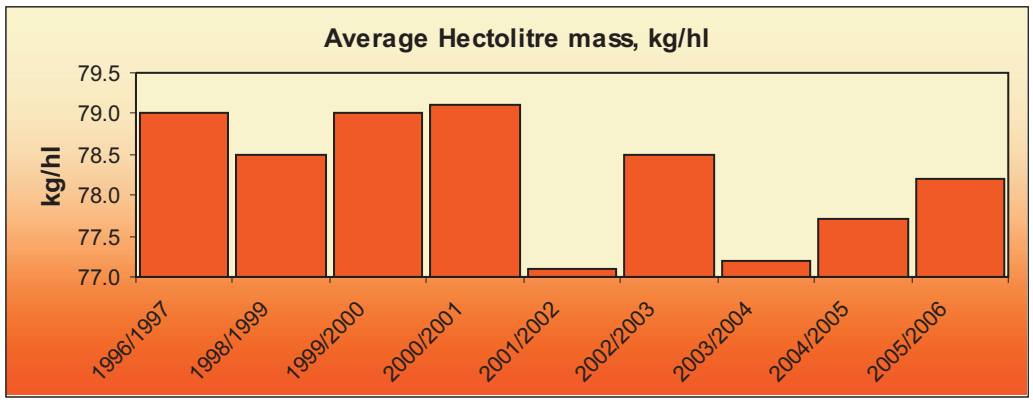
Ex = Excellent **VG = Very Good** **G = Good**

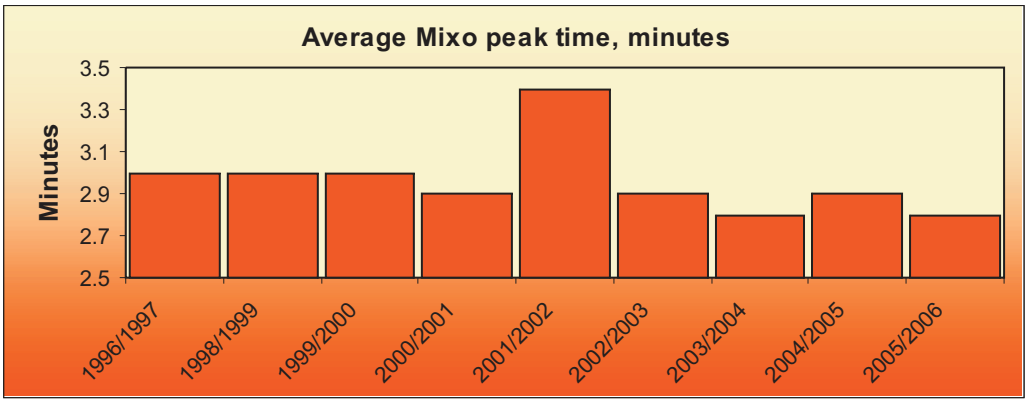
AVERAGE QUALITY OVER 10 SEASONS

(1997/1998 no data available)









REGIONAL QUALITY

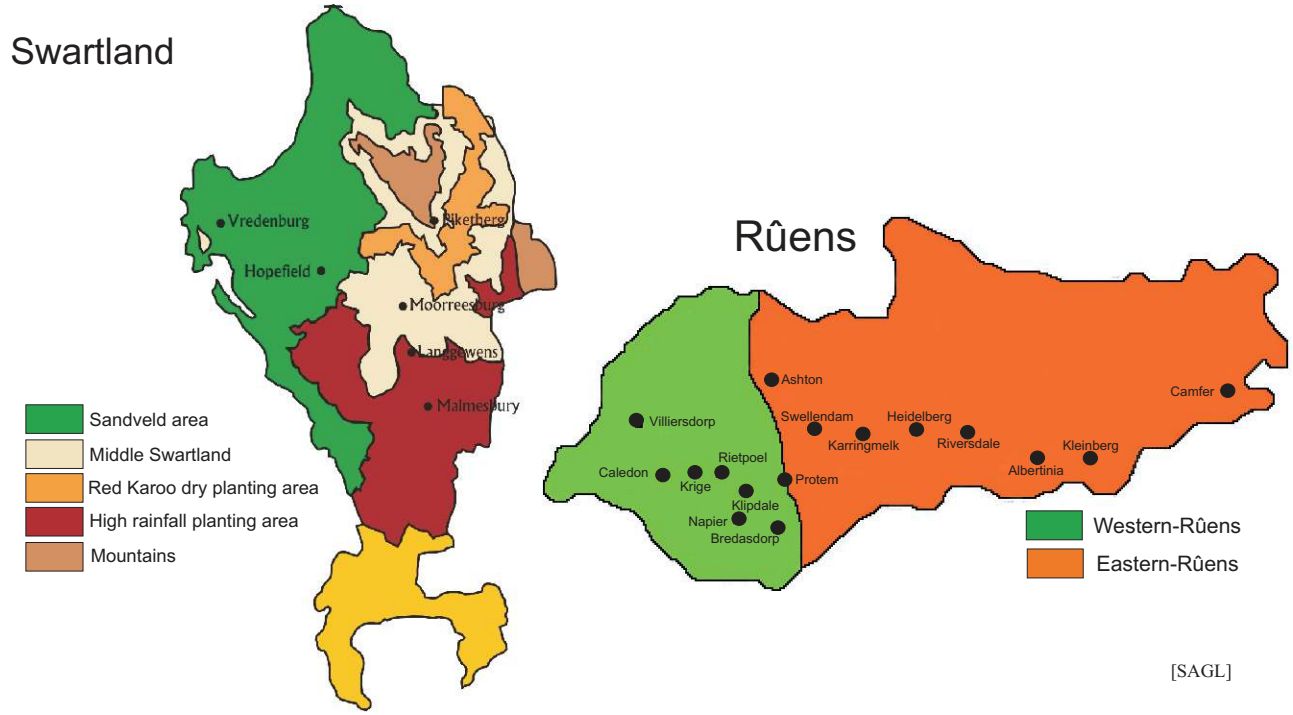
WINTER RAINFALL AREA
(Western Cape)

Production regions 1 to 6 fall within the winter rainfall area (Western Cape Province), Regions 1 to 4 are the Swartland area and regions 5 and 6 the Rûens area. These areas experienced normal weather conditions during the season. The Western Cape had the highest production of all the provinces this season, namely 645 000 tons (CEC).

The hectolitre mass averaged 78.5 kg/hl (the previous season 77.6 kg/hl). The thousand kernel mass averaged 35.8 gram, which is better than the previous season's 34.7 gram. There were no falling number problems experienced this season, with the average falling number being 401 seconds.

The protein averaged 11.53 % (12 % mb) and is 1.19 % lower than the previous season (12.72 %). The average protein in the Swartland was 11.6 % (13.1 % the previous season) and the average protein in the Rûens was 11.2 % (11.9 % in 2004/2005). The hectolitre mass of the Swartland and Rûens was 78.0 kg/hl and 80.2 kg/hl respectively.

Winter Rainfall Area (Western Cape Province)



[SAGL]

The screenings of 1.53 % were lower than the previous season's 1.63 %. The screenings in the Swartland averaged 1.49 % and that of the Rûens 1.70 %. The Bühler extraction averaged 75.4 % (average of wheat grades B1 to B4, UT and COW) and the average colour of the flour was -1.9 KJ units. Both these characteristics were better than that of the wheat in the Free State, but not as good as the wheat from the other rainfall areas, and the Vaal and Orange River irregated wheat.

The dough quality was the same as in the previous season. The mixogram peak time (Quadromat mill) averaged 2.7 minutes. The average farinogram absorption was 61.9 %. The average strength of the alveogram was 33.7 cm^2 (Free State Province was 50.9 cm^2) and the average strength of the extensogram was 84 cm^2, which is weaker than the wheat from the Free State (131 cm^2).

The 100-gram baking test showed a very good relationship between protein content and bread volume.

SUMMER RAINFALL AREA
(Free State)

Production regions 21 to 28, which fall within the Free State Province, had the second highest production, namely 570 000 tons (CEC).

The physical characteristics such as hectolitre mass (77.5 kg/hl), thousand kernel mass (34.3 gram) and screenings (1.50 %) were better the previous season's 76.3 kg/hl, 32.0 gram and 2.17 % respectively.

The Central and Western Free State had very little spring and summer rainfall which resulted in a high protein content (14.7 % on a 12 % mb) and shrunken kernels. The Eastern Free State had normal weather conditions during spring and summer but experienced some rain during harvesting, which resulted in some samples with low falling number values.

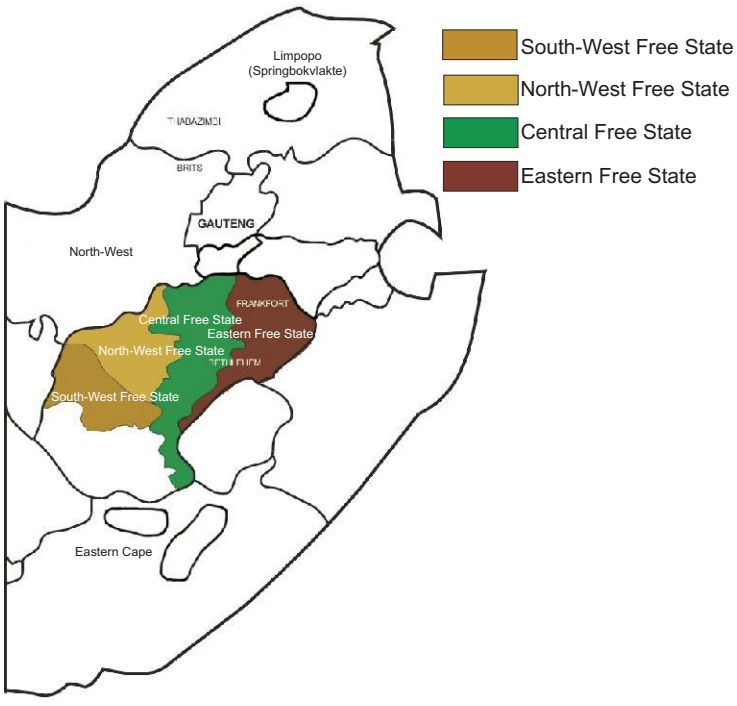
The mixogram (Quadromat) peak time was 3.1 minutes (3.3 minutes previous season), giving the Free State the longest average mixogram peak time of the different regional qualities.

The average Bühler extraction percentage in the Free State was the lowest in all the regions, namely 74.4 % (73.6 % previous season). The Kent Jones flour colour was -1.1 KJ units (-0.6 KJ units in previous season), which yields a little darker flour than the other regions.

The average farinogram water absorption was 63.2 % (61.7 % the previous season), beating the other regions by about 1 %. The wheat from the Free State tends to give a stronger dough than the other regions, with a farinogram development time of 6.2 minutes, alveogram strength of 50.9 cm², and an extensogram strength of 131 cm².

The 100-gram baking test showed that the relationship between protein content and bread volume was very good, however, it was not as good as the wheat from the other regions.

FREE STATE



SUMMER RAINFALL AREA
(Mpumalanga, Limpopo, Gauteng and Eastern Cape)

Other summer rainfall regions, excluding the Free State, are mainly regions 30, 32, 33 (Mpumalanga), 34 (Gauteng) and 35 (Limpopo). They produced in total about 73 000 tons during this season. No samples were received from the Eastern Cape region.

The average hectolitre mass was 78.4 kg/hl (79.3 kg/hl the previous season). This is more or less the same as in the winter rainfall area. The thousand kernel mass was the highest, i.e. an average of 37 g.

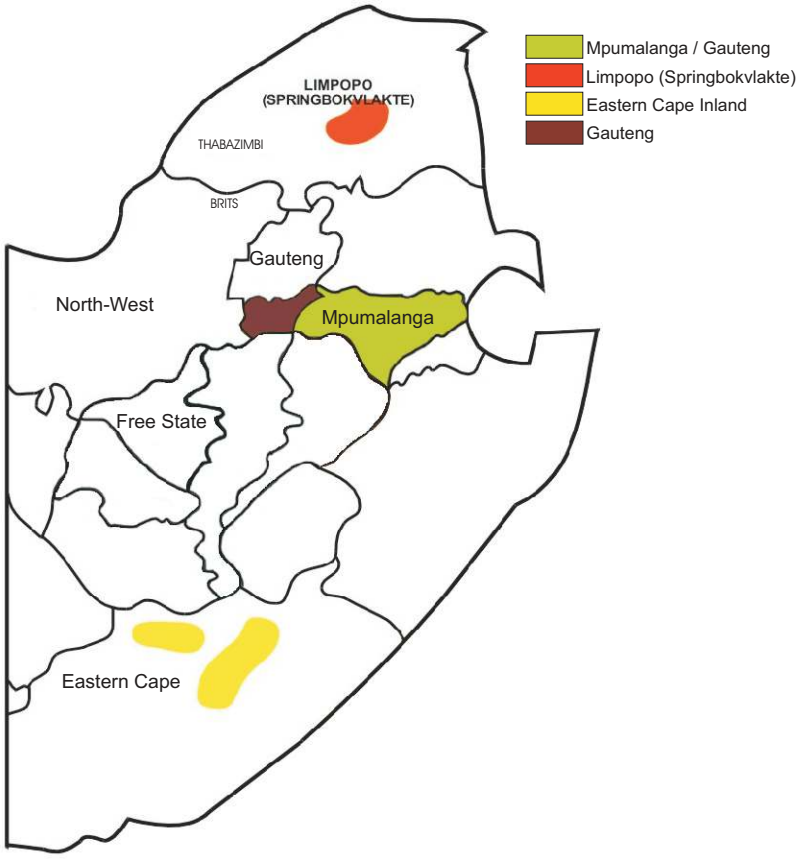
The average falling number was 414 seconds. The average percentage screenings was 1.83 %. The average protein content was 12.50 % (12 % mb).

The average mixogram (Quadromat) peak time was 2.8 minutes (2.6 minutes the previous season).

The average Bühler extraction was 76.4 %, with an average colour of -2.1 KJ units (75.6 % and -1.5 KJ units the previous season). The farinogram had a good average water absorption of 62.4 % (61.6 % the previous season) and an average development time of 5.3 minutes.

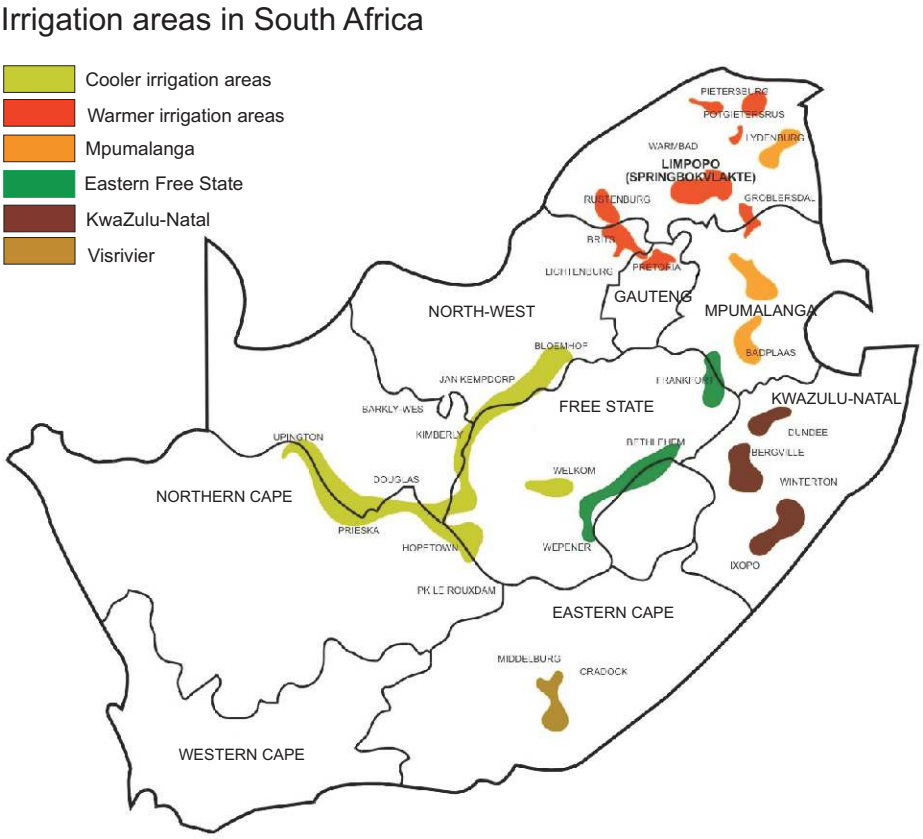
The average alveogram strength was 39.8 cm², with an average P/L value of 0.78, and the average extensogram strength was 110 cm².

The 100-gram baking test showed an excellent relationship between protein content and bread volume.



(Regional maps kindly provided by the Small Grains Institute, ARC)

IRRIGATION AREAS
(Vaal and Orange River plus other irrigation areas. See map.)



The average hectolitre mass was 75.7 kg/hl (78.9 kg/hl the previous season) and the thousand kernel mass was 35.8 g (37.7 g the previous season). The average falling number was 329 seconds. The average screenings were 2.06 % and the protein averaged 11.56 % (12 % mb) compared to 1.82 % and 11.78 % (12 % mb) the previous season.

The average mixogram (Quadromat) peak time was 2.6 minutes compared to 2.7 minutes of the previous season.

The average Bühler extraction percentage was 76.0 (75.4 % in previous season), with an average flour colour of -2.1 KJ units.

The average farinogram water absorption was 61.9 % (60.0 % during previous season), with an average farinogram development time of 4.7 minutes.

The average alveogram strength was 37.9 cm^2 and the average P/L was 0.71 (32.7 cm^2 and 0.59 respectively the previous season).

The average extensogram strength was 107 cm^2. The relationship between protein content and bread volume was shown to be excellent by the 100-gram baking test.

UTILITY GRADE AND CLASS OTHER WHEAT

This is the first survey to include quality analyses on wheat downgraded to Utility grade (UT) or Class Other Wheat (COW).

SOUTH AFRICAN
WINTER RAINFALL WHEAT
Western Cape Province

PRODUCTION REGION	(1) Namaqualand	(2) Swartland Western Region
Intake silos	Bitterfontein Graafwater Landplaas Vanrhynsdorp Vredendal	Bergrivier Darling Koperfontein Vredenburg

WHEAT	ave	min	max	stdev	ave	min	max	stdev
Protein (12% mb), %	11.92	10.51	12.97	1.27	11.79	10.80	13.23	0.66
Falling number, sec	413	370	436	37.00	427	380	490	34.65
1000 Kernel mass (13% mb), g	37.8	35.4	41.0	2.87	33.2	28.3	37.1	2.14
Hectolitre mass (dirty), kg/hl	79.0	78.9	79.0	0.06	76.3	74.2	78.3	1.32
Screenings (<1.8mm), %	0.89	0.80	0.96	0.08	2.64	1.37	3.65	0.54
Total Damaged Kernels, %	0.94	0.48	1.38	0.45	0.44	0.00	0.98	0.39
Number of samples	***3***				***18***			

CULTIVARS			
	SST 88	63.7	60.3
cultivars	SST 15	20.3	4.3
with highest %	SST 57	10.0	9.9
occurrence	SST 825		15.9
	SST 65		4.2
Number of samples		***3***	***18***

MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev
Peak time, min	3.0	2.8	3.3	0.29	2.9	2.3	3.5	0.28
Tail height (6min), mm	53	52	55	1.73	50	46	59	3.67
Number of samples	***3***				***18***			

	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.1		75.1				77.0	72.8	72.1		72.8	
FLOUR												
Protein (12% mb), %	11.62		9.64				11.99	10.60	10.90		10.64	
Colour, KJ	-2.4		-1.6				-0.9	-1.9	-2.1		-2.3	
FARINOGRAM												
Water absorption (14% mb), %	63.6		61.3				61.4	62.0	60.2		61.1	
Development time, min	6.4		3.0				4.7	4.0	4.2		3.4	
Stability, min	12.1		7.2				6.0	11.3	8.6		8.8	
Mixing Tolerance Index, BU	31		31				56	13	37		29	
EXTENSOGRAM (45 min pull)												
Area, cm2	130		100				87	102	95		96	
Maximum height, BU	440		405				325	430	405		400	
Extensibility, mm	203		169				177	161	159		167	
ALVEOGRAM												
Strength, cm2	48.6		36.7				34.3	39.0	36.5		38.1	
Stability (P), mm	98		94				71	97	82		93	
Distensibility (L), mm	109		81				123	84	98		89	
Configuration ratio (P/L)	0.90		1.16				0.57	1.16	0.84		1.04	
MIXOGRAM												
Peak time, min	2.5		2.8				2.3	2.7	2.6		2.8	
100g BAKING TEST												
Loaf volume, cm3	875		815				900	790	865		815	
Evaluation	1		0				1	2	0		1	

SOUTH AFRICAN
WINTER RAINFALL WHEAT
Western Cape Province

PRODUCTION REGION	(3) Swartland Central Region	(4) Swartland Eastern Region
Intake silos	Eendekuil Klipheuwel Koringberg Malmesbury Moorreesburg Moravia Piketberg Pools Ruststasie	Ceres Gouda Halfmanshof Leliedam Porterville Riebeeck-Wes

WHEAT	ave	min	max	stdev	ave	min	max	stdev
Protein (12% mb), %	11.88	9.68	14.07	0.84	11.15	9.22	12.79	1.00
Falling number, sec	406	328	455	24.61	398	356	465	27.02
1000 Kernel mass (13% mb), g	33.9	26.5	39.2	2.33	35.3	31.5	40.6	2.27
Hectolitre mass (dirty), kg/hl	77.8	71.6	80.1	1.47	79.0	76.1	80.9	0.96
Screenings (<1.8mm), %	1.48	0.23	4.57	1.22	1.10	0.13	3.51	1.09
Total Damaged Kernels, %	2.01	0.00	22.80	3.73	0.68	0.20	3.30	0.53
Number of samples	***72***				***48***			

CULTIVARS			
	SST 88	69.8	61.8
cultivars	SST 57	12.8	16.6
with highest %	SST 15	6.5	11.3
occurrence	SST 65	5.5	5.9
	PAN 3404	2.4	1.8
Number of samples		***72***	***48***

MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev
Peak time, min	2.7	2.3	3.2	0.21	2.7	2.3	4.3	0.32
Tail height (6min), mm	49	43	56	2.55	47	43	52	2.46
Number of samples	***72***				***48***			

	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	75.3	76.3	76.6	74.7	75.4	75.5	76.4	76.7	77.1	76.1	76.3	
FLOUR												
Protein (12% mb), %	11.46	10.69	10.09	9.75	10.94	11.36	11.84	10.70	9.84	8.77	9.98	
Colour, KJ	-1.9	-1.7	-2.0	-2.0	-1.8	-1.7	-1.6	-1.7	-1.8	-2.1	-2.0	
FARINOGRAM												
Water absorption (14% mb), %	61.9	61.9	61.0	61.5	62.4	61.4	62.2	61.8	61.7	60.6	60.8	
Development time, min	4.7	4.0	3.5	2.8	4.2	5.0	5.3	4.5	3.5	2.8	3.5	
Stability, min	8.8	7.0	6.9	6.9	7.1	9.5	7.2	6.2	5.6	5.3	6.8	
Mixing Tolerance Index, BU	29	41	40	37	39	34	46	50	49	45	40	
EXTENSOGRAM (45 min pull)												
Area, cm2	85	105	84	83	87	106	95	78	72	73	90	
Maximum height, BU	285	330	360	360	340	400	335	295	300	345	375	
Extensibility, mm	214	214	156	157	172	187	187	170	159	140	161	
ALVEOGRAM												
Strength, cm2	39.1	31.3	33.5	35.3	36.1	39.8	36.5	31.8	30.1	24.6	32.7	
Stability (P), mm	81	78	79	97	84	81	77	71	79	75	80	
Distensibility (L), mm	109	85	93	78	94	107	106	106	83	71	88	
Configuration ratio (P/L)	0.74	0.92	0.85	1.23	0.89	0.75	0.72	0.68	0.96	1.05	0.91	
MIXOGRAM												
Peak time, min	2.4	2.3	2.8	2.5	2.3	2.2	2.5	2.2	2.1	2.4	2.6	
100g BAKING TEST												
Loaf volume, cm3	850	820	750	775	835	875	925	875	770	725	795	
Evaluation	1	1	2	0	1	0	0	0	1	0	0	

SOUTH AFRICAN
WINTER RAINFALL WHEAT
Western Cape Province

PRODUCTION REGION	(5) Rûens Western Region	(6) Rûens Eastern Region
Intake silos	Bredasdorp Caledon Klipdale Krige Napier Protem Rietpoel Villiersdorp	Albertinia Ashton Camfer Heidelberg Karringmelksrivier Kleinberg Protem Riversdal Swellendam

WHEAT	ave	min	max	stdev	ave	min	max	stdev
Protein (12% mb), %	10.97	9.23	12.48	1.03	11.40	9.71	12.85	0.92
Falling number, sec	385	338	414	20.63	383	323	466	29.17
1000 Kernel mass (13% mb), g	41.9	37.1	45.8	2.52	39.5	33.6	43.6	2.93
Hectolitre mass (dirty), kg/hl	80.1	76.9	81.9	1.09	80.3	78.2	82.8	1.06
Screenings (<1.8mm), %	1.97	1.29	3.14	0.45	1.46	0.45	2.36	0.55
Total Damaged Kernels, %	0.53	0.24	1.06	0.22	0.96	0.30	1.66	0.44
Number of samples	***19***				***22***			

CULTIVARS			
	SST 88	65.5	34.5
cultivars	SST 15	16.2	13.5
with highest %	SST 57	11.9	30.9
occurrence	SST 65	3.1	12.5
	PAN 3404	1.8	1.1
Number of samples		***19***	***22***

MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev
Peak time, min	2.5	2.2	3.2	0.26	2.6	2.1	3.7	0.40
Tail height (6min), mm	48	43	52	2.80	49	42	55	2.79
Number of samples	***19***				***22***			

	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	77.1	76.8	76.0	75.7	76.2		75.2	75.4	75.0	76.3		
FLOUR												
Protein (12% mb), %	11.67	10.46	9.50	8.65	9.67		11.62	10.47	9.72	9.10		
Colour, KJ	-1.8	-1.6	-1.9	-2.2	-1.5		-2.2	-2.3	-2.5	-2.3		
FARINOGRAM												
Water absorption (14% mb), %	64.3	62.9	62.8	61.7	62.4		63.4	62.5	61.5	60.4		
Development time, min	4.4	4.5	3.2	2.2	3.3		5.2	3.5	4.0	3.0		
Stability, min	6.5	6.2	5.7	4.8	5.3		7.6	7.0	6.2	5.2		
Mixing Tolerance Index, BU	49	51	49	53	51		45	38	52	46		
EXTENSOGRAM (45 min pull)												
Area, cm2	82	75	63	53	66		86	72	60	64		
Maximum height, BU	255	265	245	230	285		300	285	275	275		
Extensibility, mm	208	191	168	148	154		194	170	144	149		
ALVEOGRAM												
Strength, cm2	35.9	30.4	28.4	25.7	29.4		36.2	31.8	26.5	26.6		
Stability (P), mm	85	78	87	85	87		79	79	78	77		
Distensibility (L), mm	96	91	71	62	77		104	89	70	78		
Configuration ratio (P/L)	0.89	0.86	1.23	1.37	1.14		0.76	0.88	1.11	0.99		
MIXOGRAM												
Peak time, min	2.2	2.3	2.0	2.5	2.2		2.3	2.5	2.3	2.5		
100g BAKING TEST												
Loaf volume, cm3	850	835	750	710	765		905	825	780	720		
Evaluation	2	0	1	0	1		0	0	0	1		

SOUTH AFRICAN
IRRIGATION WHEAT
Vaal and Orange river area

	(10)	(11)
PRODUCTION REGION	**Griqualand - West**	**Vaalharts**
Intake silos	Britstown Douglas Havenga Brug Marydale Modderrivier Oranjerivierstasie Prieska Rietrivier Upington	Barkly-Wes Hartswater Jan Kemp Magogong Taung

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.31	8.85	14.28	1.20	11.66	10.50	12.53	0.81
Falling number, sec	412	370	487	24.37	382	357	403	14.54
1000 Kernel mass (13% mb), g	37.6	28.5	45.4	3.29	39.5	36.1	41.1	1.52
Hectolitre mass (dirty), kg/hl	79.7	74.4	82.5	2.06	78.5	74.3	80.8	1.90
Screenings (<1.8mm), %	1.92	0.10	5.26	1.32	3.17	1.94	5.01	1.35
Total Damaged Kernels, %	0.34	0.08	0.60	0.16	0.19	0.16	0.32	0.06
Number of samples	***28***				***9***			

CULTIVARS			
	SST 806	53.1	57.4
cultivars	SST 876	17.3	9.7
with highest %	Olifants	7.8	4.1
occurrence	CRN 826	6.7	13.7
	SST 825	2.6	7.6
Number of samples		***28***	***9***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.3	1.6	2.8	0.34	2.6	2.4	3.0	0.19
Tail height (6min), mm	45	36	51	3.80	49	47	51	1.66
Number of samples	***28***				***9***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	76.2	76.1	77.7	77.7	77.2		76.2	76.2	77.1		75.3	
FLOUR												
Protein (12% mb), %	11.69	10.60	9.70	9.03	10.17		12.32	10.28	9.79		10.73	
Colour, KJ	-2.1	-2.0	-1.9	-2.5	-2.0		-2.2	-2.1	-2.1		-2.4	
FARINOGRAM												
Water absorption (14% mb), %	64.5	64.3	61.8	62.2	60.9		63.5	61.6	61.0		61.1	
Development time, min	3.8	4.0	3.5	3.3	4.0		6.7	4.8	3.5		4.5	
Stability, min	6.0	7.4	5.6	6.3	5.9		10.4	6.5	5.7		7.8	
Mixing Tolerance Index, BU	45	37	46	42	52		35	49	49		40	
EXTENSOGRAM (45 min pull)												
Area, cm2	85	83	76	71	90		130	108	92		109	
Maximum height, BU	270	295	285	265	305		380	365	330		425	
Extensibility, mm	209	187	177	177	200		234	194	194		176	
ALVEOGRAM												
Strength, cm2	34.9	37.9	28.7	27.8	32.9		42.4	33.5	31.0		31.3	
Stability (P), mm	83	93	78	82	73		77	75	68		75	
Distensibility (L), mm	97	92	82	72	109		123	102	110		93	
Configuration ratio (P/L)	0.85	1.01	0.95	1.14	0.67		0.63	0.73	0.62		0.81	
MIXOGRAM												
Peak time, min	1.8	2.2	2.3	2.3	2.3		2.4	2.3	2.4		2.7	
100g BAKING TEST												
Loaf volume, cm3	975	895	820	745	855		950	895	890		875	
Evaluation	0	0	0	0	0		0	0	0		0	

SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

	(12)	(14)
PRODUCTION REGION	**North-West Western Region**	**North-West Southern Region**
Intake silos	Bloubank Buhrmannsdrif Kameel Kraaipan Madibogo Mafikeng Mareetsane Piet Plessis Springbokpan Vergeleë Vryburg Vryhof	Amalia Barberspan Delareyville Excelsior Geysdorp Hallat's Hope Migdol Nooitgedacht Schweizer-Reneke Taaibospan

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.50	11.12	14.32	1.35	13.71	12.28	14.82	1.10
Falling number, sec	375	348	406	24.24	342	268	376	44.26
1000 Kernel mass (13% mb), g	38.3	36.8	40.1	1.55	34.6	31.8	38.2	2.87
Hectolitre mass (dirty), kg/hl	79.0	77.8	80.6	1.23	75.7	71.9	80.1	3.25
Screenings (<1.8mm), %	1.95	0.69	2.75	0.90	3.16	1.93	6.24	1.79
Total Damaged Kernels, %	0.66	0.08	2.08	0.95	0.19	0.08	0.32	0.09
Number of samples	***4***				***5***			

CULTIVARS			
	SST 806	64.0	53.6
cultivars	SST 876	12.8	21.4
with highest %	SST 822	10.3	18.0
occurrence	Olifants	6.8	1.2
	CRN 826		5.8
Number of samples		***4***	***5***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.7	2.5	3.0	0.24	2.5	2.3	3.0	0.29
Tail height (6min), mm	51	47	53	2.71	49	46	52	2.70
Number of samples	***4***				***5***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.9						76.1		75.9		74.5	
FLOUR												
Protein (12% mb), %	11.71						11.36		13.43		12.99	
Colour, KJ	-2.5						-2.7		-1.1		-1.8	
FARINOGRAM												
Water absorption (14% mb), %	61.7						62.8		61.9		62.9	
Development time, min	5.5						4.8		5.3		7.5	
Stability, min	10.3						7.9		9.1		11.9	
Mixing Tolerance Index, BU	35						40		37		31	
EXTENSOGRAM (45 min pull)												
Area, cm2	134						110		156		127	
Maximum height, BU	405						345		395		360	
Extensibility, mm	227						217		255		236	
ALVEOGRAM												
Strength, cm2	41.3						39.3		43.3		47.4	
Stability (P), mm	75						75		61		69	
Distensibility (L), mm	126						126		179		159	
Configuration ratio (P/L)	0.60						0.60		0.34		0.43	
MIXOGRAM												
Peak time, min	2.5						2.3		2.3		2.3	
100g BAKING TEST												
Loaf volume, cm3	930						960		1010		955	
Evaluation	0						0		0		1	

SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

	(15)	(16)
PRODUCTION REGION	**North-West South-Eastern Region**	**North-West Central Eastern Region**
Intake silos	Bloemhof Christiana Hertzogville Hoopstad Kingswood	Bamboesspruit Klerksdorp Leeudoringstad Makwassie Regina Strydpoort Wolmaransstad

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	14.09	13.60	14.58	0.69	13.36	12.23	14.44	1.11
Falling number, sec	312	301	322	14.85	314	294	329	17.90
1000 Kernel mass (13% mb), g	31.5	30.7	32.2	1.06	33.5	32.6	34.0	0.81
Hectolitre mass (dirty), kg/hl	79.1	79.0	79.1	0.07	78.3	77.7	78.9	0.60
Screenings (<1.8mm), %	2.15	1.49	2.80	0.93	2.20	2.00	2.40	0.20
Total Damaged Kernels, %	0.60	0.56	0.64	0.06	0.63	0.56	0.70	0.07
Number of samples		***2***				***3***		

CULTIVARS						
	PAN 3349	63.0		SST 806	52.7	
cultivars	PAN 3364	10.5		SST 876	27.7	
with highest %	Elands	10.5		CRN 826	13.7	
occurrence	Betta DN	7.0		PAN 3349	3.3	
	PAN 3191	6.0		Olifants	2.7	
Number of samples		***2***			***3***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.8	2.8	0.00	2.6	2.4	2.8	0.21
Tail height (6min), mm	53	51	54	2.12	49	46	52	3.00
Number of samples		***2***				***3***		

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	73.7						73.4					
FLOUR												
Protein (12% mb), %	12.95						12.19					
Colour, KJ	-2.0						-2.2					
FARINOGRAM												
Water absorption (14% mb), %	63.7						61.6					
Development time, min	9.3						5.0					
Stability, min	17.7						11.0					
Mixing Tolerance Index, BU	15						29					
EXTENSOGRAM (45 min pull)												
Area, cm2	115						100					
Maximum height, BU	385						375					
Extensibility, mm	206						192					
ALVEOGRAM												
Strength, cm2	60.1						41.0					
Stability (P), mm	99						77					
Distensibility (L), mm	122						114					
Configuration ratio (P/L)	0.81						0.68					
MIXOGRAM												
Peak time, min	2.7						2.4					
100g BAKING TEST												
Loaf volume, cm3	910						965					
Evaluation	2						0					

SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

	(17)	(18)
PRODUCTION REGION	**North-West** **Central Northern Region (Ottosdal)**	**North-West** **Central Region (Ventersdorp)**
Intake silos	Bospoort Hartbeesfontein Kleinharts Melliodora Ottosdal Rostrataville Vermaas Werda	Bodenstein Buckingham Coligny Enselspruit Makokskraal Potchefstroom Ventersdorp

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.49	10.11	14.91	1.94	12.59	12.07	13.03	0.40
Falling number, sec	387	352	414	22.92	385	319	420	45.20
1000 Kernel mass (13% mb), g	36.6	32.1	39.7	3.02	34.8	33.0	36.1	1.42
Hectolitre mass (dirty), kg/hl	78.6	75.1	80.8	2.05	78.1	75.8	79.7	1.79
Screenings (<1.8mm), %	1.16	0.61	1.61	0.37	2.68	1.04	4.54	1.53
Total Damaged Kernels, %	0.37	0.24	0.64	0.14	0.96	0.22	2.74	1.19
Number of samples	***6***				***4***			

CULTIVARS			
	SST 806	51.8	62.3
cultivars	SST 826	24.2	15.8
with highest %	SST 876	16.7	13.5
occurrence	Olifants	2.8	3.5
	SST 825	1.0	3.5
Number of samples		***6***	***4***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.5	3.0	0.16	2.9	2.5	3.1	0.27
Tail height (6min), mm	49	44	55	3.56	52	47	54	3.20
Number of samples	***6***				***4***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.2		75.8				76.5				75.1	
FLOUR												
Protein (12% mb), %	12.10		10.89				11.53				11.87	
Colour, KJ	-2.2		-2.4				-1.6				-2.4	
FARINOGRAM												
Water absorption (14% mb), %	61.5		61.2				61.8				60.5	
Development time, min	5.2		4.7				5.0				4.9	
Stability, min	12.2		10.5				7.8				17.0	
Mixing Tolerance Index, BU	22		26				42				14	
EXTENSOGRAM (45 min pull)												
Area, cm2	138		112				123				143	
Maximum height, BU	400		390				370				455	
Extensibility, mm	227		196				226				211	
ALVEOGRAM												
Strength, cm2	40.1		39.6				37.9				48.0	
Stability (P), mm	74		76				72				75	
Distensibility (L), mm	128		121				134				144	
Configuration ratio (P/L)	0.57		0.63				0.54				0.52	
MIXOGRAM												
Peak time, min	2.3		2.3				2.3				2.7	
100g BAKING TEST												
Loaf volume, cm3	975		925				950				960	
Evaluation	0		0				0				0	

SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

PRODUCTION REGION	(19) North-West Central Region (Lichtenburg)	(20) North-West Eastern Region
Intake silos	Grootpan Halfpad Hibernia Lichtenburg Lottiehalte Lusthof	Battery Boons Brits Derby Koster Rustenburg Swartruggens Syferbult

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.29	10.34	13.71	1.15	11.25	8.29	13.84	1.52
Falling number, sec	358	224	391	49.61	376	278	429	38.64
1000 Kernel mass (13% mb), g	37.5	28.1	41.6	4.39	37.7	30.6	42.9	3.36
Hectolitre mass (dirty), kg/hl	77.1	63.5	80.1	4.58	79.2	74.4	81.4	1.62
Screenings (<1.8mm), %	2.91	0.81	11.82	3.21	1.95	0.75	4.16	1.04
Total Damaged Kernels, %	3.42	0.16	13.73	4.66	0.69	0.08	2.86	0.74
Number of samples	***11***				***24***			

CULTIVARS			
	SST 806	43.5	41.2
cultivars	Olifants	16.3	14.1
with highest %	CRN 826	12.5	15.6
occurrence	SST 322	8.6	
	SST 876	6.1	9.3
Number of samples		***11***	***24***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.3	3.5	0.34	2.9	2.0	4.2	0.41
Tail height (6min), mm	50	46	54	2.06	48	39	55	4.04
Number of samples	***11***				***24***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	77.2	76.7	76.6			75.7	74.8	76.5	76.5	75.3	74.9	
FLOUR												
Protein (12% mb), %	11.73	10.68	9.30			11.89	11.73	10.41	9.22	8.35	10.86	
Colour, KJ	-2.2	-2.0	-2.8			-1.3	-2.1	-2.8	-2.8	-3.1	-1.7	
FARINOGRAM												
Water absorption (14% mb), %	63.4	62.9	59.9			61.9	62.3	61.2	59.2	58.8	60.9	
Development time, min	4.7	3.5	3.5			5.2	5.3	4.2	2.2	3.0	4.8	
Stability, min	7.3	6.6	6.4			8.6	12.4	7.3	6.4	4.6	8.6	
Mixing Tolerance Index, BU	39	41	49			40	23	41	40	59	36	
EXTENSOGRAM (45 min pull)												
Area, cm2	96	85	84			117	145	104	89	64	108	
Maximum height, BU	335	325	340			390	470	350	350	310	405	
Extensibility, mm	198	177	171			209	208	198	170	142	183	
ALVEOGRAM												
Strength, cm2	36.5	35.2	27.2			37.6	47.6	33.8	31.5	21.3	37.5	
Stability (P), mm	78	87	67			72	90	74	69	66	77	
Distensibility (L), mm	107	80	92			117	115	102	106	71	105	
Configuration ratio (P/L)	0.73	1.08	0.73			0.62	0.78	0.72	0.65	0.93	0.73	
MIXOGRAM												
Peak time, min	2.3	2.4	2.6			2.5	2.7	2.5	2.8	2.3	2.7	
100g BAKING TEST												
Loaf volume, cm3	900	875	845			925	950	890	905	740	915	
Evaluation	0	0	0			0	0	0	0	0	0	

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (Central)

PRODUCTION REGION	(21) Free State North-Western Region (Viljoenskroon)	(26) Free State South-Eastern Region
Intake silos	Attie Groenebloem Heuningspruit Koppies Rooiwal Vierfontein Viljoenskroon Vredefort Weiveld	Arlington Kaallaagte Libertas Marquard Meets Monte Video Senekal Steynsrus

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	14.04	11.54	15.56	1.37	14.86	13.46	17.96	1.17
Falling number, sec	350	313	427	40.77	328	218	426	59.42
1000 Kernel mass (13% mb), g	31.8	29.1	37.1	3.29	34.0	27.5	39.6	3.09
Hectolitre mass (dirty), kg/hl	78.3	77.6	80.0	0.82	76.7	71.9	80.3	2.13
Screenings (<1.8mm), %	1.35	0.26	2.74	0.95	1.42	0.40	3.40	0.78
Total Damaged Kernels, %	0.43	0.24	0.68	0.14	0.56	0.08	1.50	0.40
Number of samples	***8***				***18***			

CULTIVARS			
	Elands	31.9	32.0
cultivars	SST 806	20.1	
with highest %	Gariep	15.1	22.6
occurrence	SST 399	8.4	13.7
	Betta DN	5.9	7.9
Number of samples		***8***	***18***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.0	2.4	3.3	0.31	3.1	2.5	3.6	0.32
Tail height (6min), mm	53	45	57	3.85	55	52	60	2.23
Number of samples	***8***				***18***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	73.8	77.5					75.3	74.0	73.9		74.8	73.4
FLOUR												
Protein (12% mb), %	13.11	10.64					12.91	14.23	13.94		12.31	15.65
Colour, KJ	-0.8	-1.2					-1.7	-1.3	-1.1		2.8	0.9
FARINOGRAM												
Water absorption (14% mb), %	61.6	61.0					64.1	64.5	63.4		61.2	64.0
Development time, min	6.3	3.4					7.3	7.2	6.3		3.2	9.2
Stability, min	10.7	4.9					12.4	12.0	11.7		6.4	17.0
Mixing Tolerance Index, BU	34	55					31	27	27		41	16
EXTENSOGRAM (45 min pull)												
Area, cm2	145	85					113	128	133		133	165
Maximum height, BU	430	305					390	395	400		435	440
Extensibility, mm	228	193					200	225	228		214	248
ALVEOGRAM												
Strength, cm2	46.6	28.0					53.5	55.7	48.6		37.9	61.2
Stability (P), mm	79	61					97	88	74		70	78
Distensibility (L), mm	123	114					109	126	135		119	150
Configuration ratio (P/L)	0.64	0.53					0.89	0.70	0.55		0.59	0.52
MIXOGRAM												
Peak time, min	2.7	2.3					2.4	2.4	2.7		2.7	2.8
100g BAKING TEST												
Loaf volume, cm3	1030	910					960	1015	965		965	1050
Evaluation	0	0					1	2	2		0	3

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (Central)

Free State Province (South-Western)

PRODUCTION REGION	(27) Free State Northern Region	(24) Free State Central Region
Intake silos	Gottenburg Heilbron Hoogte Mooigeleë Petrus Steyn Wolwehoek	Bloemfontein Brandfort De Brug Geneva Hennenman Koffiefontein Kroonstad Petrusburg Theunissen Van Tonder Welgeleë Winburg

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	14.86	12.96	15.67	0.84	14.70	9.93	18.01	1.52
Falling number, sec	267	64	383	114.87	340	134	417	61.17
1000 Kernel mass (13% mb), g	34.1	31.9	35.7	1.17	32.1	28.2	45.4	4.20
Hectolitre mass (dirty), kg/hl	77.0	71.6	79.3	2.65	78.3	75.3	81.6	1.35
Screenings (<1.8mm), %	1.44	0.86	2.97	0.74	1.80	0.51	3.73	0.91
Total Damaged Kernels, %	1.49	0.16	5.22	1.79	0.62	0.08	1.56	0.43
Number of samples	***8***				***27***			

CULTIVARS			
cultivars with highest % occurrence	Elands	40.3	6.1
	Tugela DN	15.5	1.9
	SST 399	12.1	4.3
	Gariep	2.5	37.1
	PAN 3377	3.9	19.4
Number of samples		***8***	***27***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.5	3.0	4.0	0.35	2.9	2.5	3.5	0.26
Tail height (6min), mm	56	45	65	6.32	53	43	58	3.06
Number of samples	***8***				***27***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.4			75.8		73.9	73.9	74.2	74.2		74.6	
FLOUR												
Protein (12% mb), %	13.77			13.86		13.67	13.98	12.33	14.10		11.61	
Colour, KJ	-0.4			-1.0		0.8	-1.6	-1.7	-0.5		-1.6	
FARINOGRAM												
Water absorption (14% mb), %	65.7			63.4		60.7	63.9	63.4	62.9		62.6	
Development time, min	8.0			6.9		3.7	8.2	5.2	6.0		4.5	
Stability, min	17.0			9.6		7.8	13.6	10.4	10.1		8.5	
Mixing Tolerance Index, BU	18			41		39	32	27	31		33	
EXTENSOGRAM (45 min pull)												
Area, cm2	149			121		160	138	143	125		104	
Maximum height, BU	400			385		470	400	430	400		345	
Extensibility, mm	254			214		226	236	221	220		204	
ALVEOGRAM												
Strength, cm2	64.7			57.2		48.0	51.5	48.3	49.7		38.1	
Stability (P), mm	102			82		61	90	85	78		77	
Distensibility (L), mm	119			155		157	118	122	143		113	
Configuration ratio (P/L)	0.86			0.53		0.39	0.76	0.70	0.54		0.68	
MIXOGRAM												
Peak time, min	3.0			2.3		2.5	2.6	2.3	2.4		2.0	
100g BAKING TEST												
Loaf volume, cm3	970			995		1030	1135	1060	1035		920	
Evaluation	2			2		0.0	0	0	1		0	

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (North-Western)

PRODUCTION REGION	(22) Free-State North-Western Region (Bothaville)	(23) Free-State North-Western Region (Bultfontein)
Intake silos	Allanridge Bothaville Mirage Odendaalsrus Schoonspruit Schuttesdraai	Bultfontein Losdoorns Protespan Tierfontein Wesselsbron Willemsrust

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	15.44	13.29	16.97	1.32	14.40	13.31	16.50	1.01
Falling number, sec	334	315	352	16.93	332	274	395	35.01
1000 Kernel mass (13% mb), g	31.9	27.9	35.7	3.07	31.7	29.0	35.4	2.12
Hectolitre mass (dirty), kg/hl	76.8	73.9	79.2	1.61	77.7	74.6	80.1	1.68
Screenings (<1.8mm), %	1.95	0.98	2.92	0.74	1.69	0.76	3.99	0.87
Total Damaged Kernels, %	0.28	0.00	0.78	0.26	0.43	0.00	1.44	0.40
Number of samples	***7***				***13***			

CULTIVARS			
	Elands	42.0	6.5
cultivars	Gariep	25.7	12.8
with highest %	PAN 3349	7.3	12.2
occurrence	SST 806		14.8
	PAN 3377		12.3
Number of samples		***7***	***13***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.3	2.7	3.7	0.37	3.0	2.3	3.3	0.28
Tail height (6min), mm	59	52	64	4.83	55	52	58	2.07
Number of samples	***7***				***13***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	73.8	72.9		75.0			73.4	72.7	72.3			
FLOUR												
Protein (12% mb), %	13.68	14.82		15.98			13.19	13.90	13.04			
Colour, KJ	-1.7	-1.7		-0.7			-2.1	-1.8	-2.0			
FARINOGRAM												
Water absorption (14% mb), %	63.9	64.8		65.9			63.6	63.7	63.4			
Development time, min	9.5	7.7		9.2			8.2	7.0	8.2			
Stability, min	15.9	17.4		15.9			18.1	18.2	18.0			
Mixing Tolerance Index, BU	27	6		19			16	20	21			
EXTENSOGRAM (45 min pull)												
Area, cm2	135	154		200			113	136	123			
Maximum height, BU	400	430		450			385	430	395			
Extensibility, mm	228	242		275			205	220	216			
ALVEOGRAM												
Strength, cm2	54.1	71.4		74.3			51.4	57.3	50.2			
Stability (P), mm	91	98		92			92	92	92			
Distensibility (L), mm	119	139		148			116	130	108			
Configuration ratio (P/L)	0.76	0.70		0.62			0.79	0.71	0.86			
MIXOGRAM												
Peak time, min	2.7	3.1		3.0			2.5	2.7	2.1			
100g BAKING TEST												
Loaf volume, cm3	1075	1175		1090			1110	1125	1010			
Evaluation	0	0		2			0	0	0			

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (Eastern)

PRODUCTION REGION	(25) Free State South-Western Region	(28) Free State Eastern Region
Intake silos	Bethlehem Clocolan De Wetsdorp Ficksburg Fouriesburg Marseilles Modderpoort Slabberts Tweespruit Westminster Zastron	Afrikaskop Ascent Cornelia Daniëlsrus Eeram Frankfort Harrismith Jim Fouché Kransfontein Memel Reitz Tweeling Villiers Vrede Warden Windfield

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.84	9.37	14.85	1.34	12.86	11.06	14.48	0.76
Falling number, sec	332	237	435	39.89	336	211	414	46.08
1000 Kernel mass (13% mb), g	36.0	31.0	41.8	2.87	37.4	30.7	46.1	3.90
Hectolitre mass (dirty), kg/hl	77.6	73.8	80.5	1.66	77.4	68.3	80.6	2.31
Screenings (<1.8mm), %	1.70	0.85	2.83	0.55	1.00	0.10	2.61	0.70
Total Damaged Kernels, %	0.43	0.08	0.86	0.20	0.37	0.08	0.60	0.16
Number of samples	***25***				***31***			

CULTIVARS			
	Elands	29.6	38.4
cultivars	SST 399	11.3	3.3
with highest %	Gariep	11.2	2.0
occurrence	SST 806	10.2	11.0
	PAN 3377	4.6	8.8
Number of samples		***25***	***31***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.1	2.0	4.7	0.60	3.1	2.3	4.1	0.46
Tail height (6min), mm	54	42	67	5.06	53	44	61	3.78
Number of samples	***25***				***31***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	74.5	74.8	73.8	74.3			76.0	75.9		73.6	76.3	
FLOUR												
Protein (12% mb), %	12.28	12.06	11.19	8.46			12.09	11.18		13.52	11.43	
Colour, KJ	-2.2	-1.8	-1.0	-2.5			-1.4	-1.3		0.0	-2.0	
FARINOGRAM												
Water absorption (14% mb), %	63.2	63.3	62.7	62.5			63.0	61.8		62.4	61.9	
Development time, min	5.9	5.9	3.3	1.7			5.3	6.0		6.0	6.2	
Stability, min	11.5	13.1	12.8	5.6			9.2	9.8		12.0	11.6	
Mixing Tolerance Index, BU	32	20	7	40			32	34		34	30	
EXTENSOGRAM (45 min pull)												
Area, cm2	132	131	108	95			120	118		143	117	
Maximum height, BU	420	440	445	470			365	410		415	430	
Extensibility, mm	212	200	169	136			223	190		232	189	
ALVEOGRAM												
Strength, cm2	48.6	55.4	47.9	30.6			45.6	40.2		59.5	50.0	
Stability (P), mm	92	97	110	132			80	81		81	92	
Distensibility (L), mm	107	115	81	37			119	101		152	108	
Configuration ratio (P/L)	0.86	0.84	1.36	3.60			0.68	0.80		0.53	0.85	
MIXOGRAM												
Peak time, min	2.4	3.1	3.3	3.1			2.5	2.8		2.9	3.0	
100g BAKING TEST												
Loaf volume, cm3	920	920	815	645			915	890		1035	840	
Evaluation	1	0	2	3			1	0		0	2	

SOUTH AFRICAN
SUMMER RAINFALL WHEAT AND IRRIGATION
Mpumalanga

PRODUCTION REGION	(30) Mpumalanga Eastern Region	(32) Mpumalanga Western Region
Intake silos	Amersfoort Badplaas Carolina Davel Ermelo Estancia Lothair Maizefield Mkondo Morgenzon Overvaal Panbult	Argent Dryden Endicott Elof Hawerklip Kendal Ogies

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.63	11.38	16.22	2.05	12.95	11.62	13.72	0.64
Falling number, sec	401	334	443	44.49	362	309	390	29.45
1000 Kernel mass (13% mb), g	38.7	32.7	44.3	4.14	39.2	34.6	44.0	2.72
Hectolitre mass (dirty), kg/hl	76.9	76.3	77.7	0.62	77.9	75.8	79.8	1.68
Screenings (<1.8mm), %	2.06	1.09	3.20	0.94	0.87	0.46	1.38	0.32
Total Damaged Kernels, %	0.34	0.08	0.64	0.25	0.57	0.38	0.92	0.18
Number of samples			***5***				***9***	

CULTIVARS			
	SST 806	50.2	55.8
cultivars	CRN 826	21.8	26.1
with highest %	Elands	13.2	
occurrence	SST 876	4.8	4.2
	SST 825		8.0
Number of samples		***5***	***9***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.3	3.7	0.55	2.6	2.4	3.0	0.22
Tail height (6min), mm	51	48	56	3.11	50	47	53	1.76
Number of samples			***5***				***9***	

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	77.4	78.5					78.4	77.3				
FLOUR												
Protein (12% mb), %	12.23	10.29					12.02	11.46				
Colour, KJ	-1.2	-2.9					-2.0	-2.1				
FARINOGRAM												
Water absorption (14% mb), %	62.8	62.4					62.7	62.3				
Development time, min	4.5	4.2					6.3	6.5				
Stability, min	7.1	6.5					10.5	9.7				
Mixing Tolerance Index, BU	43	48					32	39				
EXTENSOGRAM (45 min pull)												
Area, cm2	125	101					115	131				
Maximum height, BU	370	325					355	375				
Extensibility, mm	224	208					220	219				
ALVEOGRAM												
Strength, cm2	43.6	34.9					42.0	40.1				
Stability (P), mm	81	74					69	70				
Distensibility (L), mm	136	112					149	136				
Configuration ratio (P/L)	0.60	0.66					0.46	0.51				
MIXOGRAM												
Peak time, min	2.2	2.3					2.2	2.3				
100g BAKING TEST												
Loaf volume, cm3	950	865					925	870				
Evaluation	0	0					0	1				

SOUTH AFRICAN

SUMMER RAINFALL WHEAT AND IRRIGATION

Mpumalanga and Gauteng Provinces

PRODUCTION REGION	(33) Mpumalanga Northern Region	(34) Gauteng
Intake silos	Driefontein Lydenburg Marble Hall Middelburg Stoffelberg Pan Arnot Wonderfontein	Bloekomspruit Bronkhorstspruit Glenroy Goeie Hoek Kaalfontein Middelvlei Nigel Oberholzer Raathsvlei

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.02	10.43	13.58	1.26	12.57	11.23	15.17	1.04
Falling number, sec	417	382	473	31.68	415	374	445	29.63
1000 Kernel mass (13% mb), g	37.7	33.3	42.4	3.28	37.5	29.7	41.7	3.55
Hectolitre mass (dirty), kg/hl	79.1	77.7	80.8	1.32	78.6	74.7	81.5	2.00
Screenings (<1.8mm), %	1.97	1.28	2.99	0.54	1.40	0.49	2.30	0.53
Total Damaged Kernels, %	0.75	0.00	2.82	0.95	0.57	0.12	1.22	0.34
Number of samples			***8***				***11***	

CULTIVARS			
	SST 806	44.4	36.9
cultivars	CRN 826	29.6	48.7
with highest %	SST 876	6.8	4.0
occurrence	SST 822	6.0	
	SST 825	3.5	6.0
Number of samples		***8***	***11***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.0	2.3	3.7	0.47	2.9	2.0	3.8	0.62
Tail height (6min), mm	49	43	54	3.38	50	44	54	3.10
Number of samples		***8***				***11***		

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.1	78.3	75.8				76.1	77.9				
FLOUR												
Protein (12% mb), %	11.99	10.25	9.79				12.07	10.65				
Colour, KJ	-1.9	-2.2	-2.6				-2.1	-2.5				
FARINOGRAM												
Water absorption (14% mb), %	63.9	62.9	61.1				63.6	62.3				
Development time, min	6.5	3.8	4.2				6.3	6.4				
Stability, min	11.2	4.4	8.6				11.4	11.9				
Mixing Tolerance Index, BU	30	65	37				24	28				
EXTENSOGRAM (45 min pull)												
Area, cm2	113	70	87				128	128				
Maximum height, BU	395	260	375				405	450				
Extensibility, mm	186	186	160				209	194				
ALVEOGRAM												
Strength, cm2	45.0	31.2	34.6				42.4	44.0				
Stability (P), mm	94	78	88				87	94				
Distensibility (L), mm	103	95	80				104	92				
Configuration ratio (P/L)	0.91	0.82	1.10				0.83	1.03				
MIXOGRAM												
Peak time, min	2.5	2.0	3.0				2.3	2.7				
100g BAKING TEST												
Loaf volume, cm3	930	860	825				935	900				
Evaluation	0	0	0				0	0				

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Limpopo and Kwazulu-Natal Provinces

PRODUCTION REGION	(35) Limpopo	(36) KwaZulu-Natal
Intake silos	Alma Crecy Immerpan Lehau Naboomspruit Northam Nutfield Nylstroom Pienaarsrivier Pietersburg Potgietersrus Roedtan Settlers Tzaneen Vaalwater Warmbad	Bergville Bloedrivier Dannhauser Dundee Mizpah New Amalfi Paulpietersburg Vryheid Winterton

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.40	9.99	14.96	1.49	12.92	10.93	14.34	0.86
Falling number, sec	444	379	648	58.21	294	92	432	76.03
1000 Kernel mass (13% mb), g	34.6	28.4	39.4	3.31	37.2	32.9	42.1	2.93
Hectolitre mass (dirty), kg/hl	78.6	73.9	82.1	2.29	77.4	74.1	80.7	1.70
Screenings (<1.8mm), %	2.47	0.59	5.67	1.26	1.54	0.93	2.60	0.44
Total Damaged Kernels, %	0.78	0.00	9.30	2.20	1.44	0.16	5.08	1.33
Number of samples	***17***				***15***			

CULTIVARS			
	CRN 826	35.3	14.7
cultivars	SST 806	31.8	56.3
with highest %	Olifants	13.2	2.0
occurrence	SST 876	8.6	3.3
	SST 825	4.9	13.9
Number of samples		***17***	***15***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.6	1.8	3.5	0.46	2.8	2.3	3.5	0.42
Tail height (6min), mm	48	36	56	5.59	50	43	55	3.79
Number of samples	***17***				***15***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	74.4	76.1	74.8	77.5	72.3		75.9	76.4	76.6		77.1	
FLOUR												
Protein (12% mb), %	12.07	10.17	10.54	9.81	13.67		11.78	11.05	10.86		12.43	
Colour, KJ	-1.8	-2.7	-2.8	-1.6	-0.7		-1.6	-1.4	-1.7		-0.5	
FARINOGRAM												
Water absorption (14% mb), %	64.2	60.8	61.3	59.5	64.3		63.2	62.3	61.7		63.4	
Development time, min	5.7	3.8	5.2	4.0	7.0		5.5	4.7	2.8		5.2	
Stability, min	12.1	7.3	9.2	6.2	11.2		8.8	6.8	7.8		11.1	
Mixing Tolerance Index, BU	27	37	33	52	33		39	51	30		26	
EXTENSOGRAM (45 min pull)												
Area, cm2	130	86	104	86	131		101	94	105		133	
Maximum height, BU	445	350	345	385	345		310	290	335		375	
Extensibility, mm	192	190	206	153	260		245	229	218		248	
ALVEOGRAM												
Strength, cm2	52.3	33.8	36.7	31.2	44.8		43.3	33.8	39.8		49.7	
Stability (P), mm	100	78	85	74	83		79	70	77		80	
Distensibility (L), mm	109	94	96	100	119		125	117	111		134	
Configuration ratio (P/L)	0.92	0.82	0.88	0.74	0.70		0.63	0.60	0.69		0.60	
MIXOGRAM												
Peak time, min	2.7	2.3	2.5	2.5	2.3		2.5	2.3	2.7		3.0	
100g BAKING TEST												
Loaf volume, cm3	920	850	900	845	1030		985	915	935		1000	
Evaluation	0	0	0	0	0		0	0	0		0	

WEIGHTED AVERAGE RESULTS FOR THE LAST THREE SEASONS

	2005/2006					2004/2005					2003/2004				
Region	**Protein (12% mb), %**	**FN, sec**	**Hlm, kg/hl**	**Mixo PT, min**	***n***	**Protein (12% mb), %**	**FN, sec**	**Hlm, kg/hl**	**Mixo PT, min**	***n***	**Protein (12% mb), %**	**FN, sec**	**Hlm, kg/hl**	**Mixo PT, min**	***n***
1	11.9	413	79.0	3.0	*3*	12.4	387	77.4	2.8	*3*	11.5	406	76.3	2.9	*4*
2	11.8	427	76.3	2.9	*18*	13.3	390	76.4	2.8	*19*	13.0	407	75.3	2.9	*24*
3	11.9	406	77.8	2.7	*72*	13.6	378	76.7	2.9	*62*	13.0	393	75.8	2.8	*36*
4	11.2	398	79.0	2.7	*48*	12.5	367	79.0	2.8	*51*	11.9	384	77.2	2.7	*23*
5	11.0	385	80.1	2.5	*19*	12.1	349	77.5	2.5	*40*	10.8	387	80.7	2.3	*30*
6	11.4	383	80.3	2.6	*22*	11.6	377	78.3	2.9	*21*	10.7	386	79.3	2.8	*17*
7	-	-	-	-	-	11.8	414	82.0	2.3	*1*	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	11.3	412	79.7	2.3	*28*	11.9	433	79.4	2.6	*16*	11.3	419	79.5	2.4	*19*
11	11.7	382	78.5	2.6	*9*	12.0	419	78.9	2.6	*11*	11.8	319	77.1	2.7	*31*
12	12.5	375	79.0	2.7	*4*	-	-	-	-	-	13.2	363	76.8	3.0	*3*
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	13.7	342	75.7	2.5	*5*	13.2	390	76.7	2.6	*5*	13.5	379	74.5	3.4	*5*
15	14.1	312	79.1	2.8	*2*	13.2	368	79.2	2.5	*6*	-	-	-	-	-
16	13.4	314	78.3	2.6	*3*	-	-	-	-	-	12.3	385	74.0	2.2	*4*
17	12.5	387	78.6	2.8	*6*	10.9	381	80.5	2.5	*3*	12.1	370	77.5	2.7	*7*
18	12.6	385	78.1	2.9	*4*	11.2	381	78.7	3.0	*4*	13.2	367	79.6	3.2	*2*
19	12.3	358	77.1	2.8	*11*	11.6	376	78.0	2.6	*12*	12.9	365	78.5	2.6	*12*
20	11.3	376	79.2	2.9	*24*	11.1	388	79.7	2.9	*28*	11.8	348	77.3	3.3	*14*
21	14.0	350	78.3	3.0	*8*	13.4	366	77.7	2.9	*10*	14.6	335	77.0	3.3	*8*
22	15.4	334	76.8	3.3	*7*	15.1	400	75.4	2.8	*6*	13.1	300	75.7	3.1	*7*
23	14.4	332	77.7	3.0	*13*	14.1	409	77.0	3.0	*15*	13.0	371	77.6	2.9	*29*
24	14.7	340	78.3	2.9	*27*	14.8	375	76.2	3.0	*16*	13.6	358	75.6	3.0	*46*
25	12.8	332	77.6	3.1	*25*	14.0	375	76.2	3.4	*24*	13.4	308	76.9	2.9	*29*
26	14.9	328	76.7	3.1	*18*	15.0	371	76.0	3.4	*26*	14.6	318	76.8	2.9	*26*
27	14.9	267	77.0	3.5	*8*	15.7	348	75.8	3.5	*8*	14.6	364	77.6	2.6	*13*
28	12.9	336	77.4	3.1	*31*	14.9	332	76.4	3.5	*29*	14.9	339	77.0	2.6	*36*
29	-	-	-	-	-	15.5	336	76.0	3.3	*1*	-	-	-	-	-
30	12.6	401	76.9	2.8	*5*	13.5	291	75.9	2.9	*4*	13.3	334	78.9	2.6	*6*
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	13.0	362	77.9	2.6	*9*	13.4	400	75.7	2.3	*3*	12.7	414	80.9	2.1	*3*
33	12.0	417	79.1	3.0	*8*	11.6	408	80.2	2.5	*17*	12.4	439	79.4	2.7	*5*
34	12.6	415	78.6	2.9	*11*	12.4	437	78.9	3.5	*5*	14.0	397	77.0	2.7	*6*
35	12.4	444	78.6	2.6	*17*	11.4	384	79.9	2.5	*26*	13.1	386	77.0	3.0	*19*
36	12.9	294	77.4	2.8	*15*	12.8	408	77.4	2.9	*8*	12.8	395	77.8	3.1	*8*
Ave.	**12.4**	**375**	**78.2**	**2.8**	***480***	**13.0**	**377**	**77.7**	**2.9**	***480***	**12.9**	**364**	**77.2**	**2.8**	***472***

BREAD WHEAT GRADING TABLE
2005/2006

Grade	Minimum			*Maximum percentage permissible deviation (m/m)*									
				A	B	C	D	E	F	G	H	I	J
	Hectolitre mass, kg	Falling number, seconds	Protein content, %	Heavily frost damaged kernels	Field fungi	Storage fungi	Screenings	Other grain and unthreshed ears	Gravel, stones, turf and glass	Foreign matter plus F	Heat damaged kernels	Damaged kernels plus H	Combined deviations (D+E+G+I)
Grade 1	77	220	12	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 2	76	220	11	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 3	74	220	10	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 4	72	200	9	5	2	0.5	3	1	0.5	1	0.5	2	5
Utility grade	70	150	8	10	2	0.5	10	4	0.5	3	0.5	5	10
Other Wheat	<70	<150	<8	>10	>2	>0.5	>10	>4	>0.5	>3	>0.5	>5	>10
Minimum size of working samples	1 kg	300 g clean	Apparatus instructions	25 g sifted	25 g sifted	25 g sifted	500 g unsifted	50 g sifted	100 g sifted	100 g sifted	100 g sifted	25 g sifted	-

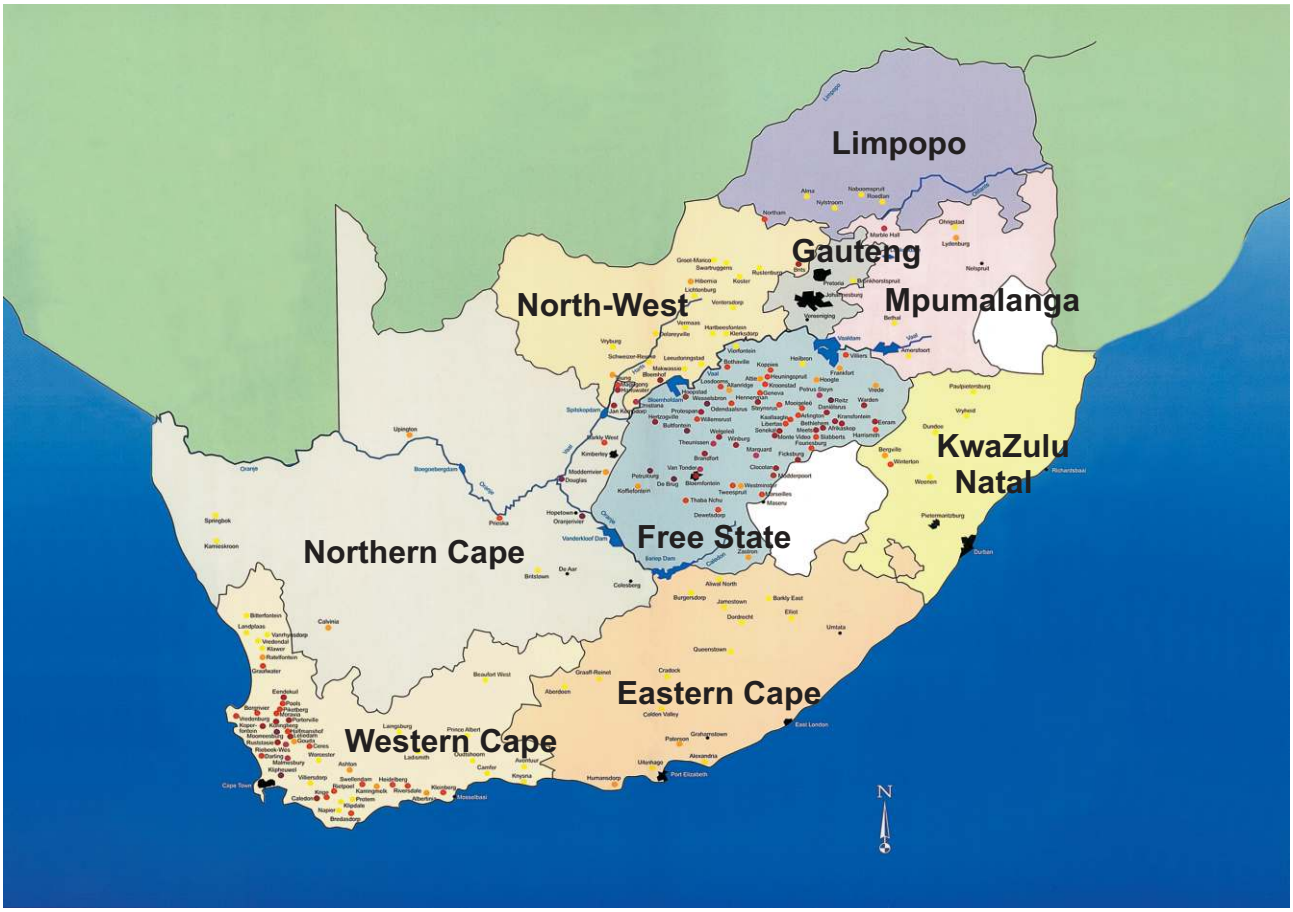
MYCOTOXIN RESULTS FOR THE 2005/2006 SEASON

Region	Class and Grade	Aflatoxin ppb *LOD < 5.0*	Deoxynivalenol ppm *LOD < 0.50*	Ochratoxin ppb *LOD = 0.47*
1	B1	0	0.91	0
2	B3	0	1.2	0.50
3	B1	0	1.1	0
4	B2	0	1.1	0
5	B2	0	0.88	0.67
6	B2	7	1.5	0
10	B2	6	1.1	0
11	B1	0	0.97	0.52
12	B1	0	0.95	0.52
14	B1	0	0.89	0
15	B1	0	0.76	0
16	B1	0	0.82	0
17	B1	0	0.77	0
18	UT	0	0.57	0
19	B1	0	0.0	0.47
20	B1	0	0.66	0
21	B2	0	0.73	0
22	B2	0	0.91	0
23	B3	0	0.0	0
24	B1	0	0.61	0
25	B1	0	0.93	0
26	B3	0	1.5	0
27	COW	0	1.3	0
28	B2	0	1.2	0
30	B2	0	1.0	0
32	B2	0	1.1	0
33	B1	0	1.3	0
34	B2	0	1.1	0
35	B1	0	0.93	0
36	B2	0	1.5	0
Average 2005/2006		***0.43***	***1.01***	***0.09***
Average 2004/2005		***0.0***	***1.06***	***0.0***

Please note:

Limit of detection (LOD) means the lowest level that can be detected accurately by the fluorometer. Should the fluorometer give a reading above zero but lower than the limit of detection, the result is reported as < "limit of detection".

RSA WHEAT PRODUCTION AREAS



WHEAT SEED SOLD BY COMMERCIAL GRAIN SILO OWNERS TO WHEAT PRODUCERS FOR THE 2005 PLANTING SEASON

Cultivar	%	Cultivar	%
SST 88	27.90	Inia	0.39
SST 57	13.72	SST 027	0.35
SST 015	8.40	Pan 3349	0.34
SST 806	7.86	Pan 3118	0.25
Elands	6.58	SST 322	0.18
SST 876	6.30	SST 935	0.17
Komati	4.18	SST 966	0.16
CRN 826	3.50	Pan 3191	0.14
SST 825	3.41	Pan 3364	0.10
Olifants	3.30	Marico	0.09
SST 94	3.19	Baviaans	0.08
SST 822	2.42	SST 367	0.07
Kariega	2.15	SST 363	0.05
Betta DN	0.85	Caledon	0.03
SST 65	0.82	Limpopo	0.029
SST 334	0.76	Pan 3492	0.023
SST 399	0.67	Pan 3235	0.017
Gariep	0.56	SST 333	0.014
Pan 3377	0.50	Pan 3120	0.012
Steenbras	0.41	SST 972	0.010
			100

Note: These figures are not absolute, but the best and only figures available.

METHODS

GRADING:

Full grading was done in accordance with the Regulations relating to the grading, packing and marking of wheat intended for sale in the Republic of South Africa (No. R. 905 of 10 July 1998 as amended by Nos. R. 1421 of 6 November 1998, R. 876 of 14 September 2001 and R. 979 of 19 July 2002, R. 1210 of 29 August 2003 and Dispensation: Reference No. 21/4/1/1 and Serial No. 791 of 25 July 2003).

Hectolitre mass, screenings, protein and falling number were determined. The determination of deviations relating to wheat kernels comprised foreign matter including gravel, stones, turf and glass; other grain and unthreshed ears; damaged kernels including heat-damaged kernels, immature kernels, insect-damaged kernels and sprouted kernels; heavily frost-damaged kernels; field fungi; storage fungi; ergot; noxious seeds; possible presence of undesirable odours and live insects.

Hectolitre mass means the mass in kilogram per hectolitre. Hectolitre mass provides a measure of the bulk density of the grain and is also useful as a guide to grain soundness and potential milling extraction.

Screenings means all material that passes through a standard sieve. A standard sieve is a hand sieve which consists of a slotted, stainless steel sieve with a thickness of 1,0 mm, mounted in durable plastic, with apertures 1,8 mm wide and 12,7 mm long, which fits into an aluminum pan with a solid bottom, and has a inner diameter of 300 mm and an outer diameter of 302,5 mm.

Damaged kernels means wheat kernels and pieces of wheat kernels -
(a) which have been damaged by insects;
(b) which have been distinctly discoloured (orange-brown, dark brown or black) by external heat or as a result of heating caused by internal fermentation in wheat with an excessive moisture content, excluding wheat kernels in respect of which the discolouration is confined to the germ end;
(c) which are immature and have a distinctly green colour; and
(d) in which germination has proceeded to such an extent that the skin covering the embryo has been broken or the developing rootlets are clearly visible.

THOUSAND KERNEL MASS:

This is the weight in grams of one thousand kernels of grain and provides a measure of grain size and density. This determination does not include kernels that are broken or chipped.

FALLING NUMBER MILLING:

At least 300 g of wheat is cleaned by using the standard 1,8 mm sieve and by removing coarser impurities by hand. The sample is then milled on the falling number hammer mill fitted with a 0,8 mm screen.

PROTEIN:

The Dumas combustion analysis technique is used, according to AACC method 46-30, 1999.

This method prescribes a generic combustion method for the determination of crude protein. Combustion at high temperature in pure oxygen sets nitrogen free, which is measured by thermal conductivity detection. The total nitrogen content of the flour sample is determined and converted to equivalent protein by multiplication with a factor of 5.7 to obtain the protein content.

FALLING NUMBER:

This method is based upon the rapid gelatinization of an aqueous suspension of meal or flour in a boiling water bath and subsequent measurement of the liquefaction of the starch paste by the alpha-amylase in the sample. The method measures the alpha-amylase activity.

ICC Standard No.107/1, 1995 is used to determine the falling number. Only the altitude-corrected value is reported.

QUADROMAT MILLING:

Cleaned wheat samples are conditioned by adding 3 ml water per 100 g wheat, 18 hours prior to milling. The samples are then milled on the Quadromat junior laboratory mill.

MIXOGRAPH:

A 35 g mixograph is used. The amount of water added to the flour is adjusted according to the flour protein content. Industry Accepted Method 020 based on AACC method 54-40A, 1999 is followed.

Mixogram peak time is the time measured in minutes that a dough takes to reach its maximum consistency or first indication of dough weakening. The peak time is a measure of optimum dough development and thus a measure of protein quality.

Mixogram tail height at 6 minutes is the distance in millimetres measured from the base line of the paper at 6 minutes to the graph centre point at 6 minutes. This figure is an indication of the weakening effect of the dough. Higher values indicate flours that are more tolerant to mixing.

BüHLER MILLING:

Cleaned wheat samples are damped to between 15,0 % and 16,0 % moisture according to the wheat moisture and kernel hardness and allowed to stand for 20 hours. Samples are then milled on a standard Bühler MLU 202 mill and passed through a bran finisher.

BüHLER EXTRACTION:

The extraction represents the flour yield after milling plus flour obtained form bran that passed through a bran finisher. Flour extraction is calculated from the mass of the total products. Bühler MLU 202 mill set for South African wheat, mill settings and sieve sizes deviate from AACC method 26-21A, 1999.

COLOUR:

The Kent Jones colour is determined by following FTP Method No. 0007/3, 7/1991. This method determines the influence of the branny material present in flour by measuring reflectance with a light source in the green band of the light spectrum. The lower the Kent Jones colour, the brighter the flour.

FARINOGRAPH:

AACC method 54-21, 1999 constant flour weight procedure is followed, using 300 g of flour on a 14 % moisture basis.

The **farinograph** measures and records the resistance of a dough to mixing, as it is formed from flour and water, developed and broken down. The dough is subjected to a prolonged, relatively gentle mixing action at a constant temperature.

The **water absorption** is the amount of water required for a dough to reach a definite consistency (500 Brabender units). The amount of water added to the flour is expressed as a percentage of the flour mass and reported on a 14 % moisture basis.

The **development time** is the time from the beginning of water addition until the dough reaches its optimum consistency and the point immediately before the first indication of weakening. A long mixing time can be associated with flours that have a high percentage of gluten- forming proteins.

The **stability** is the time during which the top of the curve intercepts a horizontal line through the centre of the curve. This gives an indication of the dough's tolerance to mixing: the longer the stability, the longer the mixing time that the dough can withstand. A dough with a longer stability can also withstand a longer fermentation period.

The **mixing tolerance index value** is the difference, in Brabender units, between the top of the curve at the peak and the top of the curve measured 5 minutes after the peak is reached. The value gives an indication of the extent to which breakdown of the dough occurs. The higher the value, the more and the quicker the breakdown of the dough occurs. This value is similar to the mixogram tail height.

EXTENSOGRAPH:

ICC Standard No. 114/1, 1992 is followed.

The **strength** gives an indication of the total force (work) needed to stretch the dough and is represented by the area under the curve.

The **maximum height** gives and indication of the dough's resistance to stretching and is measured as the mean of the maximum heights of the curves of the two test pieces.

The **extensibility** is the mean length at the base of the 2 curves and indicates the stretchability of the dough.

ALVEOGRAPH:

ICC Standard No.121,1992 is followed.

The **alveograph** measures the resistance of the dough to stretching and also how extensible the dough is. The **alveograph** stretches the dough in more than one direction (as is happening during proofing), whereas the extensograph stretches the dough in only one direction.

Strength: The area under the curve gives an indication of the dough strength.

Stability (P): Obtained by multiplying the maximum height of the curve with a constant factor of 1.1. This value is an indication of the resistance of the dough to extension.

Distensibility (L): The length of the curve, measured along the base line, gives an indication of the extensibility of the dough and also predicts the handling characteristics of the dough.

P/L-value: This ratio is obtained by dividing the P-value by the L-value, thus providing an approximate indication of the shape of the curve that combines stability and extensibility.

100 g BAKING TEST:

This procedure, according to Industry Accepted Method 022 based on AACC Method 10-10B, 1999, provides an optimized bread-making method for evaluating bread wheat flour quality and a variety of dough ingredients by a straight-dough method in which all ingredients are incorporated in the initial mixing step.

Keys for the evaluation characteristic of the 100g Baking test:

0 - *Excellent*
1 - *Very Good*
2 - *Good*
3 - *Questionable*
4 - *Poor*
5 - *Very Poor*
6 - *Extremely Poor*

Please note:
This 100 g Baking test evaluation does not give an indication of the baking quality of the flour, but refers to the relationship between the protein content and the bread volume.

MYCOTOXIN ANALYSES

Mycotoxins are natural contaminants of food and feedstuffs with serious implications for public health and economics, in particular with relation to the international food trade.

The mycotoxin analyses were carried out in accordance with the Vicam immunoaffinity column technique using the different Vicam instruction manuals for the different mycotoxins. Detection of the toxins was done on a fluorometer. Thirty samples of the 480 wheat crop samples were tested for aflatoxin, deoxynivalenol and ochratoxin.

Fungi	Toxin	Method reference
Aspergillus flavus	Aflatoxin	Vicam Aflatest Instruction Manual May 5, 1999
Aspergillus ochraceus and several species of Penicillium sp.	Ochratoxin	Vicam Ochratest Instruction Manual May 4, 1999
Fusarium graminearum	Deoxynivalenol (DON)	Vicam DON FQ Instruction Manual June 11, 2002

RSA WHEAT CROP QUALITY

RSA Crop Quality 2003/2004 and 2005/2006 Seasons

Country of origin	RSA Crop Average 2003/2004							RSA Crop Average 2005/2006						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***140***	***93***	***81***	***34***	***97***	***27***	***472***	***178***	***104***	***85***	***21***	***69***	***23***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.39	12.37	12.66	12.23	13.27	12.68	12.91	13.37	12.04	11.34	10.44	12.30	13.07	12.43
Moisture, %	11.0	10.9	11.1	11.0	10.8	11.2	11.0	11.2	11.2	11.0	10.9	10.9	11.2	11.1
Falling number, sec	365	364	370	355	366	348	364	370	384	385	357	374	364	375
1000 Kernel mass (13% mb), g	34.3	34.1	34.2	33.7	31.1	32.9	33.5	35.5	37.0	36.6	37.8	34.4	32.6	35.8
Hlm (dirty), kg/hl	79.0	77.8	76.8	76.1	75.4	75.9	77.2	78.8	78.3	78.2	78.7	77.4	75.6	78.2
Screenings (<1,8mm), %	1.46	1.73	1.81	1.85	3.52	3.39	2.14	1.41	1.55	1.52	1.38	2.87	1.89	1.69
Gravel, stones, turf and glass, %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.01
Foreign matter, %	0.10	0.10	0.13	0.20	0.27	0.20	0.15	0.09	0.11	0.12	0.11	0.12	0.27	0.12
Other grain & unthreshed ears, %	0.21	0.28	0.31	0.36	0.71	0.66	0.38	0.27	0.30	0.34	0.30	0.50	0.37	0.33
Heat damaged kernels, %	0.00	0.01	0.01	0.00	0.01	0.44	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Immature kernels, %	0.18	0.12	0.17	0.12	0.20	0.18	0.17	0.16	0.09	0.07	0.05	0.07	0.16	0.11
Insect damaged kernels, %	0.22	0.21	0.22	0.22	0.41	0.44	0.27	0.29	0.41	0.45	0.44	0.65	5.85	0.67
Heavily frost damaged kernels, %	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.04	0.01
Sprouted kernels, %	0.06	0.13	0.04	0.02	0.14	0.05	0.08	0.03	0.06	0.02	0.02	0.17	0.56	0.08
Total Damaged kernels, %	0.46	0.47	0.44	0.36	0.76	1.11	0.55	0.48	0.56	0.57	0.51	0.90	6.89	0.88
Combined deviations, %	2.23	2.58	2.69	2.77	5.26	5.36	3.22	2.26	2.50	2.54	2.30	4.39	7.96	2.95
Field fungi, %	0.23	0.30	0.36	0.32	0.41	0.50	0.33	0.08	0.11	0.12	0.08	0.10	0.25	0.11
Storage fungi, %	0.03	0.04	0.03	0.03	0.03	0.13	0.04	0.01	0.01	0.01	0.00	0.01	0.02	0.01
Ergot, %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Live insects	0	0	0	0	0	0	0	No	No	No	No	No	No	No
Undesirable odour	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***25***	***19***	***22***	***14***	***-***	***-***	***80***	***30***	***22***	***19***	***11***	***14***	***4***	***100***
BÜHLER EXTRACTION, %	75.0	74.7	74.1	73.3	-	-	74.4	75.4	75.9	75.4	75.6	75.2	74.6	75.5
FLOUR														
Colour, KJ	-0.6	-0.8	-0.6	-0.6	-	-	-0.6	-1.8	-1.9	-1.9	-1.8	-1.4	-0.3	-1.8
100g BAKING TEST														
Baking water absorption, %	62.7	61.6	61.9	61.8	-	-	62.1	62.3	61.0	60.9	60.9	61.2	63.3	61.5
Loaf volume, cm3	954	906	916	897	-	-	922	951	912	874	820	895	970	906
Evaluation	1	0	1	1	-	-	1	0	0	0	1	0	1	0
FARINOGRAM														
Water absorption, %	62.4	61.4	61.0	60.8	-	-	61.5	63.1	62.6	61.6	61.7	61.9	62.0	62.3
Development time, min	4.7	4.6	4.5	4.2	-	-	4.5	6.0	4.9	4.2	4.1	4.7	5.8	5.0
Stability, mm	6.6	6.9	6.8	6.6	-	-	6.7	10.7	9.0	8.5	7.5	9.1	10.7	9.3
Mixing tolerance index, BU	53	54	55	56	-	-	54	33	37	36	43	35	32	36

RSA Crop Quality of 2003/2004 and 2005/2006 Seasons

Country of origin	RSA Crop Average 2003/2004							RSA Crop Average 2005/2006						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***25***	***19***	***22***	***14***	***-***	***-***	***80***	***30***	***22***	***19***	***11***	***14***	***4***	***100***
ALVEOGRAM														
Strength, cm²	43.5	40.7	40.0	38.8	-	-	41.1	44.5	39.9	36.9	37.6	39.6	46.7	40.7
Stability, mm	88	88	85	83	-	-	86	84	82	80	86	80	73	82
Distensibility, mm	116	106	109	106	-	-	110	117	106	102	93	111	133	109
P/L	0.77	0.88	0.85	0.90	-	-	0.84	0.73	0.79	0.84	1.16	0.75	0.57	0.81
EXTENSOGRAM														
Strength, cm²	103	97	97	90	-	-	98	117	105	98	96	110	137	108
Max. height, BU	365	373	364	344	-	-	363	372	356	357	354	377	425	366
Extensibility, mm	190	176	178	173	-	-	180	213	199	186	175	198	218	199
MIXOGRAM														
Peak time, min	2.3	2.4	2.5	2.5	-	-	2.4	2.4	2.5	2.5	2.6	2.5	2.5	2.5
Absorption, %	62.7	61.6	62.0	61.7	-	-	62.1	62.5	61.4	60.8	60.8	61.5	63.9	61.7
MYCOTOXINS														
Aflatoxin, ppb	-							0.43						
Deoxynivalenol, ppm	-							1.01						
Ochratoxin A, ppb	-							0.09						
No. of samples	***-***							***30***						

2004/2005 IMPORTED WHEAT QUALITY - ARGENTINA

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Argentina							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***6***	***16***	***-***	***-***	***49***	***4***	***75***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	12.46	11.60	-	-	11.79	11.92	11.81	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	12.0	12.1	-	-	12.1	11.7	12.0	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	352	385	-	-	392	406	388	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	33.1	34.5	-	-	33.4	34.4	33.7	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	78.4	78.7	-	-	77.6	78.2	77.9	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	2.22	2.62	-	-	3.94	2.22	3.43	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	0.00	0.00	-	-	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	0.40	0.18	-	-	0.18	0.11	0.19	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	0.13	0.15	-	-	0.24	0.00	0.20	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	0.02	0.03	-	-	0.04	0.65	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	0.03	0.04	-	-	0.05	0.15	0.05	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	0.21	0.35	-	-	0.59	0.00	0.47	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	0.00	0.01	-	-	0.00	0.85	0.05	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	0.01	0.06	-	-	0.16	0.00	0.12	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	0.28	0.46	-	-	0.85	0.50	0.70	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	2.92	3.39	-	-	5.19	2.36	4.47	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	0.46	0.13	-	-	0.13	0.00	0.15	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	0.06	0.03	-	-	0.05	0.05	0.05	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	0.10	0.00	-	-	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	0	-	-	0	0	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	0	-	-	0	0	0	0	0	0	0	0	0	0
Live insects	No	No	-	-	No	No	No	No	No	No	No	No	No	No
Undesirable odour	No	No	-	-	No	No	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***6***	***16***	***-***	***-***	***49***	***4***	***75***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	74.8	75.4	-	-	75.2	73.7	75.1	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-0.3	-0.3	-	-	0.2	-0.4	0.0	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	61.4	60.7	-	-	60.9	60.7	60.9	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	810	761	-	-	781	796	780	949	922	918	934	-	-	930
Evaluation	2	2	-	-	2	2	2	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	62.3	62.9	-	-	62.4	62.7	62.5	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	2.2	2.1	-	-	2.1	2.0	2.1	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	9.0	7.5	-	-	7.5	7.7	7.7	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	40	47	-	-	50	42	48	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Argentina							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***6***	***16***	***-***	***-***	***49***	***4***	***75***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
ALVEOGRAM														
Strength, cm²	49.1	41.5	-	-	41.4	44.3	42.2	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	118	128	-	-	122	127	123	75	75	72	74	-	-	74
Distensibility, mm	75	56	-	-	59	64	60	130	122	124	127	-	-	126
P/L	1.63	2.34	-	-	2.17	2.05	2.15	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	104	101	-	-	103	101	102	116	118	109	121	-	-	115
Max. height, BU	460	471	-	-	477	450	473	401	416	393	424	-	-	406
Extensibility, mm	161	150	-	-	151	157	152	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	4.2	3.8	-	-	4.0	4.0	4.0	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	61.3	60.3	-	-	60.6	60.7	60.6	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	0.96							0						
Deoxynivalenol, ppm	0.73							1.06						
Ochratoxin A, ppb	0.38							0						
No. of samples	***24***							***30***						

2004/2005 IMPORTED WHEAT QUALITY - AUSTRALIA

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Australia							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***23***	***2***	***-***	***-***	***3***	***-***	***28***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.68	11.18	-	-	12.80	-	13.41	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	10.1	10.1	-	-	10.8	-	10.2	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	471	567	-	-	389	-	469	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	35.4	38.0	-	-	32.6	-	35.3	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	80.2	80.8	-	-	78.2	-	80.0	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	1.65	1.39	-	-	3.94	-	1.88	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	0.00	0.00	-	-	0.00	-	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	0.23	0.16	-	-	0.48	-	0.25	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	0.24	0.20	-	-	0.25	-	0.24	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	0.03	0.00	-	-	0.00	-	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	0.03	0.00	-	-	0.00	-	0.03	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	0.09	0.16	-	-	0.24	-	0.11	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	0.00	0.00	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	0.10	0.00	-	-	0.00	-	0.08	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	0.34	0.16	-	-	0.24	-	0.32	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	2.24	1.91	-	-	4.91	-	2.50	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	0.06	0.04	-	-	0.05	-	0.06	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	0.01	0.00	-	-	0.00	-	0.01	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	0.00	0.00	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	0	-	-	0	-	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	0	-	-	0	-	0	0	0	0	0	0	0	0
Live insects	No	No	-	-	No	-	No	No	No	No	No	No	No	No
Undesirable odour	No	No	-	-	No	-	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***23***	***2***	***-***	***-***	***3***	***-***	***28***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	74.3	72.9	-	-	73.2	-	74.1	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-1.8	-2.4	-	-	-1.8	-	-1.9	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	63.3	61.4	-	-	62.0	-	63.0	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	905	725	-	-	885	-	890	949	922	918	934	-	-	930
Evaluation	2	3	-	-	1	-	2	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	65.4	65.0	-	-	62.7	-	65.0	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	5.9	2.2	-	-	5.8	-	5.6	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	12.8	4.7	-	-	14.3	-	12.3	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	28	58	-	-	24	-	30	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Australia							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***23***	***2***	***-***	***-***	***3***	***-***	***28***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
ALVEOGRAM														
Strength, cm²	58.0	34.9	-	-	59.8	-	56.5	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	119	134	-	-	121	-	120	75	75	72	74	-	-	74
Distensibility, mm	104	45	-	-	94	-	99	130	122	124	127	-	-	126
P/L	1.22	3.02	-	-	1.29	-	1.36	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	123	81	-	-	160	-	124	116	118	109	121	-	-	115
Max. height, BU	427	418	-	-	613	-	446	401	416	393	424	-	-	406
Extensibility, mm	197	131	-	-	183	-	191	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	2.7	3.1	-	-	3.4	-	2.8	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	63.0	59.9	-	-	62.0	-	62.7	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	1.83							0						
Deoxynivalenol, ppm	0.68							1.06						
Ochratoxin A, ppb	0.65							0						
No. of samples	***6***							***30***						

2004/2005 IMPORTED WHEAT QUALITY - CANADA

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Canada							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***4***	***-***	***-***	***-***	***-***	***-***	***4***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.31	-	-	-	-	-	13.31	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	12.4	-	-	-	-	-	12.4	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	316	-	-	-	-	-	316	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	35.0	-	-	-	-	-	35.0	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	79.1	-	-	-	-	-	79.1	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	1.65	-	-	-	-	-	1.65	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	0.00	-	-	-	-	-	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	0.15	-	-	-	-	-	0.15	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	0.27	-	-	-	-	-	0.27	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	0.10	-	-	-	-	-	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	0.00	-	-	-	-	-	0.00	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	0.12	-	-	-	-	-	0.12	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	0.29	-	-	-	-	-	0.29	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	0.12	-	-	-	-	-	0.12	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	0.34	-	-	-	-	-	0.34	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	2.36	-	-	-	-	-	2.36	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	0.12	-	-	-	-	-	0.12	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	0.04	-	-	-	-	-	0.04	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	0.00	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	-	-	-	-	-	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	-	-	-	-	-	0	0	0	0	0	0	0	0
Live insects	No	-	-	-	-	-	No	No	No	No	No	No	No	No
Undesirable odour	No	-	-	-	-	-	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***4***	***-***	***-***	***-***	***-***	***-***	***4***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	71.5	**-**	**-**	**-**	**-**	**-**	71.5	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-0.1	-	-	-	-	-	-0.1	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	63.0	-	-	-	-	-	63.0	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	850	-	-	-	-	-	850	949	922	918	934	-	-	930
Evaluation	3	-	-	-	-	-	3	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	65.7	-	-	-	-	-	65.7	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	3.2	-	-	-	-	-	3.2	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	10.2	-	-	-	-	-	10.2	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	29	-	-	-	-	-	29	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Canada							RSA Crop Average						
Class and Grade bread wheat	B1	B2	B3	B4	UT	COW	Average	B1	B2	B3	B4	UT	COW	Average
No. of samples	*4*	-	-	-	-	-	*4*	*24*	*25*	*21*	*10*	-	-	*80*
ALVEOGRAM														
Strength, cm²	53.3	-	-	-	-	-	53.3	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	128	-	-	-	-	-	128	75	75	72	74	-	-	74
Distensibility, mm	83	-	-	-	-	-	83	130	122	124	127	-	-	126
P/L	1.55	-	-	-	-	-	1.55	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	114	-	-	-	-	-	114	116	118	109	121	-	-	115
Max. height, BU	425	-	-	-	-	-	425	401	416	393	424	-	-	406
Extensibility, mm	183	-	-	-	-	-	183	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	3.2	-	-	-	-	-	3.2	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	62.5	-	-	-	-	-	62.5	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	0.00							0						
Deoxynivalenol, ppm	0.59							1.06						
Ochratoxin A, ppb	<0.47							0						
No. of samples	*1*							*30*						

2004/2005 IMPORTED WHEAT QUALITY - GERMANY

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Germany							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***7***	***9***	***-***	***-***	***1***	***-***	***17***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	12.97	11.71	-	-	12.14	-	12.26	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	11.7	12.0	-	-	12.9	-	12.0	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	327	329	-	-	311	-	327	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	37.5	45.0	-	-	40.1	-	41.6	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	78.9	78.8	-	-	71.4	-	78.4	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	1.74	1.68	-	-	2.80	-	1.77	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	0.00	0.00	-	-	0.00	-	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	0.16	0.22	-	-	0.70	-	0.22	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	0.43	0.82	-	-	0.30	-	0.63	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	0.03	0.01	-	-	0.20	-	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	0.03	0.07	-	-	0.20	-	0.06	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	0.03	0.07	-	-	0.10	-	0.06	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	0.00	0.00	-	-	0.20	-	0.01	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	0.00	0.03	-	-	0.10	-	0.02	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	0.09	0.18	-	-	0.60	-	0.17	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	2.46	2.90	-	-	4.20	-	2.80	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	0.13	0.16	-	-	0.10	-	0.14	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	0.02	0.05	-	-	0.00	-	0.03	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	0.02	0.00	-	-	0.00	-	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	0	-	-	0	-	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	0	-	-	0	-	0	0	0	0	0	0	0	0
Live insects	No	No	-	-	No	-	No	No	No	No	No	No	No	No
Undesirable odour	No	No	-	-	No	-	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***7***	***9***	***-***	***-***	***1***	***-***	***17***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	75.1	75.4	-	-	72.0	-	75.0	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-0.5	0.2	-	-	0.3	-	-0.1	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	62.3	61.1	-	-	60.7	-	61.6	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	822	736	-	-	835	-	777	949	922	918	934	-	-	930
Evaluation	3	3	-	-	0	-	3	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	64.3	64.5	-	-	59.5	-	64.1	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	2.6	2.1	-	-	2.4	-	2.3	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	10.2	4.0	-	-	5.7	-	6.7	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	37	66	-	-	46	-	53	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Germany							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***7***	***9***	***-***	***-***	***1***	***-***	***17***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
ALVEOGRAM														
Strength, cm²	54.1	40.3	-	-	40.5	-	46.0	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	129	142	-	-	94	-	134	75	75	72	74	-	-	74
Distensibility, mm	77	47	-	-	86	-	62	130	122	124	127	-	-	126
P/L	1.71	3.03	-	-	1.09	-	2.37	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	110	87	-	-	107	-	98	116	118	109	121	-	-	115
Max. height, BU	423	408	-	-	445	-	416	401	416	393	424	-	-	406
Extensibility, mm	179	149	-	-	164	-	162	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	4.0	3.5	-	-	3.7	-	3.7	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	61.9	60.4	-	-	60.7	-	61.1	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	<5							0						
Deoxynivalenol, ppm	1.32							1.06						
Ochratoxin A, ppb	2.71							0						
No. of samples	***4***							***30***						

2004/2005 IMPORTED WHEAT QUALITY - UKRAINE

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Ukraine							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***-***	***2***	***-***	***-***	***4***	***-***	***6***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	-	11.67	-	-	11.70	-	11.69	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	-	12.1	-	-	12.0	-	12.1	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	-	262	-	-	241	-	248	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	-	40.1	-	-	40.4	-	40.3	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	-	77.2	-	-	77.2	-	77.2	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	-	1.75	-	-	2.35	-	2.15	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	-	0.00	-	-	0.00	-	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	-	0.25	-	-	0.23	-	0.23	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	-	0.20	-	-	1.90	-	1.33	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	-	0.00	-	-	0.03	-	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	-	0.00	-	-	0.08	-	0.05	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	-	0.05	-	-	0.00	-	0.02	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	-	0.10	-	-	0.03	-	0.05	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	-	0.00	-	-	0.00	-	0.00	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	-	0.15	-	-	2.10	-	1.45	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	-	1.85	-	-	4.45	-	3.58	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	-	0.10	-	-	0.08	-	0.08	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	-	0.00	-	-	0.00	-	0.00	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	-	0.05	-	-	0.00	-	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	-	0	-	-	0	-	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	-	0	-	-	0	-	0	0	0	0	0	0	0	0
Live insects	-	No	-	-	No	-	No	No	No	No	No	No	No	No
Undesirable odour	-	No	-	-	No	-	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***-***	***2***	***-***	***-***	***4***	***-***	***6***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	-	75.2	-	-	75.3	-	75.3	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-	0.5	-	-	0.5	-	0.5	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	-	60.6	-	-	60.6	-	60.6	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	-	805	-	-	813	-	810	949	922	918	934	-	-	930
Evaluation	-	1	-	-	1	-	1	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	-	61.4	-	-	61.1	-	61.2	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	-	2.1	-	-	2.0	-	2.0	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	-	4.8	-	-	5.4	-	5.2	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	-	64	-	-	58	-	60	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	Ukraine							RSA Crop Average						
Class and Grade bread wheat	B1	B2	B3	B4	UT	COW	Average	B1	B2	B3	B4	UT	COW	Average
No. of samples	-	*2*	-	-	*4*	-	*6*	*24*	*25*	*21*	*10*	-	-	*80*
ALVEOGRAM														
Strength, cm²	-	46.3	-	-	45.1	-	45.5	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	-	113	-	-	110	-	111	75	75	72	74	-	-	74
Distensibility, mm	-	75	-	-	75	-	75	130	122	124	127	-	-	126
P/L	-	1.52	-	-	1.46	-	1.48	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	-	108	-	-	115	-	113	116	118	109	121	-	-	115
Max. height, BU	-	460	-	-	471	-	468	401	416	393	424	-	-	406
Extensibility, mm	-	163	-	-	170	-	168	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	-	4.2	-	-	4.2	-	4.2	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	-	60.6	-	-	60.6	-	60.6	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	<5							0						
Deoxynivalenol, ppm	0.66							1.06						
Ochratoxin A, ppb	1.1							0						
No. of samples	*1*							*30*						

2004/2005 IMPORTED WHEAT QUALITY - USA

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	USA							RSA Crop Average						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***24***	***5***	***1***	***2***	***10***	***18***	***60***	***189***	***109***	***76***	***20***	***73***	***13***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.03	11.51	10.18	10.17	12.85	12.88	12.68	13.39	12.43	12.80	11.80	12.92	14.07	12.96
Moisture, %	11.9	11.8	13.8	13.4	11.8	12.6	12.2	10.8	10.9	10.8	10.9	10.8	11.1	10.9
Falling number, sec	348	416	291	241	361	347	351	380	377	380	370	370	373	377
1000 Kernel mass (13% mb), g	33.3	32.5	47.1	47.8	30.8	33.6	33.6	35.3	35.9	34.8	36.8	33.7	31.5	35.1
Hlm (dirty), kg/hl	78.7	77.9	74.1	73.8	76.7	77.2	77.6	78.9	78.1	76.8	77.2	76.2	72.2	77.7
Screenings (<1,8mm), %	1.74	0.76	1.47	1.48	3.64	3.76	2.57	1.35	1.55	1.77	1.61	3.26	4.63	1.85
Gravel, stones, turf and glass, %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01
Foreign matter, %	0.29	0.20	0.18	0.18	0.45	0.42	0.34	0.12	0.16	0.14	0.11	0.23	0.33	0.15
Other grain & unthreshed ears, %	0.16	0.18	0.68	0.67	0.17	0.34	0.24	0.31	0.34	0.37	0.26	0.59	1.06	0.39
Heat damaged kernels, %	0.04	0.02	0.00	0.00	0.12	0.02	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Immature kernels, %	0.03	0.18	0.00	0.00	0.00	0.02	0.03	0.09	0.06	0.08	0.03	0.06	0.04	0.07
Insect damaged kernels, %	0.13	0.02	0.00	0.00	0.13	0.23	0.14	0.39	0.43	0.35	0.50	0.86	0.58	0.47
Heavily frost damaged kernels, %	0.04	0.06	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.07	0.06
Sprouted kernels, %	0.12	0.00	0.48	0.44	0.08	0.15	0.13	0.03	0.03	0.03	0.06	0.02	0.09	0.03
Total Damaged kernels, %	0.38	0.40	0.48	0.44	0.33	0.42	0.39	0.52	0.52	0.46	0.60	0.94	0.70	0.58
Combined deviations, %	2.37	1.18	2.81	2.77	4.42	4.94	3.44	2.27	2.57	2.74	2.57	5.01	6.71	2.96
Field fungi, %	0.29	0.02	0.80	0.81	0.29	0.42	0.33	0.16	0.18	0.22	0.25	0.15	0.37	0.18
Storage fungi, %	0.05	0.04	0.40	0.49	0.01	0.08	0.07	0.02	0.03	0.03	0.03	0.03	0.02	0.03
Ergot, %	0.01	0.02	0.00	0.00	0.00	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Noxious seeds (Crotolaria sp, Datura sp..)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Noxious seeds (Argemone mexicana..)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Live insects	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Undesirable odour	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***24***	***5***	***1***	***2***	***10***	***18***	***60***	***24***	***25***	***21***	***10***	***-***	***-***	***80***
BÜHLER EXTRACTION, %	74.7	74.3	77.7	77.9	73.4	74.8	74.6	74.9	74.5	74.7	74.0	-	-	74.6
FLOUR														
Colour, KJ	-0.4	0.0	0.9	0.8	-0.2	-0.2	-0.2	-1.2	-1.2	-1.2	-1.3	-	-	-1.2
100g BAKING TEST														
Baking water absorption, %	62.8	59.9	54.8	55.2	61.1	61.3	61.4	62.3	61.9	61.3	61.2	-	-	61.8
Loaf volume, cm3	846	789	690	703	877	835	836	949	922	918	934	-	-	930
Evaluation	2	2	2	1	1	2	2	1	1	0	1	-	-	1
FARINOGRAM														
Water absorption, %	62.8	60.5	54.4	55.0	60.0	61.1	61.2	61.6	61.2	60.5	60.5	-	-	61.0
Development time, min	3.1	2.7	1.8	1.7	2.6	2.8	2.8	5.2	5.0	4.9	5.5	-	-	5.1
Stability, mm	11.1	9.6	3.0	2.7	11.1	10.7	10.4	9.4	9.2	8.9	11.0	-	-	9.4
Mixing tolerance index, BU	32	31	83	91	30	39	36	41	43	46	40	-	-	43

2004/2005 Imported Wheat Quality Versus 2004/2005 RSA Season

Country of origin	USA							RSA Crop Average						
Class and Grade bread wheat	B1	B2	B3	B4	UT	COW	Average	B1	B2	B3	B4	UT	COW	Average
No. of samples	*24*	*5*	*1*	*2*	*10*	*18*	*60*	*24*	*25*	*21*	*10*	*-*	*-*	*80*
ALVEOGRAM														
Strength, cm²	53.4	42.8	18.3	19.9	49.8	47.4	48.3	40.5	39.5	37.7	41.7	-	-	39.6
Stability, mm	111	114	51	56	95	101	103	75	75	72	74	-	-	74
Distensibility, mm	96	71	76	74	99	89	91	130	122	124	127	-	-	126
P/L	1.33	1.76	0.67	0.76	0.98	1.27	1.26	0.59	0.65	0.60	0.63	-	-	0.62
EXTENSOGRAM														
Strength, cm²	115	-	81	68	131	126	120	116	118	109	121	-	-	115
Max. height, BU	454	-	410	363	499	492	474	401	416	393	424	-	-	406
Extensibility, mm	174	-	140	128	186	178	175	201	193	189	190	-	-	194
MIXOGRAM														
Peak time, min	4.0	4.3	3.6	3.1	4.3	3.8	3.9	2.5	2.6	2.7	2.8	-	-	2.6
Absorption, %	62.2	60.2	58.8	58.7	61.7	61.9	61.7	62.7	62.1	62.0	62.6	-	-	62.3
MYCOTOXINS														
Aflatoxin, ppb	2.00							0						
Deoxynivalenol, ppm	1.13							1.06						
Ochratoxin A, ppb	1.54							0						
No. of samples	*22*							*30*						