SOUTH AFRICAN WHEAT CROP

Quality Report

2007/2008 Season

INDEX

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SOUTH AFRICAN
COMMERCIAL WHEAT QUALITY FOR THE 2007/2008 SEASON

Acknowledgements

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- ***The Winter Cereal Trust for its financial support in conducting this survey.***
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Introduction

The final wheat production for the 2007/2008 season (1 905 000 tons) was 10 % down from the previous season (2 105 000 tons). This is a little less than the 10-year average of 1 932 774 tons (1998/1999 to 2007/2008 seasons). (CEC.)

Although the hectolitre mass (78.1 kg/hl) and thousand kernel mass (38.7 g) were very good, only 13 % of this crop graded as B1.

The whole wheat protein averaged a ten year low of 11.03 % (12 % mb). This low protein was a result of slightly better yields. Different climatic conditions as well as differences in the rainfall patterns were observed in the various production areas.

The quality of the flour was average. The dough quality was similar to that of the previous season. The alveogram and extensogram showed that the flour had good strenghts, but the average farinogram development time of 3.6 minutes is still too short.

The straight-dough optimized 100-gram baking test, showed a lot of variation in volume according to the protein content, the same than in the previous season.

Significant quality differences can be seen between the three major production regions.

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 made available on the website www.sagl.co.za as raw data from December each year. This hard copy report is available from June each year (with the option to also print the report using the website).

The SAGL has ISO 17025 accreditation as a testing laboratory 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 sale figures of seed sold 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.

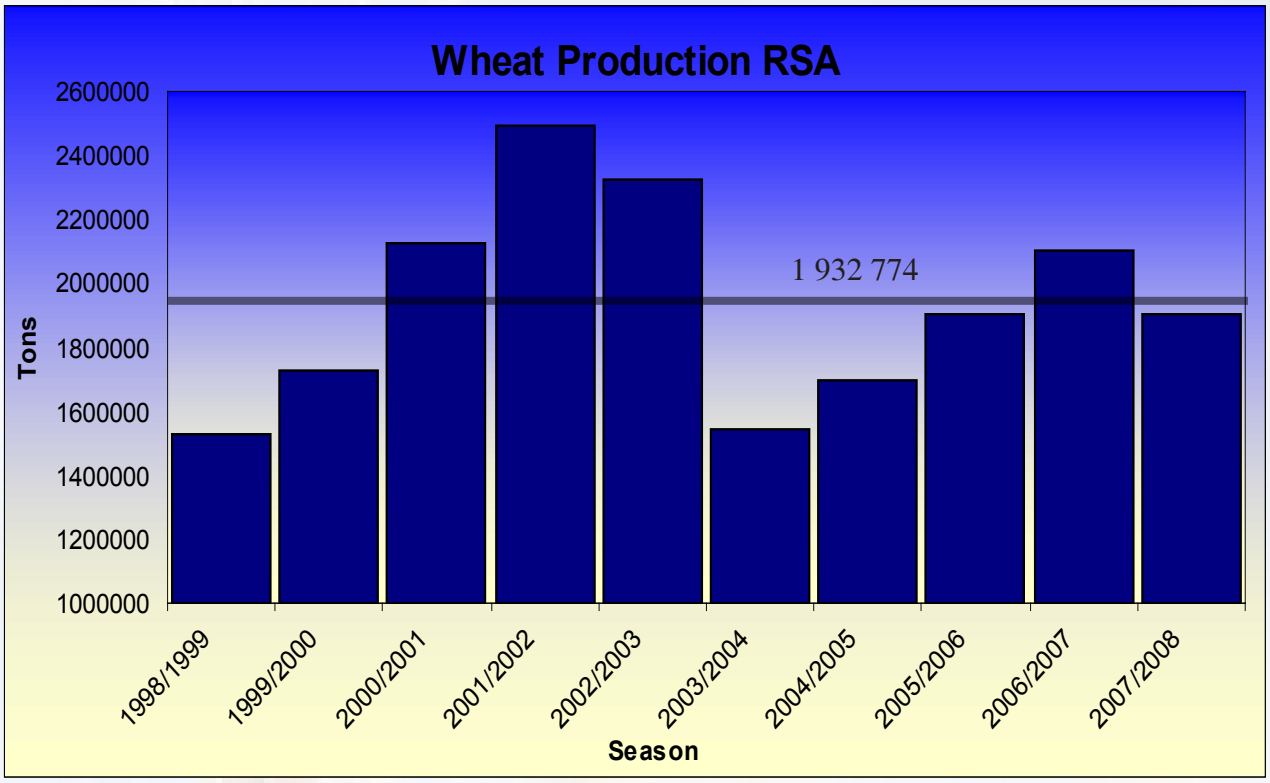
Imported wheat (1 October 2006 - 30 September 2007) (Previous season)

The SAGL is also monitoring the quality of all wheat imported into South Africa. The same analyses which are done on the local crop are also done on the imported wheat. These results may only be made available at the end of each season.

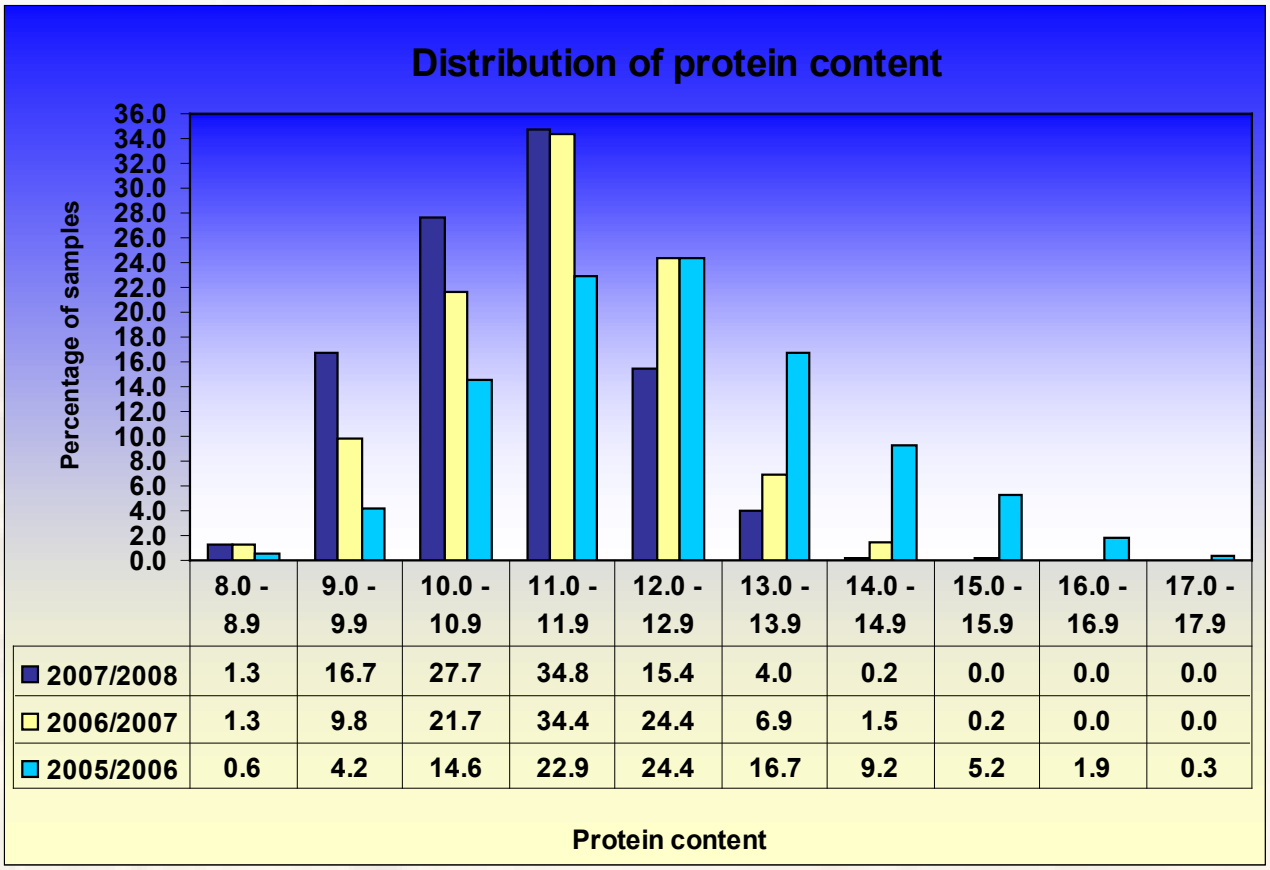
The last twelve pages of this report contain summaries of imported wheat from specific countries during the 2006/2007 season compared to a summary of the local crop quality for the same season. Summaries of the quality of the local wheat for the 2005/2006 and 2007/2008 season are also provided.

The quality of the Argentinian, Bermudian and American wheat flour milled from wheat imported during 2006/2007, were not as good as that same season's local wheat flour, while the wheat flour quality from Canadian and German wheat imported during 2006/2007 compared to that of 2006/2007 seasons's local wheat flour quality.

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
2007/2008	1.3	16.7	27.7	34.8	15.4	4.0	0.2	0.0	0.0	0.0
2006/2007	1.3	9.8	21.7	34.4	24.4	6.9	1.5	0.2	0.0	0.0
2005/2006	0.6	4.2	14.6	22.9	24.4	16.7	9.2	5.2	1.9	0.3

Crop quality for 2007/2008 season

The weighted protein average dropped to a ten year low of 11.0 % (12 % mb) (11.5 % in the previous season). The protein distribution graph of all the wheat produced was slightly skew to the lower proteins with most samples (35 %) having protein contents between 11.0 % to 11.9 % (12 % mb), followed by 28 % of the samples with protein contents between 10.0 % to 10.9 % and then 17 % of the samples between 9.0 % to 9.9 %. Only 20 % of the samples had protein contents of more than 12.0 %.

The weighted average hectolitre mass was 78.1 kg/hl (normal to 10 year average). A weighted average thousand kernel mass of 38.7 g was obtained.

The weighted average screenings (1.8 mm sieve) was 1.60 %.

The weighted average falling number was 360 seconds, eighteen samples gave falling number values of less than 250 seconds. These samples were mainly from the North-West production region and the Free State province.

The weighted mixogram peak time on flour from the Quadromat mill averaged 3.0 minutes and compares to the ten year average of 3.0 minutes. The weighted mixogram peak time of the flour from the Bühler mill averaged 2.8 minutes.

The weighted average Bühler extraction was 75.6 %, with a weighted average Kent Jones colour of -1.9 KJ.

The farinogram had a weighted average water absorption of 60.8 % (61.4 % the previous year) and a weighted average development time of 3.6 minutes (3.4 minutes last season). The weighted average alveogram strength was 41.9 cm² and the weighted average P/L value 0.94 (36.8 cm² and 0.93 the previous season). The weighted average extensogram strength was 97 cm² (82 cm² previous season).

The loaves baked using the 100 g straight-dough optimized bread making method, which refers to the relationship between the protein content and the bread volume, was evaluated from excellent to poor. The baking test with Free State (summer rainfall area) wheat flour scored the lowest with an average ranking of good, followed by the wheat flour from the Western Cape (winter rainfall areas) scoring an average ranking of very good with mostly the bread flour from the irrigation areas scoring an average ranking of excellent.

Quality of imported wheat for 2006/2007 season (previous season)

During the 2006/2007 season, 777 133 tons of wheat were imported for RSA. The biggest quantity was imported from Argentina, namely 310 524 tons, followed by USA with 232 266 tons, then Canada with 153 694 tons and Germany with 80 649 tons. (SAGIS web site)

For grading as well as dough and baking quality of the imported wheat, please see pages 52 to 61.

Wheat grades

Representative samples (480) of the crop were graded as follows: 13 % was graded B1, 29 % was graded B2, 27 % was graded B3, 15 % was graded B4 and UT plus COW made up 16 %. This year more samples graded B4 and UT compared to the previous year.

Grade B1 wheat in the Free State province only amounted to 13 % (36 % the previous season) and grade B1 in other summer rainfall areas amounted to 38 % (33 % in the previous season). In the irrigation areas 17 % (31 % in the previous season) of the wheat graded as B1 and in the Western Cape Province only 8 % graded as B1 (17 % in the previous season).

Cultivars

In the winter rainfall area, SST 027 dominated the market. The Western Cape produced 44 % of all wheat grown in South Africa during the 2007/2008 season. In the Western Cape, SST 027 (35 %) were followed by SST 015 (25 %) and SST 88 (24 %).

The cultivar that dominated the market in the Free State was Elands (23 %) (30% the previous year). Elands was followed by CRN 826 (19%), SST 806 (9 %) and then Gariep and PAN 3377 with both 7 %.

The cultivar CRN 826 (58 %) dominated the market in the Vaal and the Orange River areas, followed by SST 806 with 17 % and PAN 3434 with 14 %.

CRN 826 also dominated the North West (also mostly irrigation) with 36 %, followed by SST 806 (25 %) and SST 822 (10 %).

In Limpopo, Gauteng and Mpumalanga CRN 826 (26 %) was the dominant cultivar followed by SST 806 (28 %).

The above information was calculated from the cultivar identification done on all 480 crop samples.

Mycotoxins

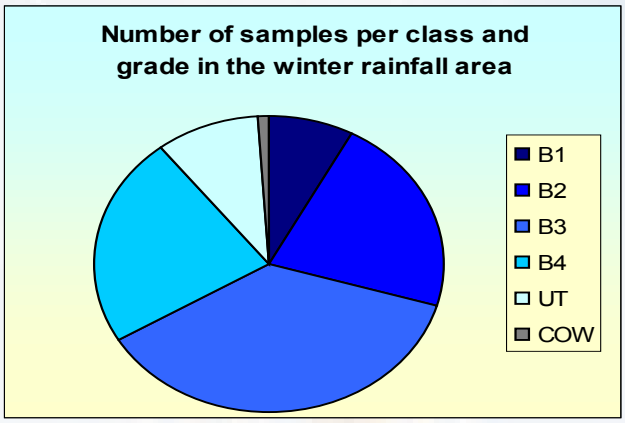
Mycotoxins, as secondary metabolites of moulds or fungi, can cause toxic effects in humans and animals consuming contaminated foods or feeds. Thirty samples (representing different regions) were selected randomly for mycotoxin analyses. These samples were tested for aflatoxin, deoxynivalenol and ochratoxin.

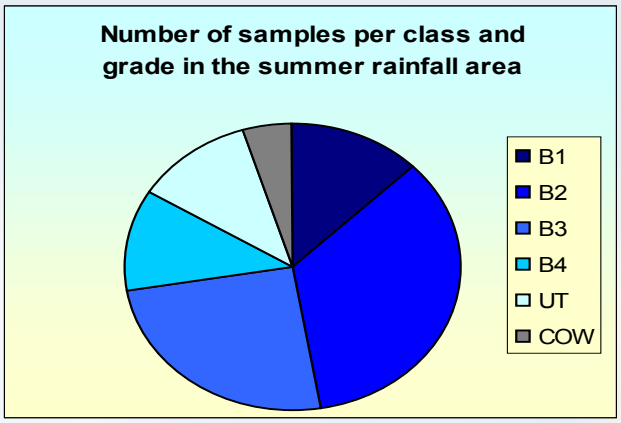
Aflatoxin (5 ppb) was found in two of the 30 samples tested. In accordance with Act 54 of 1972, Foodstuffs, Cosmetics and Disinfectants, the allowable level of total aflatoxin is 10 ppb (µg/kg). In accordance with Act 36 of 1947, Fertilizers, Farm Feeds, Agricultural and Stock Remedies, the allowable level of total aflatoxin is 10 to 50 ppb (µg/kg).

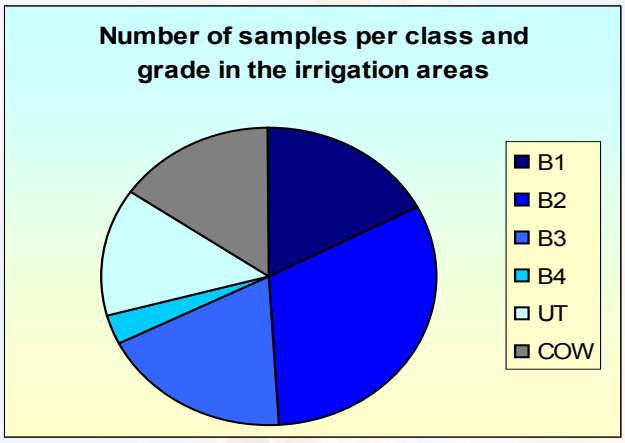
The average deoxynivalenol (DON) content was 1.36 ppm (mg/kg) with the highest value being 2.70 ppm. All samples tested, except one sample, had DON contents above 0.50 ppm.

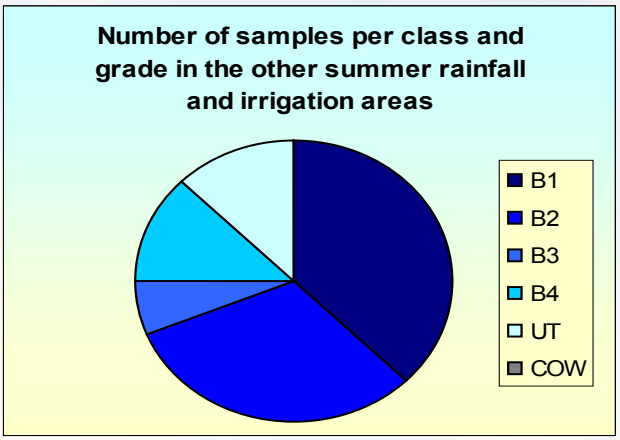
The average ochratoxin content was 0.33 ppb (µg/kg) with the highest value being 2.8 ppb.

Wheat class and grades per production area

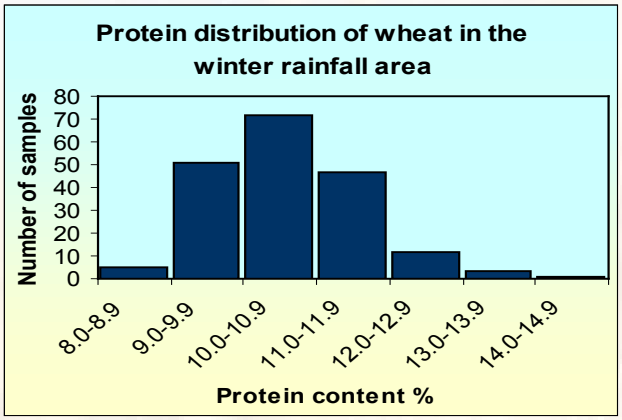


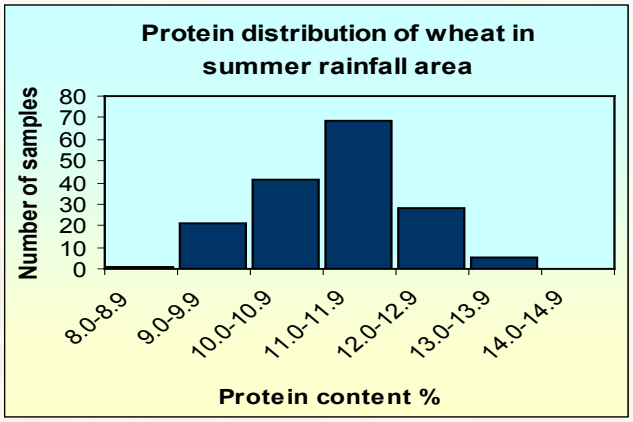


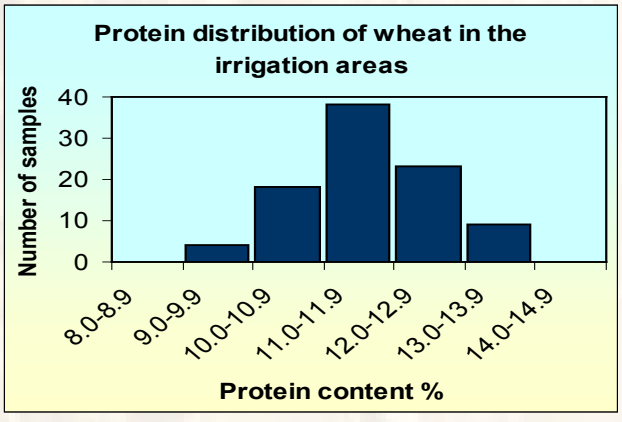


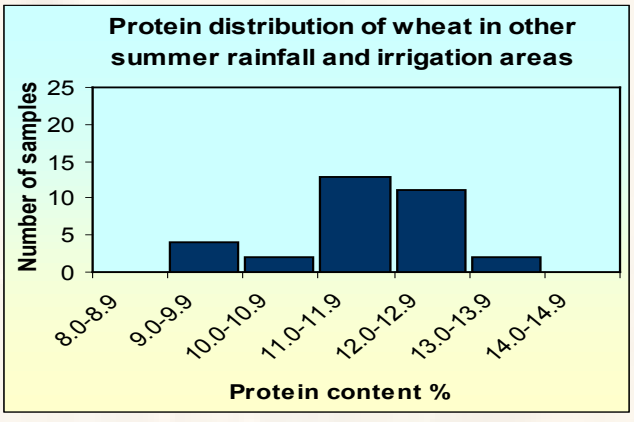


Protein distribution graphs per production area







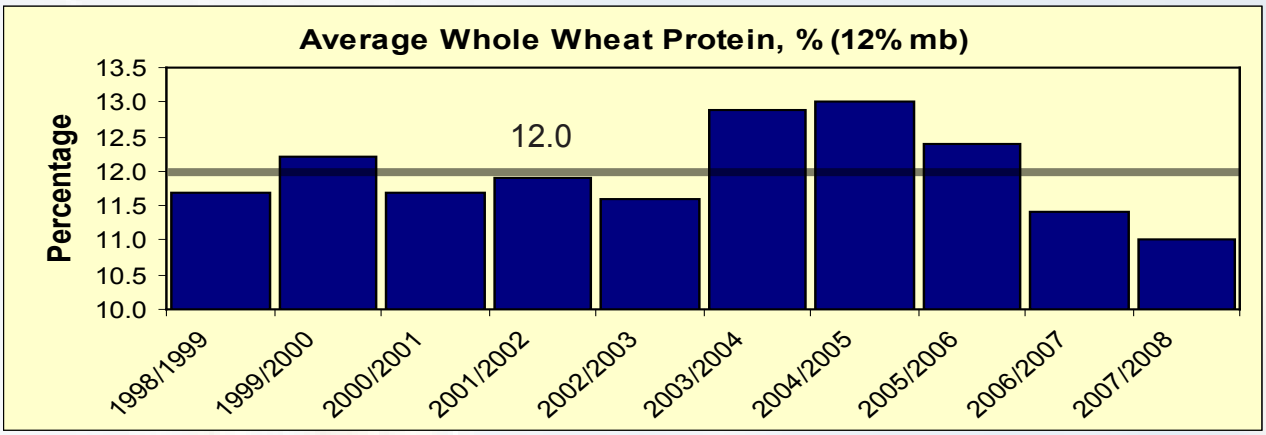


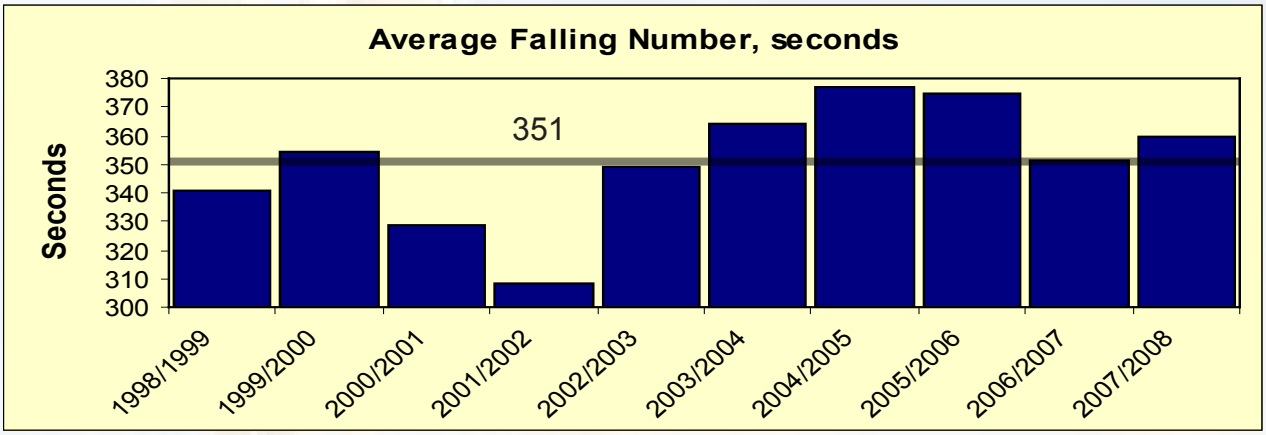
REGIONAL QUALITY WEIGHTED AVERAGES

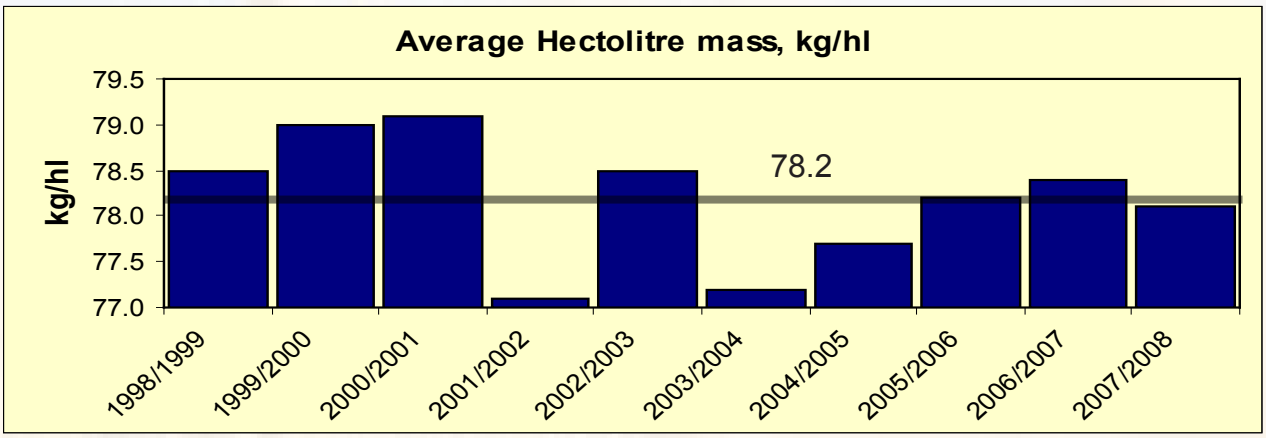
	Winter rainfall area (Western Cape)			*Summer rainfall area (Free State)*			*Irrigation areas*			*Other Summer rainfall and Irrigation areas*			*RSA average*		
Individual samples n	191			165			92			32			480		
Regions	1 - 6			21 - 28			10-12, 14-20, 36			29 - 35			All		
Hectolitre mass dirty, kg/hl	77.7			78.7			77.8			77.8			78.1		
1000 kernel mass (13 % mb), g	38.9			38.4			38.8			38.9			38.7		
Falling number, sec	370			337			372			391			360		
Screenings (1,8 mm), %	1.58			1.60			1.58			1.73			1.60		
Protein (12 % mb), % (ww)	10.55			11.16			11.61			11.59			11.03		
Mixogram peak time, min (Quadromat)	2.9			3.3			2.7			2.6			3.0		
Individual samples n	***15***	***41***	***71***	***21***	***57***	***41***	***16***	***29***	***17***	***12***	***10***	***2***	***64***	***137***	***131***
	44	***18***	***2***	***19***	***19***	***8***	***3***	***13***	***14***	***4***	***4***	***-***	***70***	***54***	***24***
Composite samples per	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***	***B1***	***B2***	***B3***
grade n = 100	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***	***B4***	***UT***	***COW***
Composite samples n	***6***	***6***	***5***	***7***	***8***	***6***	***6***	***9***	***5***	***4***	***3***	***2***	***23***	***26***	***18***
	6	***4***	***-***	***5***	***4***	***3***	***1***	***4***	***3***	***2***	***1***	***-***	***14***	***13***	***6***
Bühler extraction, %	74.5	74.4	74.8	75.4	75.5	75.1	76.5	77.2	77.0	76.7	77.1	76.9	75.7	76.0	75.7
	74.2	74.3	-	74.3	74.9	74.0	77.9	75.8	76.7	77.0	76.4	-	74.9	75.1	75.4
Flour colour, KJ	-2.4	-2.3	-2.6	-1.6	-1.6	-1.6	-1.7	-1.8	-2.1	-1.0	-1.9	-1.9	-1.7	-1.9	-2.1
	-2.7	-2.8	-	-2.1	-1.4	-0.6	-3.0	-1.1	-1.0	-1.9	-1.6	-	-2.4	-1.8	-0.8
Farinogram:	61.3	59.6	58.7	63.0	61.7	61.3	63.2	61.3	60.2	62.1	61.3	60.5	62.5	61.0	60.2
Water absorption, %	57.9	57.2	-	62.1	60.8	61.5	57.8	61.1	60.5	56.8	60.6	-	59.2	59.8	61.0
Farinogram:	4.4	3.4	2.4	5.1	3.6	2.4	5.0	4.3	3.9	5.1	3.9	3.2	4.9	3.8	2.9
Development time, min	1.8	1.8	-	1.8	2.9	4.9	3.7	4.2	3.8	2.1	3.4	-	2.0	3.0	4.4
Alveogram:	44.0	39.6	35.3	55.6	50.1	44.4	48.9	40.5	38.2	42.6	36.2	41.7	48.6	42.8	39.9
Strength (S), cm²	31.5	30.6	-	37.4	43.3	52.4	28.1	45.4	41.4	29.1	35.8	-	33.0	39.5	46.9
Alveogram:	0.72	0.73	0.85	1.02	1.02	1.47	0.81	0.65	0.61	0.54	0.64	0.75	0.80	0.78	0.98
P/L	1.02	1.01	-	2.71	1.24	0.82	0.62	0.63	0.52	0.62	0.63	-	1.54	0.93	0.67
Extensogram:	108	91	88	116	111	96	104	97	93	98	82	98	108	98	93
Strength, cm²	73	82	-	84	97	116	67	109	112	74	104	-	77	97	114
Mixogram peak time,	2.4	2.7	2.8	2.9	2.9	3.2	2.6	2.5	2.8	2.4	2.4	2.7	2.6	2.7	2.9
min	3.0	3.0	-	3.3	2.8	2.8	2.4	2.7	2.8	2.8	2.5	-	3.0	2.8	2.8
Relationship between	G	VG	VG	G	VG	G	VG	EX	EX	EX	EX	EX	VG	VG	VG
protein and bread volume	VG	EX	-	P	G	G	EX	EX	EX	EX	VG	-	G	VG	VG

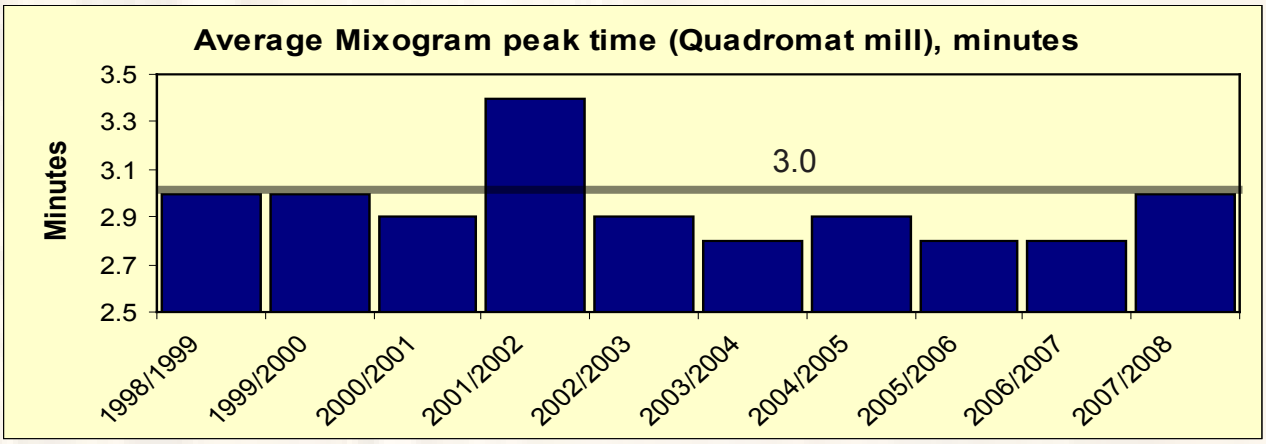
Ex = Excellent VG = Very Good G = Good P = Poor

WEIGHTED AVERAGE QUALITY OVER 10 SEASONS









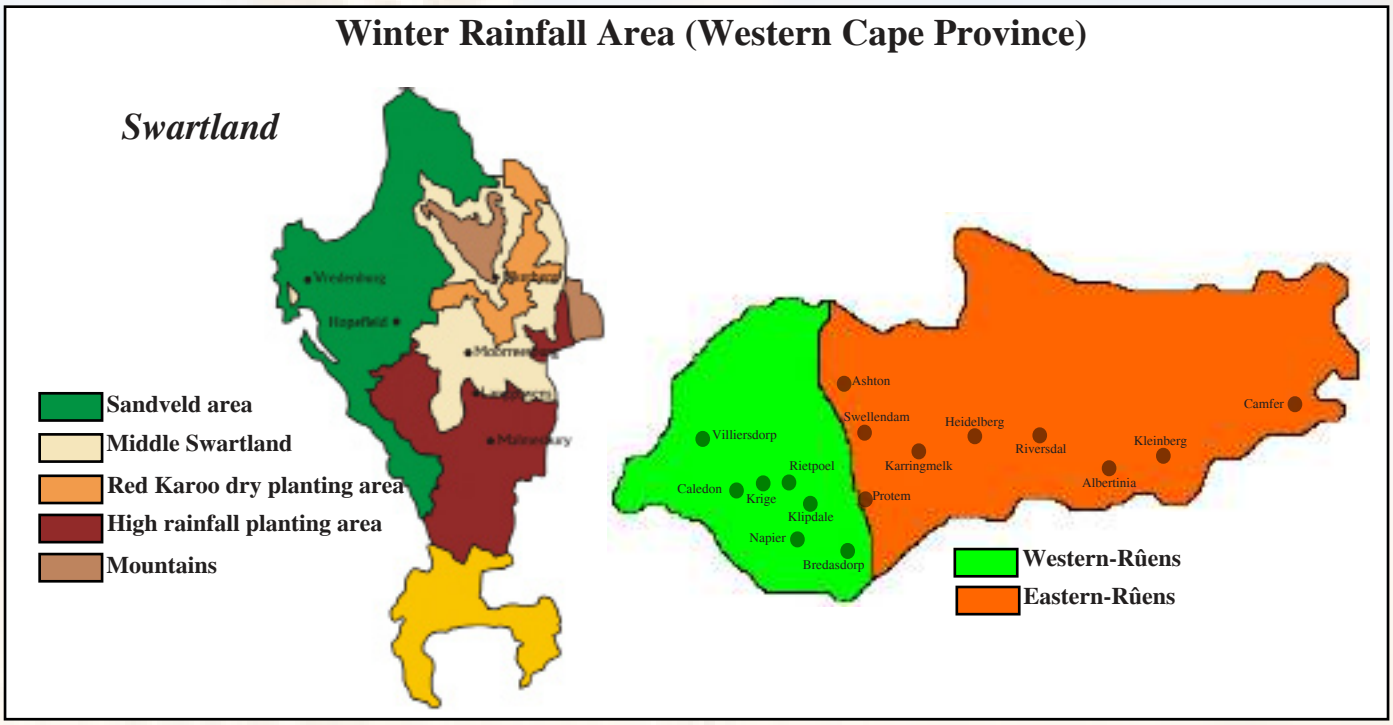
REGIONAL QUALITY

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. The Western Cape had the highest production of all the provinces this season, namely 812 500 tons (44 %) (CEC).

The hectolitre mass averaged 77.7 kg/hl (the previous season 77.3 kg/hl). The thousand kernel mass averaged 38.9 gram, which is a little better than the previous season's 38.0 gram. The average falling number was 370 seconds.

The Western Cape had dry winters for a few previous seasons followed by a wet winter during this production season. This resulted in a very low average protein of 10.55 % (12 % mb) compared to the previous two season's 11.13 % and 11.53 %.



The screenings of 1.58 % were lower than the previous season's 1.80 %. The Bühler extraction averaged 74.4 % (average of wheat grades B1 to B4, UT and COW) and the average colour of the flour was -2.5 KJ units. This colour indicates a very white flour that is preferred by millers and bakers. The Free State gave a little higher Bühler extraction (75.0 %), but the flour colour (-1.6 KJ units) were not as good as that of the Western Cape.

The dough quality was the same as in the previous season. The mixogram peak time (Quadromat mill) averaged 2.9 minutes. The average farinogram absorption was 59.1 %. The average strength of the alveogram was 36.7 cm² and the average strength of the extensogram was 88 cm², compared to the Free State (104 cm²) and 100 cm² in the irrigation areas.

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 516 000 tons (28 %) (CEC). The lower production this season compared to previous seasons, were because of negative planting conditions.

The Free State gave a little better yield of 2.4 tons/ha (2.2 tons/ha the previous season) because of very good spring rain.

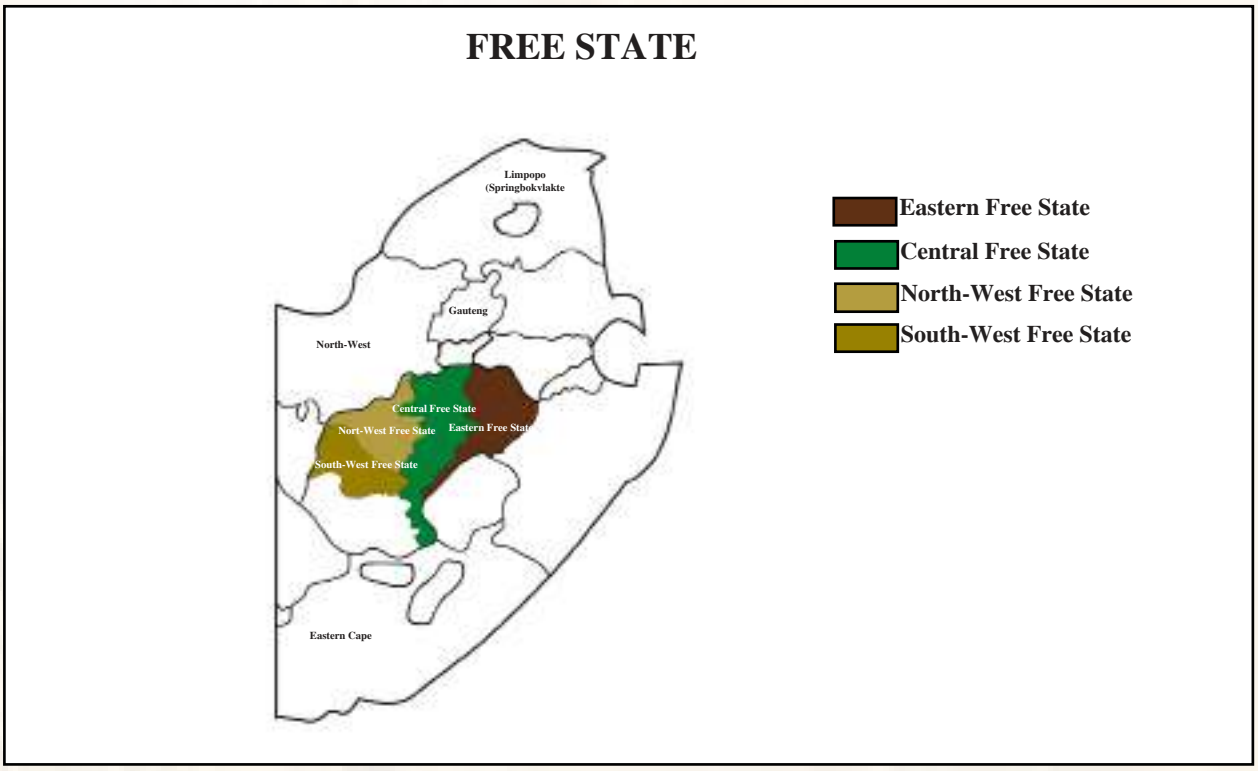
The average hectolitre mass (78.7 kg/hl) was the same as the previous seasons's. The physical characteristic thousand kernel mass (38.4 gram) were better than the previous season's 35.9 gram. The average screenings were 1.60 %. The average protein dropped from 11.71 % (12 % mb) to an average of 11.16 %. Although the average falling number was 337 seconds, eight samples gave a falling number lower than 250 seconds.

The mixogram (Quadromat) peak time was 3.3 minutes (3.0 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 75 % (74.5 % previous season). The Kent Jones flour colour was -1.6 KJ units (-1.2 KJ units in previous season). The wheat of the Free State usually yields a little darker flour than the other regions, the three main producing areas yielded a weighted average colour of -1.9 KJ units this season.

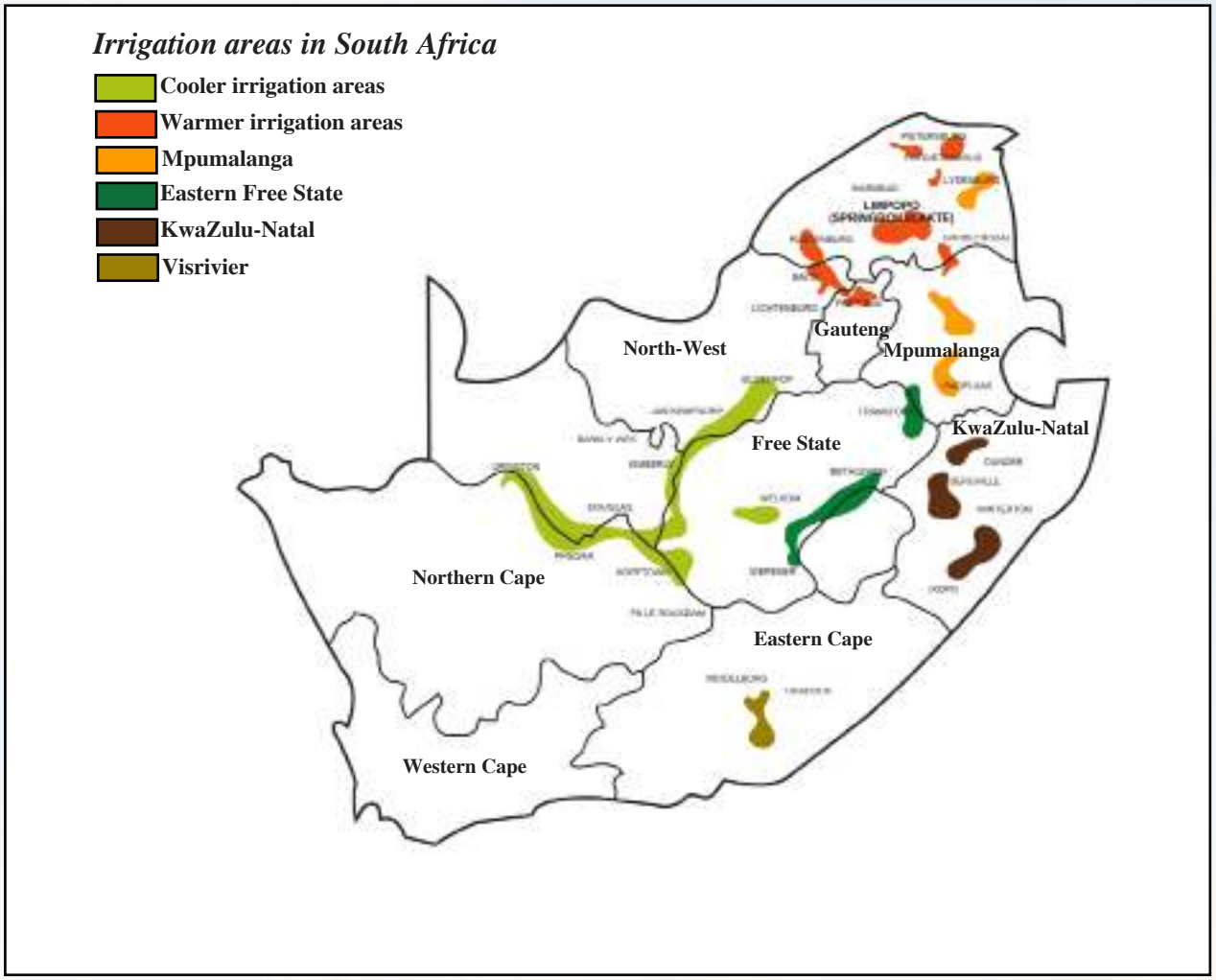
The average farinogram water absorption was 61.8 % (61.6 % the previous season), more or less the same as the other regions. The wheat from the Free State usually tends to give a stronger dough than the other regions, with an alveogram strength of 47.7 cm² and an extensogram strength of 104 cm².

The 100-gram baking test showed that the relationship between protein content and bread volume was ranging from very good to poor, between the different grades.



IRRIGATION AREAS

(Northern Cape, North West (plus other irrigation areas).



Production regions 10 - 12, 14 - 20 and 36 falls within the irrigation areas. These areas produced 406 200 tons of wheat this season (22 % of total production) with a average yield of 5.8 tons/hectare.

The average hectolitre mass was 77.8 kg/hl (79.2 kg/hl the previous season) and the thousand kernel mass was 38.8 g (37.6 g the previous season). The average falling number was 372 seconds. The average screenings was 1.58 % and the protein averaged 11.61 % (12 % mb). Five samples gave falling number values of less than 250 seconds (five samples gave a falling number value less than 250 seconds).

The average mixogram (Quadromat) peak time was 2.7 minutes which was more or less the same as the previous season.

The average Bühler extraction percentage was 76.8 (75.6 % during the previous season), with an average flour colour of -1.7 KJ units.

The average farinogram water absorption was 61.3 % (61.2 % during previous season), with an average farinogram development time of 4.3 minutes.

The average alveogram strength was 42.2 cm² and the average P/L was 0.66 (35.2 cm² and 0.81 respectively the previous season).

The average extensogram strength was 100 cm². The relationship between protein content and bread volume was shown to be excellent by the 100-gram baking test.

OTHER SUMMER RAINFALL AND IRRIGATION AREAS
(Mpumalanga, Limpopo, Gauteng and Eastern Cape)

Other summer rainfall regions, excluding the Free State, are mainly regions 29,30, 32, 33 (Mpumalanga), 34 (Gauteng) and 35 (Limpopo). They produced in total 109 200 tons during this season (6 % of the total production). No samples were received from the Eastern Cape region.

The average hectolitre mass was 77.8 kg/hl (79.1 kg/hl the previous season) and the average thousand kernel mass was 38.9 g (37.8 g the previous season). This is more or less the same as in the Western Cape and irrigation areas.

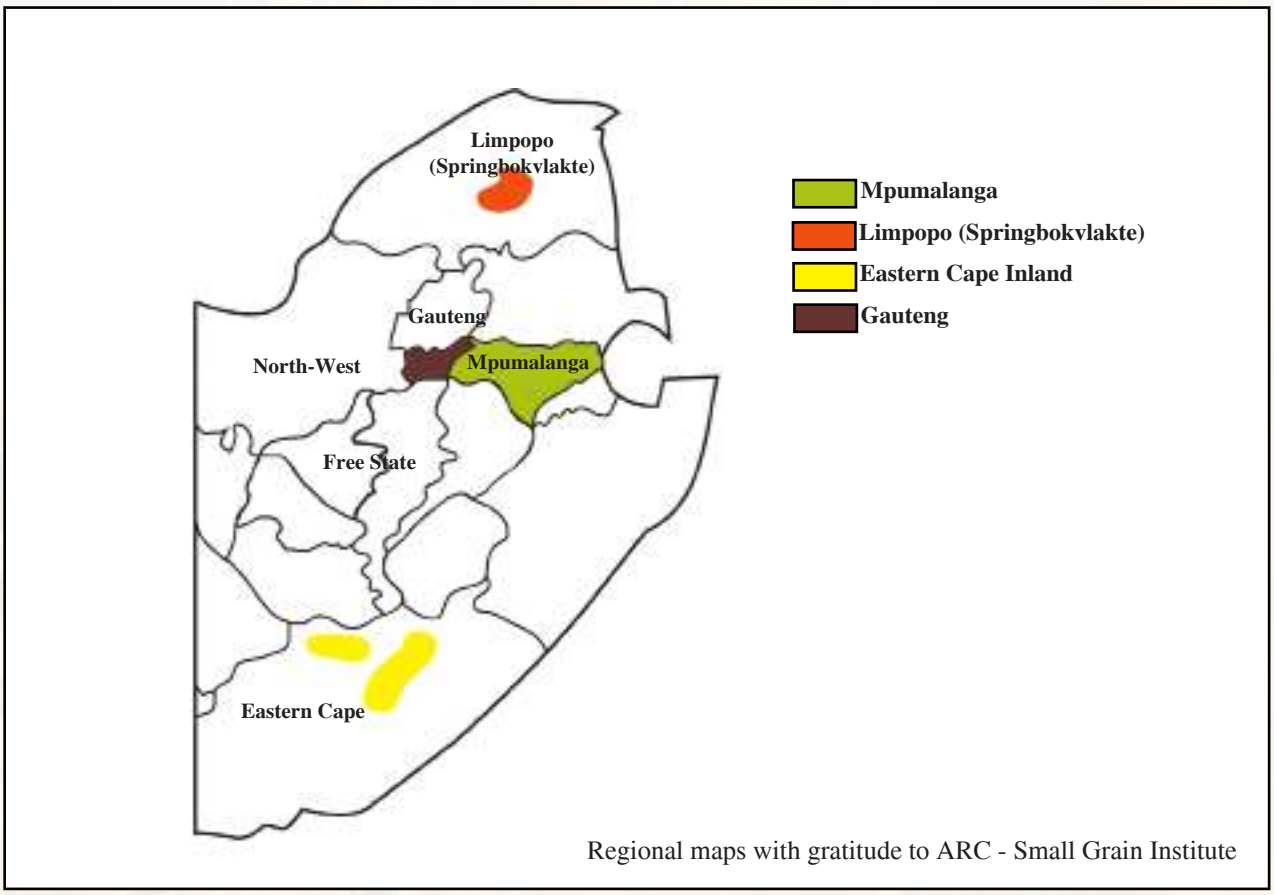
The average falling number was 391 seconds. The average percentage screenings was 1.73 %. The average protein content was 11.59 % (12 % mb), which is more or less the same than the previous year.

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

The average Bühler extraction was 76.9 %, with an average colour of -1.6 KJ units (75.6 % and -1.3 KJ units the previous season). The farinogram average water absorption was 60.6 % (61.8 % the previous season) and had an average development time of 3.8 minutes.

The average alveogram strength was 38.0 cm², with an average P/L value of 0.62, and the average extensogram strength was 90 cm².

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



Regional maps with gratitude to ARC - Small Grain Institute

South African Winter Cereal Production

Wheat is by far the biggest winter cereal crop planted in South Africa. Other winter crops are barley, canola and sweet lupines. Summer field crops are better suited for the South African climatic conditions. Maize being the largest of the different crops, followed by wheat, then sunflower seed, soya-beans, sorghum, barley, groundnuts, dry beans, canola and sweet lupines. The annual South African wheat crop is about one quarter of the annual maize crop.

South Africa (made up of nine provinces) is divided into 36 crop production regions with wheat planted in about 32 of these regions. These production regions are described on pages 16 to 44 (on the top of the left page) giving the specific intake silo names for each region.

The three main wheat producing provinces are Western Cape (winter rainfall), Free State (summer rainfall) and the Northern Cape (irrigation). A fourth province worth mentioning is the North-West (mainly irrigation). See map on page 48.

The Western Cape province produced 812 500 tons and the Free State province followed with 516 000 tons. (Final estimate by the Crop Estimates Committee, CEC). These two provinces were responsible for 72 % of the total wheat produced.

The yield in the main production areas ranged from 6.2 tons per hectare in the Northern Cape (irrigation area), 2.4 tons per hectare in the Free State to 2.5 tons per hectare for the Western Cape. Gauteng gave a yield of 6.0 tons per hectare, Limpopo with 5.3 tons per hectare followed by North West, Mpumalanga, KwaZulu-Natal and the Eastern Cape with respectively 5.2, 5.1, 4.8 and 4.0 tons per hectare.

The local production is not enough for domestic requirements and South Africa has to import wheat to meet its domestic consumption of approximately 2.9 million tons every year.

South Africa has three major wheat-breeding programs. The wheat industry has during the beginning of 2008 "relaxed" some specifications in the release criteria document containing the 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.

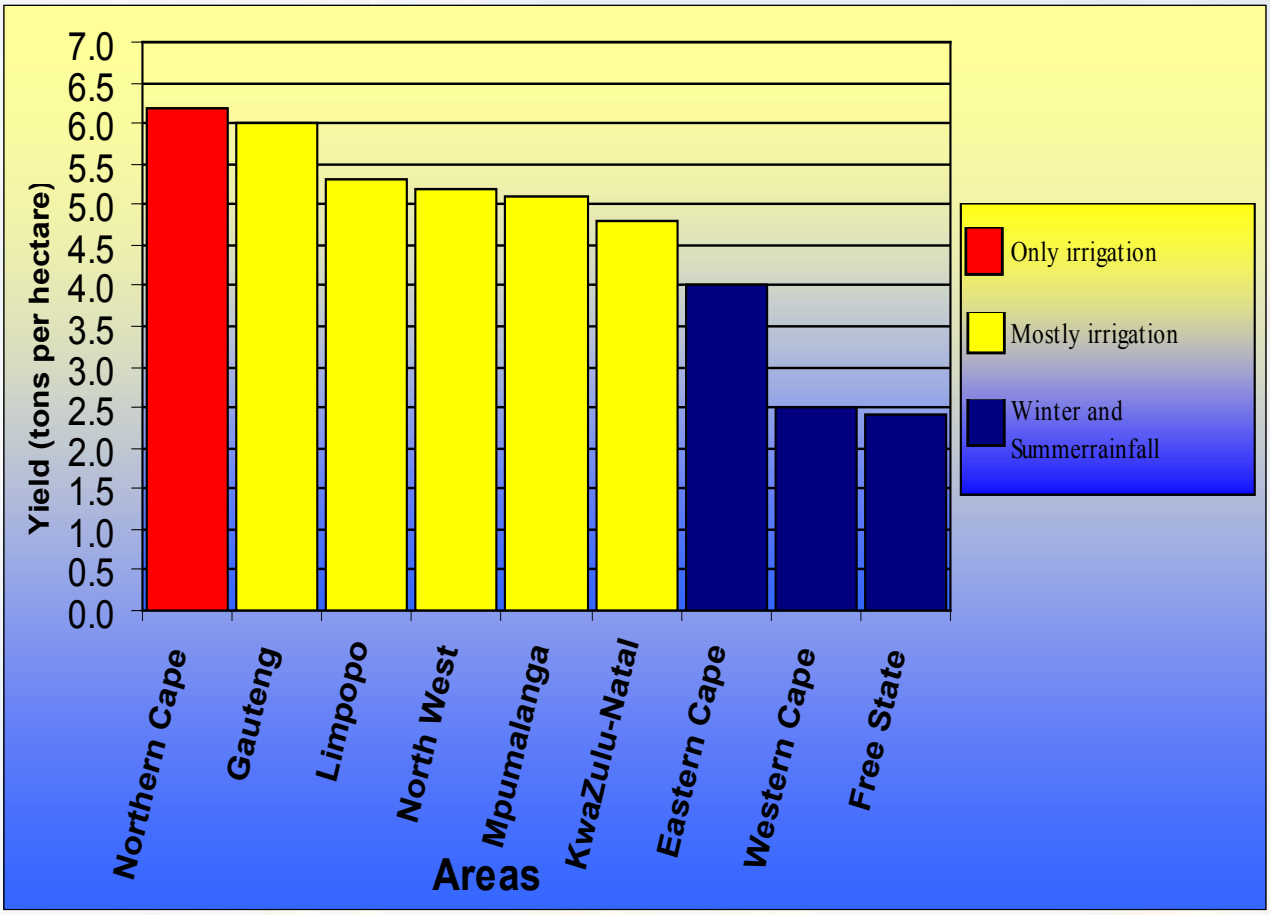
Sampling procedure for the annual quality survey

During the harvest season, a sample of each delivery of wheat is taken according to the prescribed Wheat regulation. A representative sample needs to be drawn for grading purposes before the wheat is taken in at the silo. Of each of these grading samples, about 200 grams is thrown into a 100 kg bin according to grade and class at each silo. The 100 kg bin is divided and a 5 kg sample is send to the SAGL for the annual quality survey.

After receiving these representative wheat crop samples from all over the country, the SAGL select 480 samples representing the wheat production of wheat for that specific region/province.

South Africa is the only wheat producing country known-of that produces this kind of comprehensive quality information on their national wheat crop and also have it available to the public.

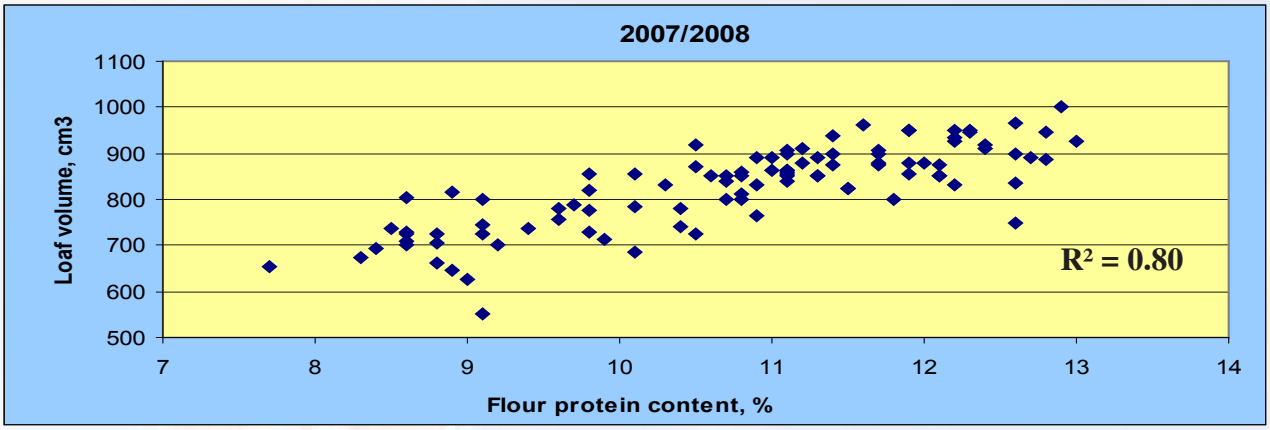
Average yield per area
(Irrigation versus summer and winter rainfall areas)

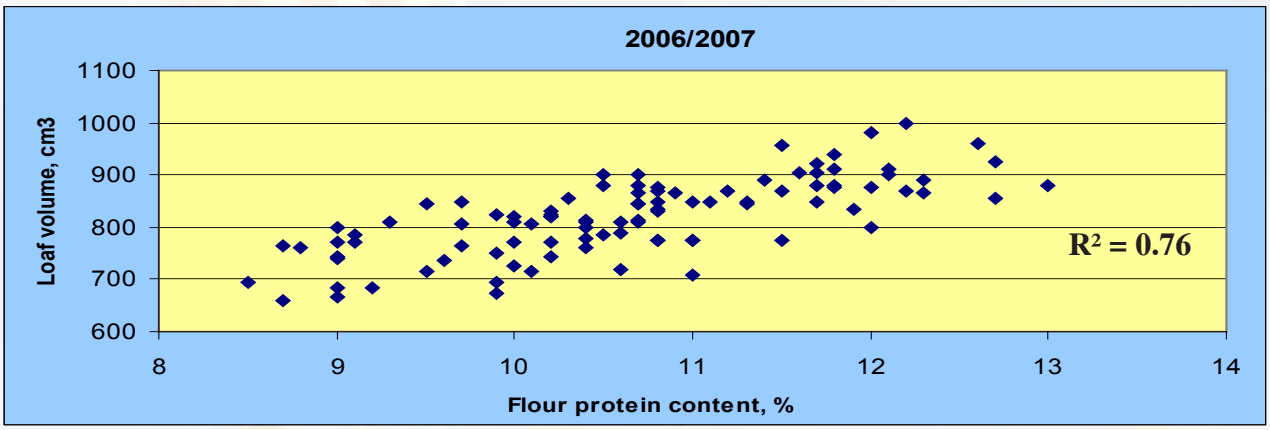


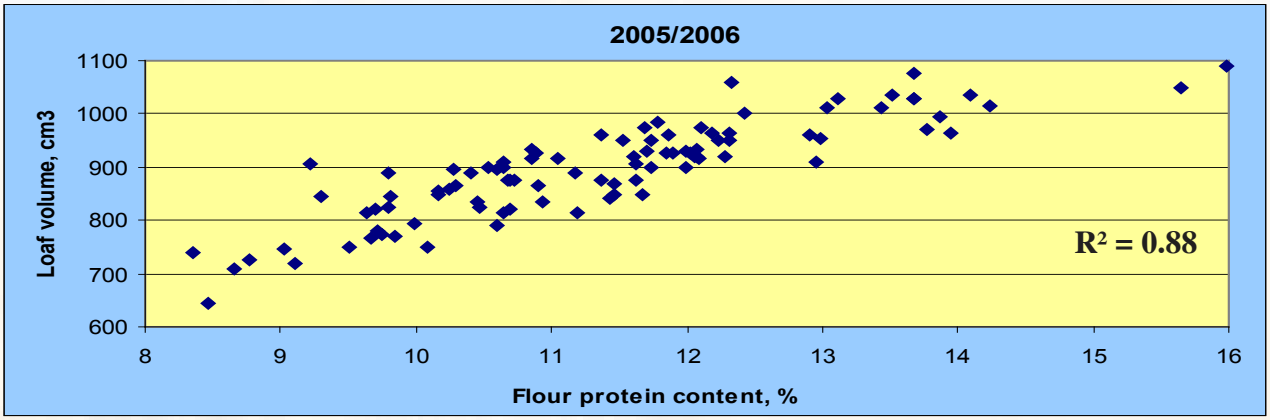
Average quality data of imported wheat during the 2006 / 2007 season (previous season)

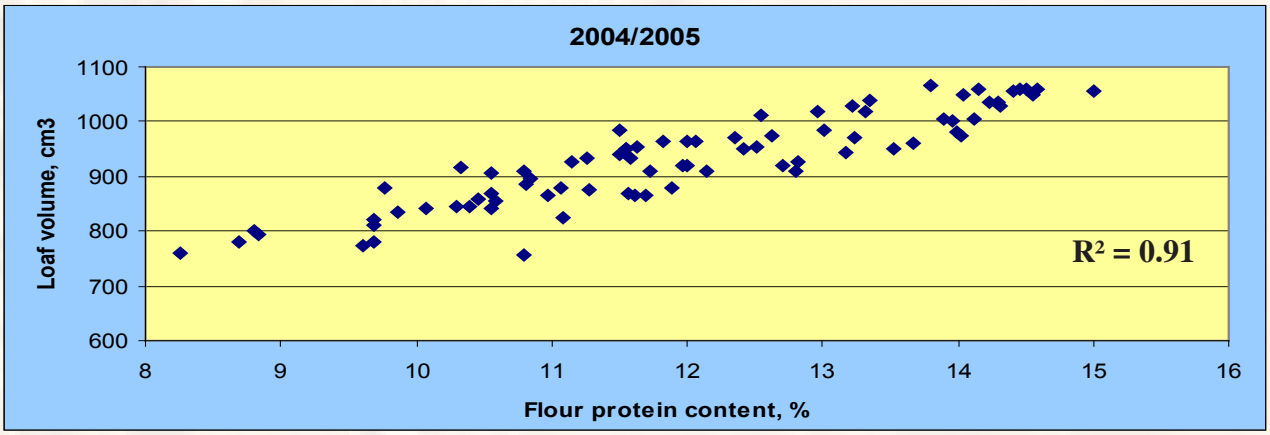
	Argentina	Bermuda	Canada	Germany	USA	RSA
Protein (12 % mb)	12.21	12.51	13.30	12.07	11.91	11.45
Hlm Kg/hl	77.6	77.0	79.5	77.7	76.6	78.4
Screenings (%)	3.40	3.27	3.22	2.91	3.72	1.81
Extraction (%)	73.6	73.6	74.9	75.1	73.5	75.1
Flour colour KJ	0.2	0.7	-1.1	0.4	0.5	-1.2
Farinogram						
Waterabsorption (%)	60.5	57.2	62.5	60.3	57.4	61.4
Dev. Time (min)	2.1	2.2	4.3	2.3	2.2	3.4
Alveogram						
Strength (cm²)	47.7	43.0	52.7	41.9	39.8	36.8
Mixogram (Bühler)						
Peak time (min)	4.1	3.9	3.1	3.7	4.1	2.6
Baking test 100g						
Volume (cm³)	785	846	901	839	804	816
Samples tested	27	5	14	10	27	480
Tonnage	310 524	-	153 694	80 649	232 266	2 105 000

Straight - dough optimized 100g Baking test
Comparison of protein vs loaf volume over the last four seasons









Comparison of Flour Quality over the last four seasons

Flour Quality 2007/2008 season			
Flour protein (12 % mb)	10.4	Farinogram water abs, (%)	60.8
Bread volume 100g (cm^3)	827	Farinogram dev. time (min.)	3.6
Mixogram (Bühler) peak time (min)	2.8	Alveogram strength (cm^2)	41.9
Extensogram strength (cm^2)	97	Alveogram P/L	0.94

Flour Quality 2006/2007 season			
Flour protein (12 % mb)	10.6	Farinogram water abs, (%)	61.4
Bread volume 100g (cm^3)	816	Farinogram dev. time (min.)	3.4
Mixogram (Bühler) peak time (min)	2.6	Alveogram strength (cm^2)	36.8
Extensogram strength (cm^2)	82	Alveogram P/L	0.93

Flour Quality 2005/2006 season			
Flour protein (12 % mb)	11.5	Farinogram water abs, (%)	62.3
Bread volume 100g (cm^3)	906	Farinogram dev. time (min.)	5.0
Mixogram (Bühler) peak time (min)	2.5	Alveogram strength (cm^2)	40.7
Extensogram strength (cm^2)	108	Alveogram P/L	0.81

Flour Quality 2004/2005 season			
Flour protein (12 % mb)	12.0	Farinogram water abs, (%)	61.0
Bread volume 100g (cm^3)	930	Farinogram dev. time (min.)	5.1
Mixogram (Bühler) peak time (min)	2.6	Alveogram strength (cm^2)	39.6
Extensogram strength (cm^2)	115	Alveogram P/L	0.62

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), %	11.5	9.4	13.4	1.8	10.6	9.2	13.6	0.9
Falling number, sec	397	363	421	20.7	374	303	407	23.1
1000 Kernel mass (13% mb), g	42.1	37.7	48.9	4.8	36.5	29.0	41.0	2.4
Hectolitre mass (dirty), kg/hl	77.4	75.6	79.2	1.2	75.0	70.1	77.8	1.8
Screenings (<1.8mm), %	1.7	1.0	2.6	0.5	3.2	2.0	20.2	3.7
Total damaged kernels, %	0.5	0.4	0.7	0.1	0.2	0.0	0.6	0.1
Number of samples	***6***				***23***			

CULTIVARS				
cultivars with highest % occurrence	SST 015	43.2	SST 027	44.5
	SST 027	16.2	SST 88	27.4
	SST 035	12.7	SST 015	15.2
	SST 88	12.0	SST 57	9.8
	SST 57	8.8	SST 035	2.0
Number of samples	***6***		***23***	

MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev
Peak time, min	2.7	2.2	3.3	0.5	3.2	2.5	3.7	0.3
Tail height (6min), mm	48	44	51	3.2	44	40	47	2.1
Number of samples	***6***				***23***			

	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.7	73.8		73.3				73.6	74.7	73.3	73.4	
FLOUR												
Protein (12% mb), %	12.7	10.9		8.5				10.5	9.6	8.8	9.1	
Colour, KJ	-2.5	-2.2		-2.9				-0.9	-2.3	-2.6	-2.8	
FARINOGRAM												
Water absorption (14% mb), %	62.6	60.6		57.7				59.4	58.1	57.1	57.2	
Development time, min	5.2	3.8		1.5				2.8	2.2	1.8	1.8	
Stability, min	12.2	7.5		4.5				6.8	6.3	4.3	4.7	
Mixing tolerance index, BU	30	43		56				41	42	58	57	
EXTENSOGRAM (45 min pull)												
Area, cm2	110	85		83				68	82	72	79	
Maximum height, BU	375	330		395				315	385	360	370	
Extensibility, mm	206	180		143				145	144	136	146	
ALVEOGRAM												
Strength (S), cm2	48.8	43.7		33.3				34.6	37.6	31.0	31.8	
Stability (P), mm	82	91		82				84	82	77	79	
Distensibility (L), mm	136	110		84				93	100	87	82	
Configuration ratio (P/L)	0.60	0.83		0.98				0.89	0.83	0.88	0.96	
MIXOGRAM												
Peak time, min	2.2	2.8		2.9				2.8	3.2	3.5	3.0	
100g BAKING TEST												
Loaf volume, cm3	890	830		735				725	780	705	745	
Evaluation	2	1		0				4	0	1	0	

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

1

2

FARINOGRAM

1

2

EXTENSOGRAM

1

2

ALVEOGRAM

1

2

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), %	10.4	8.7	12.6	0.9	10.5	8.7	14.3	1.1
Falling number, sec	373	316	421	22.5	366	322	410	24.0
1000 Kernel mass (13% mb), g	38.5	33.0	42.6	2.0	38.1	33.2	44.3	2.8
Hectolitre mass (dirty), kg/hl	77.8	74.3	81.0	1.6	78.1	74.5	81.8	1.9
Screenings (<1.8mm), %	1.0	0.1	3.4	1.0	1.4	0.2	3.4	1.0
Total damaged kernels, %	0.4	0.0	3.7	0.5	0.3	0.0	1.0	0.3
Number of samples	***78***				***35***			
CULTIVARS								
	SST 027	40.5			SST 027	41.5		
cultivars	SST 88	23.4			SST 88	22.5		
with highest %	SST 015	22.8			SST 015	18.5		
occurrence	SST 57	8.6			SST 57	12.8		
	SST 65	1.5			SST 035	2.3		
Number of samples	***78***				***35***			
MIXOGRAM (Quadromat)								
	ave	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.0	2.1	4.2	0.4	3.0	2.3	3.8	0.4
Tail height (6min), mm	46	38	53	2.9	45	40	52	2.9
Number of samples	***78***				***35***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	74.4	74.4	74.5	74.0	74.5		74.2	74.4	74.2	74.6	74.5	
FLOUR												
Protein (12% mb), %	12.1	10.8	9.6	8.6	8.4		11.8	10.7	9.4	8.3	7.7	
Colour, KJ	-2.5	-2.8	-2.7	-3.0	-3.1		-2.3	-2.9	-2.9	-3.0	-2.8	
FARINOGRAM												
Water absorption (14% mb), %	61.1	58.7	58.9	58.5	56.4		59.4	58.4	57.8	57.6	57.3	
Development time, min	4.5	4.0	1.8	1.8	1.9		5.2	4.2	2.3	1.8	1.3	
Stability, min	9.4	8.7	5.4	5.3	5.5		10.5	8.3	6.8	4.9	3.0	
Mixing tolerance index, BU	29	33	50	50	52		29	37	36	56	68	
EXTENSOGRAM (45 min pull)												
Area, cm2	105	96	79	71	91		105	112	100	77	77	
Maximum height, BU	380	400	460	365	420		405	425	410	400	410	
Extensibility, mm	193	166	155	135	151		182	184	166	138	128	
ALVEOGRAM												
Strength (S), cm2	36.5	43.7	36.1	32.7	28.7		45.6	39.9	33.5	29.7	30.6	
Stability (P), mm	87	79	86	88	74		85	75	77	82	87	
Distensibility (L), mm	122	123	91	79	83		120	127	99	73	69	
Configuration ratio (P/L)	0.71	0.65	0.94	1.11	0.89		0.71	0.59	0.78	1.12	1.25	
MIXOGRAM												
Peak time, min	2.5	2.8	2.8	2.8	3.3		2.8	2.8	2.8	2.9	3.0	
100g BAKING TEST												
Loaf volume, cm3	850	860	755	700	695		800	840	735	675	655	
Evaluation	2	0	1	1	0		3	0	1	1	0	

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

3 4

FARINOGRAM

3 4

EXTENSOGRAM

3 4

ALVEOGRAM

3 4

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	(5) ave	(5) min	(5) max	(5) stdev	(6) ave	(6) min	(6) max	(6) stdev
Protein (12% mb), %	11.0	9.6	12.8	1.0	10.5	8.8	12.2	0.9
Falling number, sec	370	344	390	13.0	362	291	413	23.3
1000 Kernel mass (13% mb), g	40.9	38.4	43.5	1.4	40.9	35.8	46.5	2.5
Hectolitre mass (dirty), kg/hl	78.7	77.7	80.4	0.8	78.5	75.8	79.9	1.2
Screenings (<1.8mm), %	1.8	0.7	2.1	0.4	1.8	0.5	3.5	0.8
Total damaged kernels, %	0.1	0.0	0.4	0.2	0.3	0.0	0.8	0.2
Number of samples	***15***				***34***			

CULTIVARS	(5)		(6)	
	SST 027	33.4	SST 027	31.3
cultivars	SST 88	25.3	SST 88	30.9
with highest %	SST 015	24.1	SST 015	27.0
occurrence	SST 57	12.9	SST 57	6.9
	PAN 3408	2.0	SST 035	2.0
Number of samples	***15***		***34***	

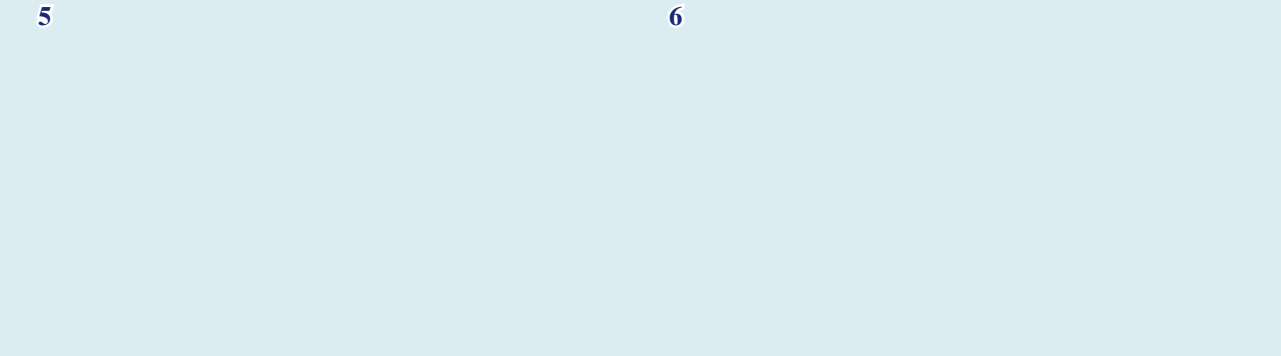
MIXOGRAM (Quadromat)	(5) ave	(5) min	(5) max	(5) stdev	(6) ave	(6) min	(6) max	(6) stdev
Peak time, min	2.5	2.3	2.8	0.2	2.8	2.4	3.5	0.2
Tail height (6min), mm	48	42	55	3.4	47	43	51	2.1
Number of samples	***15***				***34***			

	(5) B1	B2	B3	B4	UT	COW	(6) B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	75.3	75.0	75.4	74.8			74.1	74.9	75.0	75.4	74.9	
FLOUR												
Protein (12% mb), %	12.4	10.7	9.8	8.6			11.7	10.8	9.8	8.8	8.6	
Colour, KJ	-2.4	-2.5	-2.6	-2.4			-2.5	-2.3	-2.5	-2.2	-2.4	
FARINOGRAM												
Water absorption (14% mb), %	62.2	60.1	59.3	58.5			61.4	60.1	59.3	58.1	58.0	
Development time, min	4.8	2.2	2.8	2.2			2.4	3.5	2.7	1.7	2.2	
Stability, min	8.3	7.1	6.3	5.0			8.0	7.4	6.9	5.7	5.9	
Mixing tolerance index, BU	33	32	48	58			29	38	35	46	45	
EXTENSOGRAM (45 min pull)												
Area, cm2	123	93	93	65			98	90	85	70	81	
Maximum height, BU	395	350	365	320			360	360	385	360	360	
Extensibility, mm	210	185	172	139			193	171	150	135	153	
ALVEOGRAM												
Strength (S), cm2	46.2	36.1	33.9	30.3			42.7	39.4	35.3	32.0	31.3	
Stability (P), mm	90	75	79	83			90	85	85	82	80	
Distensibility (L), mm	122	117	101	79			108	109	94	85	86	
Configuration ratio (P/L)	0.73	0.64	0.78	1.05			0.83	0.79	0.91	0.97	0.92	
MIXOGRAM												
Peak time, min	2.2	2.4	2.4	2.8			2.3	2.8	2.6	2.8	2.7	
100g BAKING TEST												
Loaf volume, cm3	910	800	775	710			875	810	730	725	725	
Evaluation	1	1	0	0			1	1	2	0	0	

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

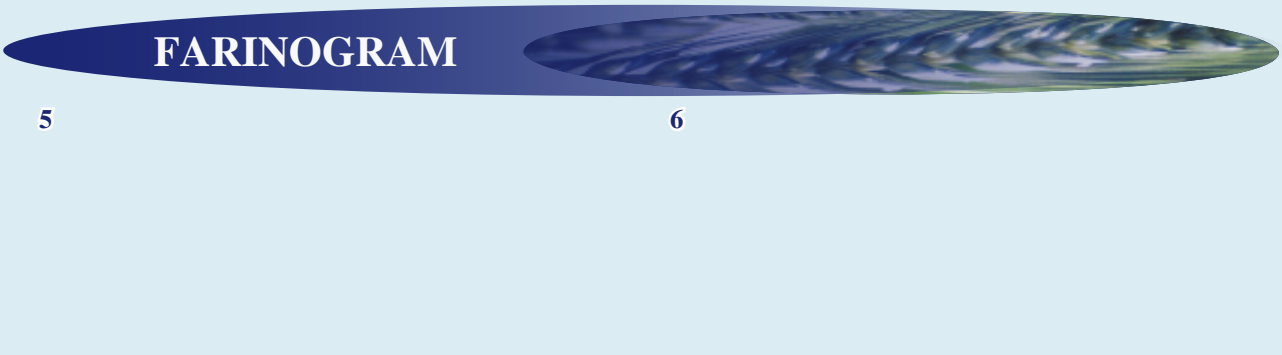
5



6

FARINOGRAM

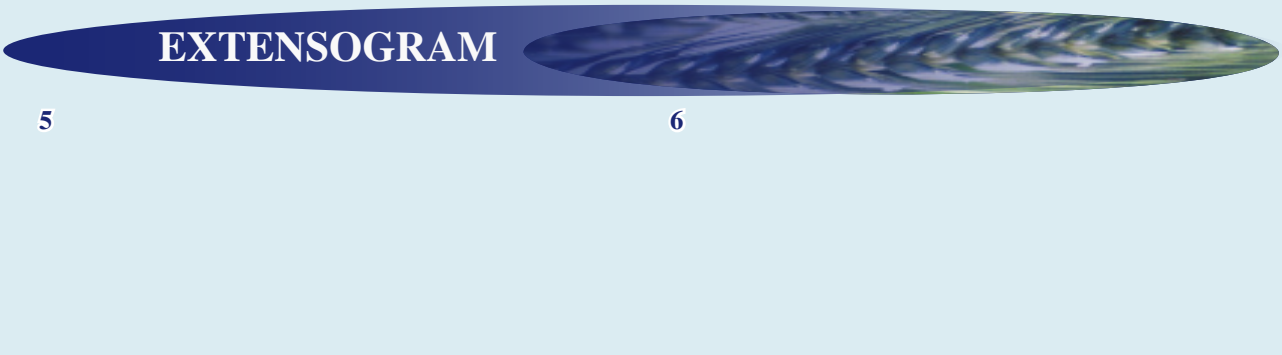
5



6

EXTENSOGRAM

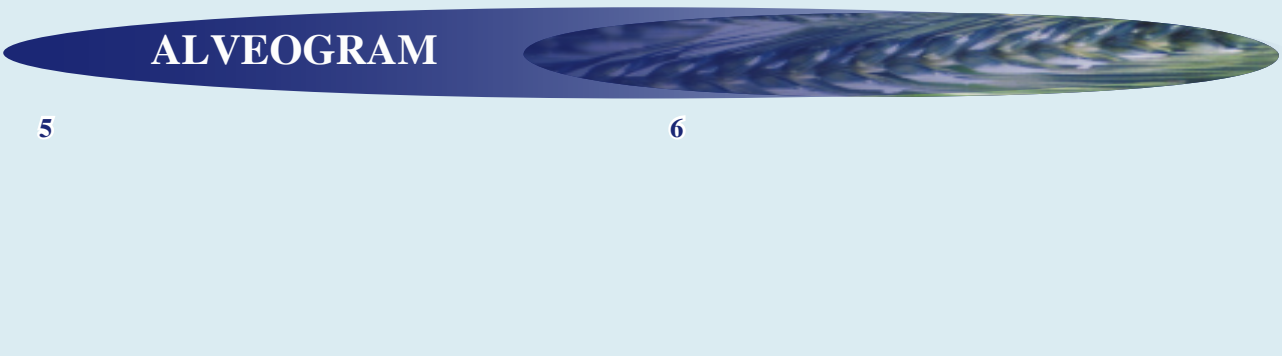
5



6

ALVEOGRAM

5



6

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), %	11.0	9.6	12.4	0.8	11.3	10.2	12.1	0.6
Falling number, sec	413	371	497	31.5	388	344	423	25.8
1000 Kernel mass (13% mb), g	39.8	32.2	42.7	2.5	36.7	34.5	39.5	1.5
Hectolitre mass (dirty), kg/hl	79.4	77.2	81.5	1.0	78.2	75.6	79.5	1.5
Screenings (<1.8mm), %	1.3	0.2	7.3	1.6	3.0	2.3	4.2	0.6
Total damaged kernels, %	0.4	0.1	0.8	0.2	0.8	0.1	3.1	0.9
Number of samples	***17***				***9***			

CULTIVARS				
cultivars with highest % occurrence	CRN 826	32.2	CRN 826	83.1
	SST 806	26.4	SST 806	7.2
	PAN 3434	14.2	Duzi	3.1
	Duzi	8.8	Krokodil	1.9
	SST 876	8.1	SST 876	1.4
Number of samples	***17***		***9***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.5	2.0	2.8	0.2	2.4	2.2	2.7	0.2
Tail height (6min), mm	46	39	52	3.0	50	45	55	3.4
Number of samples	***17***				***9***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	76.0	76.9	76.9	77.9				77.0			76.6	
FLOUR												
Protein (12% mb), %	12.0	11.1	10.1	8.9				10.9			11.4	
Colour, KJ	-2.2	-2.5	-3.0	-3.0				-2.3			-2.1	
FARINOGRAM												
Water absorption (14% mb), %	62.2	61.5	58.8	57.8				61.1			61.7	
Development time, min	4.7	3.5	3.8	3.7				3.9			4.5	
Stability, min	6.9	6.3	6.0	4.9				5.9			6.5	
Mixing tolerance index, BU	49	44	55	65				49			52	
EXTENSOGRAM (45 min pull)												
Area, cm2	69	96	76	67				79			80	
Maximum height, BU	260	335	325	310				315			310	
Extensibility, mm	185	190	166	148				172			179	
ALVEOGRAM												
Strength (S), cm2	41.7	37.5	32.0	28.1				35.8			38.4	
Stability (P), mm	83	81	68	67				78			80	
Distensibility (L), mm	117	106	117	109				112			120	
Configuration ratio (P/L)	0.71	0.77	0.58	0.62				0.70			0.67	
MIXOGRAM												
Peak time, min	2.3	2.3	2.6	2.4				2.3			2.3	
100g BAKING TEST												
Loaf volume, cm3	880	855	855	815				890			900	
Evaluation	1	0	0	0				0			0	

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

10

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EXTENSOGRAM

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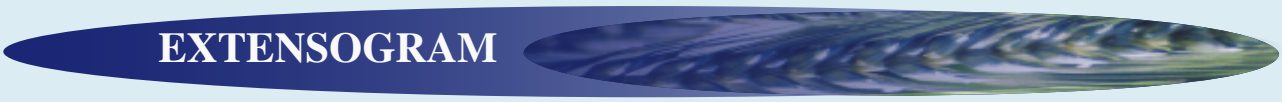

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ALVEOGRAM

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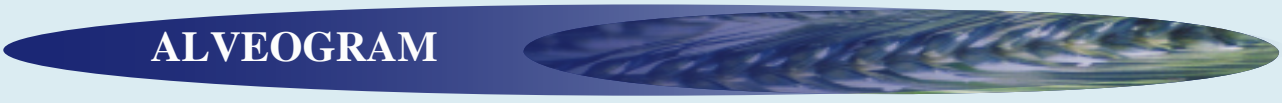

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SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

PRODUCTION REGION	(12) North-West Western Region	(14) 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), %	11.8	11.4	12.4	0.6	12.1	11.1	12.5	0.5
Falling number, sec	363	284	404	68.4	381	358	412	20.4
1000 Kernel mass (13% mb), g	34.4	32.6	36.1	1.8	37.3	34.7	42.8	2.8
Hectolitre mass (dirty), kg/hl	74.9	70.8	79.0	4.1	74.7	71.7	78.4	2.7
Screenings (<1.8mm), %	5.4	4.6	7.0	1.3	1.1	0.8	1.5	0.2
Total damaged kernels, %	0.5	0.2	0.7	0.2	0.4	0.2	0.7	0.2
Number of samples		***3***				***6***		

CULTIVARS					
cultivars with highest % occurrence	CRN 826	52.3	SST 822	31.2
	SST 806	30.7	CRN 826	28.8
	SST 876	13.7	SST 806	12.7
	SST 822	3.3	Duzi	8.8
			Kariega	7.8
Number of samples	***3***		6	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.8	2.9	0.1	3.0	2.7	3.2	0.2
Tail height (6min), mm	49	47	50	1.5	51	47	54	2.5
Number of samples		***3***				***6***		

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %					76.2		76.4	76.1	75.9			
FLOUR												
Protein (12% mb), %					11.7		11.6	11.3	12.2			
Colour, KJ					-0.7		-2.1	-1.3	-2.1			
FARINOGRAM												
Water absorption (14% mb), %					61.4		61.4	59.9	62.5			
Development time, min					2.7		3.2	4.4	5.0			
Stability, min					6.1		7.5	7.3	8.2			
Mixing tolerance index, BU					38		34	44	42			
EXTENSOGRAM (45 min pull)												
Area, cm2					90		80	82	92			
Maximum height, BU					325		310	300	330			
Extensibility, mm					194		177	195	196			
ALVEOGRAM												
Strength (S), cm2					39.1		39.4	35.3	47.9			
Stability (P), mm					70		76	66	83			
Distensibility (L), mm					139		130	135	137			
Configuration ratio (P/L)					0.50		0.59	0.49	0.60			
MIXOGRAM												
Peak time, min					2.5		2.6	2.7	2.8			
100g BAKING TEST												
Loaf volume, cm3					880		960	890	925			
Evaluation					1		0	0	0			

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

PRODUCTION REGION	(15) North-West South-Eastern Region	(17) North-West Central Northern Region (Ottosdal)
Intake silos	Bloemhof Christiana Hertzogville Hoopstad Kingswood	Bospoort Hartbeesfontein Kleinharts Melliodora Ottosdal Rostrataville Vermaas Werda

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.8	10.6	13.5	1.0	11.8	11.6	12.1	0.3
Falling number, sec	400	299	437	41.3	399	378	412	18.4
1000 Kernel mass (13% mb), g	37.2	25.6	41.3	5.0	37.0	36.9	37.0	0.1
Hectolitre mass (dirty), kg/hl	77.6	75.2	79.5	1.7	77.1	75.5	79.3	2.0
Screenings (<1.8mm), %	1.1	0.2	5.1	1.5	1.6	1.0	2.2	0.6
Total damaged kernels, %	0.6	0.1	1.1	0.4	0.4	0.1	0.6	0.2
Number of samples	***10***				***3***			

CULTIVARS				
cultivars with highest % occurrence	CRN 826	43.9	CRN 826	45.3
	SST 806	24.3	SST 822	34.7
	PAN 3118	14.7	SST 876	12.7
	SST 835	5.5	SST 806	5.7
	SST 935	4.4	PAN 3434	1.7
Number of samples	***10***		***3***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.0	2.4	3.5	0.3	2.9	2.8	3.0	0.1
Tail height (6min), mm	51	47	59	4.0	50	50	51	0.6
Number of samples	***10***				***3***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.1	77.3	77.5		74.2			76.8				
FLOUR												
Protein (12% mb), %	13.0	11.1	10.5		11.7			11.9				
Colour, KJ	-2.0	-2.0	-2.4		-1.1			-1.8				
FARINOGRAM												
Water absorption (14% mb), %	65.1	61.0	59.8		60.0			61.0				
Development time, min	6.8	4.8	4.2		4.8			4.7				
Stability, min	16.2	7.5	6.2		10.5			8.7				
Mixing tolerance index, BU	19	45	54		35			36				
EXTENSOGRAM (45 min pull)												
Area, cm2	125	96	100		128			125				
Maximum height, BU	425	365	315		485			410				
Extensibility, mm	206	184	222		181			212				
ALVEOGRAM												
Strength (S), cm2	66.7	43.7	34.4		55.7			50.2				
Stability (P), mm	121	86	68		97			79				
Distensibility (L), mm	105	116	123		124			156				
Configuration ratio (P/L)	1.14	0.75	0.55		0.79			0.51				
MIXOGRAM												
Peak time, min	2.9	2.7	2.8		3.0			2.5				
100g BAKING TEST												
Loaf volume, cm3	925	905	920		905			880				
Evaluation	2	0	0		0			1				

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN
MAINLY IRRIGATION
North-West Province

PRODUCTION REGION	(18) North-West Central Region (Ventersdorp)	(19) North-West Central Region (Lichtenburg)
Intake silos	Bodenstein Buckingham Coligny Enselspruit Makokskraal Potchefstroom Ventersdorp	Grootpan Halfpad Hibernia Lichtenburg Lottiehalte Lusthof

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.1	10.4	11.9	0.7	11.4	10.5	12.1	0.7
Falling number, sec	365	349	411	23.2	385	348	413	23.5
1000 Kernel mass (13% mb), g	38.4	37.5	39.1	0.5	40.1	32.1	44.2	3.4
Hectolitre mass (dirty), kg/hl	77.3	76.7	78.3	0.6	77.6	74.2	79.3	1.7
Screenings (<1.8mm), %	0.6	0.5	0.7	0.1	1.3	0.3	3.1	0.8
Total damaged kernels, %	0.7	0.5	1.1	0.2	0.5	0.3	1.1	0.2
Number of samples		***6***				***10***		

CULTIVARS					
	SST 806	53.7		SST 806	35.0
cultivars	CRN 826	40.8		CRN 826	33.9
with highest %	Olifants	3.7		SST 876	17.2
occurrence	SST 876	1.8		SST 822	6.4
				SST 835	5.5
Number of samples	***6***			***10***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.8	2.7	3.0	0.1	2.7	2.3	3.0	0.2
Tail height (6min), mm	50	47	52	1.7	49	46	51	1.6
Number of samples	***6***				***10***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %		78.0	77.8				77.3	78.3				76.8
FLOUR												
Protein (12% mb), %		11.4	9.8				11.9	10.8				10.7
Colour, KJ		-1.4	-1.8				-1.8	-1.9				-1.5
FARINOGRAM												
Water absorption (14% mb), %		62.8	60.0				62.9	61.0				60.5
Development time, min		5.0	3.5				4.9	5.0				4.3
Stability, min		6.5	6.5				5.7	6.4				7.0
Mixing tolerance index, BU		59	46				61	62				48
EXTENSOGRAM (45 min pull)												
Area, cm2		99	88				103	100				88
Maximum height, BU		335	350				330	345				335
Extensibility, mm		204	175				218	202				185
ALVEOGRAM												
Strength (S), cm2		45.6	34.6				44.6	39.1				38.2
Stability (P), mm		85	76				81	77				75
Distensibility (L), mm		129	109				134	124				125
Configuration ratio (P/L)		0.65	0.69				0.61	0.62				0.60
MIXOGRAM												
Peak time, min		2.5	2.7				2.3	2.3				2.8
100g BAKING TEST												
Loaf volume, cm3		940	855				950	850				850
Evaluation		0	0				0	0				0

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

18

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EXTENSOGRAM

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ALVEOGRAM

18

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SOUTH AFRICAN

MAINLY IRRIGATION
North-West Province

SUMMER RAINFALL WHEAT
(AND IRRIGATION)
Free State Province (Central)

	(20)	(21)
PRODUCTION REGION	**North-West Eastern Region**	**Free State North-Western Region (Viljoenskroon)**
Intake silos	Battery Boons Brits Derby Koster Rustenburg Swartruggens Syferbult	Attie Groenebloem Heuningspruit Koppies Rooiwal Vierfontein Viljoenskroon Vredefort Weiveld

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.2	9.8	12.6	0.7	12.0	11.2	13.0	0.7
Falling number, sec	360	310	400	27.2	354	278	462	67.4
1000 Kernel mass (13% mb), g	41.4	37.6	45.1	1.9	36.9	33.0	38.3	1.8
Hectolitre mass (dirty), kg/hl	77.4	69.9	79.1	2.5	78.4	74.8	80.0	1.9
Screenings (<1.8mm), %	1.3	0.1	2.6	0.6	2.3	1.3	4.6	1.1
Total damaged kernels, %	1.8	0.5	5.2	1.4	1.0	0.5	1.2	0.2
Number of samples		***13***				***8***		

CULTIVARS				
cultivars with highest % occurrence	CRN 826	25.4	Elands	35.6
	SST 806	21.4	CRN 826	19.9
	Kariega	13.2	SST 806	17.9
	SST 876	11.2	PAN 3118	14.6
	SST 835	9.9	Betta-DN	5.4
Number of samples	***13***		***8***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.7	2.3	3.3	0.3	3.6	3.2	4.4	0.5
Tail height (6min), mm	49	45	55	3.3	55	51	60	2.8
Number of samples	***13***				***8***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	76.7	77.8	76.9			77.7	75.4	76.1				
FLOUR												
Protein (12% mb), %	12.2	11.1	10.5			10.3	12.6	11.1				
Colour, KJ	-1.2	-1.4	-1.3			-1.7	-1.0	-1.6				
FARINOGRAM												
Water absorption (14% mb), %	65.0	62.0	59.8			58.9	60.8	58.8				
Development time, min	5.2	2.5	3.2			3.8	5.9	2.0				
Stability, min	9.4	6.2	7.7			6.1	12.7	10.8				
Mixing tolerance index, BU	33	41	36			55	25	10				
EXTENSOGRAM (45 min pull)												
Area, cm2	127	90	108			95	138	139				
Maximum height, BU	405	300	375			335	485	535				
Extensibility, mm	217	210	199			197	194	186				
ALVEOGRAM												
Strength (S), cm2	54.9	39.1	41.9			32.7	56.3	49.5				
Stability (P), mm	109	78	79			59	99	91				
Distensibility (L), mm	106	121	122			140	110	112				
Configuration ratio (P/L)	1.03	0.64	0.65			0.42	0.90	0.81				
MIXOGRAM												
Peak time, min	2.5	2.6	2.9			2.5	3.7	3.7				
100g BAKING TEST												
Loaf volume, cm3	830	900	870			830	900	865				
Evaluation	3	0	0			0	2	0				

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

20 **21**

EXTENSOGRAM

20 **21**

ALVEOGRAM

20 **21**

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (Central)

PRODUCTION REGION	(26) Free State South-Eastern Region (Senekal)	(27) Free State Northern Region
Intake silos	Arlington Kaallaagte Libertas Marquard Meets Monte Video Senekal Steynsrus	Gottenburg Heilbron Hoogte Mooigeleë Petrus Steyn Wolwehoek

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.1	9.4	13.1	1.0	11.1	9.2	13.7	1.2
Falling number, sec	312	227	392	34.2	298	209	378	59.8
1000 Kernel mass (13% mb), g	38.4	34.2	42.1	2.4	39.8	36.6	42.1	1.6
Hectolitre mass (dirty), kg/hl	79.2	75.9	81.3	1.4	80.2	78.0	82.2	1.4
Screenings (<1.8mm), %	1.5	0.6	3.2	0.7	0.7	0.2	1.1	0.3
Total damaged kernels, %	0.4	0.0	1.0	0.3	0.7	0.1	3.0	0.8
Number of samples	***26***				***10***			

CULTIVARS				
cultivars with highest % occurrence	Elands	32.1	Elands	47.8
	Gariep	31.0	PAN 3377	12.0
	PAN 3377	10.8	CRN 826	10.2
	PAN 3118	5.3	SST 806	6.7
	Betta-DN	5.0	SST 356	5.4
Number of samples	***26***		***10***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.6	2.8	5.0	0.5	3.2	2.4	3.8	0.5
Tail height (6min), mm	54	46	62	4.2	53	47	65	5.0
Number of samples	***26***				***10***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.0	75.0	75.4	75.0	74.7			74.9	74.5	74.1		
FLOUR												
Protein (12% mb), %	12.8	11.5	10.1	9.1	9.1			10.8	9.9	8.9		
Colour, KJ	-1.6	1.8	-0.3	-1.9	-1.0			-0.7	-1.8	-2.0		
FARINOGRAM												
Water absorption (14% mb), %	62.4	61.5	61.1	62.1	58.9			62.9	62.9	62.2		
Development time, min	3.8	3.5	2.2	1.8	1.4			4.5	2.3	1.9		
Stability, min	13.1	8.9	6.1	3.4	3.0			7.5	6.2	3.7		
Mixing tolerance index, BU	18	26	46	71	66			44	43	66		
EXTENSOGRAM (45 min pull)												
Area, cm2	142	124	95	85	96			94	82	85		
Maximum height, BU	520	475	455	405	395			390	365	405		
Extensibility, mm	191	187	150	146	151			166	156	145		
ALVEOGRAM												
Strength (S), cm2	57.3	52.1	43.6	36.5	34.6			48.2	43.0	37.6		
Stability (P), mm	114	108	118	129	97			109	113	119		
Distensibility (L), mm	92	94	65	46	66			93	73	56		
Configuration ratio (P/L)	1.23	1.15	1.82	2.78	1.46			1.17	1.53	2.13		
MIXOGRAM												
Peak time, min	3.5	2.8	3.3	2.9	2.7			2.5	3.2	2.3		
100g BAKING TEST												
Loaf volume, cm3	885	825	785	550	725			800	715	645		
Evaluation	3	2	1	6	1			2	3	4		

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

26 **27**

EXTENSOGRAM

26 **27**

ALVEOGRAM

26 **27**

SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (North-Western)

	(22)	(23)
PRODUCTION REGION	**Free-State North-Western Region (Bothaville)**	**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), %	12.1	11.0	12.6	0.7	11.5	9.0	13.9	1.1
Falling number, sec	383	294	431	64.2	367	151	445	65.3
1000 Kernel mass (13% mb), g	36.6	33.3	38.8	1.8	35.7	22.0	39.4	3.6
Hectolitre mass (dirty), kg/hl	77.8	76.0	79.6	1.3	77.7	66.9	81.6	3.0
Screenings (<1.8mm), %	1.6	0.6	2.3	0.6	2.1	0.9	8.3	1.4
Total damaged kernels, %	1.7	0.5	4.3	1.4	0.5	0.1	2.4	0.5
Number of samples	***6***				***25***			

CULTIVARS				
cultivars with highest % occurrence	CRN 826	33.0	CRN 826	40.3
	PAN 3377	14.8	PAN 3118	26.9
	SST 806	12.3	PAN 3120	7.4
	PAN 3118	9.8	SST 334	3.7
	SST 835	7.5	SST 806	3.5
Number of samples	***6***		***25***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.7	2.2	3.5	0.6	3.0	2.3	3.8	0.5
Tail height (6min), mm	54	48	59	4.6	53	46	68	5.2
Number of samples	***6***				***25***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %		75.9	75.5				75.3	75.6	76.3	73.0	74.7	71.5
FLOUR												
Protein (12% mb), %		12.2	11.2				11.9	11.2	10.6	8.8	10.9	12.6
Colour, KJ		-1.7	-1.7				-1.9	-1.9	-2.3	-2.4	-2.2	0.0
FARINOGRAM												
Water absorption (14% mb), %		61.6	60.9				63.0	61.1	59.1	62.4	60.7	62.0
Development time, min		5.5	4.7				6.0	4.8	4.0	1.7	3.0	5.2
Stability, min		9.0	7.2				9.4	8.7	6.9	3.5	7.8	9.2
Mixing tolerance index, BU		40	43				37	37	42	62	33	42
EXTENSOGRAM (45 min pull)												
Area, cm2		119	110				95	98	93	69	92	132
Maximum height, BU		400	375				365	410	355	355	390	445
Extensibility, mm		204	200				187	167	179	132	165	204
ALVEOGRAM												
Strength (S), cm2		54.1	44.6				56.6	48.6	39.1	34.6	45.1	58.7
Stability (P), mm		90	87				104	91	73	135	96	100
Distensibility (L), mm		134	117				114	115	134	41	99	118
Configuration ratio (P/L)		0.67	0.74				0.91	0.79	0.54	3.26	0.98	0.85
MIXOGRAM												
Peak time, min		2.8	2.5				2.8	2.5	2.5	4.0	2.8	3.3
100g BAKING TEST												
Loaf volume, cm3		950	880				950	910	850	660	765	835
Evaluation		0	0				0	0	0	3	3	4

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)

Free State Province (Eastern)

PRODUCTION REGION	(25) Free State South-Eastern Region (Bethlehem)	(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), %	10.6	8.8	13.3	1.0	10.8	9.2	12.4	0.8
Falling number, sec	325	228	444	38.9	337	278	446	40.7
1000 Kernel mass (13% mb), g	39.8	34.7	45.3	2.7	40.9	36.5	44.8	2.0
Hectolitre mass (dirty), kg/hl	78.1	64.4	81.3	3.5	80.5	76.7	82.7	1.3
Screenings (<1.8mm), %	1.8	0.5	4.2	1.1	0.8	0.1	4.8	0.9
Total damaged kernels, %	0.4	0.1	1.3	0.2	0.4	0.0	1.1	0.3
Number of samples	***32***				***32***			

CULTIVARS				
cultivars with highest % occurrence	Elands	40.9	Elands	51.5
	Gariep	10.6	SST 835	7.4
	Matlabas	7.7	Betta-DN	6.6
	Betta-DN	7.0	PAN 3377	6.4
	SST 399	6.3	CRN 826	4.9
Number of samples	***32***		***32***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	3.5	1.7	4.8	0.6	3.3	2.3	5.0	0.5
Tail height (6min), mm	52	45	60	3.7	54	46	63	3.9
Number of samples	***32***				***32***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	75.6	75.0	75.0	74.7	75.0	75.2	75.5	76.0	75.0	74.5		
FLOUR												
Protein (12% mb), %	12.6	11.3	10.4	9.2	9.7	12.1	12.1	11.1	10.1	9.0		
Colour, KJ	-2.1	-1.7	-1.8	-2.1	-0.7	-0.3	-1.4	-1.5	-1.6	-2.0		
FARINOGRAM												
Water absorption (14% mb), %	65.7	63.2	62.7	62.6	62.2	61.6	66.2	63.4	61.7	61.4		
Development time, min	4.5	2.7	2.2	2.0	2.3	4.7	4.7	2.0	1.4	1.8		
Stability, min	7.1	8.8	7.7	4.2	6.2	9.3	9.3	9.9	6.1	3.0		
Mixing tolerance index, BU	41	38	35	59	42	35	30	13	44	70		
EXTENSOGRAM (45 min pull)												
Area, cm2	74	114	116	100	88	113	109	100	90	81		
Maximum height, BU	300	465	470	450	385	430	390	415	410	405		
Extensibility, mm	175	173	173	154	157	183	195	169	152	137		
ALVEOGRAM												
Strength (S), cm2	44.5	53.7	51.7	41.7	40.7	53.2	64.2	57.2	42.8	36.5		
Stability (P), mm	106	120	133	140	114	101	132	120	117	125		
Distensibility (L), mm	85	87	70	50	70	106	98	94	66	48		
Configuration ratio (P/L)	1.25	1.37	1.91	2.80	1.64	0.96	1.34	1.27	1.78	2.59		
MIXOGRAM												
Peak time, min	2.2	2.7	3.3	3.7	3.0	2.9	2.7	3.3	3.7	3.7		
100g BAKING TEST												
Loaf volume, cm3	750	850	780	700	790	875	850	840	685	625		
Evaluation	6	1	2	2	0	2	2	1	4	5		

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN

SUMMER RAINFALL WHEAT (AND IRRIGATION)
Free State Province (South-Western)

OTHER SUMMER RAINFALL WHEAT AND IRRIGATION
Mpumalanga

	(24)	(29)
PRODUCTION REGION	**Free State Central Region**	**Mpumalanga Southern Region**
Intake silos	Bloemfontein Brandfort De Brug Geneva Hennenman Koffiefontein Kroonstad Petrusburg Theunissen Van Tonder Welgeleë Winburg	Balfour Greylingstad Grootvlei Harvard Holmdene Leeuspruit Platrand Standerton Val

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.6	9.4	12.6	0.6	12.6	12.5	12.8	0.2
Falling number, sec	344	247	459	54.8	388	349	412	34.1
1000 Kernel mass (13% mb), g	36.3	33.1	39.5	1.8	38.0	37.1	38.6	0.8
Hectolitre mass (dirty), kg/hl	77.7	74.0	81.4	2.0	78.1	77.8	78.7	0.5
Screenings (<1.8mm), %	2.2	0.8	5.7	1.3	0.7	0.6	0.8	0.1
Total damaged kernels, %	2.6	0.2	8.8	3.0	0.6	0.5	0.7	0.1
Number of samples	***26***				***3***			

CULTIVARS				
	CRN 826	25.2	SST 806	47.7
cultivars	PAN 3118	18.0	CRN 826	40.7
with highest %	Gariep	14.6	SST 876	9.7
occurrence	PAN 3377	9.4	Olifants	2.0
	Elands	7.5		
Number of samples	***26***		***3***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.9	2.3	3.7	0.4	2.3	2.2	2.5	0.2
Tail height (6min), mm	53	41	63	4.8	50	48	51	1.5
Number of samples	***26***				***3***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	74.9	75.7	74.2		75.3	75.4	76.6					
FLOUR												
Protein (12% mb), %	11.9	11.3	10.4		11.5	11.7	12.6					
Colour, KJ	-1.6	-1.9	-1.9		-1.8	-1.5	-2.0					
FARINOGRAM												
Water absorption (14% mb), %	61.6	61.7	60.4		61.3	60.9	61.7					
Development time, min	5.5	4.2	2.2		5.0	4.7	5.2					
Stability, min	11.2	7.9	6.0		9.7	7.7	6.1					
Mixing tolerance index, BU	28	45	47		33	41	56					
EXTENSOGRAM (45 min pull)												
Area, cm2	134	106	97		113	103	90					
Maximum height, BU	480	390	440		430	370	305					
Extensibility, mm	194	191	159		179	194	202					
ALVEOGRAM												
Strength (S), cm2	56.4	47.2	45.9		52.8	45.4	38.2					
Stability (P), mm	97	94	103		98	81	69					
Distensibility (L), mm	119	107	83		113	127	149					
Configuration ratio (P/L)	0.82	0.88	1.25		0.87	0.64	0.47					
MIXOGRAM												
Peak time, min	2.8	2.8	3.3		2.8	2.3	2.3					
100g BAKING TEST												
Loaf volume, cm3	855	850	740		825	900	965					
Evaluation	2	1	3		2	0	0					

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN

OTHER 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), %	11.3	11.1	11.4	0.1	12.3	11.7	12.6	0.5
Falling number, sec	428	372	473	37.1	344	333	352	9.7
1000 Kernel mass (13% mb), g	41.9	41.2	43.0	0.8	38.1	35.2	39.9	2.5
Hectolitre mass (dirty), kg/hl	78.2	77.4	79.0	0.8	77.8	75.6	79.1	1.9
Screenings (<1.8mm), %	2.7	1.5	5.5	1.6	1.2	0.7	2.1	0.8
Total damaged kernels, %	0.4	0.1	1.0	0.4	0.4	0.2	0.7	0.2
Number of samples			***5***				***3***	

CULTIVARS				
cultivars with highest % occurrence	Kariega	22.8	SST 806	46.0
	CRN 826	21.2	CRN 826	36.0
	SST 806	20.6	SST 876	14.3
	SST 876	16.6	SST 835	3.7
	Duzi	11.4		
Number of samples		***5***		***3***

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.3	2.3	2.4	0.0	2.8	2.7	3.0	0.2
Tail height (6min), mm	48	47	50	1.3	51	50	53	1.5
Number of samples			***5***				***3***	

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %		78.0					77.8		76.4			
FLOUR												
Protein (12% mb), %		11.0					12.9		11.1			
Colour, KJ		-2.3					-0.8		-2.1			
FARINOGRAM												
Water absorption (14% mb), %		61.9					63.3		60.8			
Development time, min		3.4					5.9		4.0			
Stability, min		5.8					8.2		8.2			
Mixing tolerance index, BU		51					43		38			
EXTENSOGRAM (45 min pull)												
Area, cm2		75					122		117			
Maximum height, BU		285					355		390			
Extensibility, mm		184					240		210			
ALVEOGRAM												
Strength (S), cm2		37.5					48.6		43.4			
Stability (P), mm		76					80		82			
Distensibility (L), mm		123					148		126			
Configuration ratio (P/L)		0.62					0.54		0.65			
MIXOGRAM												
Peak time, min		2.3					2.5		2.6			
100g BAKING TEST												
Loaf volume, cm3		890					1000		865			
Evaluation		0					0		0			

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN

OTHER SUMMER RAINFALL WHEAT AND IRRIGATION

Gauteng and Limpopo Provinces

	(34)	(35)
PRODUCTION REGION	**Gauteng**	**Limpopo**
Intake silos	Bloekomspruit Bronkhorstspruit Glenroy Goeie Hoek Kaalfontein Middelvlei Nigel Oberholzer Raathsvlei	Alma Crecy Immerpan Lehau Naboomspruit Northam Nutfield Nylstroom Pienaarsrivier Pietersburg Potgietersrus Roedtan Settlers Tzaneen Vaalwater Warmbad

WHEAT	***ave***	**min**	**max**	**stdev**	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	11.5	9.8	13.4	1.1	11.4	9.3	13.0	1.2
Falling number, sec	378	323	411	28.4	402	339	479	40.3
1000 Kernel mass (13% mb), g	39.3	34.4	49.4	4.2	37.6	32.1	43.5	3.5
Hectolitre mass (dirty), kg/hl	78.0	76.7	79.1	0.8	77.4	73.4	79.4	2.0
Screenings (<1.8mm), %	1.6	0.5	3.0	0.8	1.9	0.5	4.5	1.2
Total damaged kernels, %	0.6	0.1	1.4	0.4	0.6	0.0	2.2	0.8
Number of samples	***11***				***10***			

CULTIVARS					
	CRN 826	36.4		CRN 826	32.3
cultivars	SST 806	25.3		Duzi	21.0
with highest %	Kariega	11.2		SST 806	18.6
occurrence	Duzi	10.5		SST 835	7.4
	SST 876	8.0		SST 876	4.9
Number of samples	***11***			***10***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**	**ave**	**min**	**max**	**stdev**
Peak time, min	2.6	2.3	3.3	0.3	2.7	1.8	3.5	0.5
Tail height (6min), mm	47	43	59	4.6	47	43	51	2.6
Number of samples	***11***				***10***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	76.0	76.7	77.3	76.2			76.4	76.6		77.7	76.4	
FLOUR												
Protein (12% mb), %	12.4	11.0	9.8	8.6			12.3	11.1		9.1	11.1	
Colour, KJ	-1.2	-2.0	-1.7	-1.7			-0.1	-1.5		-2.1	-1.6	
FARINOGRAM												
Water absorption (14% mb), %	61.6	60.4	60.2	57.0			61.9	61.7		56.6	60.6	
Development time, min	4.5	4.0	2.3	2.2			4.7	4.3		1.9	3.4	
Stability, min	6.7	5.8	6.0	4.6			6.7	6.7		6.4	6.7	
Mixing tolerance index, BU	52	56	46	57			46	48		41	41	
EXTENSOGRAM (45 min pull)												
Area, cm2	96	87	79	68			85	84		79	104	
Maximum height, BU	345	295	330	310			315	330		355	345	
Extensibility, mm	195	192	170	146			191	180		153	213	
ALVEOGRAM												
Strength (S), cm2	41.4	34.1	39.9	24.0			42.2	37.0		34.1	35.8	
Stability (P), mm	74	72	86	64			80	78		64	74	
Distensibility (L), mm	142	120	103	87			127	113		130	117	
Configuration ratio (P/L)	0.52	0.60	0.84	0.74			0.63	0.70		0.49	0.63	
MIXOGRAM												
Peak time, min	2.4	2.3	2.8	2.5			2.3	2.5		3.0	2.5	
100g BAKING TEST												
Loaf volume, cm3	920	865	820	805			950	860		800	850	
Evaluation	1	0	0	0			0	0		0	1	

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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SOUTH AFRICAN

OTHER SUMMER RAINFALL WHEAT AND IRRIGATION

KwaZulu-Natal Province

	(36)
PRODUCTION REGION	**KwaZulu-Natal**
Intake silos	Bergville Bloedrivier Dannhauser Dundee Mizpah New Amalfi Paulpietersburg Vryheid Winterton

WHEAT	***ave***	**min**	**max**	**stdev**
Protein (12% mb), %	12.8	11.8	13.5	0.6
Falling number, sec	292	101	390	96.6
1000 Kernel mass (13% mb), g	38.9	36.1	41.9	1.5
Hectolitre mass (dirty), kg/hl	78.6	75.7	81.4	1.6
Screenings (<1.8mm), %	1.6	0.9	2.6	0.6
Total damaged kernels, %	2.4	0.4	11.1	2.7
Number of samples	***15***			

CULTIVARS		
	SST 806	42.9
cultivars	CRN 826	28.1
with highest %	SST 835	16.7
occurrence	SST 825	3.5
	Kariega	3.3
Number of samples	***15***	

MIXOGRAM (Quadromat)	**ave**	**min**	**max**	**stdev**
Peak time, min	2.9	2.5	3.8	0.5
Tail height (6min), mm	51	48	55	2.5
Number of samples	***15***			

	B1	**B2**	**B3**	**B4**	**UT**	**COW**
BÜHLER EXTRACTION, %	77.5	76.9			76.2	75.5
FLOUR						
Protein (12% mb), %	12.2	11.4			12.3	12.8
Colour, KJ	-1.1	-1.7			-0.4	0.3
FARINOGRAM						
Water absorption (14% mb), %	62.6	61.7			61.1	62.0
Development time, min	5.3	5.2			4.8	3.4
Stability, min	8.2	8.3			8.2	7.8
Mixing tolerance index, BU	46	45			42	39
EXTENSOGRAM (45 min pull)						
Area, cm2	121	110			137	152
Maximum height, BU	415	390			415	435
Extensibility, mm	202	200			219	237
ALVEOGRAM						
Strength (S), cm2	45.9	38.1			48.5	53.2
Stability (P), mm	90	79			77	79
Distensibility (L), mm	115	114			141	145
Configuration ratio (P/L)	0.78	0.69			0.55	0.55
MIXOGRAM						
Peak time, min	2.7	2.6			3.0	3.2
100g BAKING TEST						
Loaf volume, cm3	935	875			945	945
Evaluation	0	0			0	1

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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WEIGHTED AVERAGE RESULTS FOR THE LAST THREE SEASONS

	2007/2008					2006/2007					2005/2006				
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	11.5	397	77.4	2.7	*6*	-	-	-	-	-	11.9	413	79.0	3.0	*3*
2	10.6	374	75.0	3.2	*23*	11.3	393	77.2	2.6	*18*	11.8	427	76.3	2.9	*18*
3	10.4	373	77.8	3.0	*78*	11.1	362	77.7	2.5	*65*	11.9	406	77.8	2.7	*72*
4	10.5	366	78.1	3.0	*35*	10.4	353	78.9	2.7	*17*	11.2	398	79.0	2.7	*48*
5	11.0	370	78.7	2.5	*15*	11.3	366	76.3	2.5	*27*	11.0	385	80.1	2.5	*19*
6	10.5	362	78.5	2.8	*34*	11.1	359	76.4	2.9	*33*	11.4	383	80.3	2.6	*22*
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	11.0	413	79.4	2.5	*17*	11.9	387	80.8	2.2	*27*	11.3	412	79.7	2.3	*28*
11	11.3	388	78.2	2.4	*9*	11.2	389	77.1	2.7	*14*	11.7	382	78.5	2.6	*9*
12	11.8	363	74.9	2.8	*3*	11.1	356	81.3	2.5	*4*	12.5	375	79.0	2.7	*4*
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	12.1	381	74.7	3.0	*6*	12.4	346	80.0	2.4	*3*	13.7	342	75.7	2.5	*5*
15	11.8	400	77.6	3.0	*10*	12.0	300	79.7	2.9	*13*	14.1	312	79.1	2.8	*2*
16	-	-	-	-	-	12.4	329	78.7	2.5	*1*	13.4	314	78.3	2.6	*3*
17	11.8	399	77.1	2.9	*3*	11.4	365	76.0	2.7	*4*	12.5	387	78.6	2.8	*6*
18	11.1	365	77.3	2.8	*6*	-	-	-	-	-	12.6	385	78.1	2.9	*4*
19	11.4	385	77.6	2.7	*10*	11.8	312	78.8	2.4	*11*	12.3	358	77.1	2.8	*11*
20	11.2	360	77.4	2.7	*13*	10.7	360	78.7	3.0	*25*	11.3	376	79.2	2.9	*24*
21	12.0	354	78.4	3.6	*8*	12.2	305	77.5	2.9	*12*	14.0	350	78.3	3.0	*8*
22	12.1	383	77.8	2.7	*6*	13.3	345	77.3	2.6	*3*	15.4	334	76.8	3.3	*7*
23	11.5	367	77.7	3.0	*25*	11.8	322	79.6	2.9	*17*	14.4	332	77.7	3.0	*13*
24	11.6	344	77.7	2.9	*26*	11.7	327	79.0	2.9	*27*	14.7	340	78.3	2.9	*27*
25	10.6	325	78.1	3.5	*32*	10.8	335	78.4	3.3	*39*	12.8	332	77.6	3.1	*25*
26	11.1	312	79.2	3.6	*26*	12.2	320	79.5	3.0	*18*	14.9	328	76.7	3.1	*18*
27	11.1	298	80.2	3.2	*10*	12.7	346	79.8	2.7	*8*	14.9	267	77.0	3.5	*8*
28	10.8	337	80.5	3.3	*32*	12.0	340	78.4	3.0	*33*	12.9	336	77.4	3.1	*31*
29	12.6	388	78.1	2.3	*3*	-	-	-	-	-	-	-	-	-	-
30	11.3	428	78.2	2.3	*5*	11.6	390	82.7	2.0	*4*	12.6	401	76.9	2.8	*5*
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	12.3	344	77.8	2.8	*3*	12.0	319	79.1	2.7	*7*	13.0	362	77.9	2.6	*9*
33	-	-	-	-	-	11.3	357	78.8	2.9	*11*	12.0	417	79.1	3.0	*8*
34	11.5	378	78.0	2.6	*11*	11.8	375	77.9	2.6	*17*	12.6	415	78.6	2.9	*11*
35	11.4	402	77.4	2.7	*10*	11.6	352	79.4	2.9	*22*	12.4	444	78.6	2.6	*17*
36	12.8	292	78.6	2.9	*15*	-	-	-	-	-	12.9	294	77.4	2.8	*15*
Ave.	**11.0**	**360**	**78.1**	**3.0**	***480***	**11.4**	**351**	**78.4**	**2.8**	***480***	**12.4**	**375**	**78.2**	**2.8**	***480***

BREAD WHEAT GRADING TABLE
2007/2008

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 2007/2008 SEASON

Region	Class and Grade	Aflatoxin ppb LOD < 5.0	Deoxynivalenol ppm LOD < 0.50	Ochratoxin ppb LOD = 0.47
1	B1	0	1.0	0
2	B3	<5	1.5	0.58
3	B3	<5	1.0	<0.47
3	B4	<5	1.4	<0.47
4	B3	0	1.4	0
5	B2	0	1.4	<0.47
6	B4	<5	1.0	<0.47
10	B2	0	1.5	2.8
11	B2	0	2.5	0
12	UT	0	1.5	0
14	B3	0	1.4	0.55
15	B2	0	1.7	0.92
17	B2	0	1.6	0
18	B3	0	1.1	0.87
19	COW	<5	0.51	<0.47
20	B2	0	0.73	<0.47
21	B2	0	2.7	0.59
22	B2	0	0.75	0
23	B1	0	0.92	0
24	B2	<5	<0.5	1.8
25	B3	<5	1.6	<0.47
26	B3	<5	2.0	0.87
27	B2	5	1.9	0
28	B3	5	1.4	0
29	B1	0	1.4	0
30	B2	0	1.8	0.86
32	B1	0	1.1	<0.47
34	B2	0	1.2	0
35	UT	0	1.6	<0.47
36	B1	<5	1.3	<0.47
Average 2007/2008 [max. value]		***0.33 [5.00]***	***1.36 [2.70]***	***0.33 [2.80]***
Average 2006/2007 [max. value]		***0.00 [<5]***	***1.46 [2.40]***	***0.17 [1.40]***
Average 2005/2006 [max. value]		***0.43 [7.00]***	***0.94 [1.50]***	***0.09 [0.67]***

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 0.

RSA WHEAT PRODUCTION AREAS

WHEAT SEED SOLD BY COMMERCIAL GRAIN SILO OWNERS TO WHEAT PRODUCERS FOR THE 2007 PLANTING SEASON

Cultivar	%	Cultivar	%
SST 027	26.26	SST 825	0.144
SST 88	21.96	PAN 3349	0.130
SST 015	15.80	SST 399	0.123
Duzi	9.25	SST 322	0.079
SST 57	7.66	PAN 3118	0.065
SST 876	3.10	Inia	0.056
SST 806	3.01	SST 946	0.044
SST 835	2.09	PAN 3364	0.040
Matlabas	1.94	Baviaans	0.027
Krokodil	1.58	PAN 3120	0.027
Elands	1.42	PAN 3235	0.026
Kariega	1.27	SST 367	0.025
SST 822	1.18	SST 935	0.010
CRN 826	1.13	Limpopo	0.0098
Olifants	0.26	SST 94	0.0068
Gariep	0.228	PAN 3434	0.0053
Betta DN	0.226	AFG 5548	0.0016
Steenbras	0.214	PAN 3191	0.0005
Komati	0.212	Caledon	0.0003
PAN 3377	0.193	SST 363	0.0002
SST 334	0.188		
			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 lighter 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 (S): 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 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 November 1, 2005
Fusarium graminearum	Deoxynivalenol (DON)	FluoroQuant DON Test Kit Method for Deoxynivalenol Testing (COKFD2030) February 14, 2007

2006/2007 IMPORTED WHEAT QUALITY - ARGENTINA (1 Oct 2006 to 30 Sep 2007)

2006/2007 Imported Wheat Quality Versus 2006/2007 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	***5***	***3***	***-***	***-***	***19***	***-***	***27***	***135***	***130***	***104***	***42***	***64***	***5***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.06	11.48	-	-	12.10	-	12.21	12.73	11.48	10.73	9.84	10.93	11.00	11.45
Moisture, %	12.1	11.8	-	-	11.9	-	11.9	10.5	10.4	10.5	12.6	10.5	10.8	10.7
Falling number, sec	398	428	-	-	404	-	406	347	362	357	332	346	260	351
1000 Kernel mass (13% mb), g	32.3	35.6	-	-	33.7	-	33.6	36.4	37.8	37.9	37.9	36.4	35.7	37.2
Hlm (dirty), kg/hl	78.0	79.0	-	-	77.3	-	77.6	79.3	78.9	77.7	77.8	77.0	75.8	78.4
Screenings (<1,8mm), %	2.95	2.69	-	-	3.63	-	3.40	1.44	1.47	1.72	1.52	3.45	3.39	1.81
Gravel, stones, turf and glass, %	0.00	0.00	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Foreign matter, %	0.03	0.07	-	-	0.10	-	0.09	0.07	0.08	0.09	0.10	0.10	0.08	0.08
Other grain & unthreshed ears, %	0.06	0.20	-	-	0.24	-	0.20	0.26	0.29	0.35	0.36	0.55	0.22	0.33
Heat damaged kernels, %	0.02	0.11	-	-	0.01	-	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	0.14	0.02	-	-	0.09	-	0.09	0.07	0.06	0.05	0.04	0.02	0.02	0.05
Insect damaged kernels, %	0.31	0.77	-	-	0.39	-	0.41	0.39	0.43	0.54	0.57	0.66	4.14	0.53
Heavily frost damaged kernels, %	0.00	0.03	-	-	0.01	-	0.01	0.03	0.02	0.03	0.00	0.01	0.30	0.03
Sprouted kernels, %	0.70	0.03	-	-	0.18	-	0.26	0.05	0.06	0.05	0.05	0.13	2.12	0.09
Total damaged kernels, %	0.76	0.92	-	-	0.67	-	0.71	0.50	0.55	0.64	0.66	0.82	6.28	0.66
Combined deviations, %	3.80	3.88	-	-	4.64	-	4.40	2.27	2.40	2.80	2.64	4.94	9.96	2.89
Field fungi, %	0.05	0.05	-	-	0.03	-	0.03	0.08	0.12	0.11	0.14	0.19	0.10	0.12
Storage fungi, %	0.02	0.00	-	-	0.03	-	0.02	0.01	0.01	0.03	0.04	0.02	0.02	0.02
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	***5***	***3***	***-***	***-***	***19***	***-***	***27***	***26***	***25***	***21***	***11***	***15***	***2***	***100***
BÜHLER EXTRACTION, %	73.0	73.6	-	-	73.7	-	73.6	75.2	75.4	75.6	74.7	74.6	72.3	75.1
FLOUR														
Colour, KJ	0.1	-0.1	-	-	0.3	-	0.2	-1.1	-1.3	-1.4	-1.5	-0.8	-1.0	-1.2
100g BAKING TEST														
Baking water absorption, %	60.9	60.3	-	-	60.7	-	60.7	61.7	60.3	59.6	58.7	59.8	60.5	60.3
Loaf volume, cm3	839	747	-	-	776	-	785	893	824	794	718	776	788	816
Evaluation	3	3	-	-	3	-	3	1	1	1	2	1	2	1
FARINOGRAM														
Water absorption, %	60.1	60.7	-	-	60.5	-	60.5	63.0	61.7	60.5	60.0	60.5	61.5	61.4
Development time, min	2.4	2.0	-	-	2.1	-	2.1	4.6	3.7	2.9	2.1	2.7	2.4	3.4
Stability, mm	14.5	6.7	-	-	9.8	-	10.4	7.2	6.3	5.7	4.5	5.6	6.2	6.1
Mixing tolerance index, BU	19	44	-	-	36	-	34	45	50	52	62	53	47	51

2006/2007 Imported Wheat Quality Versus 2006/2007 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	*5*	*3*	*-*	*-*	*19*	*-*	*27*	*26*	*25*	*21*	*11*	*15*	*2*	*100*
ALVEOGRAM														
Strength (S) , cm	53.8	44.3	-	-	46.6	-	47.7	42.3	37.5	33.7	32.0	33.9	38.0	36.8
Stability (P), mm	113	119	-	-	117	-	117	88	87	82	87	80	95	85
Distensibility (L), mm	86	64	-	-	69	-	72	110	100	95	80	99	93	99
P/L	1.33	1.95	-	-	1.77	-	1.71	0.82	0.93	0.92	1.25	0.90	1.20	0.93
EXTENSOGRAM														
Strength, cm	124	91	-	-	107	-	107	94	80	75	72	80	98	82
Max. height, BU	550	430	-	-	483	-	484	331	323	315	328	327	383	326
Extensibility, mm	156	144	-	-	151	-	151	195	173	164	152	168	175	174
MIXOGRAM														
Peak time, min	4.0	4.1	-	-	4.2	-	4.1	2.4	2.5	2.6	2.9	2.7	2.9	2.6
Absorption, %	62.3	60.3	-	-	61.0	-	61.1	62.1	60.6	59.8	59.0	60.0	60.2	60.5
MYCOTOXINS														
Aflatoxin, ppb [max.value]	1.20 [8.20]							0.00 [<5]						
Deoxynivalenol, ppm [max. value]	1.91 [3.20]							1.46 [2.40]						
Ochratoxin A, ppb [max. value]	0.17 [0.88]							0.17 [1.40]						
No. of samples	*11*							*30*						

2006/2007 IMPORTED WHEAT QUALITY - BERMUDA (1 Oct 2006 to 30 Sep 2007)

2006/2007 Imported Wheat Quality Versus 2006/2007 RSA Season

Country of origin	Bermuda							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	***-***	***-***	***-***	***-***	***5***	***-***	***5***	***135***	***130***	***104***	***42***	***64***	***5***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	-	-	-	-	12.51	-	12.51	12.73	11.48	10.73	9.84	10.93	11.00	11.45
Moisture, %	-	-	-	-	11.8	-	11.8	10.5	10.4	10.5	12.6	10.5	10.8	10.7
Falling number, sec	-	-	-	-	395	-	395	347	362	357	332	346	260	351
1000 Kernel mass (13% mb), g	-	-	-	-	28.1	-	28.1	36.4	37.8	37.9	37.9	36.4	35.7	37.2
Hlm (dirty), kg/hl	-	-	-	-	77.0	-	77.0	79.3	78.9	77.7	77.8	77.0	75.8	78.4
Screenings (<1,8mm), %	-	-	-	-	3.27	-	3.27	1.44	1.47	1.72	1.52	3.45	3.39	1.81
Gravel, stones, turf and glass, %	-	-	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Foreign matter, %	-	-	-	-	0.08	-	0.08	0.07	0.08	0.09	0.10	0.10	0.08	0.08
Other grain & unthreshed ears, %	-	-	-	-	0.21	-	0.21	0.26	0.29	0.35	0.36	0.55	0.22	0.33
Heat damaged kernels, %	-	-	-	-	0.02	-	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	-	-	-	-	0.02	-	0.02	0.07	0.06	0.05	0.04	0.02	0.02	0.05
Insect damaged kernels, %	-	-	-	-	0.43	-	0.43	0.39	0.43	0.54	0.57	0.66	4.14	0.53
Heavily frost damaged kernels, %	-	-	-	-	0.10	-	0.10	0.03	0.02	0.03	0.00	0.01	0.30	0.03
Sprouted kernels, %	-	-	-	-	0.21	-	0.21	0.05	0.06	0.05	0.05	0.13	2.12	0.09
Total damaged kernels, %	-	-	-	-	0.67	-	0.67	0.50	0.55	0.64	0.66	0.82	6.28	0.66
Combined deviations, %	-	-	-	-	4.23	-	4.23	2.27	2.40	2.80	2.64	4.94	9.96	2.89
Field fungi, %	-	-	-	-	0.11	-	0.11	0.08	0.12	0.11	0.14	0.19	0.10	0.12
Storage fungi, %	-	-	-	-	0.00	-	0.00	0.01	0.01	0.03	0.04	0.02	0.02	0.02
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	***-***	***-***	***-***	***-***	***5***	***-***	***5***	***26***	***25***	***21***	***11***	***15***	***2***	***100***
BÜHLER EXTRACTION, %	-	-	-	-	73.6	-	73.6	75.2	75.4	75.6	74.7	74.6	72.3	75.1
FLOUR														
Colour, KJ	-	-	-	-	0.7	-	0.7	-1.1	-1.3	-1.4	-1.5	-0.8	-1.0	-1.2
100g BAKING TEST														
Baking water absorption, %	-	-	-	-	59.4	-	59.4	61.7	60.3	59.6	58.7	59.8	60.5	60.3
Loaf volume, cm3	-	-	-	-	846	-	846	893	824	794	718	776	788	816
Evaluation	-	-	-	-	1	-	1	1	1	1	2	1	2	1
FARINOGRAM														
Water absorption, %	-	-	-	-	57.2	-	57.2	63.0	61.7	60.5	60.0	60.5	61.5	61.4
Development time, min	-	-	-	-	2.2	-	2.2	4.6	3.7	2.9	2.1	2.7	2.4	3.4
Stability, mm	-	-	-	-	9.0	-	9.0	7.2	6.3	5.7	4.5	5.6	6.2	6.1
Mixing tolerance index, BU	-	-	-	-	32	-	32	45	50	52	62	53	47	51

2006/2007 Imported Wheat Quality Versus 2006/2007 RSA Season

Country of origin	Bermuda							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	*-*	*-*	*-*	*-*	*5*	*-*	*5*	*26*	*25*	*21*	*11*	*15*	*2*	*100*
ALVEOGRAM														
Strength (S) , cm	-	-	-	-	43.0	-	43.0	42.3	37.5	33.7	32.0	33.9	38.0	36.8
Stability (P), mm	-	-	-	-	89	-	89	88	87	82	87	80	95	85
Distensibility (L), mm	-	-	-	-	92	-	92	110	100	95	80	99	93	99
P/L	-	-	-	-	0.98	-	0.98	0.82	0.93	0.92	1.25	0.90	1.20	0.93
EXTENSOGRAM														
Strength, cm	-	-	-	-	117	-	117	94	80	75	72	80	98	82
Max. height, BU	-	-	-	-	501	-	501	331	323	315	328	327	383	326
Extensibility, mm	-	-	-	-	163	-	163	195	173	164	152	168	175	174
MIXOGRAM														
Peak time, min	-	-	-	-	3.9	-	3.9	2.4	2.5	2.6	2.9	2.7	2.9	2.6
Absorption, %	-	-	-	-	61.4	-	61.4	62.1	60.6	59.8	59.0	60.0	60.2	60.5
MYCOTOXINS														
Aflatoxin, ppb [max.value]	0.00 [0.00]							0.00 [<5]						
Deoxynivalenol, ppm [max. value]	0.50 [0.50]							1.46 [2.40]						
Ochratoxin A, ppb [max. value]	<0.47 [<0.47]							0.17 [1.40]						
No. of samples	*1*							*30*						

2006/2007 IMPORTED WHEAT QUALITY - CANADA (1 Oct 2006 to 30 Sep 2007)

2006/2007 Imported Wheat Quality Versus 2006/2007 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	***3***	***-***	***-***	***-***	***10***	***1***	***14***	***135***	***130***	***104***	***42***	***64***	***5***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.12	-	-	-	13.35	13.33	13.30	12.73	11.48	10.73	9.84	10.93	11.00	11.45
Moisture, %	12.2	-	-	-	12.1	11.8	12.1	10.5	10.4	10.5	12.6	10.5	10.8	10.7
Falling number, sec	422	-	-	-	391	465	403	347	362	357	332	346	260	351
1000 Kernel mass (13% mb), g	32.2	-	-	-	32.4	33.9	32.5	36.4	37.8	37.9	37.9	36.4	35.7	37.2
Hlm (dirty), kg/hl	79.4	-	-	-	79.8	76.4	79.5	79.3	78.9	77.7	77.8	77.0	75.8	78.4
Screenings (<1,8mm), %	2.68	-	-	-	3.48	2.20	3.22	1.44	1.47	1.72	1.52	3.45	3.39	1.81
Gravel, stones, turf and glass, %	0.00	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Foreign matter, %	0.03	-	-	-	0.05	0.04	0.05	0.07	0.08	0.09	0.10	0.10	0.08	0.08
Other grain & unthreshed ears, %	0.23	-	-	-	0.23	0.46	0.24	0.26	0.29	0.35	0.36	0.55	0.22	0.33
Heat damaged kernels, %	0.00	-	-	-	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	0.00	-	-	-	0.02	0.02	0.02	0.07	0.06	0.05	0.04	0.02	0.02	0.05
Insect damaged kernels, %	0.16	-	-	-	0.09	0.00	0.10	0.39	0.43	0.54	0.57	0.66	4.14	0.53
Heavily frost damaged kernels, %	0.08	-	-	-	0.05	0.10	0.06	0.03	0.02	0.03	0.00	0.01	0.30	0.03
Sprouted kernels, %	0.26	-	-	-	0.13	0.04	0.15	0.05	0.06	0.05	0.05	0.13	2.12	0.09
Total damaged kernels, %	0.42	-	-	-	0.25	0.06	0.27	0.50	0.55	0.64	0.66	0.82	6.28	0.66
Combined deviations, %	3.36	-	-	-	3.97	2.76	3.75	2.27	2.40	2.80	2.64	4.94	9.96	2.89
Field fungi, %	0.12	-	-	-	0.02	0.00	0.04	0.08	0.12	0.11	0.14	0.19	0.10	0.12
Storage fungi, %	0.00	-	-	-	0.04	0.00	0.03	0.01	0.01	0.03	0.04	0.02	0.02	0.02
Ergot, %	0.00	-	-	-	0.00	0.04	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	***3***	***-***	***-***	***-***	***10***	***1***	***14***	***26***	***25***	***21***	***11***	***15***	***2***	***100***
BÜHLER EXTRACTION, %	74.6	-	-	-	74.9	75.5	74.9	75.2	75.4	75.6	74.7	74.6	72.3	75.1
FLOUR														
Colour, KJ	-1.0	-	-	-	-1.1	-1.2	-1.1	-1.1	-1.3	-1.4	-1.5	-0.8	-1.0	-1.2
100g BAKING TEST														
Baking water absorption, %	61.7	-	-	-	62.7	62.7	62.5	61.7	60.3	59.6	58.7	59.8	60.5	60.3
Loaf volume, cm3	920	-	-	-	897	890	901	893	824	794	718	776	788	816
Evaluation	1	-	-	-	2	2	2	1	1	1	2	1	2	1
FARINOGRAM														
Water absorption, %	62.1	-	-	-	62.6	63.5	62.5	63.0	61.7	60.5	60.0	60.5	61.5	61.4
Development time, min	4.2	-	-	-	4.3	4.8	4.3	4.6	3.7	2.9	2.1	2.7	2.4	3.4
Stability, mm	8.7	-	-	-	9.3	8.9	9.1	7.2	6.3	5.7	4.5	5.6	6.2	6.1
Mixing tolerance index, BU	42	-	-	-	35	45	37	45	50	52	62	53	47	51

2006/2007 Imported Wheat Quality Versus 2006/2007 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	*3*	*-*	*-*	*-*	*10*	*1*	*14*	*26*	*25*	*21*	*11*	*15*	*2*	*100*
ALVEOGRAM														
Strength (S) , cm	51.7	-	-	-	53.2	51.2	52.7	42.3	37.5	33.7	32.0	33.9	38.0	36.8
Stability (P), mm	112	-	-	-	105	105	106	88	87	82	87	80	95	85
Distensibility (L), mm	88	-	-	-	101	100	98	110	100	95	80	99	93	99
P/L	1.31	-	-	-	1.10	1.04	1.14	0.82	0.93	0.92	1.25	0.90	1.20	0.93
EXTENSOGRAM														
Strength, cm	106	-	-	-	107	-	107	94	80	75	72	80	98	82
Max. height, BU	400	-	-	-	385	-	387	331	323	315	328	327	383	326
Extensibility, mm	191	-	-	-	194	-	194	195	173	164	152	168	175	174
MIXOGRAM														
Peak time, min	3.3	-	-	-	3.1	2.8	3.1	2.4	2.5	2.6	2.9	2.7	2.9	2.6
Absorption, %	62.4	-	-	-	62.9	62.7	62.7	62.1	60.6	59.8	59.0	60.0	60.2	60.5
MYCOTOXINS														
Aflatoxin, ppb [max.value]	0.00 [<5]							0.00 [<5]						
Deoxynivalenol, ppm [max. value]	1.10 [2.10]							1.46 [2.40]						
Ochratoxin A, ppb [max. value]	0.55 [1.22]							0.17 [1.40]						

2006/2007 IMPORTED WHEAT QUALITY - GERMANY (1 Oct 2006 to 30 Sep 2007)

2006/2007 Imported Wheat Quality Versus 2006/2007 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	***1***	***5***	***-***	***-***	***4***	***-***	***10***	***135***	***130***	***104***	***42***	***64***	***5***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	12.16	11.72	-	-	12.47	-	12.07	12.73	11.48	10.73	9.84	10.93	11.00	11.45
Moisture, %	12.4	12.3	-	-	12.0	-	12.2	10.5	10.4	10.5	12.6	10.5	10.8	10.7
Falling number, sec	343	360	-	-	403	-	376	347	362	357	332	346	260	351
1000 Kernel mass (13% mb), g	42.4	42.7	-	-	42.4	-	42.6	36.4	37.8	37.9	37.9	36.4	35.7	37.2
Hlm (dirty), kg/hl	77.1	77.2	-	-	78.5	-	77.7	79.3	78.9	77.7	77.8	77.0	75.8	78.4
Screenings (<1,8mm), %	2.37	2.40	-	-	3.67	-	2.91	1.44	1.47	1.72	1.52	3.45	3.39	1.81
Gravel, stones, turf and glass, %	0.00	0.00	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Foreign matter, %	0.08	0.11	-	-	0.09	-	0.10	0.07	0.08	0.09	0.10	0.10	0.08	0.08
Other grain & unthreshed ears, %	0.98	0.72	-	-	0.72	-	0.75	0.26	0.29	0.35	0.36	0.55	0.22	0.33
Heat damaged kernels, %	0.00	0.00	-	-	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	0.00	0.01	-	-	0.00	-	0.01	0.07	0.06	0.05	0.04	0.02	0.02	0.05
Insect damaged kernels, %	0.08	0.10	-	-	0.08	-	0.09	0.39	0.43	0.54	0.57	0.66	4.14	0.53
Heavily frost damaged kernels, %	0.16	0.30	-	-	0.08	-	0.20	0.03	0.02	0.03	0.00	0.01	0.30	0.03
Sprouted kernels, %	0.08	0.21	-	-	0.08	-	0.14	0.05	0.06	0.05	0.05	0.13	2.12	0.09
Total damaged kernels, %	0.16	0.32	-	-	0.16	-	0.24	0.50	0.55	0.64	0.66	0.82	6.28	0.66
Combined deviations, %	3.59	3.56	-	-	4.63	-	3.99	2.27	2.40	2.80	2.64	4.94	9.96	2.89
Field fungi, %	0.00	0.03	-	-	0.04	-	0.03	0.08	0.12	0.11	0.14	0.19	0.10	0.12
Storage fungi, %	0.00	0.02	-	-	0.02	-	0.02	0.01	0.01	0.03	0.04	0.02	0.02	0.02
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	***1***	***5***	***-***	***-***	***4***	***-***	***10***	***26***	***25***	***21***	***11***	***15***	***2***	***100***
BÜHLER EXTRACTION, %	76.0	75.1	-	-	74.9	-	75.1	75.2	75.4	75.6	74.7	74.6	72.3	75.1
FLOUR														
Colour, KJ	0.7	0.5	-	-	0.1	-	0.4	-1.1	-1.3	-1.4	-1.5	-0.8	-1.0	-1.2
100g BAKING TEST														
Baking water absorption, %	60.7	60.1	-	-	61.4	-	60.7	61.7	60.3	59.6	58.7	59.8	60.5	60.3
Loaf volume, cm3	830	822	-	-	863	-	839	893	824	794	718	776	788	816
Evaluation	1	1	-	-	1	-	1	1	1	1	2	1	2	1
FARINOGRAM														
Water absorption, %	58.2	59.9	-	-	61.3	-	60.3	63.0	61.7	60.5	60.0	60.5	61.5	61.4
Development time, min	2.5	2.0	-	-	2.6	-	2.3	4.6	3.7	2.9	2.1	2.7	2.4	3.4
Stability, mm	5.3	4.5	-	-	6.3	-	5.3	7.2	6.3	5.7	4.5	5.6	6.2	6.1
Mixing tolerance index, BU	54	52	-	-	46	-	50	45	50	52	62	53	47	51

2006/2007 Imported Wheat Quality Versus 2006/2007 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	***1***	***5***	***-***	***-***	***4***	***-***	***10***	***26***	***25***	***21***	***11***	***15***	***2***	***100***
ALVEOGRAM														
Strength (S) , cm	38.4	39.1	-	-	46.3	-	41.9	42.3	37.5	33.7	32.0	33.9	38.0	36.8
Stability (P), mm	92	106	-	-	108	-	106	88	87	82	87	80	95	85
Distensibility (L), mm	79	66	-	-	84	-	74	110	100	95	80	99	93	99
P/L	1.16	1.63	-	-	1.45	-	1.51	0.82	0.93	0.92	1.25	0.90	1.20	0.93
EXTENSOGRAM														
Strength, cm	-	87	-	-	72	-	83	94	80	75	72	80	98	82
Max. height, BU	-	397	-	-	324	-	379	331	323	315	328	327	383	326
Extensibility, mm	-	151	-	-	153	-	152	195	173	164	152	168	175	174
MIXOGRAM														
Peak time, min	3.5	4.0	-	-	3.3	-	3.7	2.4	2.5	2.6	2.9	2.7	2.9	2.6
Absorption, %	60.7	60.5	-	-	61.4	-	60.9	62.1	60.6	59.8	59.0	60.0	60.2	60.5
MYCOTOXINS														
Aflatoxin, ppb [max.value]	<5 [<5]							0.00 [<5]						
Deoxynivalenol, ppm [max. value]	1.11 [2.10]							1.46 [2.40]						
Ochratoxin A, ppb [max. value]	0.83 [1.00]							0.17 [1.40]						
No. of samples	***3***							***30***						

2006/2007 IMPORTED WHEAT QUALITY - USA (1 Oct 2006 to 30 Sep 2007)

2006/2007 Imported Wheat Quality Versus 2006/2007 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	*4*	*7*	*3*	*-*	*12*	*1*	*27*	*135*	*130*	*104*	*42*	*64*	*5*	*480*
WHEAT														
GRADING														
Protein (12% mb), %	12.82	11.59	11.02	-	12.04	11.71	11.91	12.73	11.48	10.73	9.84	10.93	11.00	11.45
Moisture, %	11.7	12.0	11.7	-	11.7	11.3	11.8	10.5	10.4	10.5	12.6	10.5	10.8	10.7
Falling number, sec	441	375	343	-	416	327	398	347	362	357	332	346	260	351
1000 Kernel mass (13% mb), g	34.2	31.0	32.4	-	29.2	28.2	30.7	36.4	37.8	37.9	37.9	36.4	35.7	37.2
Hlm (dirty), kg/hl	79.6	77.4	76.9	-	75.8	68.3	76.6	79.3	78.9	77.7	77.8	77.0	75.8	78.4
Screenings (<1,8mm), %	2.36	2.24	2.52	-	5.03	7.26	3.72	1.44	1.47	1.72	1.52	3.45	3.39	1.81
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	0.02	0.00	0.00
Foreign matter, %	0.08	0.07	0.23	-	0.22	2.60	0.25	0.07	0.08	0.09	0.10	0.10	0.08	0.08
Other grain & unthreshed ears, %	0.30	0.41	0.39	-	0.71	1.20	0.55	0.26	0.29	0.35	0.36	0.55	0.22	0.33
Heat damaged kernels, %	0.00	0.00	0.00	-	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	0.02	0.01	0.00	-	0.04	0.00	0.02	0.07	0.06	0.05	0.04	0.02	0.02	0.05
Insect damaged kernels, %	0.14	0.24	0.31	-	0.30	0.80	0.28	0.39	0.43	0.54	0.57	0.66	4.14	0.53
Heavily frost damaged kernels, %	0.00	0.00	0.03	-	0.03	0.00	0.01	0.03	0.02	0.03	0.00	0.01	0.30	0.03
Sprouted kernels, %	0.20	0.11	0.21	-	0.05	0.16	0.11	0.05	0.06	0.05	0.05	0.13	2.12	0.09
Total damaged kernels, %	0.36	0.37	0.53	-	0.40	0.96	0.42	0.50	0.55	0.64	0.66	0.82	6.28	0.66
Combined deviations, %	3.09	3.09	3.67	-	6.36	12.02	4.94	2.27	2.40	2.80	2.64	4.94	9.96	2.89
Field fungi, %	0.06	0.07	0.11	-	0.07	0.00	0.07	0.08	0.12	0.11	0.14	0.19	0.10	0.12
Storage fungi, %	0.00	0.01	0.00	-	0.01	0.00	0.00	0.01	0.01	0.03	0.04	0.02	0.02	0.02
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
Noxious seeds (Crotolaria sp, Datura sp..)	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
Live insects	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
	B1	B2	B3	B4	UT	COW	Average	B1	B2	B3	B4	UT	COW	Average
No. of samples	*4*	*7*	*3*	*-*	*12*	*1*	*27*	*26*	*25*	*21*	*11*	*15*	*2*	*100*
BÜHLER EXTRACTION, %	75.3	73.7	73.5	-	72.9	72.3	73.5	75.2	75.4	75.6	74.7	74.6	72.3	75.1
FLOUR														
Colour, KJ	-0.4	0.4	0.5	-	0.8	0.9	0.5	-1.1	-1.3	-1.4	-1.5	-0.8	-1.0	-1.2
100g BAKING TEST														
Baking water absorption, %	61.0	58.9	59.4	-	59.2	60.6	59.5	61.7	60.3	59.6	58.7	59.8	60.5	60.3
Loaf volume, cm3	896	786	733	-	795	875	804	893	824	794	718	776	788	816
Evaluation	1	1	1	-	2	0	1	1	1	1	2	1	2	1
FARINOGRAM														
Water absorption, %	60.5	56.3	54.6	-	57.6	57.5	57.4	63.0	61.7	60.5	60.0	60.5	61.5	61.4
Development time, min	2.9	2.0	1.8	-	2.2	1.5	2.2	4.6	3.7	2.9	2.1	2.7	2.4	3.4
Stability, mm	8.1	6.0	4.4	-	6.9	4.4	6.5	7.2	6.3	5.7	4.5	5.6	6.2	6.1
Mixing tolerance index, BU	39	53	78	-	52	57	53	45	50	52	62	53	47	51

2006/2007 Imported Wheat Quality Versus 2006/2007 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	*4*	*7*	*3*	*-*	*12*	*1*	*27*	*26*	*25*	*21*	*11*	*15*	*2*	*100*
ALVEOGRAM														
Strength (S) , cm	47.8	38.9	26.8	-	41.1	37.3	39.8	42.3	37.5	33.7	32.0	33.9	38.0	36.8
Stability (P), mm	98	84	59	-	89	97	86	88	87	82	87	80	95	85
Distensibility (L), mm	95	92	98	-	89	66	91	110	100	95	80	99	93	99
P/L	1.04	0.98	0.60	-	1.04	1.47	0.99	0.82	0.93	0.92	1.25	0.90	1.20	0.93
EXTENSOGRAM														
Strength, cm	119	102	102	-	118	-	111	94	80	75	72	80	98	82
Max. height, BU	490	442	435	-	515	-	479	331	323	315	328	327	383	326
Extensibility, mm	168	156	162	-	158	-	159	195	173	164	152	168	175	174
MIXOGRAM														
Peak time, min	3.7	4.5	3.5	-	4.2	4.7	4.1	2.4	2.5	2.6	2.9	2.7	2.9	2.6
Absorption, %	62.0	60.2	59.4	-	60.9	60.6	60.7	62.1	60.6	59.8	59.0	60.0	60.2	60.5
MYCOTOXINS														
Aflatoxin, ppb [max.value]	0.00 [<5]							0.00 [<5]						
Deoxynivalenol, ppm [max. value]	1.09 [2.00]							1.46 [2.40]						
Ochratoxin A, ppb [max. value]	5.31 [47.00]							0.17 [1.40]						
No. of samples	*9*							*30*						

RSA WHEAT CROP QUALITY

RSA Crop Quality 2005/2006 and 2007/2008 Seasons

Country of origin	RSA Crop Average 2005/2006							RSA Crop Average 2007/2008						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***178***	***104***	***85***	***21***	***69***	***23***	***480***	***64***	***137***	***131***	***70***	***54***	***24***	***480***
WHEAT														
GRADING														
Protein (12% mb), %	13.37	12.04	11.34	10.44	12.30	13.07	12.43	12.48	11.42	10.59	9.58	10.99	11.66	11.03
Moisture, %	11.2	11.2	11.0	10.9	10.9	11.2	11.1	11.6	11.4	12.0	11.1	11.4	11.8	11.6
Falling number, sec	370	384	385	357	374	364	375	369	368	359	351	364	323	360
1000 Kernel mass (13% mb), g	35.5	37.0	36.6	37.8	34.4	32.6	35.8	38.9	38.7	39.1	39.7	36.4	38.1	38.7
Hlm (dirty), kg/hl	78.8	78.3	78.2	78.7	77.4	75.6	78.2	78.9	78.7	78.0	78.5	76.2	75.5	78.1
Screenings (<1,8mm), %	1.41	1.55	1.52	1.38	2.87	1.89	1.69	1.42	1.36	1.33	1.16	3.01	3.02	1.60
Gravel, stones, turf and glass, %	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.00
Foreign matter, %	0.09	0.11	0.12	0.11	0.12	0.27	0.12	0.05	0.05	0.05	0.07	0.08	0.19	0.06
Other grain & unthreshed ears, %	0.27	0.30	0.34	0.30	0.50	0.37	0.33	0.23	0.25	0.30	0.26	0.54	0.32	0.30
Heat damaged kernels, %	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Immature kernels, %	0.16	0.09	0.07	0.05	0.07	0.16	0.11	0.12	0.11	0.06	0.06	0.16	0.14	0.10
Insect damaged kernels, %	0.29	0.41	0.45	0.44	0.65	5.85	0.67	0.24	0.17	0.15	0.16	0.75	2.08	0.33
Heavily frost damaged kernels, %	0.00	0.03	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sprouted kernels, %	0.03	0.06	0.02	0.02	0.17	0.56	0.08	0.23	0.19	0.15	0.14	0.17	1.08	0.22
Total damaged kernels, %	0.48	0.56	0.57	0.51	0.90	6.89	0.88	0.59	0.47	0.36	0.35	1.08	3.30	0.65
Combined deviations, %	2.26	2.50	2.54	2.30	4.39	7.96	2.95	2.30	2.13	2.04	1.85	4.71	6.85	2.61
Field fungi, %	0.08	0.11	0.12	0.08	0.10	0.25	0.11	0.14	0.10	0.09	0.06	0.18	0.14	0.11
Storage fungi, %	0.01	0.01	0.01	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	1	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	0	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	***30***	***22***	***19***	***11***	***14***	***4***	***100***	***23***	***26***	***18***	***14***	***13***	***6***	***100***
BÜHLER EXTRACTION, %	75.4	75.9	75.4	75.6	75.2	74.6	75.5	75.7	76.0	75.7	74.9	75.1	75.4	75.6
FLOUR														
Colour, KJ	-1.8	-1.9	-1.9	-1.8	-1.4	-0.3	-1.8	-1.7	-1.9	-2.1	-2.4	-1.7	-0.8	-1.9
100g BAKING TEST														
Baking water absorption, %	62.3	61	60.9	60.9	61.2	63.3	61.5	61.5	60.3	59.4	57.7	59.6	61.2	60.0
Loaf volume, cm3	951	912	874	820	895	970	906	892	857	802	704	800	873	827
Evaluation	0	0	0	1	0	1	0	1	1	1	2	1	1	1
FARINOGRAM														
Water absorption, %	63.1	62.6	61.6	61.7	61.9	62.0	62.3	62.3	61.0	60.2	59.3	59.8	61.0	60.8
Development time, min	6.0	4.9	4.2	4.1	4.7	5.8	5.0	4.8	3.8	2.9	2.0	3.0	4.4	3.5
Stability, mm	10.7	9.0	8.5	7.5	9.1	10.7	9.3	9.0	7.6	6.6	4.5	6.4	7.9	7.2
Mixing tolerance index, BU	33	37	36	43	35	32	36	37	41	44	58	46	43	44

RSA Crop Quality of 2005/2006 and 2007/2008 Seasons

Country of origin	RSA Crop Average 2005/2006							RSA Crop Average 2007/2008						
Class and Grade bread wheat	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**	**B1**	**B2**	**B3**	**B4**	**UT**	**COW**	**Average**
No. of samples	***30***	***22***	***19***	***11***	***14***	***4***	***100***	***23***	***26***	***18***	***14***	***13***	***6***	***100***
ALVEOGRAM														
Strength (S) , cm	44.5	39.9	36.9	37.6	39.6	46.7	40.7	47.9	42.8	39.8	33.0	39.5	46.9	41.9
Stability (P), mm	84	82	80	86	80	73	82	92	86	89	96	86	83	89
Distensibility (L), mm	117	106	102	93	111	133	109	118	114	101	75	101	127	106
P/L	0.73	0.79	0.84	1.16	0.75	0.57	0.81	0.81	0.78	0.98	1.54	0.93	0.67	0.94
EXTENSOGRAM														
Strength, cm	117	105	98	96	110	137	108	106	98	93	77	97	114	97
Max. height, BU	372	356	357	354	377	425	366	377	371	384	371	388	392	378
Extensibility, mm	213	199	186	175	198	218	199	195	184	172	142	170	200	178
MIXOGRAM														
Peak time, min	2.4	2.5	2.5	2.6	2.5	2.5	2.5	2.6	2.6	2.9	3.0	2.8	2.8	2.8
Absorption, %	62.5	61.4	60.8	60.8	61.5	63.9	61.7	62.4	61.0	60.0	58.7	60.2	61.8	60.8
MYCOTOXINS														
Aflatoxin, ppb [max.value]	0.43 [7.00]							0.33 [5.00]						
Deoxynivalenol, ppm [max. value]	0.94 [1.50]							1.36 [2.70]						
Ochratoxin A, ppb [max. value]	0.09 [0.67]							0.33 [2.80]						
No. of samples	***30***							***30***