

South African Quality data per production region

WINTER RAINFALL WHEAT

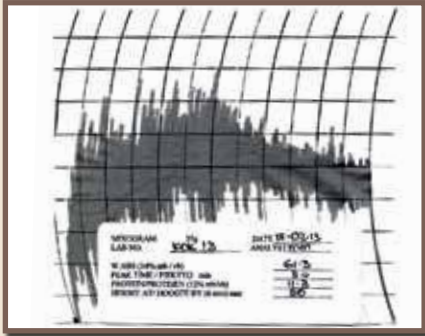
Western Cape Province

PRODUCTION REGION	(2)				(3)							
	Swartland Western Region				Swartland Central Region							
Intake silos	Bergrivier Darling Koperfontein Vredenburg				Eendekuil Klipheuwel Koringberg Malmesbury Moorreesburg Moravia Piketberg Pools Ruststasie							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.0	9.6	12.2	0.83	11.0	9.0	13.0	1.00				
Falling number, sec	396	348	529	46.40	385	325	473	24.69				
1000 Kernel mass (13% mb), g	39.6	36.2	44.5	2.16	41.3	33.5	48.9	3.51				
Hectolitre mass (dirty), kg/hl	80.5	75.6	83.8	1.94	82.4	77.0	84.8	1.40				
Screenings (<1.8mm), %	2.30	0.44	3.82	1.04	1.76	0.10	5.27	1.14				
Total damaged kernels, %	0.93	0.13	2.52	0.70	0.57	0.00	4.32	0.62				
Combined deviations, %	4.52	0.76	8.46	2.17	2.98	0.23	8.47	1.72				
Number of samples	20				69							
CULTIVARS												
	SST 027 35.5				SST 056 32.3							
cultivars	SST 88 28.5				SST 027 26.0							
with highest %	SST 056 17.8				SST 88 25.5							
occurrence	SST 047 10.8				SST 015 10.2							
	SST 015 7.5				SST 047 4.1							
Number of samples	20				69							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.1	2.8	3.8	0.26	2.6	2.0	3.2	0.28				
Tail height (6min), mm	49	43	54	2.58	48	41	54	2.56				
Number of samples	20				69							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	71.9	71.8	72.3	72.6	70.8	-	71.7	70.7	71.3	71.5	72.4	-
FLOUR												
Protein (12% mb), %	11.3	10.5	9.5	9.1	10.2	-	11.7	10.5	9.3	8.6	9.6	-
Colour, KJ (wet)	-2.5	-3.1	-2.8	-3.2	-2.9	-	-3.1	-3.2	-3.3	-2.7	-2.9	-
Colour, Minolta CM5 (dry)												
L*	93.72	94.06	93.92	94.14	94.15	-	94.18	94.26	94.22	93.79	94.07	-
a*	0.43	0.43	0.38	0.41	0.37	-	0.41	0.41	0.40	0.36	0.40	-
b*	10.54	10.96	10.88	10.85	10.48	-	10.36	10.19	10.54	9.92	10.15	-
GLUTEN												
Wet gluten (14% mb), %	31.0	27.8	24.9	23.0	27.4	-	32.2	29.3	25.7	22.7	26.2	-
Dry gluten (14% mb), %	10.7	9.4	8.7	8.3	9.2	-	11.1	10.3	9.0	7.8	8.6	-
Gluten Index	78	80	82	85	86	-	71	71	84	93	88	-
FARINOGRAM												
Water absorption (14% mb), %	61.8	60.5	59.4	60.0	60.4	-	62.0	62.5	60.5	59.6	60.1	-
Development time, min	6.5	4.8	5.2	4.0	3.3	-	5.2	4.2	4.4	2.5	3.7	-
Stability, min	9.2	8.5	8.0	7.9	8.5	-	6.5	6.7	6.8	5.8	6.3	-
Mixing tolerance index, BU	31	26	40	32	22	-	38	36	38	36	38	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	99	73	71	57	78	-	88	74	75	63	75	-
Maximum height, BU	391	320	280	300	348	-	308	295	312	306	294	-
Extensibility, mm	189	159	179	134	158	-	203	176	168	146	179	-
ALVEOGRAM												
Strength (S), cm ²	41.1	34.7	32.6	32.3	35.3	-	39.0	37.0	30.1	26.8	30.1	-
Stability (P), mm	95	84	89	98	93	-	84	98	90	86	81	-
Distensibility (L), mm	95	102	83	72	85	-	120	91	77	70	94	-
Configuration ratio (P/L)	1.00	0.82	1.07	1.36	1.09	-	0.70	1.08	1.17	1.23	0.86	-
MIXOGRAM												
Peak time, min	2.7	2.6	3.0	3.6	3.0	-	2.3	2.4	2.5	2.9	2.5	-
100g BAKING TEST												
Loaf volume, cm ³	870	850	825	765	775	-	935	900	805	775	855	-
Evaluation (see page 61)	0	0	0	0	1	-	0	0	0	0	0	-

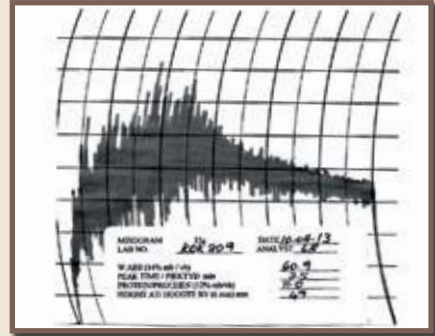
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

2

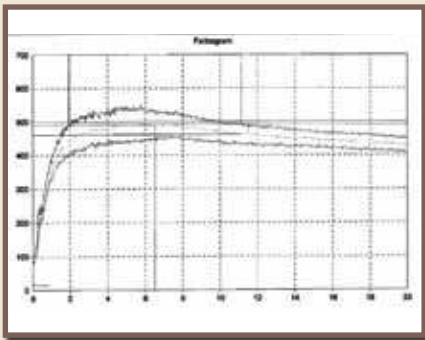


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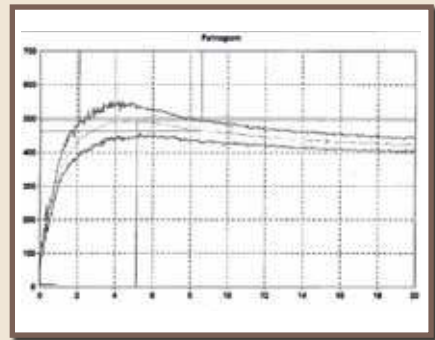


FARINOGRAM

2

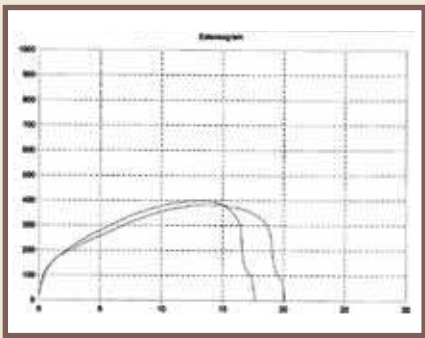


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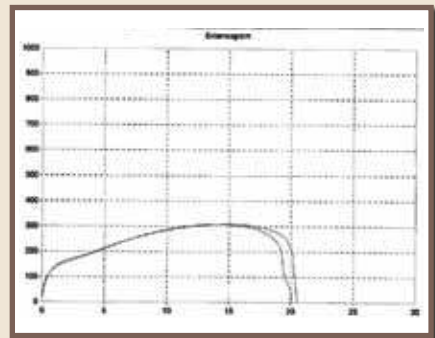


EXTENSOGRAM

2

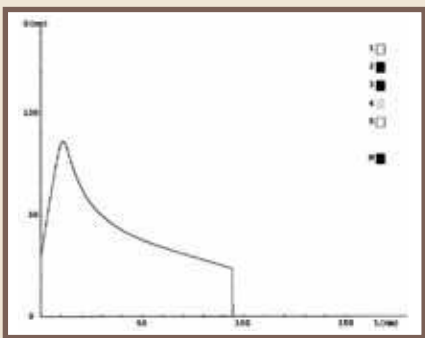


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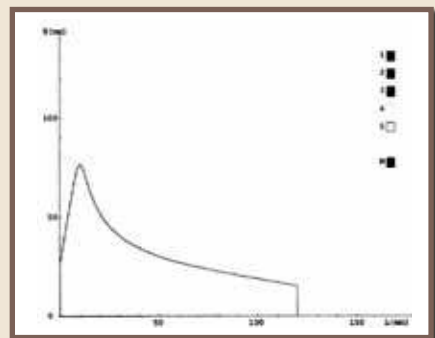


ALVEOGRAM

2



3



South African Quality data per production region

WINTER RAINFALL WHEAT

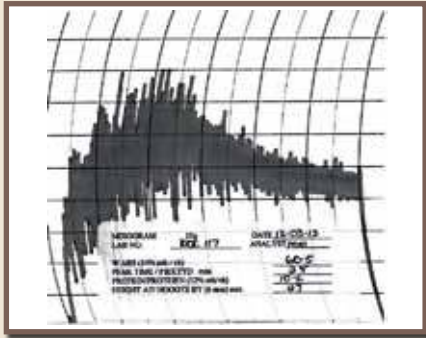
Western Cape Province

PRODUCTION REGION	(4)				(5)							
	Swartland Eastern Region				Rûens Western Region							
Intake silos	Ceres Gouda Halfmanshof Leliedam Porterville Riebeeck-Wes				Bredasdorp Caledon Klipdale Krige Napier Protem Rietpoel Villiersdorp							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	10.6	9.1	11.8	0.70	11.0	9.7	12.3	0.85				
Falling number, sec	397	323	538	44.51	341	236	416	48.63				
1000 Kernel mass (13% mb), g	40.5	36.3	46.8	2.58	45.0	43.1	46.5	1.11				
Hectolitre mass (dirty), kg/hl	83.1	80.5	85.2	1.07	81.5	76.8	83.7	1.97				
Screenings (<1.8mm), %	0.98	0.10	3.53	1.02	0.65	0.09	1.47	0.48				
Total damaged kernels, %	0.56	0.05	1.53	0.38	0.48	0.12	1.92	0.45				
Combined deviations, %	1.91	0.32	4.60	1.19	1.84	0.34	3.38	0.83				
Number of samples	28				19							
CULTIVARS												
	SST 056 29.7				SST 88 41.2							
cultivars	SST 027 27.0				SST 027 26.4							
with highest %	SST 88 17.3				SST 056 18.1							
occurrence	SST 015 11.8				SST 015 10.9							
	SST 047 10.0				SST 047 2.4							
Number of samples	28				19							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.6	2.2	2.9	0.21	2.6	2.3	2.9	0.21				
Tail height (6min), mm	48	43	53	2.45	50	46	54	2.02				
Number of samples	28				19							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	-	72.5	72.7	71.8	-	-	72.7	72.8	72.2	76.9	-	-
FLOUR												
Protein (12% mb), %	-	10.6	9.4	9.3	-	-	11.0	10.1	9.7	10.1	-	-
Colour, KJ (wet)	-	-3.0	-3.1	-3.3	-	-	-2.8	-2.7	-2.9	-1.8	-	-
Colour, Minolta CM5 (dry)	-	94.21	94.27	94.09	-	-	93.68	93.88	94.08	93.37	-	-
L*	-	0.39	0.41	0.41	-	-	0.53	0.43	0.40	0.45	-	-
a*	-	10.08	10.08	10.05	-	-	10.06	9.35	9.56	9.25	-	-
b*	-				-	-					-	-
GLUTEN												
Wet gluten (14% mb), %	-	30.4	25.6	25.2	-	-	30.5	27.6	26.2	27.5	-	-
Dry gluten (14% mb), %	-	10.7	8.7	8.7	-	-	10.7	9.5	8.9	9.1	-	-
Gluten Index	-	75	89	76	-	-	74	86	82	91	-	-
FARINOGRAM												
Water absorption (14% mb), %	-	62.4	61.5	60.2	-	-	62.3	61.6	60.7	62.7	-	-
Development time, min	-	5.2	3.2	4.0	-	-	4.0	3.7	4.2	3.2	-	-
Stability, min	-	8.1	6.0	5.5	-	-	6.0	6.2	7.9	5.3	-	-
Mixing tolerance index, BU	-	30	37	48	-	-	44	41	31	46	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	73	57	63	-	-	67	70	67	-	-	-
Maximum height, BU	-	284	249	259	-	-	262	264	311	-	-	-
Extensibility, mm	-	181	158	169	-	-	176	182	152	-	-	-
ALVEOGRAM												
Strength (S), cm ²	-	35.6	31.7	30.0	-	-	33.8	30.7	31.5	29.8	-	-
Stability (P), mm	-	93	95	82	-	-	87	85	89	94	-	-
Distensibility (L), mm	-	94	78	95	-	-	101	91	83	74	-	-
Configuration ratio (P/L)	-	0.99	1.22	0.86	-	-	0.86	0.93	1.07	1.27	-	-
MIXOGRAM												
Peak time, min	-	2.2	2.9	2.3	-	-	2.5	2.6	2.7	2.6	-	-
100g BAKING TEST												
Loaf volume, cm ³	-	885	805	815	-	-	850	835	805	805	-	-
Evaluation (see page 61)	-	0	0	0	-	-	0	0	0	0	-	-

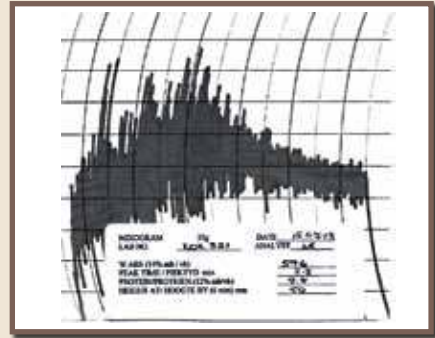
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

4

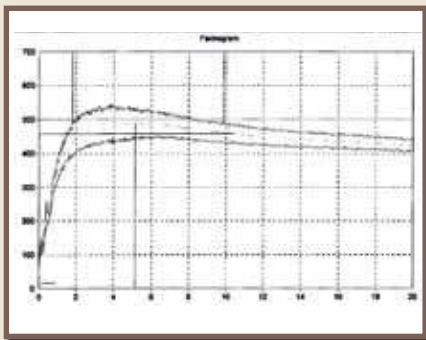


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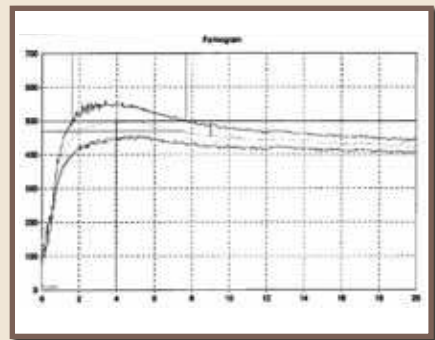


FARINOGRAM

4

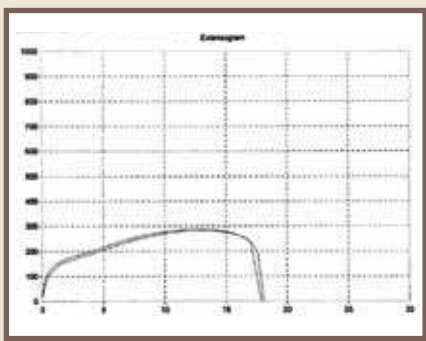


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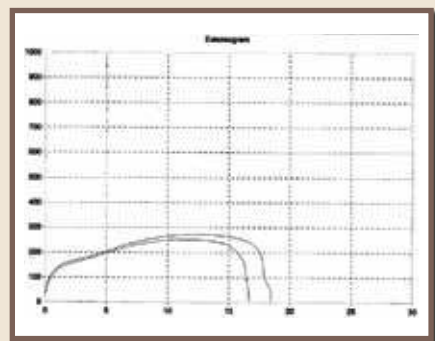


EXTENSOGRAM

4

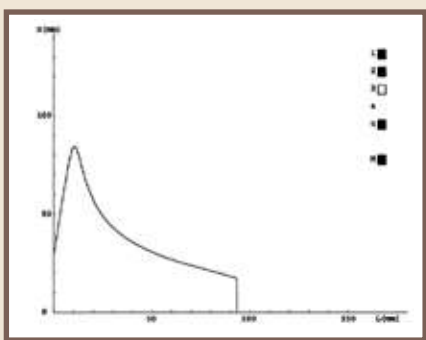


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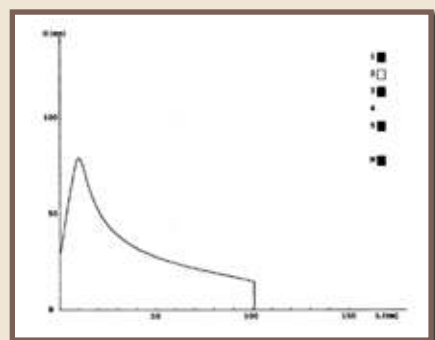


ALVEOGRAM

4



5



South African Quality data per production region

WINTER RAINFALL WHEAT Western Cape Province

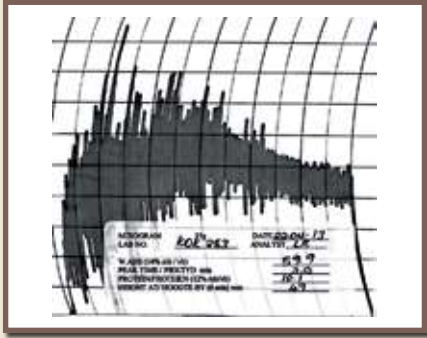
IRRIGATION WHEAT Vaal and Orange river area

PRODUCTION REGION	(6) Rüens Eastern Region				(10) Griqualand-West							
Intake silos	Albertinia Ashton Camfer Heidelberg Karringmelksrivier Kleinberg Protém Riversdal Swellendam				Britstown Douglas Havenga Brug Marydale Modderrivier Oranjerivierstasie Prieska Rietrivier Upington							
WHEAT	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	10.6	8.6	12.0	0.86	12.0	10.4	13.1	0.65				
Falling number, sec	276	173	434	51.08	378	309	453	35.27				
1000 Kernel mass (13% mb), g	44.5	37.0	48.2	2.26	41.0	33.6	49.0	3.24				
Hectolitre mass (dirty), kg/hl	79.8	76.5	87.7	1.91	82.3	79.5	85.6	1.61				
Screenings (<1.8mm), %	1.12	0.28	2.83	0.66	1.16	0.13	4.10	0.86				
Total damaged kernels, %	0.80	0.06	2.20	0.49	0.90	0.10	3.80	0.85				
Combined deviations, %	2.84	0.78	6.07	1.20	2.44	1.03	6.18	1.16				
Number of samples	35				31							
CULTIVARS												
cultivars	SST 88		30.7		SST 835		33.7					
with highest % occurrence	SST 027		24.5		SST 843		22.5					
	SST 056		23.0		Duzi		9.2					
	SST 015		16.6		Baviaans		6.5					
	SST 047		2.8		SST 056		5.5					
Number of samples	35				31							
MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.0	2.4	3.5	0.28	2.7	1.9	3.5	0.36				
Tail height (6min), mm	49	43	54	2.30	49	46	54	2.62				
Number of samples	35				31							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	-	71.7	71.0	71.9	-	-	73.9	74.7	72.1	-	74.7	-
FLOUR												
Protein (12% mb), %	-	10.4	9.5	9.4	-	-	11.3	10.8	9.1	-	10.9	-
Colour, KJ (wet)	-	-3.0	-2.6	-2.6	-	-	-3.2	-3.1	-3.3	-	-3.2	-
Colour, Minolta CM5 (dry)												
L*	-	94.17	94.16	94.08	-	-	93.95	94.12	94.39	-	94.21	-
a*	-	0.35	0.26	0.30	-	-	0.54	0.50	0.38	-	0.50	-
b*	-	9.60	8.86	8.85	-	-	9.74	9.68	9.76	-	9.40	-
GLUTEN												
Wet gluten (14% mb), %	-	29.0	25.8	25.6	-	-	32.5	30.5	27.0	-	32.1	-
Dry gluten (14% mb), %	-	10.3	9.0	8.4	-	-	11.1	10.6	9.2	-	10.7	-
Gluten Index	-	80	92	82	-	-	76	82	96	-	67	-
FARINOGRAM												
Water absorption (14% mb), %	-	61.9	60.6	59.8	-	-	60.0	60.1	61.7	-	60.8	-
Development time, min	-	4.0	3.2	3.5	-	-	6.2	5.0	3.7	-	4.7	-
Stability, min	-	5.7	6.0	6.1	-	-	7.5	6.3	6.1	-	4.5	-
Mixing tolerance index, BU	-	54	46	45	-	-	37	42	39	-	56	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	70	63	58	-	-	96	97	67	-	74	-
Maximum height, BU	-	266	250	242	-	-	318	339	289	-	281	-
Extensibility, mm	-	184	174	165	-	-	216	204	160	-	187	-
ALVEOGRAM												
Strength (S), cm ²	-	33.6	31.2	28.4	-	-	33.0	34.3	30.3	-	30.7	-
Stability (P), mm	-	85	86	81	-	-	66	74	95	-	71	-
Distensibility (L), mm	-	102	93	86	-	-	130	119	71	-	114	-
Configuration ratio (P/L)	-	0.83	0.92	0.94	-	-	0.51	0.62	1.34	-	0.62	-
MIXOGRAM												
Peak time, min	-	2.7	3.4	2.8	-	-	2.5	2.4	2.5	-	2.3	-
100g BAKING TEST												
Loaf volume, cm ³	-	880	825	835	-	-	990	975	825	-	1015	-
Evaluation (see page 61)	-	0	0	0	-	-	0	0	0	-	0	-

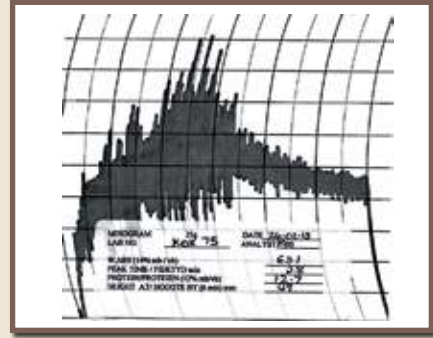
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

6

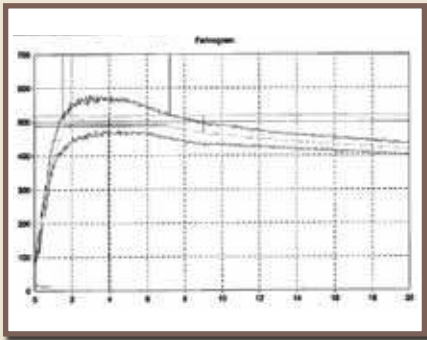


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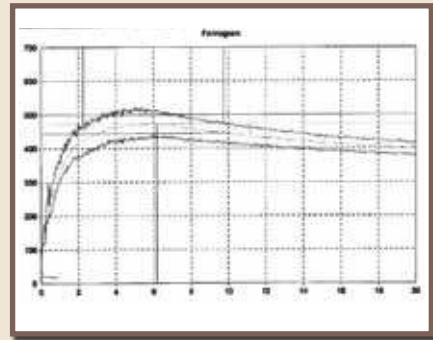


FARINOGRAM

6

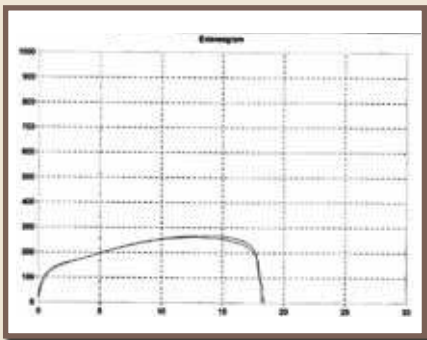


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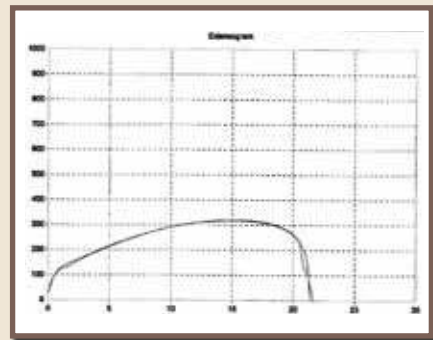


EXTENSOGRAM

6

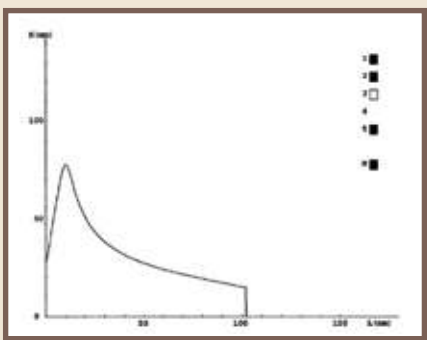


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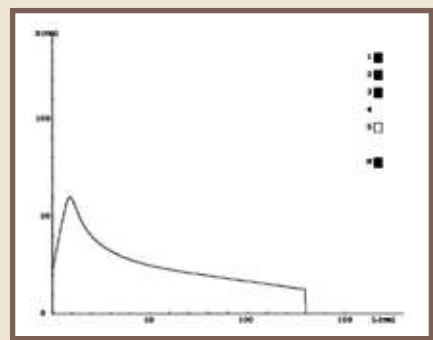


ALVEOGRAM

6



10



South African Quality data per production region

IRRIGATION WHEAT

Vaal and Orange river area

MAINLY IRRIGATION WHEAT

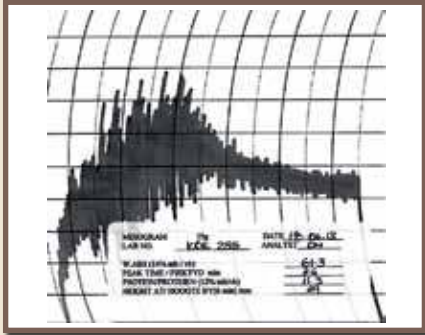
North-West Province

PRODUCTION REGION	(11) Vaalharts				(12) North-West Western Region							
Intake silos	Barkly-West Hartswater Jan Kemp Magogong Taung				Bloubank Buhmannsdrif Kameel Kraaipan Madibogo Mafikeng Mareetsane Piet Plessis Springbokpan Vergeleë Vryburg Vryhof							
WHEAT	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.0	10.5	12.90	0.68	12.6	11.9	13.2	0.92				
Falling number, sec	405	319	581	58.01	348	346	350	2.83				
1000 Kernel mass (13% mb), g	38.7	36.4	40.4	1.29	37.9	34.0	41.7	5.44				
Hectolitre mass (dirty), kg/hl	82.4	78.9	84.2	1.48	81.6	79.9	83.2	2.33				
Screenings (<1.8mm), %	1.94	0.10	3.30	0.92	1.00	0.79	1.21	0.30				
Total damaged kernels, %	0.78	0.00	1.90	0.51	2.53	0.13	4.93	3.39				
Combined deviations, %	3.58	1.29	5.40	0.98	4.10	2.19	6.00	2.69				
Number of samples	16				2							
CULTIVARS												
cultivars	SST 877 32.1				SST 843 61.5							
with highest % occurrence	SST 843 29.6				SST 835 24.5							
	SST 835 18.2				Duzi 9.0							
	Duzi 13.8				Olifants 5.0							
	Baviaans 2.8											
Number of samples	16				2							
MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.6	2.2	2.9	0.22	3.1	2.4	3.8	0.99				
Tail height (6min), mm	48	45	50	1.55	51	48	54	4.24				
Number of samples	16				2							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.7	75.0	-	74.1	74.3	-	73.9	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.8	10.7	-	9.4	10.8	-	12.5	-	-	-	-	-
Colour, KJ (wet)	-3.0	-3.1	-	-3.4	-3.2	-	-3.0	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	94.08	94.06	-	93.96	93.80		94.22	-	-	-	-	-
a*	0.46	0.44	-	0.48	0.49	-	0.38	-	-	-	-	-
b*	9.79	9.97	-	10.60	10.20	-	8.82	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	32.9	29.9	-	25.6	29.6	-	32.0	-	-	-	-	-
Dry gluten (14% mb), %	11.7	10.4	-	9.1	10.6	-	11.2	-	-	-	-	-
Gluten Index	76	70	-	72	78	-	94	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	61.7	60.5	-	58.3	60.7	-	60.9	-	-	-	-	-
Development time, min	5.3	4.5	-	4.7	5.3	-	8.2	-	-	-	-	-
Stability, min	6.7	5.2	-	5.7	5.6	-	11.9	-	-	-	-	-
Mixing tolerance index, BU	39	53	-	52	42	-	29	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	85	84	-	66	93	-	-	-	-	-	-	-
Maximum height, BU	291	296	-	261	320	-	-	-	-	-	-	-
Extensibility, mm	206	203	-	177	205	-	-	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	37.8	30.4	-	26.0	36.9	-	58.6	-	-	-	-	-
Stability (P), mm	75	72	-	64	81	-	95	-	-	-	-	-
Distensibility (L), mm	128	103	-	111	113	-	125	-	-	-	-	-
Configuration ratio (P/L)	0.59	0.70	-	0.58	0.72	-	0.76	-	-	-	-	-
MIXOGRAM												
Peak time, min	2.3	2.3	-	2.5	2.3	-	3.3	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1005	950	-	805	900	-	950	-	-	-	-	-
Evaluation (see page 61)	0	0	-	0	0	-	0	-	-	-	-	-

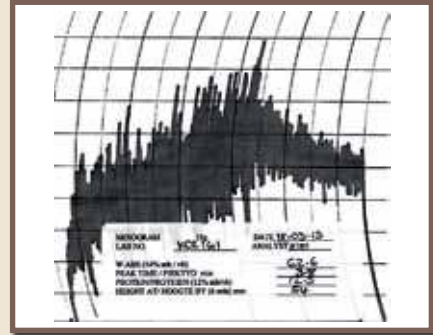
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

11

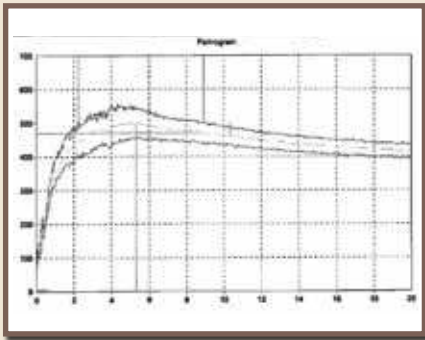


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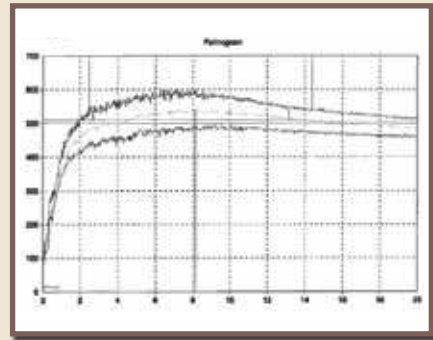


FARINOGRAM

11

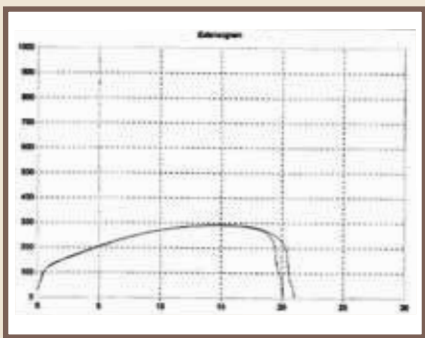


12



EXTENSOGRAM

11

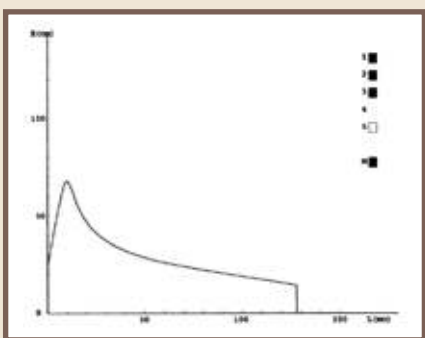


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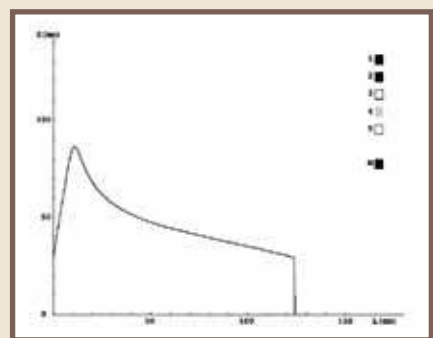


ALVEOGRAM

11



12



South African Quality data per production region

MAINLY IRRIGATION WHEAT

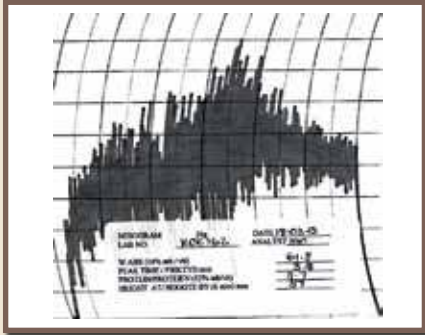
North-West Province

PRODUCTION REGION	(14) North-West Southern Region				(15) North-West South-Eastern Region							
	Intake silos				Intake silos							
	Amalia		Schweizer-Reneke		Bloemhof							
	Barberspan		Taaibospan		Christiana							
	Delareyville				Hertzogville							
	Excelsior				Hoopstad							
	Geysdorp				Kingwood							
	Hallat's Hope											
	Migdol											
	Nooitgedacht											
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.6	-	-	-	11.4	10.6	12.3	0.85				
Falling number, sec	367	-	-	-	376	331	415	42.32				
1000 Kernel mass (13% mb), g	38.8	-	-	-	46.6	44.5	49.3	2.46				
Hectolitre mass (dirty), kg/hl	80.0	-	-	-	82.8	81.3	83.8	1.34				
Screenings (<1.8mm), %	0.66	-	-	-	0.49	0.42	0.56	0.07				
Total damaged kernels, %	1.42	-	-	-	0.45	0.12	0.83	0.36				
Combined deviations, %	2.23	-	-	-	0.97	0.70	1.33	0.33				
Number of samples	1				3							
CULTIVARS												
	SST 843 57.0				Duzi 66.0							
cultivars with highest % occurrence	Baviaans 22.0				SST 835 13.7							
	SST 835 21.0				Baviaans 9.3							
					SST 843 6.0							
					Sabie 5.0							
Number of samples	1				3							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.8	-	-	-	2.5	2.3	2.6	0.15				
Tail height (6min), mm	57	-	-	-	45	42	49	3.51				
Number of samples	1				3							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	-	-	-	-	-	-	76.2	76.2	75.3	-	-	-
FLOUR												
Protein (12% mb), %	-	-	-	-	-	-	11.4	10.2	9.5	-	-	-
Colour, KJ (wet)	-	-	-	-	-	-	-3.0	-3.4	-3.4	-	-	-
Colour, Minolta CM5 (dry)												
L*	-	-	-	-	-	-	93.90	94.04	94.10	-	-	-
a*	-	-	-	-	-	-	0.43	0.49	0.42	-	-	-
b*	-	-	-	-	-	-	9.63	10.31	9.77	-	-	-
GLUTEN												
Wet gluten (14% mb), %	-	-	-	-	-	-	31.9	29.6	27.4	-	-	-
Dry gluten (14% mb), %	-	-	-	-	-	-	10.8	10.1	9.0	-	-	-
Gluten Index	-	-	-	-	-	-	81	44	87	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	-	-	-	-	-	-	59.4	60.2	59.6	-	-	-
Development time, min	-	-	-	-	-	-	4.5	3.2	4.2	-	-	-
Stability, min	-	-	-	-	-	-	5.8	3.3	4.5	-	-	-
Mixing tolerance index, BU	-	-	-	-	-	-	52	58	49	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	-	-	-	-	-	75	54	63	-	-	-
Maximum height, BU	-	-	-	-	-	-	260	181	229	-	-	-
Extensibility, mm	-	-	-	-	-	-	201	206	188	-	-	-
ALVEOGRAM												
Strength (S), cm ²	-	-	-	-	-	-	29.5	23.9	25.8	-	-	-
Stability (P), mm	-	-	-	-	-	-	56	58	66	-	-	-
Distensibility (L), mm	-	-	-	-	-	-	149	123	112	-	-	-
Configuration ratio (P/L)	-	-	-	-	-	-	0.38	0.47	0.59	-	-	-
MIXOGRAM												
Peak time, min	-	-	-	-	-	-	2.3	1.8	2.2	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	-	-	-	-	-	-	950	820	825	-	-	-
Evaluation (see page 61)	-	-	-	-	-	-	0	0	0	-	-	-

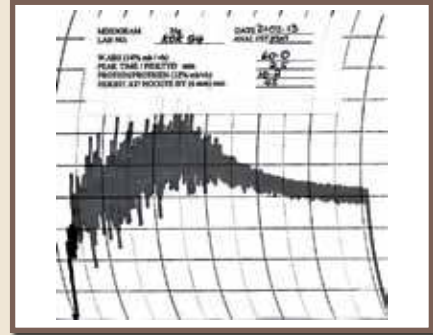
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

14



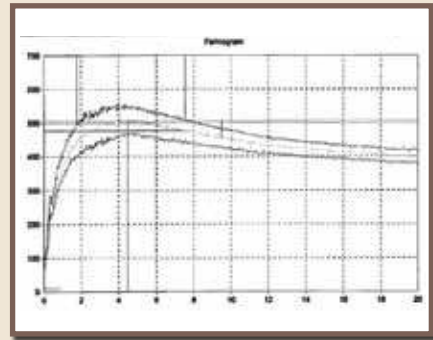
15



FARINOGRAM

14

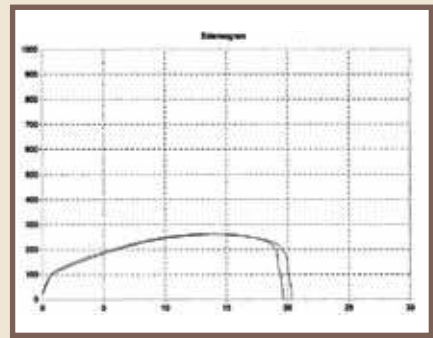
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EXTENSOGRAM

14

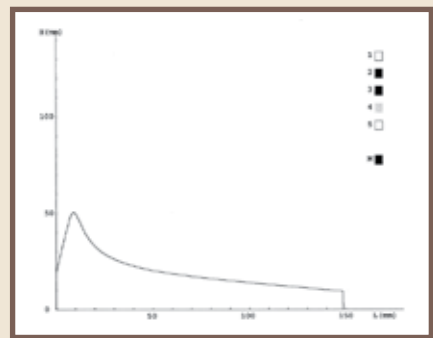
15



ALVEOGRAM

14

15



South African Quality data per production region

MAINLY IRRIGATION WHEAT

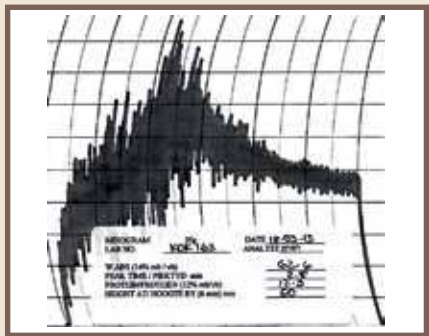
North-West Province

PRODUCTION REGION	(17) North-West Central Northern Region (Ottosdal)				(19) North-West Central Region (Lichtenburg)							
	Intake silos				Intake silos							
	Bospoort Lethabong (Hartbeesfontein) Kleinharts Melliodora Ottosdal Rostrataville Vermaas Werda				Grootpan Halfpad Hibernia Lichtenburg Lottiehalte Lusthof							
WHEAT	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.7	-	-	-	13.4	12.3	14.4	1.48				
Falling number, sec	440	-	-	-	387	319	454	95.46				
1000 Kernel mass (13% mb), g	39.5	-	-	-	34.4	33.1	35.6	1.77				
Hectolitre mass (dirty), kg/hl	83.0	-	-	-	78.7	78.3	79.1	0.57				
Screenings (<1.8mm), %	2.00	-	-	-	1.85	0.98	2.71	1.22				
Total damaged kernels, %	0.50	-	-	-	0.98	0.20	1.76	1.10				
Combined deviations, %	2.65	-	-	-	3.48	3.00	3.95	0.67				
Number of samples	1				2							
CULTIVARS												
cultivars	SST 843		56.0		SST 843		75.5					
with highest % occurrence	SST 835		44.0		SST 835		13.0					
					Duzi							
					Baviaans							
					Olifants							
Number of samples	1				2							
MIXOGRAM (Quadromat)	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.8	-	-	-	4.0	3.8	4.2	0.28				
Tail height (6min), mm	50	-	-	-	56	53	59	4.24				
Number of samples	1				2							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	75.3	-	-	-	-	-	73.0	-	-	-	-	-
FLOUR												
Protein (12% mb), %	12.4	-	-	-	-	-	12.6	-	-	-	-	-
Colour, KJ (wet)	-3.0	-	-	-	-	-	-2.7	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	94.05	-	-	-	-	-	93.88	-	-	-	-	-
a*	0.39	-	-	-	-	-	0.42	-	-	-	-	-
b*	9.06	-	-	-	-	-	9.13	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	34.1	-	-	-	-	-	32.3	-	-	-	-	-
Dry gluten (14% mb), %	11.7	-	-	-	-	-	11.8	-	-	-	-	-
Gluten Index	90	-	-	-	-	-	95	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	-	-	-	-	-	-	60.8	-	-	-	-	-
Development time, min	-	-	-	-	-	-	8.9	-	-	-	-	-
Stability, min	-	-	-	-	-	-	15.9	-	-	-	-	-
Mixing tolerance index, BU	-	-	-	-	-	-	16	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	-	-	-	-	-	165	-	-	-	-	-
Maximum height, BU	-	-	-	-	-	-	492	-	-	-	-	-
Extensibility, mm	-	-	-	-	-	-	247	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	47.7	-	-	-	-	-	54.3	-	-	-	-	-
Stability (P), mm	86	-	-	-	-	-	87	-	-	-	-	-
Distensibility (L), mm	138	-	-	-	-	-	125	-	-	-	-	-
Configuration ratio (P/L)	0.62	-	-	-	-	-	0.70	-	-	-	-	-
MIXOGRAM												
Peak time, min	2.3	-	-	-	-	-	3.5	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	945	-	-	-	-	-	1040	-	-	-	-	-
Evaluation (see page 61)	0	-	-	-	-	-	0	-	-	-	-	-

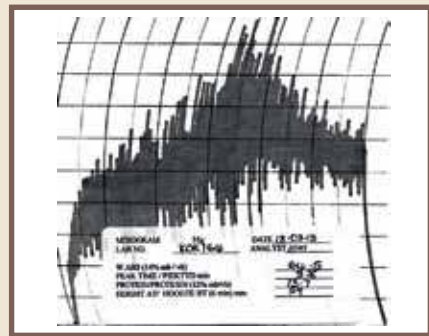
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

17



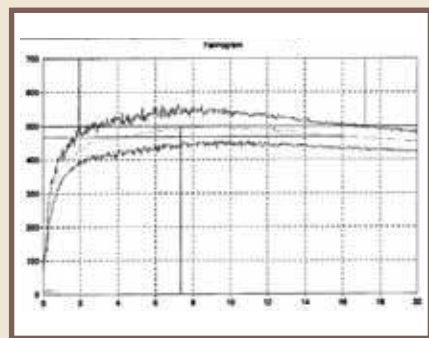
19



FARINOGRAM

17

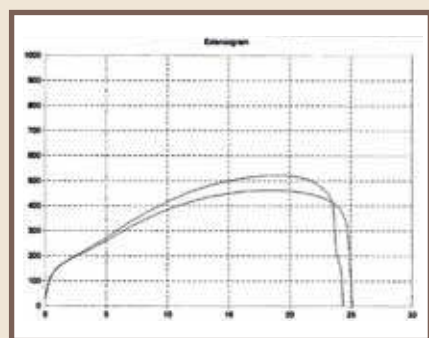
19



EXTENSOGRAM

17

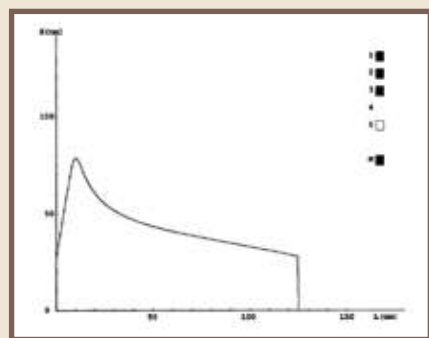
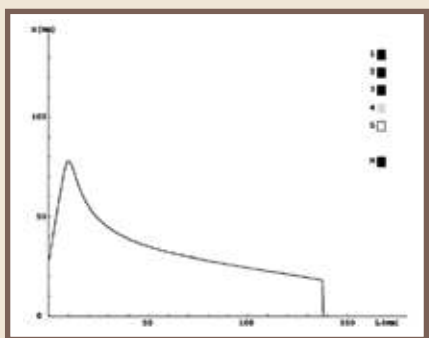
19



ALVEOGRAM

17

19



South African Quality data per production region

MAINLY IRRIGATION WHEAT

North-West Province

SUMMER RAINFALL WHEAT

(AND IRRIGATION)

Free State Province (Central)

(21)

Free State

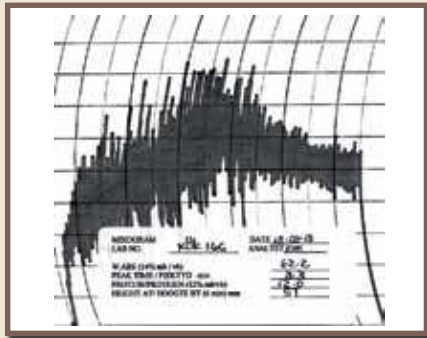
North-Western Region (Viljoenskroon)

PRODUCTION REGION	(20) North-West Eastern Region				(21) 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), %	13.1	12.8	13.3	0.35	11.6	-	-	-				
Falling number, sec	324	290	357	47.38	336	-	-	-				
1000 Kernel mass (13% mb), g	39.9	39.9	39.9	0.00	37.4	-	-	-				
Hectolitre mass (dirty), kg/hl	81.3	80.8	81.7	0.64	81.0	-	-	-				
Screenings (<1.8mm), %	0.59	0.34	0.84	0.35	1.61	-	-	-				
Total damaged kernels, %	0.89	0.89	0.89	0.00	1.16	-	-	-				
Combined deviations, %	1.80	1.80	1.80	0.00	3.08	-	-	-				
Number of samples	2				1							
CULTIVARS												
	SST 843		75.5		SST 835		67.0					
cultivars	Duzi		18.0		SST 876		19.0					
with highest % occurrence	SST 835		6.5		PAN 3118		14.0					
Number of samples	2				1							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.8	3.3	4.2	0.64	2.5	-	-	-				
Tail height (6min), mm	58	57	59	1.41	47	-	-	-				
Number of samples	2				1							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	73.7	-	-	-	-	-	-	74.9	-	-	-	-
FLOUR												
Protein (12% mb), %	12.2	-	-	-	-	-	-	12.3	-	-	-	-
Colour, KJ (wet)	-2.5	-	-	-	-	-	-	-2.7	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.77	-	-	-	-	-	-	93.82	-	-	-	-
a*	0.43	-	-	-	-	-	-	0.42	-	-	-	-
b*	8.65	-	-	-	-	-	-	9.17	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	32.0	-	-	-	-	-	-	28.8	-	-	-	-
Dry gluten (14% mb), %	11.4	-	-	-	-	-	-	9.8	-	-	-	-
Gluten Index	92	-	-	-	-	-	-	76	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	62.4	-	-	-	-	-	-	59.8	-	-	-	-
Development time, min	6.9	-	-	-	-	-	-	3.7	-	-	-	-
Stability, min	10.1	-	-	-	-	-	-	4.3	-	-	-	-
Mixing tolerance index, BU	36	-	-	-	-	-	-	63	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	-	-	-	-	-	-	65	-	-	-	-
Maximum height, BU	-	-	-	-	-	-	-	226	-	-	-	-
Extensibility, mm	-	-	-	-	-	-	-	203	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	52.4	-	-	-	-	-	-	28.7	-	-	-	-
Stability (P), mm	93	-	-	-	-	-	-	62	-	-	-	-
Distensibility (L), mm	118	-	-	-	-	-	-	136	-	-	-	-
Configuration ratio (P/L)	0.79	-	-	-	-	-	-	0.46	-	-	-	-
MIXOGRAM												
Peak time, min	3.6	-	-	-	-	-	-	2.4	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	925	-	-	-	-	-	-	960	-	-	-	-
Evaluation (see page 61)	0	-	-	-	-	-	-	0	-	-	-	-

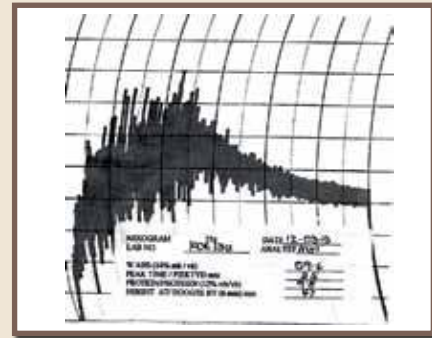
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

20

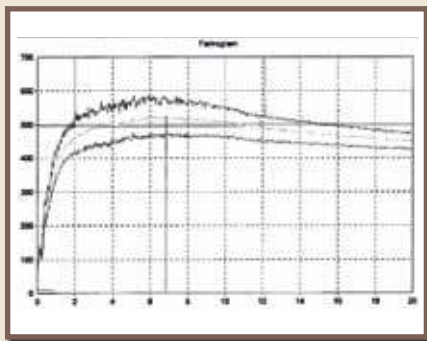


21

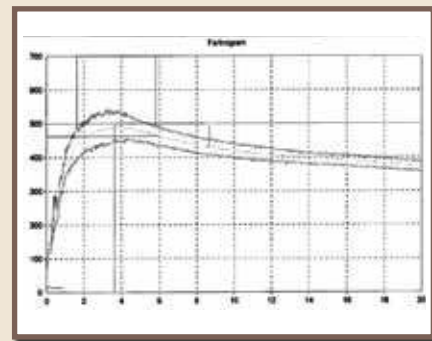


FARINOGRAM

20

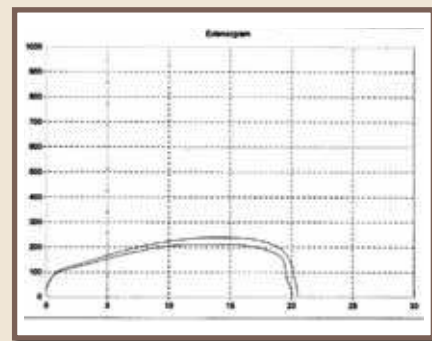


21



EXTENSOGRAM

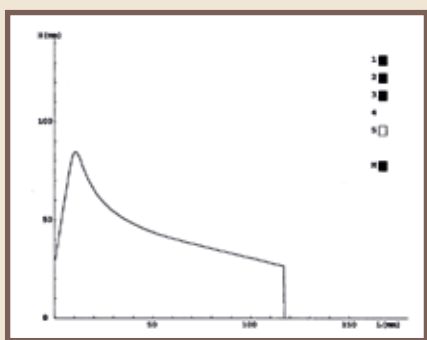
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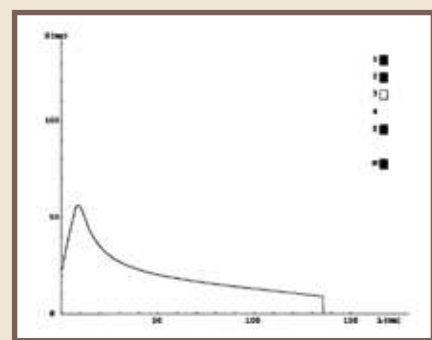
21

ALVEOGRAM

20



21



South African Quality data per production region

SUMMER RAINFALL WHEAT (AND IRRIGATION)

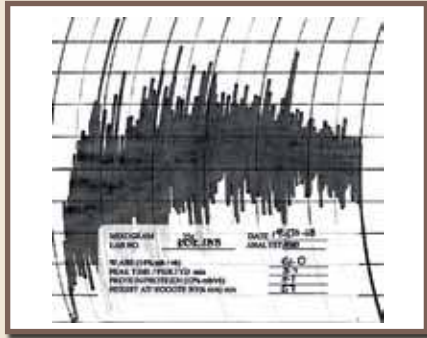
Free State Province (Central)

PRODUCTION REGION	(26) Free State South-Eastern Region (Senekal)				(27) Free State Northern Region							
	Intake silos				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), %	12.1	10.7	13.1	0.83	12.2	10.6	13.0	0.85				
Falling number, sec	373	331	435	40.54	378	314	461	54.76				
1000 Kernel mass (13% mb), g	37.2	31.4	41.0	3.31	34.1	30.8	44.5	5.21				
Hectolitre mass (dirty), kg/hl	80.8	80.3	81.7	0.55	79.2	76.5	81.9	1.93				
Screenings (<1.8mm), %	1.46	0.62	2.42	0.63	1.49	0.40	3.31	1.16				
Total damaged kernels, %	0.36	0.13	0.66	0.21	0.56	0.15	1.13	0.34				
Combined deviations, %	2.24	1.14	3.35	0.81	2.78	1.52	4.96	1.29				
Number of samples	6				6							
CULTIVARS												
	SST 356 24.8				SST 356 31.2							
cultivars	SST 835 17.7				Elands 20.8							
with highest %	SST 843 12.5				SST 835 12.7							
occurrence	Elands 12.3				Matlabas 9.7							
	PAN 3161 12.0				PAN 3120 7.3							
Number of samples	6				6							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.5	2.8	4.0	0.49	3.6	3.0	4.2	0.43				
Tail height (6min), mm	56	50	62	4.59	56	48	62	4.58				
Number of samples	6				6							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.8	73.2	-	-	-	-	71.2	-	72.7	70.8	-	-
FLOUR												
Protein (12% mb), %	11.7	11.0	-	-	-	-	11.8	-	9.5	12.8	-	-
Colour, KJ (wet)	-2.4	-2.4	-	-	-	-	-2.7	-	-3.0	-2.7	-	-
Colour, Minolta CM5 (dry)												
L*	93.68	93.34	-	-	-	-	93.65	-	93.91	93.71	-	-
a*	0.41	0.33	-	-	-	-	0.38	-	0.35	0.39	-	-
b*	9.62	9.93	-	-	-	-	10.68	-	9.84	10.82	-	-
GLUTEN												
Wet gluten (14% mb), %	30.4	27.9	-	-	-	-	31.1	-	24.0	33.9	-	-
Dry gluten (14% mb), %	10.6	9.9	-	-	-	-	10.2	-	8.5	12.0	-	-
Gluten Index	90	91	-	-	-	-	84	-	93	70	-	-
FARINOGRAM												
Water absorption (14% mb), %	62.2	60.3	-	-	-	-	61.4	-	58.4	63.2	-	-
Development time, min	7.7	8.7	-	-	-	-	8.2	-	4.0	7.7	-	-
Stability, min	11.7	16.3	-	-	-	-	13.6	-	8.5	9.3	-	-
Mixing tolerance index, BU	26	17	-	-	-	-	24	-	26	31	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	113	109	-	-	-	-	87	-	82	92	-	-
Maximum height, BU	438	438	-	-	-	-	447	-	342	364	-	-
Extensibility, mm	191	180	-	-	-	-	147	-	173	186	-	-
ALVEOGRAM												
Strength (S), cm ²	49.8	42.4	-	-	-	-	47.2	-	33.0	48.9	-	-
Stability (P), mm	108	110	-	-	-	-	101	-	83	101	-	-
Distensibility (L), mm	94	71	-	-	-	-	102	-	88	112	-	-
Configuration ratio (P/L)	1.15	1.55	-	-	-	-	0.99	-	0.94	0.90	-	-
MIXOGRAM												
Peak time, min	3.3	3.4	-	-	-	-	2.9	-	3.1	3.0	-	-
100g BAKING TEST												
Loaf volume, cm ³	895	830	-	-	-	-	930	-	830	985	-	-
Evaluation (see page 61)	1	1	-	-	-	-	0	-	0	0	-	-

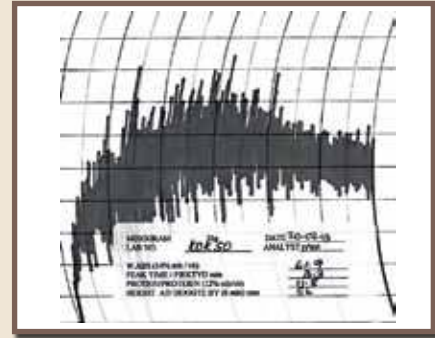
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

26

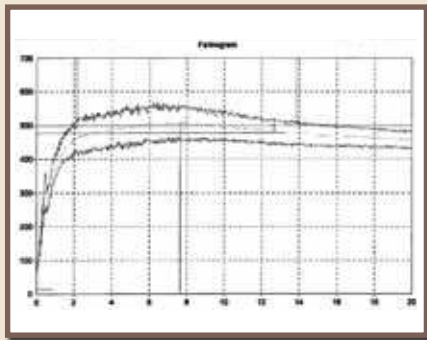


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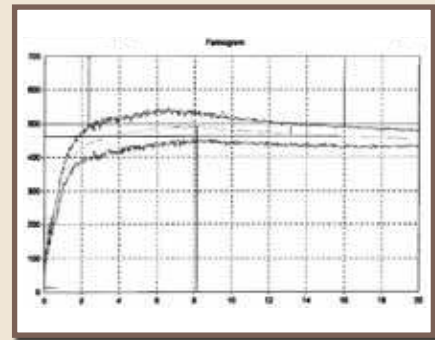


FARINOGRAM

26

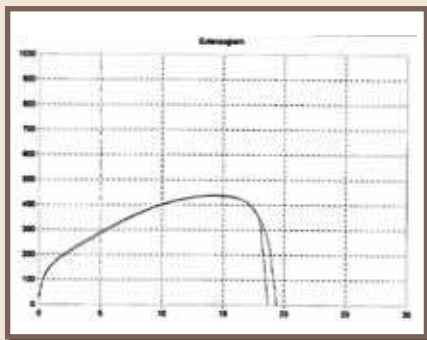


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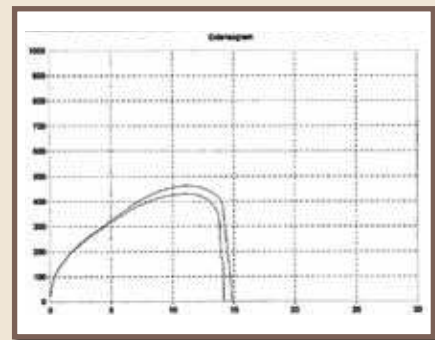


EXTENSOGRAM

26

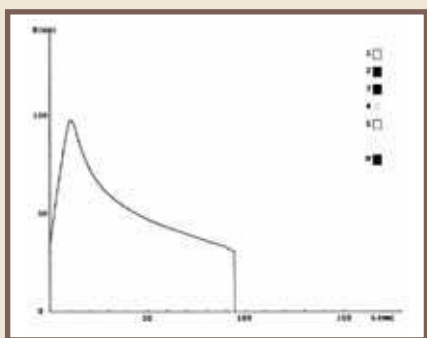


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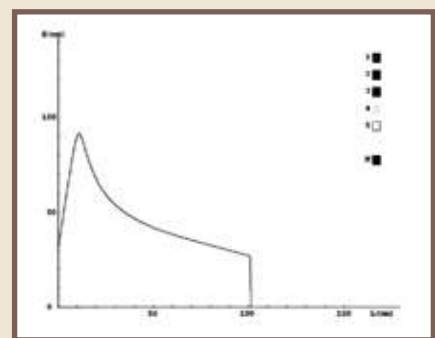


ALVEOGRAM

26



27



South African Quality data per production region

SUMMER RAINFALL WHEAT (AND IRRIGATION)

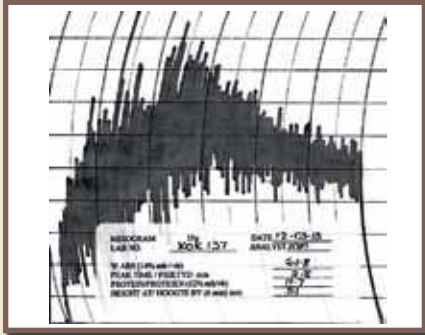
Free State Province (North-Western)

PRODUCTION REGION	(22) Free-State North-Western Region (Bothaville)				(23) Free-State North-Western Region (Bultfontein)							
	Intake silos				Intake silos							
	Allanridge				Bultfontein							
	Bothaville				Losdoorns							
	Mirage				Protespan							
	Odendaalsrus				Tierfontein							
	Schoonspruit				Wesselsbron							
	Schuttendraai				Willemsrust							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.4	11.1	13.0	0.86	12.2	10.8	14.6	0.97				
Falling number, sec	323	293	341	21.82	306	164	437	78.11				
1000 Kernel mass (13% mb), g	37.0	35.3	39.6	1.85	38.1	28.6	45.1	3.96				
Hectolitre mass (dirty), kg/hl	82.1	81.1	83.1	0.82	78.3	69.2	87.6	4.99				
Screenings (<1.8mm), %	0.55	0.22	0.85	0.35	2.19	0.17	6.97	1.93				
Total damaged kernels, %	1.95	1.22	2.68	0.71	1.80	0.28	4.57	1.22				
Combined deviations, %	3.02	2.13	3.71	0.72	4.66	0.84	9.81	2.65				
Number of samples	4				14							
CULTIVARS												
	SST 835			24.3	SST 835			51.0				
cultivars	SST 843			19.0	SST 843			12.9				
with highest %	PAN 3120			18.5	Krokodil			11.4				
occurrence	PAN 3118			18.3	PAN 3120			6.6				
	PAN 3434			13.8	Matlabas			5.5				
Number of samples	4				14							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.8	2.7	3.0	0.13	3.0	2.2	6.8	1.16				
Tail height (6min), mm	49	46	53	3.30	49	41	59	4.73				
Number of samples	4				14							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.3	-	-	-	73.0	-	75.8	73.7	-	-	-	-
FLOUR												
Protein (12% mb), %	10.3	-	-	-	10.7	-	11.8	11.4	-	-	-	-
Colour, KJ (wet)	-2.9	-	-	-	-3.0	-	-3.0	-2.8	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.55	-	-	-	93.70	-	93.83	93.60	-	-	-	-
a*	0.38	-	-	-	0.44	-	0.44	0.41	-	-	-	-
b*	9.78	-	-	-	9.94	-	9.58	9.76	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	28.1	-	-	-	29.4	-	33.2	32.6	-	-	-	-
Dry gluten (14% mb), %	9.6	-	-	-	10.1	-	11.1	11.2	-	-	-	-
Gluten Index	76	-	-	-	77	-	80	77	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	64.6	-	-	-	61.9	-	63.0	62.4	-	-	-	-
Development time, min	6.8	-	-	-	6.0	-	5.3	5.2	-	-	-	-
Stability, min	9.4	-	-	-	7.7	-	5.4	5.7	-	-	-	-
Mixing tolerance index, BU	25	-	-	-	36	-	50	52	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	82	-	-	-	88	-	92	80	-	-	-	-
Maximum height, BU	329	-	-	-	340	-	269	294	-	-	-	-
Extensibility, mm	182	-	-	-	191	-	242	194	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	43.1	-	-	-	35.0	-	33.3	36.1	-	-	-	-
Stability (P), mm	117	-	-	-	87	-	68	79	-	-	-	-
Distensibility (L), mm	76	-	-	-	92	-	139	115	-	-	-	-
Configuration ratio (P/L)	1.54	-	-	-	0.95	-	0.49	0.69	-	-	-	-
MIXOGRAM												
Peak time, min	3.0	-	-	-	2.8	-	2.0	2.2	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	830	-	-	-	965	-	1015	1000	-	-	-	-
Evaluation (see page 61)	0	-	-	-	0	-	0	0	-	-	-	-

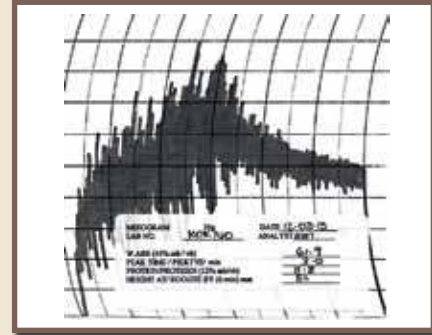
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

22

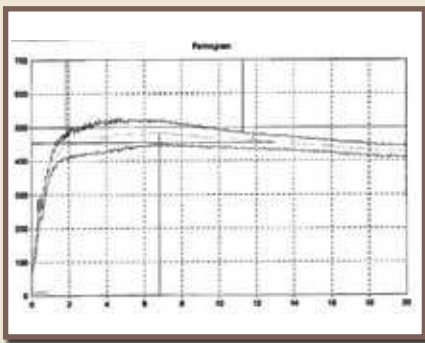


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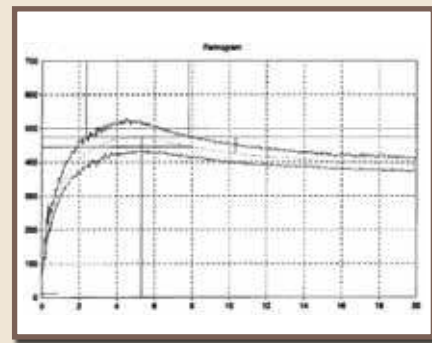


FARINOGRAM

22

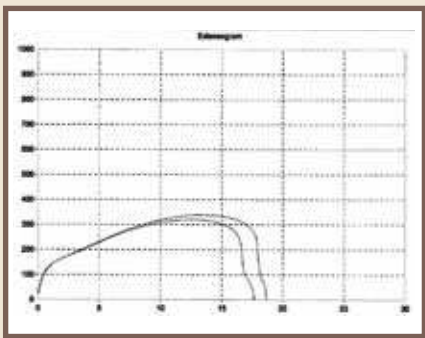


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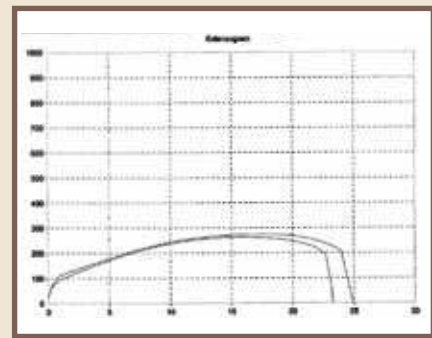


EXTENSOGRAM

22

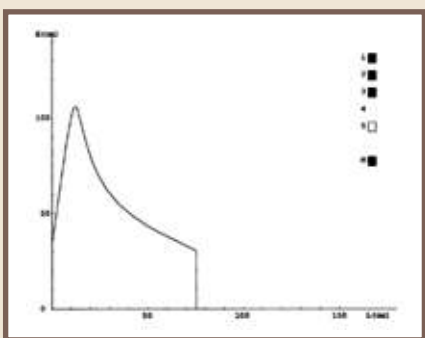


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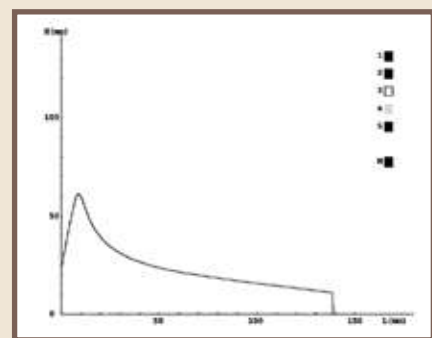


ALVEOGRAM

22



23



South African Quality data per production region

SUMMER RAINFALL WHEAT (AND IRRIGATION)

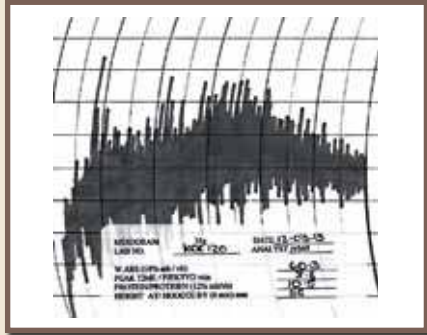
Free State Province (Eastern)

PRODUCTION REGION	(25)				(28)							
	Free State South-Western Region (Bethlehem)				Free State Eastern Region							
Intake silos	Bethlehem		Westminster		Afrikaskop		Memel					
	Clocolan		Zastron		Ascent		Reitz					
	De Wetsdorp				Cornelia		Tweeling					
	Ficksburg				Daniëlsrus		Villiers					
	Fouriesburg				Eeram		Vrede					
	Marseilles				Frankfort		Warden					
	Modderpoort				Harrismith		Windfield					
	Slabberts				Jim Fouché							
	Tweespruit				Kransfontein							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.4	9.6	13.6	1.11	11.3	8.1	13.3	1.35				
Falling number, sec	321	198	476	58.01	352	255	433	40.87				
1000 Kernel mass (13% mb), g	35.8	29.0	39.6	3.33	36.5	28.0	43.6	3.87				
Hectolitre mass (dirty), kg/hl	79.2	74.5	82.9	2.10	80.9	75.0	84.5	2.41				
Screenings (<1.8mm), %	1.87	0.34	5.63	1.49	0.91	0.28	2.52	0.54				
Total damaged kernels, %	0.46	0.04	0.92	0.24	0.59	0.00	1.50	0.47				
Combined deviations, %	2.90	0.55	7.46	1.81	2.01	0.48	4.22	0.89				
Number of samples	18				21							
CULTIVARS												
		Elands	52.4			SST 356	25.8					
cultivars		SST 356	24.1			SST 835	22.5					
with highest %		PAN 3161	14.8			Elands	19.0					
occurrence		Matlabas	4.1			SST 843	8.8					
		PAN 3120	3.6			PAN 3161	8.3					
Number of samples	18				21							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.7	2.8	4.8	0.54	3.6	2.8	4.7	0.60				
Tail height (6min), mm	55	41	60	4.68	51	37	61	4.56				
Number of samples	18				21							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	71.3	72.3	72.0	72.1	70.5	-	72.9	74.2	72.4	71.5	-	-
FLOUR												
Protein (12% mb), %	11.5	11.2	9.5	10.7	10.1	-	12.4	10.9	9.7	8.4	-	-
Colour, KJ (wet)	-2.6	-2.2	-2.7	-2.6	-2.5	-	-2.7	-2.9	-2.9	-2.8	-	-
Colour, Minolta CM5 (dry)												
L*	93.30	93.20	93.78	93.41	93.58	-	93.63	93.89	93.69	93.91	-	-
a*	0.39	0.41	0.32	0.32	0.35	-	0.40	0.39	0.35	0.33	-	-
b*	9.78	9.86	9.62	10.13	10.48	-	9.86	9.79	11.00	11.35	-	-
GLUTEN												
Wet gluten (14% mb), %	30.6	29.7	24.2	28.1	27.1	-	33.1	29.8	25.4	21.7	-	-
Dry gluten (14% mb), %	10.9	10.6	8.3	10.1	9.8	-	11.5	10.3	8.6	7.3	-	-
Gluten Index	90	89	90	91	85	-	85	82	89	97	-	-
FARINOGRAM												
Water absorption (14% mb), %	62.6	60.7	61.4	59.0	62.0	-	60.2	61.2	65.8	64.7	-	-
Development time, min	4.7	6.2	2.2	5.4	5.0	-	6.4	6.0	5.2	2.2	-	-
Stability, min	12.5	11.1	8.1	12.6	9.2	-	9.5	9.4	7.6	7.3	-	-
Mixing tolerance index, BU	14	30	29	20	27	-	32	31	39	18	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	111	104	80	111	73	-	116	93	60	45	-	-
Maximum height, BU	414	423	377	444	316	-	418	368	288	252	-	-
Extensibility, mm	195	185	154	183	167	-	201	182	144	121	-	-
ALVEOGRAM												
Strength (S), cm ²	51.7	49.8	37.5	43.0	38.4	-	43.6	42.0	36.1	27.2	-	-
Stability (P), mm	119	102	123	87	107	-	75	98	152	146	-	-
Distensibility (L), mm	85	99	54	108	72	-	141	92	40	30	-	-
Configuration ratio (P/L)	1.40	1.03	2.28	0.81	1.49	-	0.53	1.07	3.80	4.87	-	-
MIXOGRAM												
Peak time, min	3.6	3.2	3.5	3.6	3.0	-	2.9	3.0	3.0	3.7	-	-
100g BAKING TEST												
Loaf volume, cm ³	895	915	755	925	825	-	1015	895	800	770	-	-
Evaluation (see page 61)	0	0	1	0	0	-	0	0	0	0	-	-

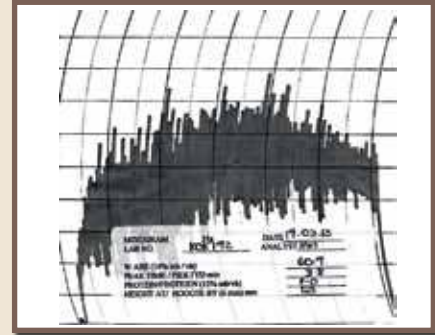
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

25

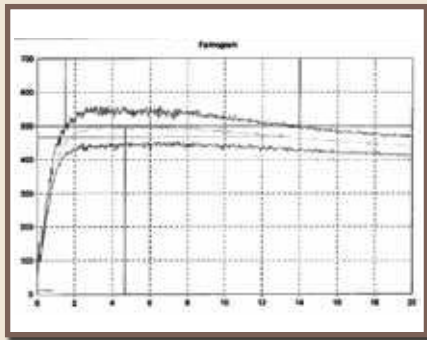


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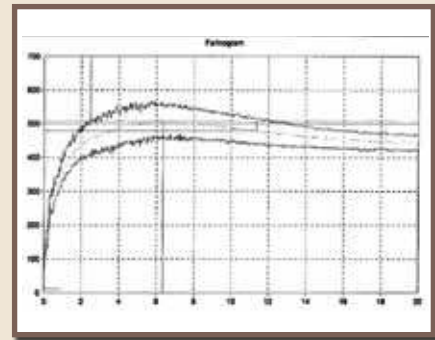


FARINOGRAM

25

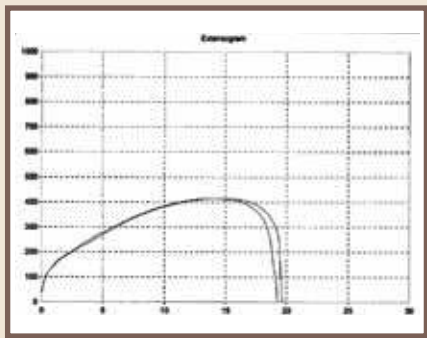


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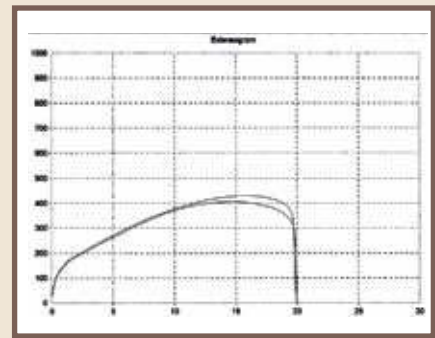


EXTENSOGRAM

25

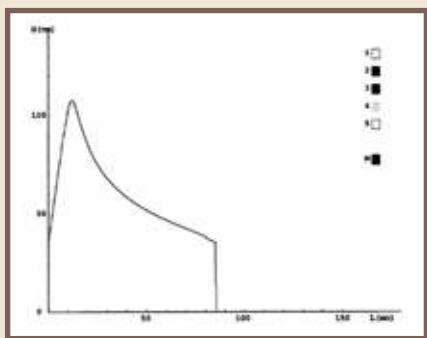


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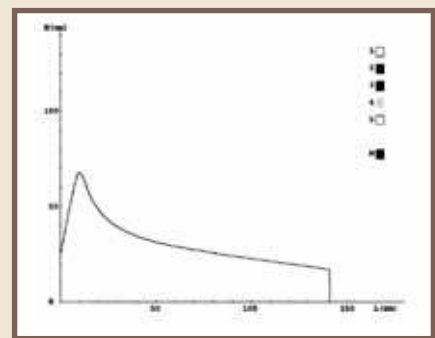


ALVEOGRAM

25



28



South African Quality data per production region

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

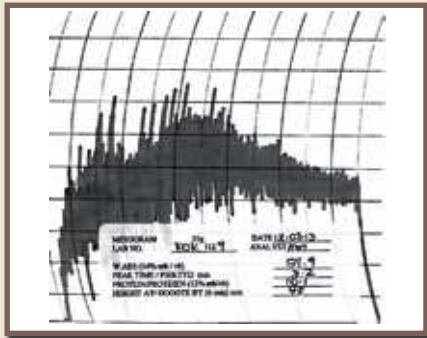
OTHER SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(24) Free State Central Region				(29) Mpumalanga Southern Region							
	Bloemfontein	Van Tonder			Balfour							
Intake silos	Brandfort	Zastron			Greylingstad							
	De Brug	Welgeleë			Grootvlei							
	Geneva	Winburg			Harvard							
	Hennenman				Holmdene							
	Koffiefontein				Leeuspruit							
	Kroonstad				Platrand							
	Petrusburg				Standerton							
	Theunissen				Val							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.1	11.0	13.5	0.86	13.1	-	-	-				
Falling number, sec	298	171	409	93.44	278	-	-	-				
1000 Kernel mass (13% mb), g	32.6	27.5	37.1	3.32	39.4	-	-	-				
Hectolitre mass (dirty), kg/hl	80.0	74.4	83.2	3.05	83.5	-	-	-				
Screenings (<1.8mm), %	1.84	0.85	2.84	0.88	0.59	-	-	-				
Total damaged kernels, %	1.48	0.08	5.77	2.13	1.00	-	-	-				
Combined deviations, %	4.17	1.06	8.73	2.83	1.79	-	-	-				
Number of samples	7				1							
CULTIVARS												
	SST 835		23.1		SST 843		100.0					
cultivars	PAN 3118		21.4									
with highest %	PAN 3120		16.7									
occurrence	SST 843		12.6									
	Matlabas		10.4									
Number of samples	7				1							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.2	2.8	4.2	0.50	2.4	-	-	-				
Tail height (6min), mm	51	47	55	3.21	49	-	-	-				
Number of samples	7				1							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	70.1	71.3	-	-	-	-	75.5	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.0	10.0	-	-	-	-	12.0	-	-	-	-	-
Colour, KJ (wet)	-2.8	-3.0	-	-	-	-	-2.3	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.14	93.56	-	-	-	-	93.24	-	-	-	-	-
a*	0.53	0.45	-	-	-	-	0.43	-	-	-	-	-
b*	11.02	10.72	-	-	-	-	9.43	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	29.3	26.4	-	-	-	-	35.5	-	-	-	-	-
Dry gluten (14% mb), %	9.9	9.0	-	-	-	-	11.6	-	-	-	-	-
Gluten Index	93	83	-	-	-	-	-	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	59.6	58.9	-	-	-	-	-	-	-	-	-	-
Development time, min	5.7	5.5	-	-	-	-	-	-	-	-	-	-
Stability, min	10.2	7.8	-	-	-	-	-	-	-	-	-	-
Mixing tolerance index, BU	27	44	-	-	-	-	-	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	108	85	-	-	-	-	-	-	-	-	-	-
Maximum height, BU	445	392	-	-	-	-	-	-	-	-	-	-
Extensibility, mm	181	161	-	-	-	-	-	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	45.9	35.8	-	-	-	-	29.4	-	-	-	-	-
Stability (P), mm	94	79	-	-	-	-	73	-	-	-	-	-
Distensibility (L), mm	107	108	-	-	-	-	103	-	-	-	-	-
Configuration ratio (P/L)	0.88	0.73	-	-	-	-	0.71	-	-	-	-	-
MIXOGRAM												
Peak time, min	3.1	2.8	-	-	-	-	2.3	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	865	885	-	-	-	-	880	-	-	-	-	-
Evaluation (see page 61)	0	0	-	-	-	-	1	-	-	-	-	-

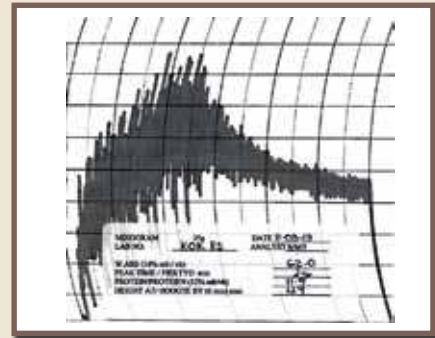
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

24

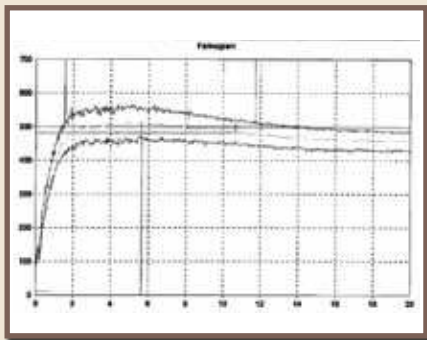


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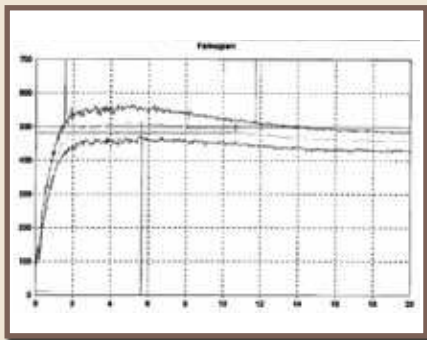


FARINOGRAM

24

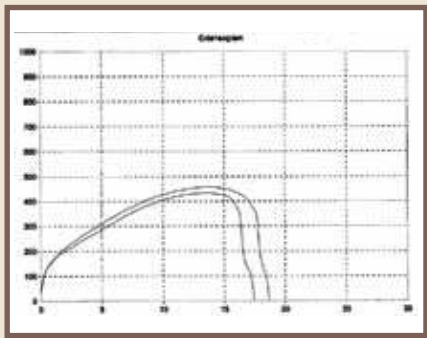


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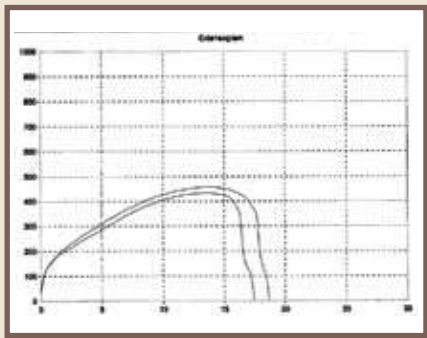


EXTENSOGRAM

24

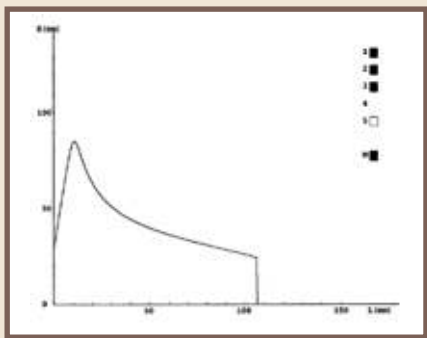


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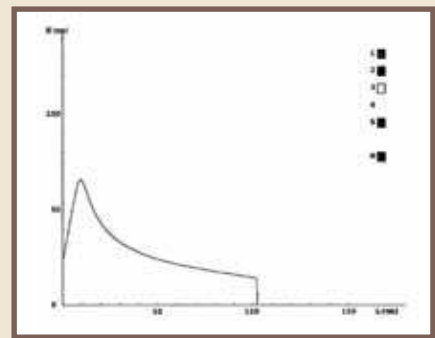


ALVEOGRAM

24



29



South African Quality data per production region

OTHER SUMMER RAINFALL WHEAT AND IRRIGATION

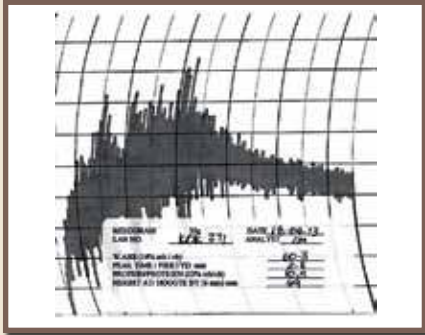
Mpumalanga Province

PRODUCTION REGION	(30) Mpumalanga Eastern Region				(33) Mpumalanga Northern Region							
	Amersfoort		Morgenzon		Driefontein							
Intake silos	Badplaas		Overvaal		Lydenburg							
	Carolina		Panbult		Marble Hall							
	Davel				Middelburg							
	Ermelo				Stoffberg							
	Estancia				Pan							
	Lothair				Arnot							
	Maizefield				Wonderfontein							
	Mkondo											
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.3	10.7	13.4	0.93	12.1	11.9	12.2	0.21				
Falling number, sec	393	365	437	24.54	417	390	443	37.48				
1000 Kernel mass (13% mb), g	41.8	36.5	44.7	3.14	42.1	38.1	46.1	5.66				
Hectolitre mass (dirty), kg/hl	82.8	81.3	84.4	1.00	81.6	81.4	81.8	0.28				
Screenings (<1.8mm), %	1.94	1.25	2.82	0.58	0.75	0.29	1.20	0.64				
Total damaged kernels, %	0.34	0.00	1.08	0.40	1.75	1.04	2.46	1.00				
Combined deviations, %	2.59	2.05	3.32	0.47	2.66	2.35	2.97	0.44				
Number of samples	6				2							
CULTIVARS												
	SST 835		49.7		SST 843		64.0					
cultivars	SST 843		25.7		Duzi		20.5					
with highest %	Duzi		18.8		Kariega		9.0					
occurrence	Sabie		5.8		SST 835		4.5					
					SST 876		2.0					
Number of samples	6				2							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.0	2.5	4.3	0.73	4.3	3.8	4.7	0.64				
Tail height (6min), mm	51	47	57	3.72	57	57	57	0.00				
Number of samples	6				2							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.5	-	75.5	-	-	-	73.5	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.8	-	10.4	-	-	-	11.6	-	-	-	-	-
Colour, KJ (wet)	-3.2	-	-3.1	-	-	-	-2.7	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	94.18	-	93.96	-	-	-	93.67	-	-	-	-	-
a*	0.43	-	0.40	-	-	-	0.47	-	-	-	-	-
b*	9.41	-	9.63	-	-	-	9.24	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	31.9	-	30.1	-	-	-	29.6	-	-	-	-	-
Dry gluten (14% mb), %	11.1	-	9.9	-	-	-	10.4	-	-	-	-	-
Gluten Index	90	-	78	-	-	-	93	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	60.5	-	60.7	-	-	-	60.1	-	-	-	-	-
Development time, min	7.2	-	4.2	-	-	-	9.2	-	-	-	-	-
Stability, min	9.7	-	5.2	-	-	-	18.2	-	-	-	-	-
Mixing tolerance index, BU	39	-	49	-	-	-	15	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	118	-	82	-	-	-	140	-	-	-	-	-
Maximum height, BU	388	-	310	-	-	-	498	-	-	-	-	-
Extensibility, mm	227	-	188	-	-	-	211	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	47.7	-	34.7	-	-	-	58.3	-	-	-	-	-
Stability (P), mm	79	-	78	-	-	-	99	-	-	-	-	-
Distensibility (L), mm	138	-	110	-	-	-	114	-	-	-	-	-
Configuration ratio (P/L)	0.57	-	0.71	-	-	-	0.87	-	-	-	-	-
MIXOGRAM												
Peak time, min	2.8	-	2.5	-	-	-	4.4	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	940	-	865	-	-	-	860	-	-	-	-	-
Evaluation (see page 61)	0	-	0	-	-	-	1	-	-	-	-	-

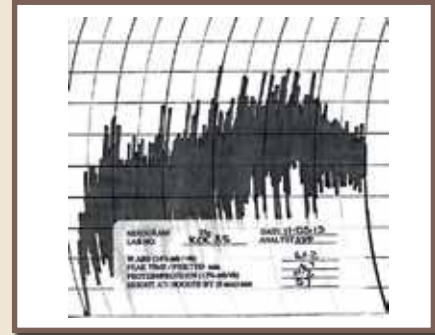
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

30

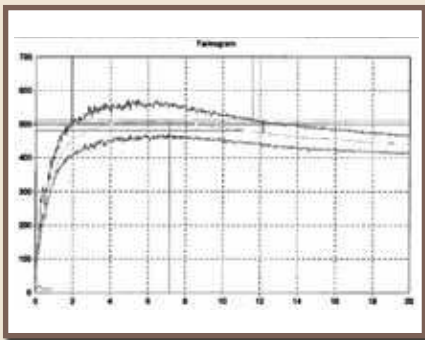


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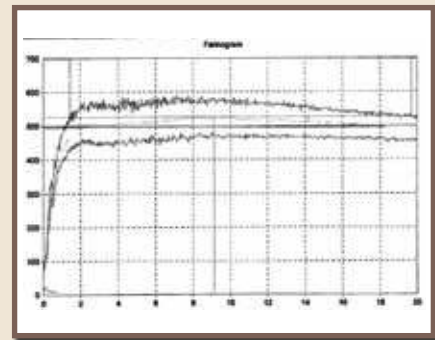


FARINOGRAM

30

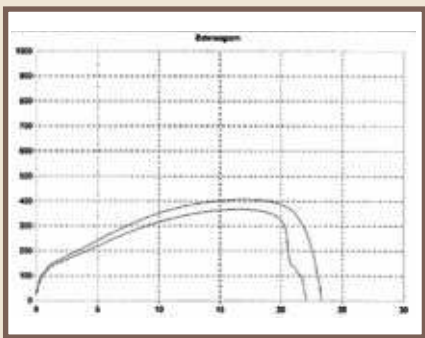


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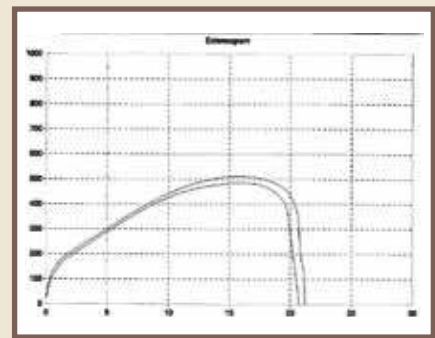


EXTENSOGRAM

30

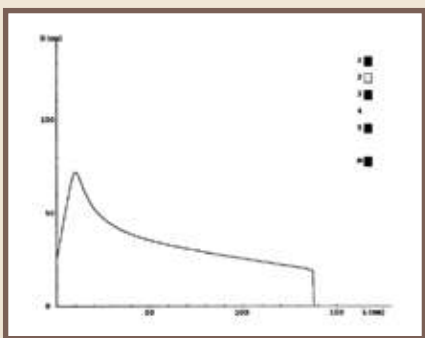


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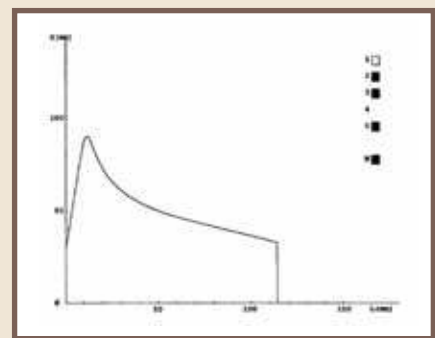


ALVEOGRAM

30



33



South African Quality data per production region

OTHER SUMMER RAINFALL WHEAT AND IRRIGATION

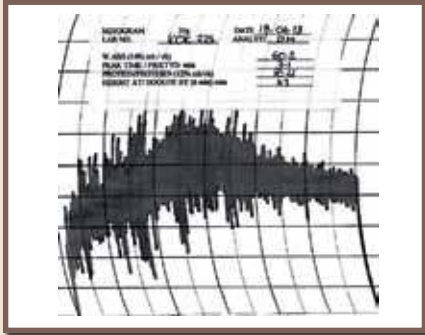
Gauteng and Limpopo Provinces

PRODUCTION REGION	(34) Gauteng				(35) Limpopo							
	Intake silos				Intake silos							
	Bloekomspruit Bronkhorstspuit Glenroy Goeie Hoek Kaalfontein Middelvlei Nigel Oberholzer Raathsvlei				Alma Bela-Bela (Warmbad) Crecy Immerpan Lehau Modimolle (Nylstroom) Mokopane (Potgietersrus) Naboomspruit Northam Nutfield							
	Pienaarsrivier Polokwane (Pietersburg) Roedtan Settlers Tzaneen Vaalwater											
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.4	10.5	12.0	0.60	12.4	9.6	14.6	1.60				
Falling number, sec	380	298	422	39.46	378	340	431	30.40				
1000 Kernel mass (13% mb), g	40.5	32.8	45.8	4.80	39.3	29.4	48.3	7.21				
Hectolitre mass (dirty), kg/hl	80.5	78.7	82.4	1.32	79.7	75.5	83.6	2.71				
Screenings (<1.8mm), %	1.63	0.83	3.41	0.86	1.69	0.13	6.02	2.00				
Total damaged kernels, %	0.88	0.23	1.64	0.47	1.19	0.57	1.81	0.39				
Combined deviations, %	2.94	2.05	4.51	0.80	3.12	0.76	7.97	2.26				
Number of samples	8				13							
CULTIVARS												
	Duzi 53.4				Duzi 51.1							
cultivars	SST 835 25.6				SST 835 19.1							
with highest %	SST 843 12.9				SST 843 16.8							
occurrence	SST 877 6.1				SST 884 4.0							
	SST 876 2.0				SST 822 3.8							
Number of samples	8				13							
MIXOGRAM (Quadromat)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.0	2.5	3.3	0.26	3.1	2.7	3.8	0.40				
Tail height (6min), mm	48	43	52	2.73	53	47	63	4.92				
Number of samples	8				13							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	75.6	75.8	76.4	72.5	-	-	73.9	73.4	74.5	74.4	69.3	-
FLOUR												
Protein (12% mb), %	11.5	10.4	9.8	9.2	-	-	11.4	11.6	10.9	8.2	13.8	-
Colour, KJ (wet)	-2.5	-2.7	-3.2	-2.9	-	-	-3.0	-2.5	-2.9	-2.8	-2.1	-
Colour, Minolta CM5 (dry)												
L*	93.55	93.65	93.70	93.99	-	-	93.90	93.61	94.03	93.75	93.62	-
a*	0.40	0.43	0.44	0.40	-	-	0.52	0.41	0.45	0.29	0.46	-
b*	9.87	10.04	10.49	10.03	-	-	10.10	9.44	9.81	10.25	9.32	-
GLUTEN												
Wet gluten (14% mb), %	32.4	28.9	27.6	24.5	-	-	31.6	32.3	29.6	22.0	37.9	-
Dry gluten (14% mb), %	11.0	9.9	9.2	8.5	-	-	11.2	11.1	10.6	7.4	13.1	-
Gluten Index	83	76	79	81	-	-	79	79	87	78	86	-
FARINOGRAM												
Water absorption (14% mb), %	60.1	58.9	57.4	58.6	-	-	59.8	60.4	58.8	57.4	63.0	-
Development time, min	5.8	5.5	4.7	2.5	-	-	5.2	5.2	5.3	4.5	6.2	-
Stability, min	7.2	6.4	6.5	7.6	-	-	6.5	6.0	9.4	7.4	9.0	-
Mixing tolerance index, BU	48	52	45	19	-	-	51	49	31	42	33	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	96	80	67	83	-	-	100	81	105	57	114	-
Maximum height, BU	304	281	261	371	-	-	305	244	391	277	339	-
Extensibility, mm	228	202	184	162	-	-	233	230	197	144	241	-
ALVEOGRAM												
Strength (S), cm ²	35.0	30.6	27.2	32.9	-	-	35.2	33.3	41.6	24.5	48.8	-
Stability (P), mm	63	63	54	88	-	-	62	59	73	71	79	-
Distensibility (L), mm	151	131	143	85	-	-	157	171	139	84	158	-
Configuration ratio (P/L)	0.42	0.48	0.38	1.04	-	-	0.39	0.35	0.53	0.85	0.50	-
MIXOGRAM												
Peak time, min	2.8	2.8	2.8	3.0	-	-	2.5	2.4	3.2	3.4	2.7	-
100g BAKING TEST												
Loaf volume, cm ³	940	865	830	775	-	-	945	950	965	790	1080	-
Evaluation (see page 61)	0	0	0	0	-	-	0	0	0	0	0	-

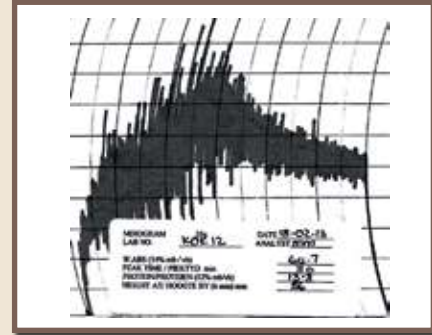
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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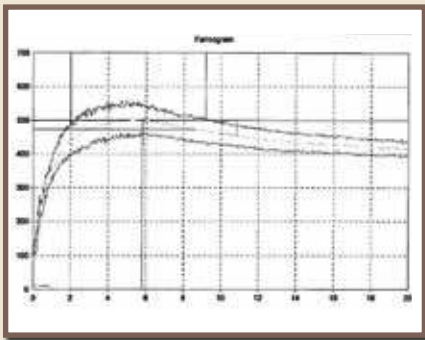


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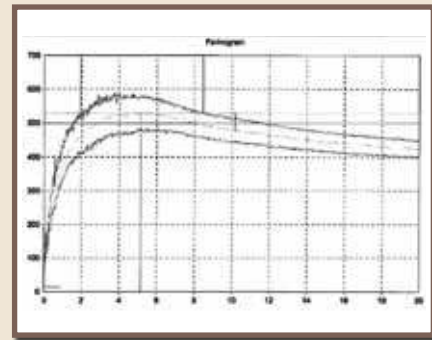


FARINOGRAM

34

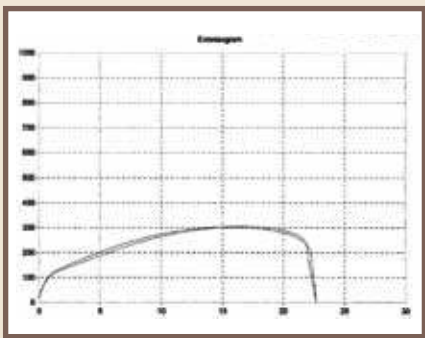


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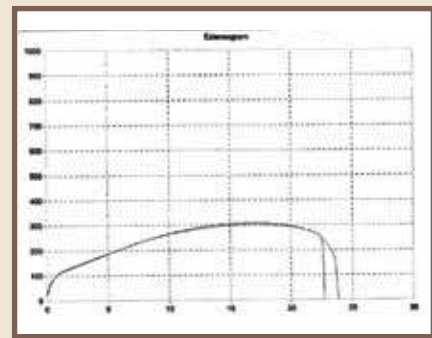


EXTENSOGRAM

34

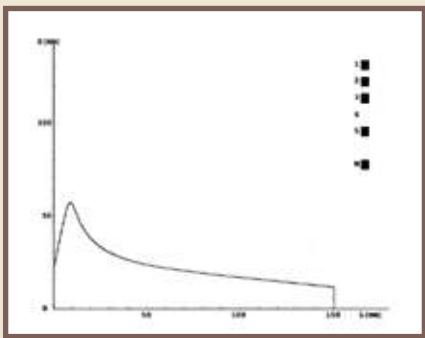


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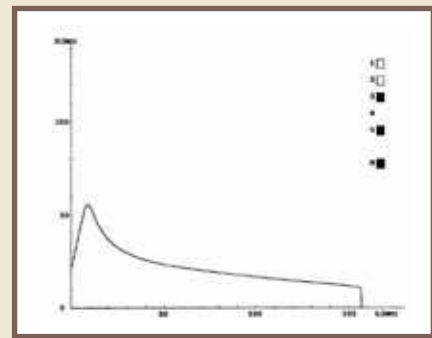


ALVEOGRAM

34



35



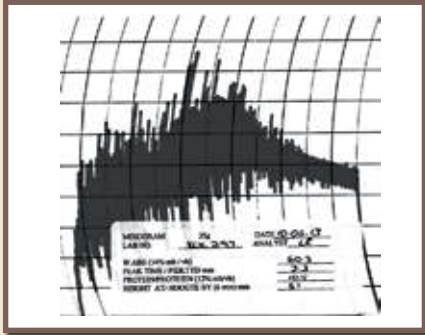
South African Quality data per production region
OTHER SUMMER RAINFALL WHEAT AND IRRIGATION
KwaZulu-Natal Province

PRODUCTION REGION	(36) KwaZulu-Natal					
Intake silos	Bergville Bloedrivier Dannhauser Dundee Mizpah New Amalfi Paulpietersburg Vryheid Winterton					
WHEAT						
	ave	min	max	stdev		
Protein (12% mb), %	11.4	-	-	-		
Falling number, sec	390	-	-	-		
1000 Kernel mass (13% mb), g	37.1	-	-	-		
Hectolitre mass (dirty), kg/hl	82.3	-	-	-		
Screenings (<1.8mm), %	1.37	-	-	-		
Total damaged kernels, %	0.32	-	-	-		
Combined deviations, %	1.69	-	-	-		
Number of samples	1					
CULTIVARS						
		SST 835	53.0			
cultivars with highest % occurrence		SST 843	47.0			
Number of samples	1					
MIXOGRAM (Quadromat)						
	ave	min	max	stdev		
Peak time, min	3.3	-	-	-		
Tail height (6min), mm	51	-	-	-		
Number of samples	1					
COMPOSITE SAMPLES						
CLASS AND GRADE	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	-	75.8	-	-	-	-
FLOUR						
Protein (12% mb), %	-	10.8	-	-	-	-
Colour, KJ (wet)	-	-2.5	-	-	-	-
Colour, Minolta CM5 (dry)						
L*	-	93.49	-	-	-	-
a*	-	0.53	-	-	-	-
b*	-	9.69	-	-	-	-
GLUTEN						
Wet gluten (14% mb), %	-	29.6	-	-	-	-
Dry gluten (14% mb), %	-	9.6	-	-	-	-
Gluten Index	-	80	-	-	-	-
FARINOGRAM						
Water absorption (14% mb), %	-	58.7	-	-	-	-
Development time, min	-	5.2	-	-	-	-
Stability, min	-	8.2	-	-	-	-
Mixing tolerance index, BU	-	36	-	-	-	-
EXTENSOGRAM (45 min pull)						
Area, cm ²	-	97	-	-	-	-
Maximum height, BU	-	406	-	-	-	-
Extensibility, mm	-	175	-	-	-	-
ALVEOGRAM						
Strength (S), cm ²	-	37.2	-	-	-	-
Stability (P), mm	-	82	-	-	-	-
Distensibility (L), mm	-	108	-	-	-	-
Configuration ratio (P/L)	-	0.76	-	-	-	-
MIXOGRAM						
Peak time, min	-	3.3	-	-	-	-
100g BAKING TEST						
Loaf volume, cm ³	-	900	-	-	-	-
Evaluation (see page 61)	-	0	-	-	-	-

RHEOLOGICAL GRAPHS PER PRODUCTION REGION

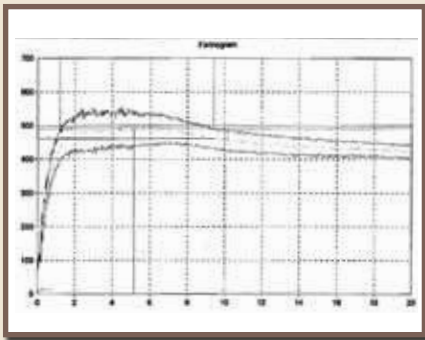
MIXOGRAM

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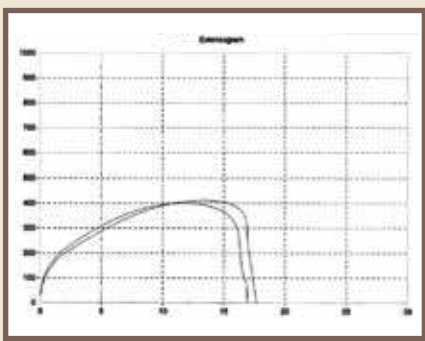
FARINOGRAM

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EXTENSOGRAM

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ALVEOGRAM

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