

South African Quality data per production region

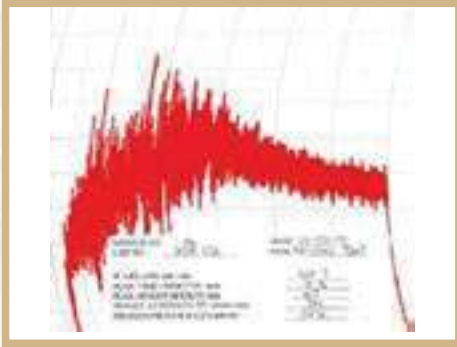
WINTER RAINFALL WHEAT

PRODUCTION REGION	(1) Namakwaland Region					(2) Swartland Western Region						
WHEAT												
	ave	min	max	stdev		ave	min	max	stdev			
Protein (12% mb), %	11.9	11.2	13.1	1.07		11.6	9.8	13.2	0.93			
Falling number, sec	377	367	384	8.74		351	305	380	20.44			
1000 Kernel mass (13% mb), g	37.8	36.3	38.6	1.30		37.0	31.3	44.8	2.83			
Hectolitre mass (dirty), kg/hl	80.5	80.0	80.9	0.46		79.4	76.4	82.7	1.63			
Screenings (<1.8 mm sieve), %	4.63	4.02	5.06	0.54		2.82	0.46	4.00	0.95			
Total damaged kernels, %	0.37	0.30	0.44	0.07		0.78	0.06	1.34	0.37			
Combined deviations, %	5.69	5.18	6.16	0.49		4.62	1.24	7.42	1.37			
Number of samples	3					20						
CULTIVARS												
		SST 015	32.0			SST 88	41.8					
cultivars with highest % occurrence		SST 087	23.7			SST 015	26.6					
		SST 88	16.3			SST 056	14.6					
		SST 056	13.7			SST 087	14.4					
		SST 096	10.7			SST 027	2.3					
Number of samples	3					20						
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev		ave	min	max	stdev			
Peak time, min	2.8	2.8	2.8	0.00		2.7	2.3	3.2	0.24			
Tail height (6 min), mm	50	50	50	0.00		48	42	52	2.50			
Number of samples	3					20						
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	-	-	-	-	69.5	-	70.4	71.5	73.0	70.8	71.0	-
FLOUR												
Protein (12% mb), %	-	-	-	-	11.2	-	11.3	10.2	9.4	10.9	10.5	-
Ash (db), %	-	-	-	-	0.59	-	0.58	0.61	0.60	0.58	0.63	-
Colour, KJ (wet)	-	-	-	-	-4.4	-	-4.1	-4.0	-3.9	-4.1	-4.0	-
Colour, Minolta CM5 (dry)												
L*	-	-	-	-	94.30	-	94.19	94.18	94.19	94.08	94.07	-
a*	-	-	-	-	0.39	-	0.42	0.37	0.39	0.41	0.40	-
b*	-	-	-	-	9.95	-	10.41	10.49	9.74	11.01	10.77	-
RVA												
Peak Viscosity, cP	-	-	-	-	2209	-	2093	2256	2572	2051	2077	-
Minimum viscosity (Through), cP	-	-	-	-	1532	-	1555	1705	1831	1518	1583	-
Final Viscosity, cP	-	-	-	-	2592	-	2456	2729	3023	2474	2464	-
Peak Time, min	-	-	-	-	7.00	-	7.00	7.00	7.00	7.00	7.00	-
GLUTEN												
Wet gluten (14% mb), %	-	-	-	-	30.0	-	32.1	27.7	27.0	30.1	29.9	-
Dry gluten (14% mb), %	-	-	-	-	10.3	-	10.9	9.5	9.3	10.2	10.4	-
Gluten Index	-	-	-	-	95	-	95	95	96	94	95	-
FARINOGRAM												
Water absorption (14% mb), %	-	-	-	-	60.6	-	61.0	59.6	59.1	60.0	59.8	-
Development time, min	-	-	-	-	6.0	-	5.2	4.0	3.2	5.0	3.8	-
Stability, min	-	-	-	-	15.7	-	8.5	7.8	5.0	8.6	6.4	-
Mixing tolerance index, BU	-	-	-	-	17	-	31	28	52	28	35	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	-	-	-	117	-	103	88	-	90	76	-
Maximum height, BU	-	-	-	-	450	-	368	337	-	351	302	-
Extensibility, mm	-	-	-	-	191	-	197	182	-	180	174	-
ALVEOGRAM												
Strength (S), cm ²	-	-	-	-	42.8	-	36.9	34.7	31.3	38.8	32.6	-
Stability (P), mm	-	-	-	-	86	-	79	75	85	81	74	-
Distensibility (L), mm	-	-	-	-	139	-	124	137	99	131	128	-
Configuration ratio (P/L)	-	-	-	-	0.62	-	0.64	0.55	0.86	0.62	0.58	-
MIXOGRAM												
Peak time, min	-	-	-	-	2.6	-	2.5	2.4	2.1	2.6	2.3	-
100g BAKING TEST												
Loaf volume, cm ³	-	-	-	-	978	-	1013	963	928	997	974	-
Evaluation (see page 72)	-	-	-	-	0	-	0	0	0	0	0	-

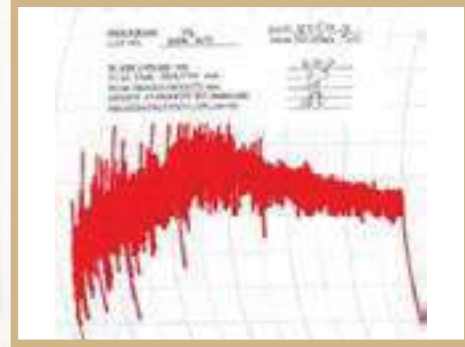
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

1

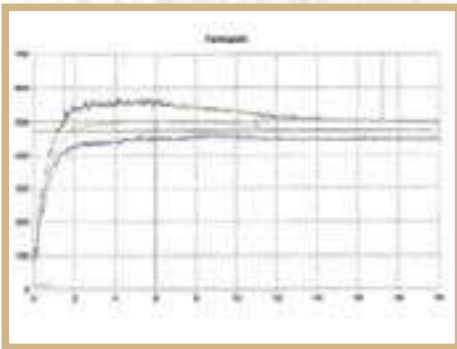


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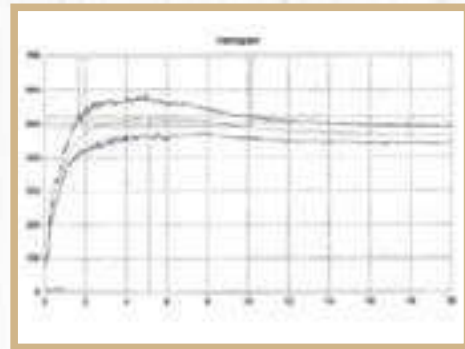


FARINOGRAM

1

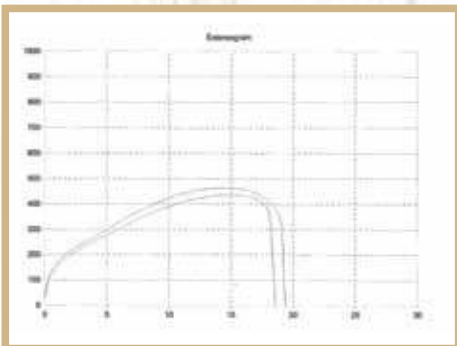


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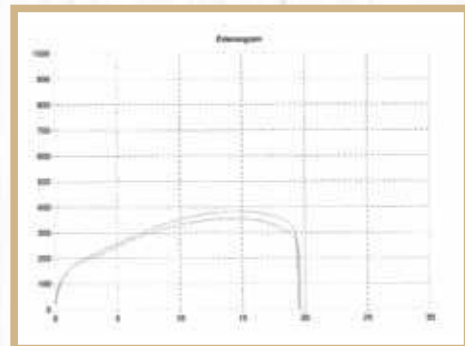


EXTENSOGRAM

1

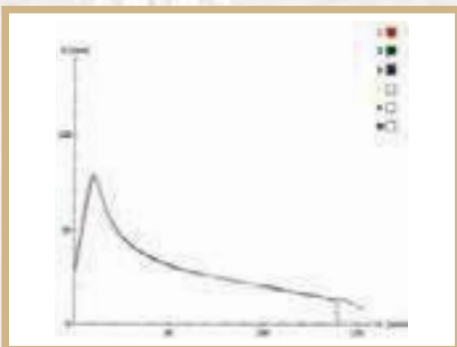


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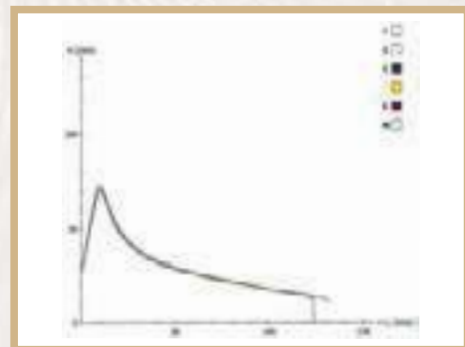


ALVEOGRAM

1



2



South African Quality data per production region

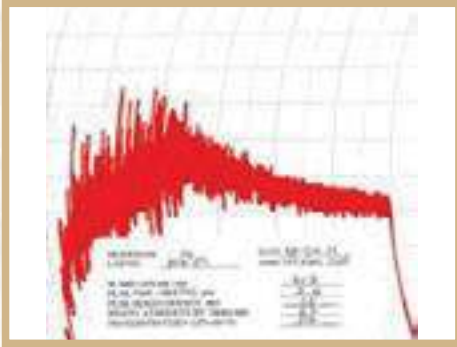
WINTER RAINFALL WHEAT

PRODUCTION REGION	(3) Swartland Central Region				(4) Swartland Eastern Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.4	8.8	13.2	0.97	11.2	8.9	13.1	0.95				
Falling number, sec	359	309	409	23.14	352	307	386	19.25				
1000 Kernel mass (13% mb), g	39.1	33.6	45.8	2.64	39.3	33.2	45.0	3.01				
Hectolitre mass (dirty), kg/hl	81.8	74.9	84.3	1.31	82.1	79.4	85.0	1.00				
Screenings (<1.8 mm sieve), %	2.53	0.35	8.29	1.20	1.66	0.08	3.13	0.89				
Total damaged kernels, %	0.59	0.10	1.74	0.34	0.63	0.10	1.52	0.30				
Combined deviations, %	3.73	0.98	10.00	1.41	2.71	0.68	4.43	1.11				
Number of samples	77				30							
CULTIVARS												
	SST 015 30.7				SST 88 28.6							
cultivars with highest % occurrence	SST 087 23.5				SST 015 24.1							
	SST 88 21.5				SST 087 22.7							
	SST 056 18.9				SST 056 15.6							
	SST 096 2.1				SST 027 5.1							
Number of samples	77				30							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.4	1.8	3.0	0.22	2.5	2.2	2.8	0.20				
Tail height (6 min), mm	47	39	58	3.13	47	40	51	2.57				
Number of samples	77				30							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	71.9	72.5	72.2	71.4	72.1	-	71.2	71.9	71.8	71.9	70.3	-
FLOUR												
Protein (12% mb), %	11.6	10.6	9.8	8.3	10.2	-	11.3	10.3	9.6	9.7	8.3	-
Ash (db), %	0.58	0.57	0.55	0.57	0.55	-	0.56	0.56	0.57	0.58	0.56	-
Colour, KJ (wet)	-4.1	-4.1	-4.3	-4.2	-4.2	-	-4.2	-4.2	-4.2	-4.2	-4.0	-
Colour, Minolta CM5 (dry)												
L*	93.91	93.87	94.23	94.20	94.25	-	94.07	94.07	94.04	94.02	93.98	-
a*	0.45	0.48	0.39	0.38	0.41	-	0.43	0.47	0.46	0.48	0.34	-
b*	11.10	10.41	9.86	10.05	9.87	-	10.51	10.58	10.36	10.79	10.38	-
RVA												
Peak Viscosity, cP	2054	2127	2205	2246	2173	-	2147	2095	2124	2105	2089	-
Minimum viscosity (Through), cP	1508	1575	1660	1702	1653	-	1633	1628	1635	1637	1703	-
Final Viscosity, cP	2447	2563	2680	2719	2685	-	2590	2572	2611	2613	2498	-
Peak Time, min	7.00	7.00	7.00	7.00	7.00	-	7.00	7.00	7.00	7.00	7.00	-
GLUTEN												
Wet gluten (14% mb), %	31.7	30.0	27.6	22.3	29.4	-	31.1	28.5	26.4	26.1	20.9	-
Dry gluten (14% mb), %	10.7	10.5	9.4	7.3	10.4	-	10.5	9.5	8.9	8.9	7.0	-
Gluten Index	93	94	95	96	92	-	95	90	94	96	95	-
FARINOGRAM												
Water absorption (14% mb), %	60.7	61.3	61.0	58.8	61.4	-	60.5	60.7	60.5	60.0	57.7	-
Development time, min	5.0	3.9	3.8	2.8	3.7	-	4.9	4.2	3.2	3.3	2.5	-
Stability, min	7.6	5.5	6.2	5.0	5.5	-	6.7	5.4	4.9	5.0	5.5	-
Mixing tolerance index, BU	33	44	34	46	40	-	36	44	44	45	44	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	105	81	69	57	72	-	88	76	59	68	-	-
Maximum height, BU	366	290	273	269	265	-	327	291	243	276	-	-
Extensibility, mm	204	192	175	144	185	-	188	180	167	171	-	-
ALVEOGRAM												
Strength (S), cm ²	38.2	31.2	29.1	26.9	30.3	-	35.6	32.0	27.7	29.7	25.7	-
Stability (P), mm	72	72	78	77	77	-	73	74	73	73	76	-
Distensibility (L), mm	157	135	107	97	114	-	141	129	111	118	83	-
Configuration ratio (P/L)	0.46	0.53	0.73	0.79	0.68	-	0.52	0.57	0.66	0.62	0.92	-
MIXOGRAM												
Peak time, min	2.4	2.1	2.2	2.5	2.3	-	2.2	2.1	2.2	2.3	3.0	-
100g BAKING TEST												
Loaf volume, cm ³	1047	984	922	840	977	-	1042	954	898	917	789	-
Evaluation (see page 72)	0	0	0	0	0	-	0	0	0	0	0	-

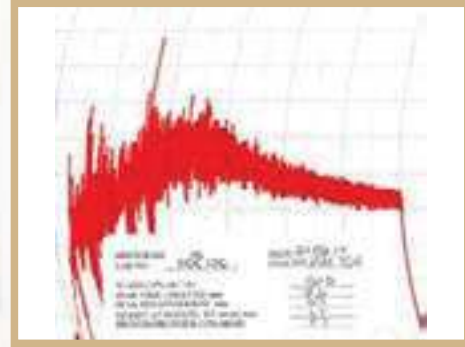
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

3

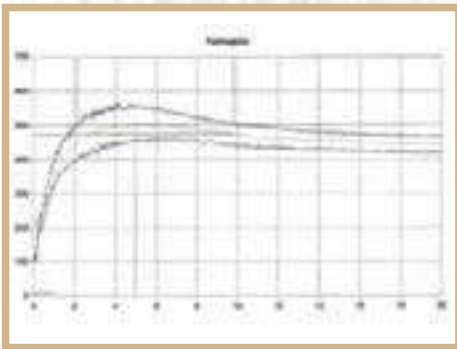


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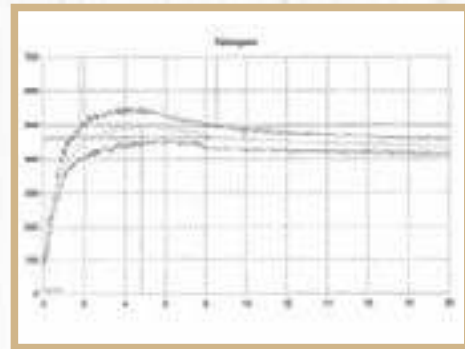


FARINOGRAM

3

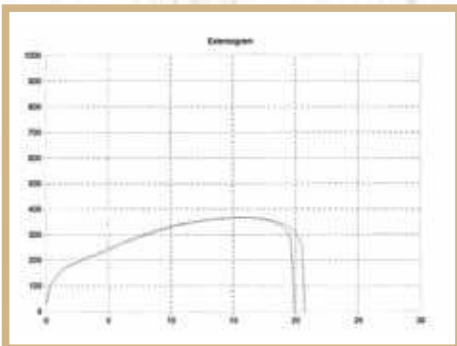


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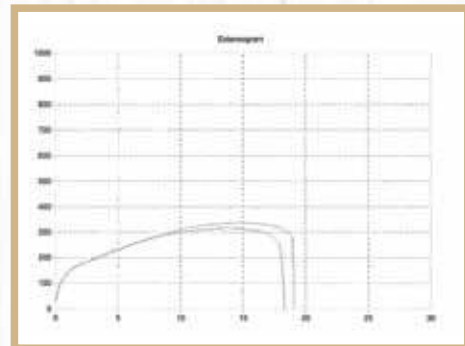


EXTENSOGRAM

3

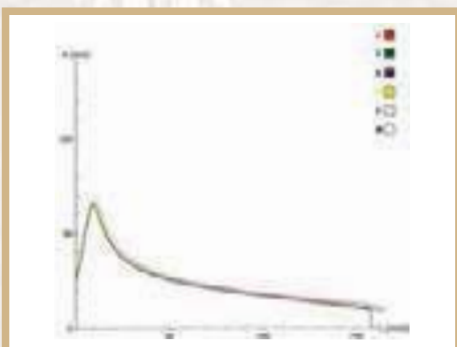


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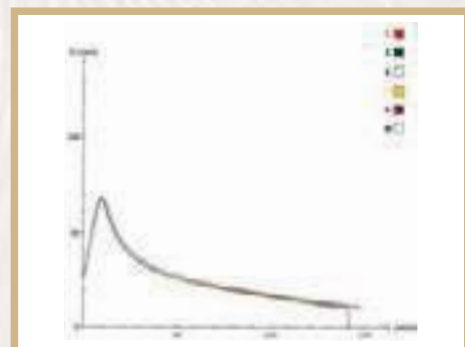


ALVEOGRAM

3



4



South African Quality data per production region

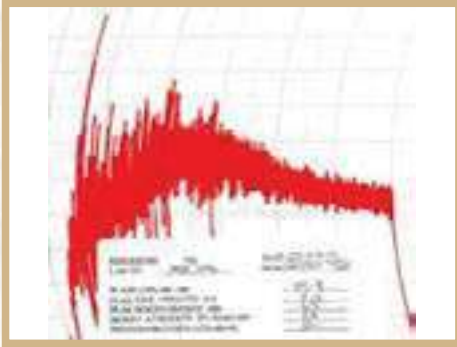
WINTER RAINFALL WHEAT

PRODUCTION REGION	(5) Rûens Western Region				(6) Rûens Eastern Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.2	9.3	13.0	1.01	11.3	9.2	13.2	1.07				
Falling number, sec	359	317	391	22.37	343	294	400	21.25				
1000 Kernel mass (13% mb), g	40.6	35.7	47.7	2.89	43.1	39.7	49.2	2.28				
Hectolitre mass (dirty), kg/hl	80.6	78.4	82.6	1.06	80.8	78.4	82.5	1.17				
Screenings (<1.8 mm sieve), %	1.30	0.18	3.69	1.01	1.45	0.33	3.92	0.83				
Total damaged kernels, %	0.90	0.10	2.90	0.87	1.04	0.08	4.54	0.88				
Combined deviations, %	2.77	1.01	7.01	1.64	3.44	0.95	9.60	1.69				
Number of samples	20				24							
CULTIVARS												
	SST 015				SST 087							
	SST 087				SST 015							
cultivars with highest % occurrence	SST 056				SST 88							
	SST 88				SST 056							
	SST 047 and SST 096 both				SST 096							
Number of samples	20				24							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.5	2.2	3.0	0.24	2.3	1.9	2.6	0.20				
Tail height (6 min), mm	47	42	52	3.17	47	42	60	4.01				
Number of samples	20				24							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.0	71.5	72.2	72.1	71.6	-	72.9	72.7	72.6	72.7	72.0	-
FLOUR												
Protein (12% mb), %	11.7	10.8	10.1	8.7	10.3	-	11.8	10.4	9.6	9.7	9.2	-
Ash (db), %	0.59	0.55	0.58	0.59	0.62	-	0.58	0.57	0.58	0.60	0.60	-
Colour, KJ (wet)	-3.8	-4.0	-3.7	-3.8	-4.0	-	-4.0	-3.8	-3.8	-3.7	-4.0	-
Colour, Minolta CM5 (dry)												
L*	93.79	94.18	93.84	93.82	94.11	-	94.03	93.76	93.89	93.65	93.92	-
a*	0.54	0.42	0.50	0.44	0.41	-	0.47	0.53	0.57	0.49	0.39	-
b*	10.78	10.33	10.64	11.65	9.75	-	9.27	10.22	9.49	10.97	9.60	-
RVA												
Peak Viscosity, cP	2163	2207	2195	2237	2281	-	2110	2242	2203	2213	2335	-
Minimum viscosity (Through), cP	1567	1626	1578	1760	1639	-	1591	1779	1699	1706	1802	-
Final Viscosity, cP	2516	2631	2557	2663	2646	-	2516	2602	2589	2572	2777	-
Peak Time, min	7.00	7.00	7.00	7.00	7.00	-	7.00	7.00	7.00	7.00	7.00	-
GLUTEN												
Wet gluten (14% mb), %	31.7	29.1	27.9	22.5	28.8	-	34.2	28.7	26.3	26.4	24.9	-
Dry gluten (14% mb), %	11.0	10.0	9.4	7.9	9.8	-	11.7	9.4	8.9	8.7	8.3	-
Gluten Index	97	96	96	95	95	-	88	92	93	91	89	-
FARINOGRAM												
Water absorption (14% mb), %	61.3	60.7	59.8	57.3	59.4	-	62.5	60.4	60.2	59.7	59.9	-
Development time, min	5.0	4.4	3.8	2.7	3.5	-	4.7	3.2	2.8	2.7	2.3	-
Stability, min	7.7	6.9	5.4	4.8	6.4	-	6.0	4.6	3.7	4.5	3.7	-
Mixing tolerance index, BU	35	36	50	51	36	-	46	52	59	59	57	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	94	97	85	68	82	-	75	65	55	64	53	-
Maximum height, BU	341	351	321	296	304	-	259	256	227	274	228	-
Extensibility, mm	194	197	186	159	188	-	199	173	161	159	155	-
ALVEOGRAM												
Strength (S), cm ²	36.7	29.1	31.0	24.0	33.0	-	33.9	27.9	24.8	27.8	25.8	-
Stability (P), mm	75	71	73	64	73	-	74	66	70	71	71	-
Distensibility (L), mm	151	122	130	113	128	-	148	138	107	121	117	-
Configuration ratio (P/L)	0.50	0.58	0.56	0.57	0.57	-	0.50	0.48	0.65	0.59	0.61	-
MIXOGRAM												
Peak time, min	2.2	2.4	2.3	2.4	2.4	-	1.9	2.2	2.1	2.2	2.0	-
100g BAKING TEST												
Loaf volume, cm ³	1072	1007	942	879	-	-	1078	963	919	901	903	-
Evaluation (see page 72)	0	0	0	0	-	-	0	0	0	0	0	-

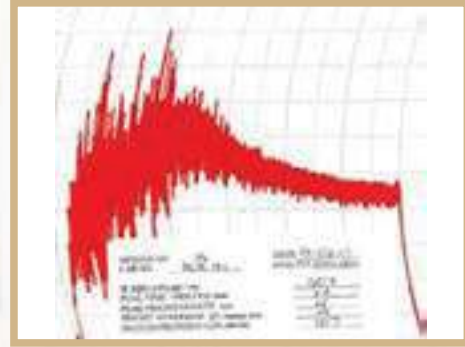
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

5

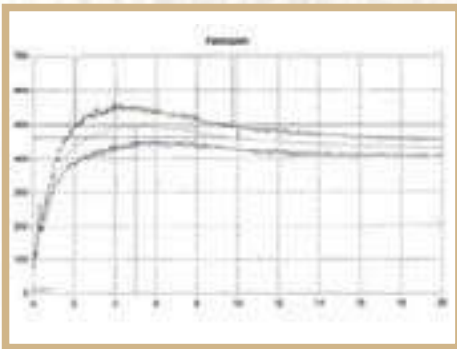


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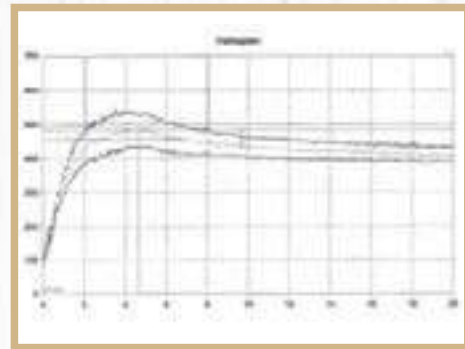


FARINOGRAM

5

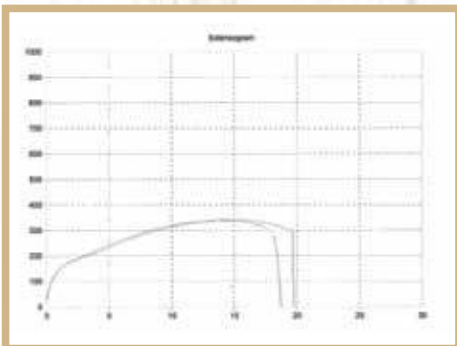


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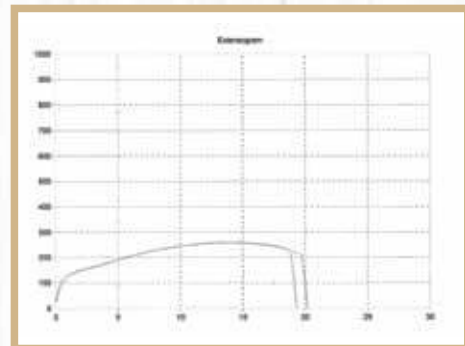


EXTENSOGRAM

5

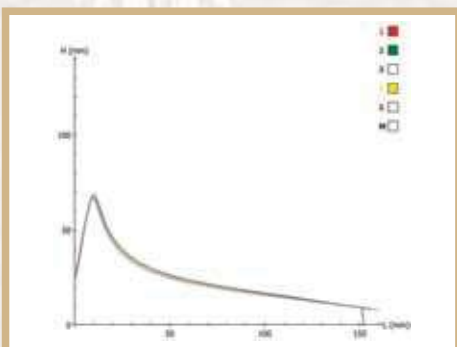


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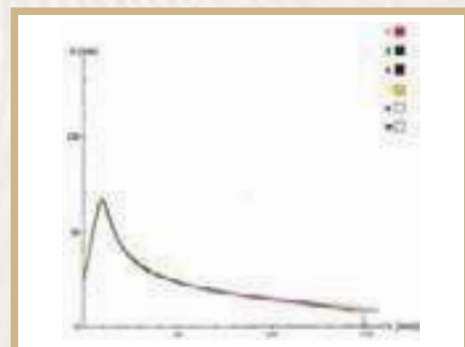


ALVEOGRAM

5



6



South African Quality data per production region

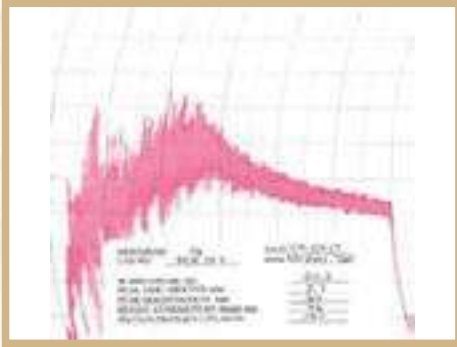
IRRIGATION WHEAT

PRODUCTION REGION	(10) Griqualand-West Region					(11) Vaalharts Region						
WHEAT												
	ave	min	max	stdev		ave	min	max	stdev			
Protein (12% mb), %	12.0	9.3	13.0	0.82		12.6	11.2	13.5	0.76			
Falling number, sec	361	332	494	27.53		397	362	450	34.28			
1000 Kernel mass (13% mb), g	38.1	30.6	43.9	2.51		39.5	33.4	43.2	3.48			
Hectolitre mass (dirty), kg/hl	84.3	81.3	86.0	1.25		81.2	74.5	83.5	3.33			
Screenings (<1.8 mm sieve), %	1.43	0.14	4.54	1.02		2.07	0.39	7.39	2.67			
Total damaged kernels, %	0.39	0.06	1.80	0.38		0.53	0.18	0.90	0.29			
Combined deviations, %	2.34	0.34	6.32	1.34		3.33	0.94	11.01	3.82			
Number of samples	38					6						
CULTIVARS												
	SST 875				32.1	PAN 3471				36.3		
cultivars with highest % occurrence	SST 884				29.6	SST 875				28.0		
	PAN 3471				26.2	SST 884				19.7		
	SST 835				4.0	SST 843				5.2		
	PAN 3400				3.4	PAN 3400				4.7		
Number of samples	38					6						
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev		ave	min	max	stdev			
Peak time, min	2.7	2.0	4.2	0.43		2.7	2.4	3.3	0.30			
Tail height (6 min), mm	44	35	51	3.76		48	45	51	1.97			
Number of samples	38					6						
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.0	73.3	74.2	74.0	74.7	-	73.8	75.1	-	-	-	73.1
FLOUR												
Protein (12% mb), %	11.6	10.5	9.5	9.6	11.0	-	11.8	10.9	-	-	-	12.6
Ash (db), %	0.61	0.63	0.62	0.61	0.64	-	0.60	0.59	-	-	-	0.62
Colour, KJ (wet)	-4.2	-4.2	-4.3	-4.3	-4.2	-	-4.1	-4.1	-	-	-	-3.4
Colour, Minolta CM5 (dry)												
L*	93.94	93.88	94.01	94.21	93.79	-	93.90	93.72	-	-	-	93.38
a*	0.55	0.53	0.50	0.43	0.52	-	0.48	0.48	-	-	-	0.44
b*	9.86	9.83	10.27	9.62	9.67	-	9.70	10.49	-	-	-	10.15
RVA												
Peak Viscosity, cP	2499	2501	2423	2714	2517	-	2375	2327	-	-	-	2430
Minimum viscosity (Through), cP	1873	1871	1917	2077	1958	-	1713	1782	-	-	-	1873
Final Viscosity, cP	2801	2761	2755	3042	2769	-	2668	2575	-	-	-	2595
Peak Time, min	7.00	7.00	7.00	7.00	7.00	-	7.00	7.00	-	-	-	7.00
GLUTEN												
Wet gluten (14% mb), %	32.2	30.6	25.7	25.0	31.1	-	32.1	29.7	-	-	-	34.3
Dry gluten (14% mb), %	11.2	10.0	8.6	8.5	10.5	-	11.0	10.2	-	-	-	12.0
Gluten Index	97	94	97	99	95	-	94	96	-	-	-	96
FARINOGRAM												
Water absorption (14% mb), %	60.7	60.4	57.8	56.3	58.1	-	60.0	58.0	-	-	-	59.7
Development time, min	5.7	5.8	5.5	3.5	4.8	-	5.2	4.3	-	-	-	6.5
Stability, min	7.7	7.3	7.0	8.0	5.7	-	7.7	6.1	-	-	-	9.3
Mixing tolerance index, BU	38	39	49	29	52	-	38	44	-	-	-	34
EXTENSOGRAM (45 min pull)												
Area, cm ²	109	108	86	90	104	-	115	90	-	-	-	126
Maximum height, BU	409	416	373	409	408	-	394	326	-	-	-	420
Extensibility, mm	196	191	166	160	185	-	215	195	-	-	-	217
ALVEOGRAM												
Strength (S), cm ²	39.5	35.2	30.1	32.4	34.0	-	39.4	31.0	-	-	-	37.8
Stability (P), mm	70	76	64	60	63	-	67	57	-	-	-	71
Distensibility (L), mm	155	117	127	152	148	-	169	153	-	-	-	120
Configuration ratio (P/L)	0.45	0.65	0.50	0.39	0.43	-	0.40	0.37	-	-	-	0.59
MIXOGRAM												
Peak time, min	2.3	2.5	2.8	3.0	2.4	-	2.5	2.3	-	-	-	2.9
100g BAKING TEST												
Loaf volume, cm ³	1141	994	976	1002	1115	-	1089	1076	-	-	-	1167
Evaluation (see page 72)	0	0	0	0	0	-	0	0	-	-	-	0

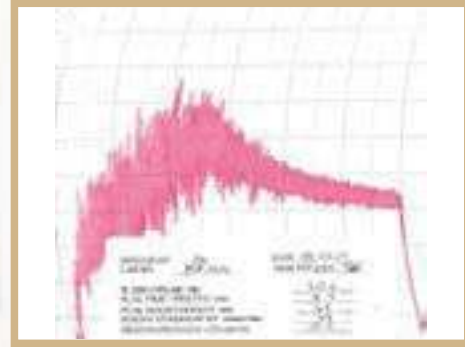
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

10

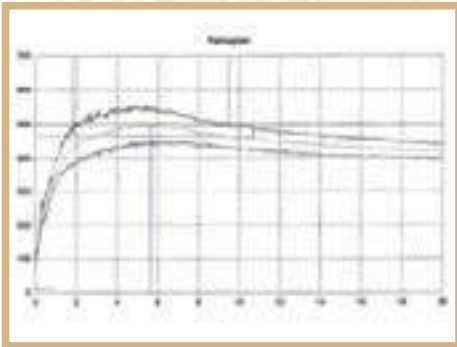


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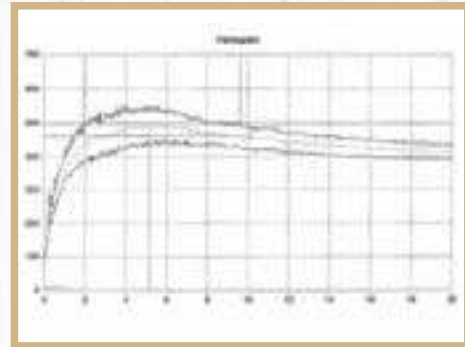


FARINOGRAM

10

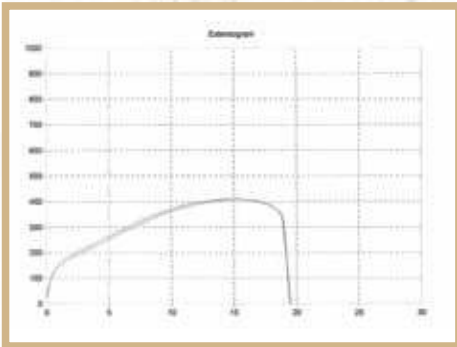


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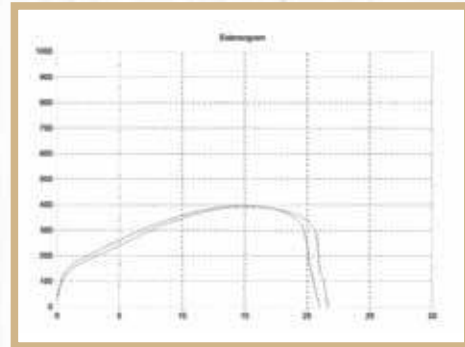


EXTENSOGRAM

10

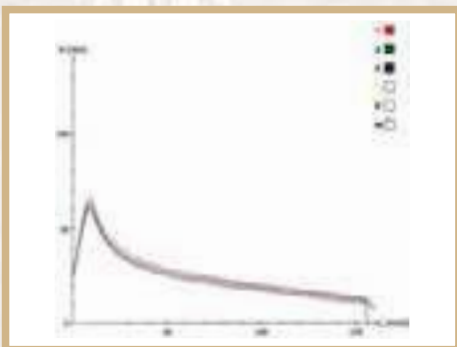


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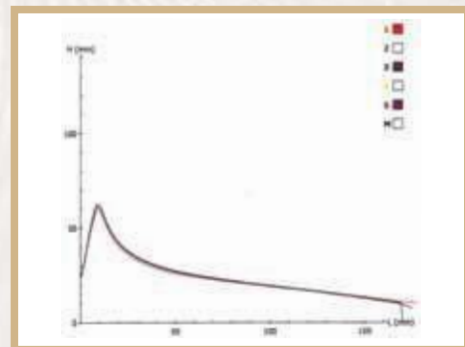


ALVEOGRAM

10



11



40

South African Quality data per production region

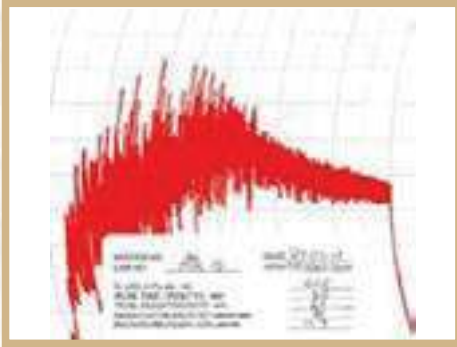
IRRIGATION WHEAT

PRODUCTION REGION	(12) North-West Western Region				(14) North-West Southern Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.8	11.9	14.3	1.05	13.0	11.8	14.7	0.84				
Falling number, sec	360	299	401	46.35	371	355	408	17.22				
1000 Kernel mass (13% mb), g	36.2	32.6	44.6	5.63	37.0	32.0	41.4	2.89				
Hectolitre mass (dirty), kg/hl	82.1	79.7	84.6	2.44	82.9	81.1	85.6	1.32				
Screenings (<1.8 mm sieve), %	2.28	0.25	3.58	1.43	1.54	0.38	2.22	0.65				
Total damaged kernels, %	0.85	0.28	1.68	0.66	0.32	0.14	0.44	0.10				
Combined deviations, %	3.50	1.65	4.88	1.37	2.31	1.12	3.12	0.70				
Number of samples	4				8							
CULTIVARS												
	SST 875 27.5				SST 884 41.9							
cultivars	PAN 3471 25.0				SST 843 20.0							
with highest %	SST 835 18.3				SST 875 14.6							
occurrence	SST 884 15.8				KROKODIL 14.3							
	DUZI 7.3				SST 835 5.4							
Number of samples	4				8							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.1	2.5	3.4	0.40	2.6	1.9	2.9	0.31				
Tail height (6 min), mm	50	48	51	1.73	51	49	52	1.04				
Number of samples	4				8							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	73.3	-	-	74.0	-	-	71.2	72.3	-	-	-	-
FLOUR												
Protein (12% mb), %	12.2	-	-	10.8	-	-	12.3	11.1	-	-	-	-
Ash (db), %	0.60	-	-	0.59	-	-	0.60	0.67	-	-	-	-
Colour, KJ (wet)	-3.5	-	-	-4.0	-	-	-3.9	-4.1	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.45	-	-	94.03	-	-	93.70	93.69	-	-	-	-
a*	0.48	-	-	0.46	-	-	0.48	0.56	-	-	-	-
b*	10.16	-	-	9.43	-	-	9.54	9.70	-	-	-	-
RVA												
Peak Viscosity, cP	2388	-	-	2740	-	-	2224	2392	-	-	-	-
Minimum viscosity (Through), cP	1765	-	-	2086	-	-	1699	1794	-	-	-	-
Final Viscosity, cP	2722	-	-	3052	-	-	2458	2630	-	-	-	-
Peak Time, min	7.00	-	-	7.00	-	-	7.00	7.00	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	32.8	-	-	27.8	-	-	35.2	32.4	-	-	-	-
Dry gluten (14% mb), %	11.2	-	-	10.1	-	-	12.1	10.7	-	-	-	-
Gluten Index	95	-	-	99	-	-	97	92	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	60.3	-	-	57.0	-	-	61.8	61.3	-	-	-	-
Development time, min	6.5	-	-	6.5	-	-	5.7	6.3	-	-	-	-
Stability, min	9.4	-	-	10.3	-	-	8.1	8.0	-	-	-	-
Mixing tolerance index, BU	33	-	-	32	-	-	37	41	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	123	-	-	147	-	-	94	102	-	-	-	-
Maximum height, BU	406	-	-	540	-	-	347	433	-	-	-	-
Extensibility, mm	222	-	-	203	-	-	190	173	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	41.0	-	-	41.8	-	-	41.5	34.3	-	-	-	-
Stability (P), mm	68	-	-	63	-	-	77	92	-	-	-	-
Distensibility (L), mm	170	-	-	173	-	-	144	80	-	-	-	-
Configuration ratio (P/L)	0.40	-	-	0.36	-	-	0.53	1.15	-	-	-	-
MIXOGRAM												
Peak time, min	2.8	-	-	3.1	-	-	2.4	2.5	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1159	-	-	1112	-	-	1131	1017	-	-	-	-
Evaluation (see page 72)	0	-	-	0	-	-	0	0	-	-	-	-

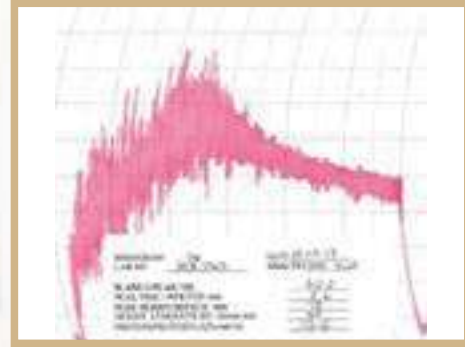
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

12

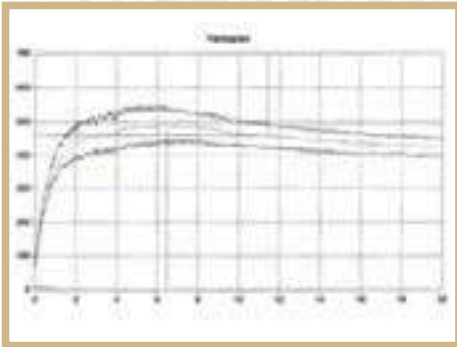


14

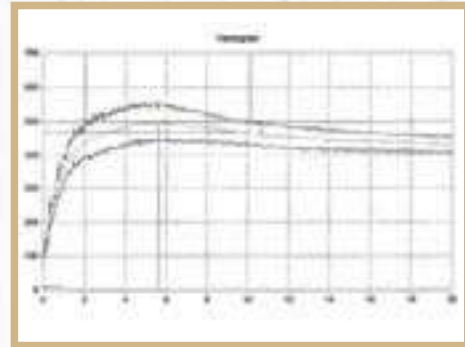


FARINOGRAM

12

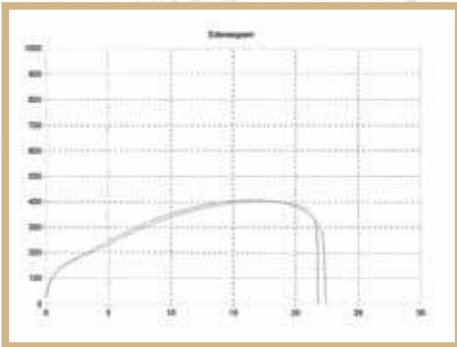


14

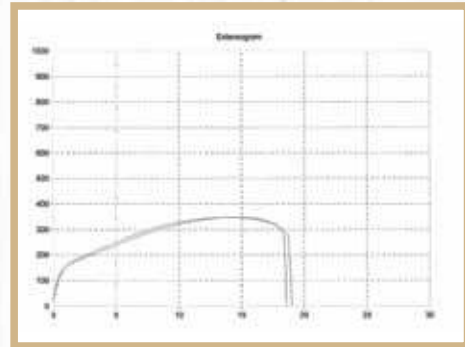


EXTENSOGRAM

12

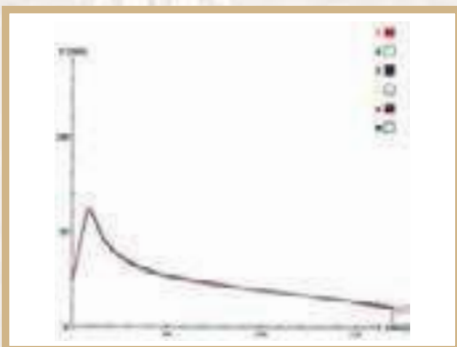


14

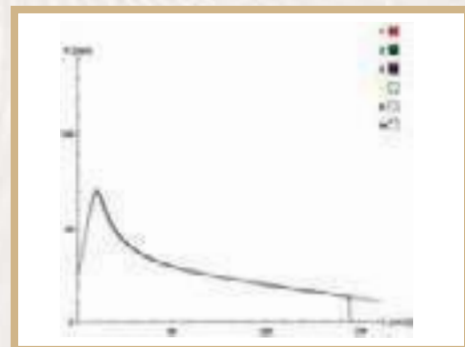


ALVEOGRAM

12



14



South African Quality data per production region

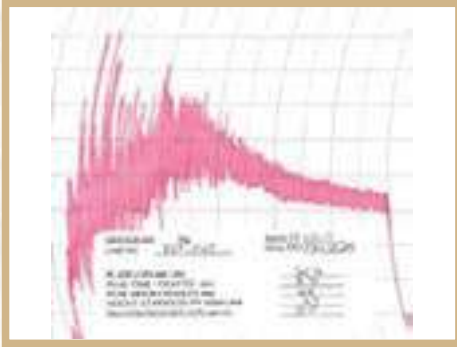
IRRIGATION WHEAT

PRODUCTION REGION	(17) North-West Central Northern Region (Ottosdal)				(19) North-West Central Region (Lichtenburg)							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.4	11.0	12.1	0.51	12.3	9.5	13.9	1.27				
Falling number, sec	373	349	387	17.29	388	315	555	57.80				
1000 Kernel mass (13% mb), g	43.2	41.1	44.9	1.58	38.4	33.0	43.7	3.54				
Hectolitre mass (dirty), kg/hl	81.4	80.6	82.3	0.76	81.9	79.4	85.9	1.74				
Screenings (<1.8 mm sieve), %	1.08	0.68	1.70	0.44	1.27	0.33	2.16	0.63				
Total damaged kernels, %	1.60	0.40	2.42	0.99	0.77	0.24	1.46	0.45				
Combined deviations, %	3.05	1.83	4.54	1.25	2.55	1.77	3.04	0.40				
Number of samples	4				13							
CULTIVARS												
	SST 884 24.0				SST 884 35.5							
cultivars	SST 875 16.5				SST 843 31.5							
with highest %	SST 835 15.5				SST 875 19.0							
occurrence	SST 895 14.5				SST 835 3.9							
	SST 087 9.0				KROKODIL 3.2							
Number of samples	4				13							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.5	2.4	2.7	0.14	3.2	2.3	4.5	0.80				
Tail height (6 min), mm	48	46	50	1.83	49	42	58	5.87				
Number of samples	4				13							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.9	73.7	-	-	73.3	-	72.7	73.0	-	76.7	-	-
FLOUR												
Protein (12% mb), %	10.3	10.8	-	-	10.3	-	12.1	10.8	-	8.5	-	-
Ash (db), %	0.65	0.63	-	-	0.58	-	0.60	0.64	-	0.60	-	-
Colour, KJ (wet)	-3.8	-3.9	-	-	-3.8	-	-3.8	-4.1	-	-4.1	-	-
Colour, Minolta CM5 (dry)												
L*	93.69	93.69	-	-	93.84	-	93.85	93.88	-	93.90	-	-
a*	0.51	0.48	-	-	0.39	-	0.45	0.48	-	0.46	-	-
b*	9.79	9.77	-	-	9.80	-	9.20	9.56	-	10.95	-	-
RVA												
Peak Viscosity, cP	2349	2545	-	-	2244	-	2696	2399	-	2508	-	-
Minimum viscosity (Through), cP	1754	1947	-	-	1711	-	1992	1761	-	2177	-	-
Final Viscosity, cP	2631	2789	-	-	2619	-	2938	2666	-	2847	-	-
Peak Time, min	7.00	7.00	-	-	7.00	-	7.00	7.00	-	6.80	-	-
GLUTEN												
Wet gluten (14% mb), %	31.7	29.4	-	-	28.5	-	31.3	29.2	-	23.3	-	-
Dry gluten (14% mb), %	10.9	10.1	-	-	9.6	-	10.9	9.9	-	7.4	-	-
Gluten Index	94	98	-	-	96	-	97	96	-	96	-	-
FARINOGRAM												
Water absorption (14% mb), %	60.7	58.9	-	-	60.3	-	59.9	59.4	-	55.0	-	-
Development time, min	5.0	5.8	-	-	3.6	-	7.3	5.5	-	2.2	-	-
Stability, min	6.7	7.8	-	-	5.4	-	10.9	8.3	-	4.3	-	-
Mixing tolerance index, BU	46	42	-	-	46	-	33	36	-	71	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	95	101	-	-	73	-	143	115	-	-	-	-
Maximum height, BU	349	408	-	-	289	-	487	432	-	-	-	-
Extensibility, mm	191	181	-	-	171	-	216	195	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	39.0	36.9	-	-	29.4	-	48.0	38.8	-	22.2	-	-
Stability (P), mm	83	73	-	-	70	-	74	72	-	52	-	-
Distensibility (L), mm	121	120	-	-	128	-	160	140	-	121	-	-
Configuration ratio (P/L)	0.69	0.61	-	-	0.55	-	0.46	0.51	-	0.43	-	-
MIXOGRAM												
Peak time, min	2.3	2.8	-	-	2.3	-	3.3	2.8	-	2.8	-	-
100g BAKING TEST												
Loaf volume, cm ³	1043	1033	-	-	985	-	1151	1015	-	960	-	-
Evaluation (see page 72)	0	0	-	-	0	-	0	0	-	0	-	-

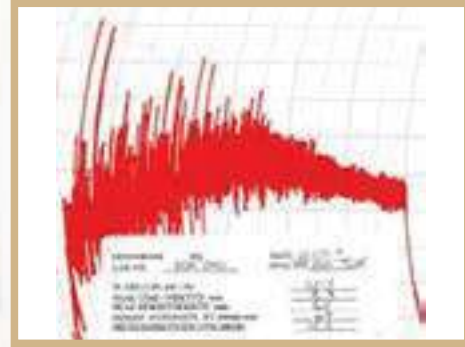
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

17

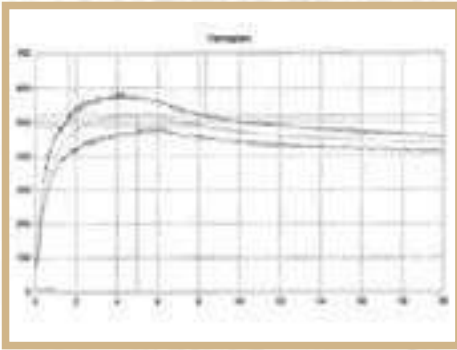


19

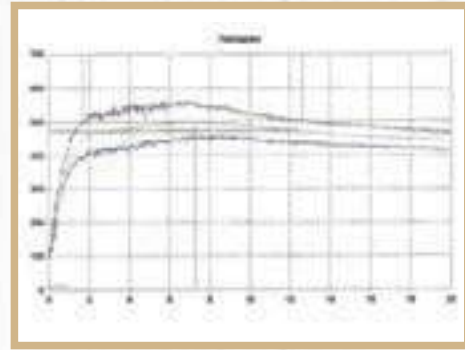


FARINOGRAM

17

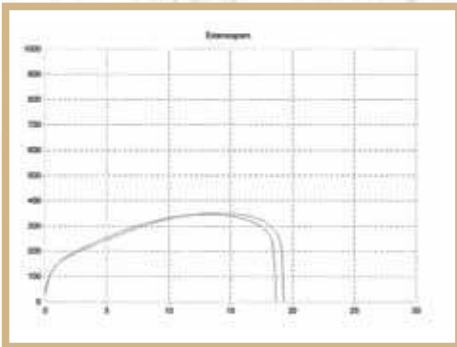


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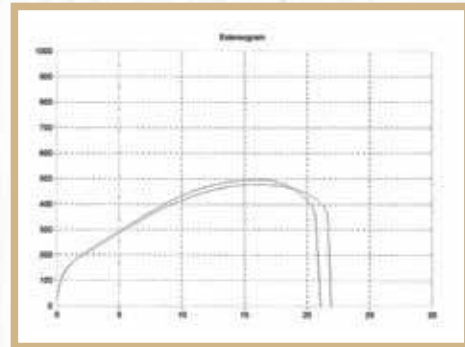


EXTENSOGRAM

17

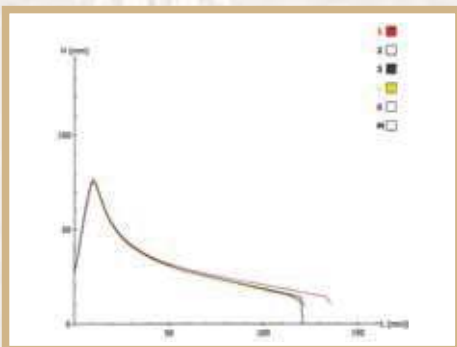


19

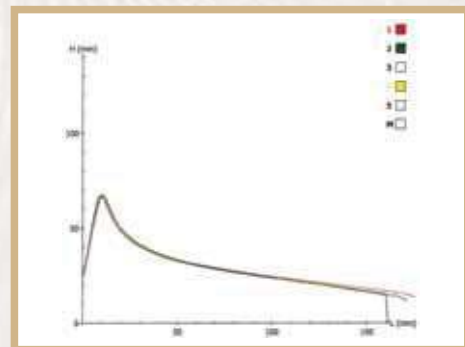


ALVEOGRAM

17



19



South African Quality data per production region

IRRIGATION WHEAT

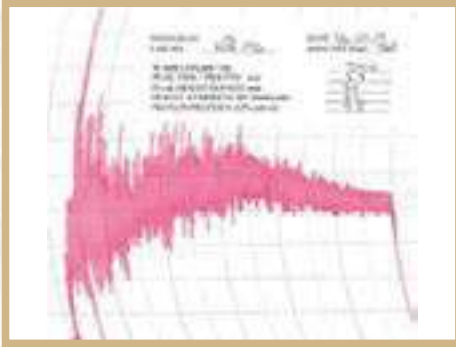
SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(20) North-West Eastern Region				(22) Free-State North-Western Region (Bothaville)							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.2	9.5	14.7	1.26	15.8	13.2	17.3	2.24				
Falling number, sec	373	315	493	50.94	349	310	399	45.39				
1000 Kernel mass (13% mb), g	37.6	31.1	42.6	3.47	37.0	35.0	38.7	1.87				
Hectolitre mass (dirty), kg/hl	81.7	76.3	84.9	2.06	78.7	77.2	80.7	1.79				
Screenings (<1.8 mm sieve), %	2.18	0.51	8.54	1.96	1.87	1.01	3.30	1.24				
Total damaged kernels, %	0.54	0.12	1.30	0.34	1.45	1.12	2.00	0.48				
Combined deviations, %	3.33	1.31	11.02	2.32	4.01	2.43	5.92	1.77				
Number of samples	15				3							
CULTIVARS												
		SST 843	35.3			PAN 3161	33.3					
cultivars with highest % occurrence		SST 884	16.7			SST 387	33.3					
		SST 875	14.7			SST 875	20.3					
		SST 835	13.5			PAN 3471	13.0					
		DUZI	11.9									
Number of samples	15				3							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.4	2.4	4.4	0.60	2.7	2.4	2.9	0.29				
Tail height (6 min), mm	47	10	60	11.12	53	49	57	4.04				
Number of samples	15				3							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	73.4	74.7	74.3	74.0	-	-	72.9	-	-	-	70.9	-
FLOUR												
Protein (12% mb), %	12.3	10.5	9.7	10.5	-	-	13.8	-	-	-	15.8	-
Ash (db), %	0.57	0.55	0.61	0.63	-	-	0.58	-	-	-	0.64	-
Colour, KJ (wet)	-3.8	-4.0	-4.0	-4.1	-	-	-3.5	-	-	-	-2.7	-
Colour, Minolta CM5 (dry)												
L*	93.71	93.81	93.75	93.94	-	-	93.36	-	-	-	92.63	-
a*	0.44	0.44	0.46	0.45	-	-	0.49	-	-	-	0.48	-
b*	9.68	9.99	10.70	9.91	-	-	10.79	-	-	-	10.28	-
RVA												
Peak Viscosity, cP	2482	2328	2520	2489	-	-	2191	-	-	-	2039	-
Minimum viscosity (Through), cP	1868	1801	1947	1908	-	-	1640	-	-	-	1519	-
Final Viscosity, cP	2746	2572	2885	2835	-	-	2361	-	-	-	2222	-
Peak Time, min	7.00	7.00	7.00	7.00	-	-	7.00	-	-	-	7.00	-
GLUTEN												
Wet gluten (14% mb), %	31.3	28.2	25.5	21.8	-	-	38.7	-	-	-	45.5	-
Dry gluten (14% mb), %	11.2	10.0	8.6	7.1	-	-	13.1	-	-	-	15.5	-
Gluten Index	99	97	96	94	-	-	93	-	-	-	85	-
FARINOGRAM												
Water absorption (14% mb), %	58.9	57.6	56.2	54.2	-	-	63.4	-	-	-	65.3	-
Development time, min	7.7	5.2	4.9	1.7	-	-	5.7	-	-	-	9.3	-
Stability, min	14.4	7.0	7.1	6.7	-	-	8.7	-	-	-	15.8	-
Mixing tolerance index, BU	21	48	45	27	-	-	25	-	-	-	15	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	153	88	89	76	-	-	114	-	-	-	141	-
Maximum height, BU	493	349	356	371	-	-	351	-	-	-	385	-
Extensibility, mm	231	179	179	144	-	-	236	-	-	-	269	-
ALVEOGRAM												
Strength (S), cm ²	52.0	32.5	28.9	23.9	-	-	46.6	-	-	-	59.5	-
Stability (P), mm	70	56	56	56	-	-	71	-	-	-	89	-
Distensibility (L), mm	180	170	145	120	-	-	178	-	-	-	144	-
Configuration ratio (P/L)	0.39	0.33	0.39	0.47	-	-	0.40	-	-	-	0.62	-
MIXOGRAM												
Peak time, min	3.4	3.0	2.9	3.4	-	-	2.4	-	-	-	2.6	-
100g BAKING TEST												
Loaf volume, cm ³	1164	1056	1026	855	-	-	1151	-	-	-	1270	-
Evaluation (see page 72)	0	0	0	0	-	-	0	-	-	-	0	-

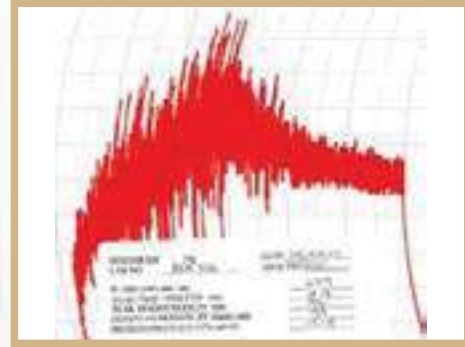
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

20

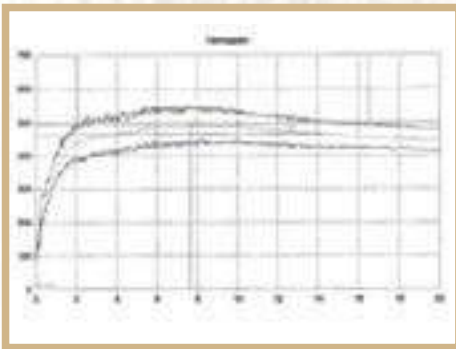


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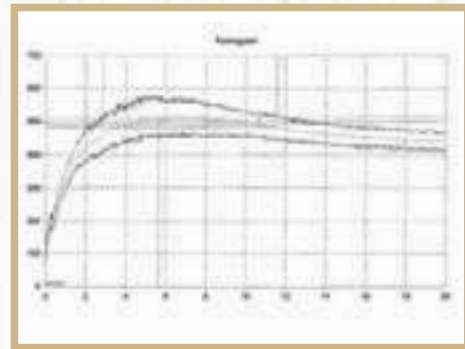


FARINOGRAM

20

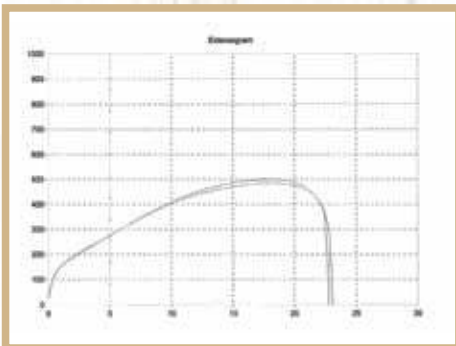


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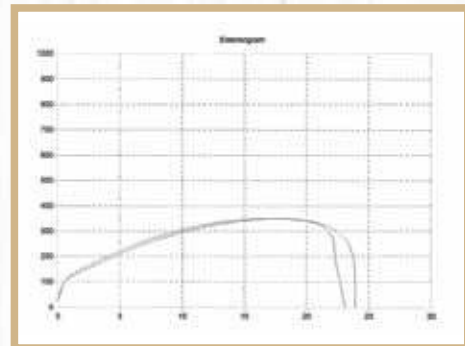


EXTENSOGRAM

20

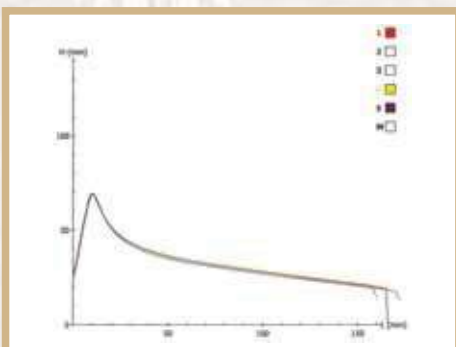


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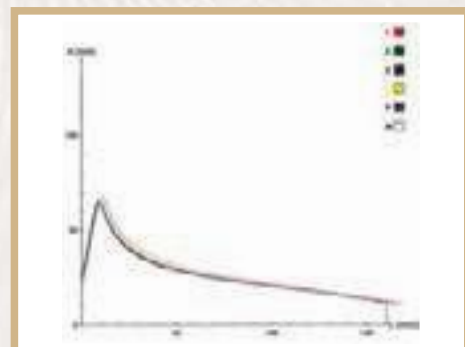


ALVEOGRAM

20



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South African Quality data per production region

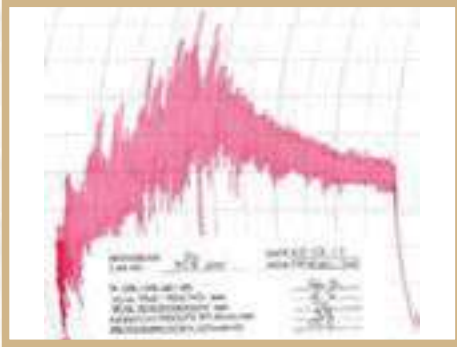
SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(23) Free State North-Western Region (Bultfontein)				(24) Free State Central Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	15.9	13.3	18.9	1.74	13.7	12.0	15.2	1.25				
Falling number, sec	309	237	411	58.00	347	290	446	55.05				
1000 Kernel mass (13% mb), g	32.4	27.8	38.1	3.81	33.1	25.5	39.4	3.77				
Hectolitre mass (dirty), kg/hl	77.1	74.3	79.3	1.61	82.0	81.3	82.8	0.55				
Screenings (<1.8 mm sieve), %	2.19	0.72	4.69	1.35	1.83	0.76	4.40	1.14				
Total damaged kernels, %	0.63	0.24	1.54	0.50	0.56	0.14	0.94	0.26				
Combined deviations, %	3.38	1.30	5.33	1.57	2.63	1.65	5.30	1.17				
Number of samples	9				8							
CULTIVARS												
	PAN 3161 24.1				PAN 3471 18.9							
cultivars	PAN 3120 23.8				SST 875 17.4							
with highest %	PAN 3118 14.0				PAN 3120 16.4							
occurrence	SST 387 9.8				PAN 3400 8.6							
	MATLABAS 7.4				SST 884 8.3							
Number of samples	9				8							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	2.8	2.0	3.6	0.54	2.7	2.2	3.0	0.25				
Tail height (6 min), mm	53	50	55	1.66	49	44	52	2.62				
Number of samples	9				8							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	70.4	67.2	68.4	69.9	70.2	-	71.9	-	-	-	72.3	-
FLOUR												
Protein (12% mb), %	15.1	16.9	17.0	12.5	13.8	-	11.3	-	-	-	12.6	-
Ash (db), %	0.58	0.64	0.65	0.60	0.60	-	0.61	-	-	-	0.61	-
Colour, KJ (wet)	-3.2	-2.5	-2.0	-3.2	-3.2	-	-3.9	-	-	-	-3.5	-
Colour, Minolta CM5 (dry)												
L*	92.81	92.28	92.17	93.10	93.23	-	93.74	-	-	-	93.38	-
a*	0.52	0.51	0.48	0.48	0.49	-	0.47	-	-	-	0.55	-
b*	10.58	10.90	9.94	10.45	10.42	-	9.96	-	-	-	10.09	-
RVA												
Peak Viscosity, cP	1769	1513	1280	2585	2477	-	2197	-	-	-	2457	-
Minimum viscosity (Through), cP	1506	1213	1113	2105	1884	-	1711	-	-	-	1899	-
Final Viscosity, cP	1964	1585	1407	2671	2767	-	2433	-	-	-	2639	-
Peak Time, min	7.00	7.00	6.60	7.00	7.00	-	7.00	-	-	-	7.00	-
GLUTEN												
Wet gluten (14% mb), %	42.1	51.1	49.5	33.6	37.0	-	32.1	-	-	-	34.8	-
Dry gluten (14% mb), %	15.4	17.4	16.6	11.7	12.8	-	11.1	-	-	-	11.8	-
Gluten Index	88	63	76	96	94	-	94	-	-	-	97	-
FARINOGRAM												
Water absorption (14% mb), %	64.6	67.9	68.5	60.1	61.2	-	60.4	-	-	-	59.5	-
Development time, min	8.0	9.0	8.5	6.8	6.3	-	5.0	-	-	-	5.7	-
Stability, min	11.0	15.9	15.3	15.9	11.8	-	5.8	-	-	-	9.3	-
Mixing tolerance index, BU	28	24	15	16	22	-	51	-	-	-	30	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	106	90	110	137	118	-	86	-	-	-	135	-
Maximum height, BU	329	295	322	524	384	-	313	-	-	-	468	-
Extensibility, mm	229	220	250	191	225	-	194	-	-	-	211	-
ALVEOGRAM												
Strength (S), cm ²	57.4	51.5	56.4	45.9	40.4	-	33.2	-	-	-	44.7	-
Stability (P), mm	88	94	107	88	78	-	69	-	-	-	74	-
Distensibility (L), mm	173	132	109	117	116	-	132	-	-	-	148	-
Configuration ratio (P/L)	0.51	0.71	0.98	0.75	0.67	-	0.52	-	-	-	0.50	-
MIXOGRAM												
Peak time, min	2.4	2.0	2.4	3.2	2.8	-	2.3	-	-	-	2.7	-
100g BAKING TEST												
Loaf volume, cm ³	1206	1221	1189	1108	1185	-	1079	-	-	-	1185	-
Evaluation (see page 72)	0	0	2	0	0	-	0	-	-	-	0	-

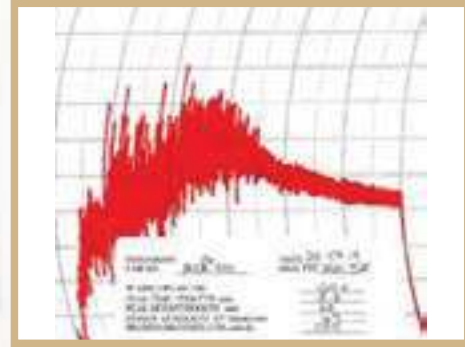
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

23

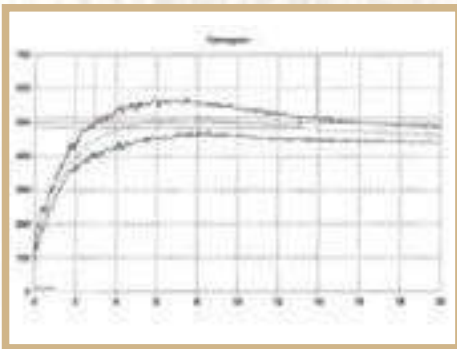


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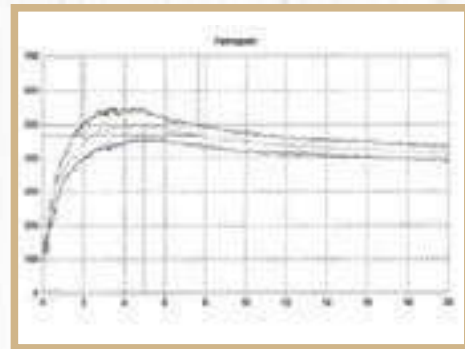


FARINOGRAM

23

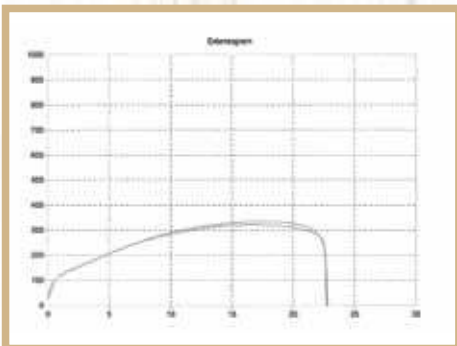


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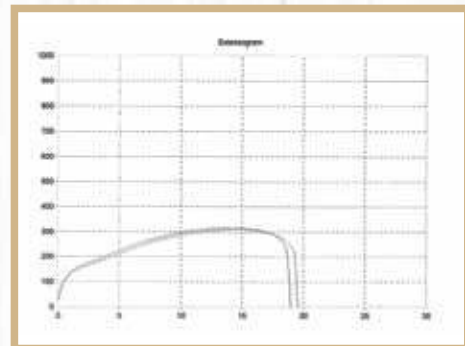


EXTENSOGRAM

23

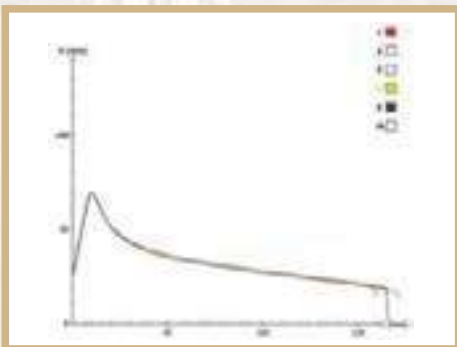


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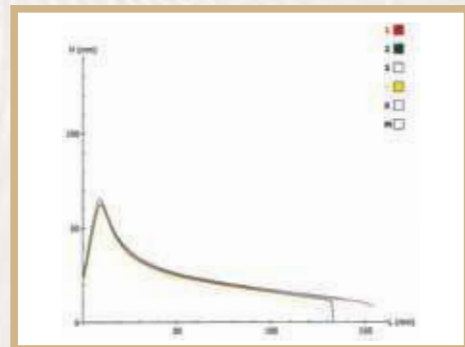


ALVEOGRAM

23



24



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South African Quality data per production region

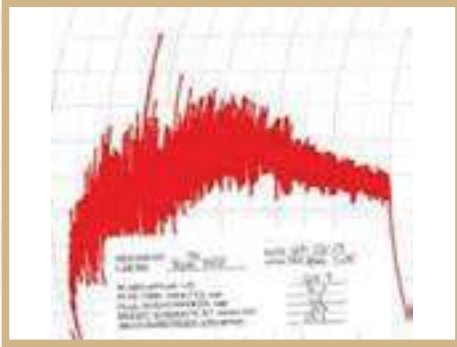
SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(25) Free State South-Western Region				(28) Free State Eastern Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	14.0	13.0	14.8	0.66	13.0	10.7	14.3	0.92				
Falling number, sec	293	128	379	76.94	327	256	367	41.28				
1000 Kernel mass (13% mb), g	37.5	31.0	40.7	3.13	37.3	31.5	42.4	3.07				
Hectolitre mass (dirty), kg/hl	78.9	74.5	82.0	2.50	80.1	75.9	83.6	2.68				
Screenings (<1.8 mm sieve), %	1.05	0.07	2.15	0.69	0.69	0.19	1.84	0.50				
Total damaged kernels, %	1.28	0.42	4.62	1.28	0.83	0.22	1.84	0.52				
Combined deviations, %	2.81	1.47	5.38	1.14	2.18	0.72	4.38	1.09				
Number of samples	11				10							
CULTIVARS												
	ELANDS 26.8				SST 875 24.8							
cultivars with highest % occurrence	PAN 3161 25.0				PAN 3471 13.2							
	SST 356 23.4				SST 356 12.9							
	MATLABAS 21.1				ELANDS 10.3							
	PAN 3471 3.1				SST 884 9.9							
Number of samples	11				10							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.3	3.0	3.7	0.25	3.4	2.6	4.0	0.45				
Tail height (6 min), mm	54	50	62	3.98	52	49	58	2.69				
Number of samples	11				10							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	71.4	-	70.1	-	-	-	73.8	-	72.3	-	-	-
FLOUR												
Protein (12% mb), %	13.0	-	12.9	-	-	-	12.4	-	10.5	-	-	-
Ash (db), %	0.56	-	0.55	-	-	-	0.55	-	0.52	-	-	-
Colour, KJ (wet)	-3.3	-	-2.6	-	-	-	-3.3	-	-3.1	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.44	-	93.06	-	-	-	93.40	-	93.52	-	-	-
a*	0.43	-	0.34	-	-	-	0.44	-	0.34	-	-	-
b*	10.11	-	10.59	-	-	-	9.62	-	10.53	-	-	-
RVA												
Peak Viscosity, cP	2000	-	1650	-	-	-	2224	-	1903	-	-	-
Minimum viscosity (Through), cP	1796	-	1454	-	-	-	1744	-	1569	-	-	-
Final Viscosity, cP	2234	-	1845	-	-	-	2434	-	2152	-	-	-
Peak Time, min	6.33	-	6.87	-	-	-	7.00	-	7.00	-	-	-
GLUTEN												
Wet gluten (14% mb), %	35.3	-	34.4	-	-	-	33.4	-	27.4	-	-	-
Dry gluten (14% mb), %	12.6	-	11.6	-	-	-	12.0	-	9.7	-	-	-
Gluten Index	95	-	97	-	-	-	98	-	99	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	63.2	-	61.9	-	-	-	61.1	-	58.6	-	-	-
Development time, min	7.9	-	7.5	-	-	-	7.3	-	6.2	-	-	-
Stability, min	12.7	-	12.5	-	-	-	11.1	-	10.3	-	-	-
Mixing tolerance index, BU	24	-	22	-	-	-	28	-	27	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	123	-	108	-	-	-	137	-	88	-	-	-
Maximum height, BU	431	-	379	-	-	-	441	-	361	-	-	-
Extensibility, mm	210	-	206	-	-	-	227	-	175	-	-	-
ALVEOGRAM												
Strength (S), cm ²	57.8	-	45.3	-	-	-	47.6	-	34.3	-	-	-
Stability (P), mm	102	-	86	-	-	-	78	-	78	-	-	-
Distensibility (L), mm	124	-	115	-	-	-	148	-	94	-	-	-
Configuration ratio (P/L)	0.82	-	0.75	-	-	-	0.53	-	0.83	-	-	-
MIXOGRAM												
Peak time, min	2.9	-	3.0	-	-	-	2.8	-	3.0	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1087	-	1129	-	-	-	1123	-	967	-	-	-
Evaluation (see page 72)	0	-	0	-	-	-	0	-	0	-	-	-

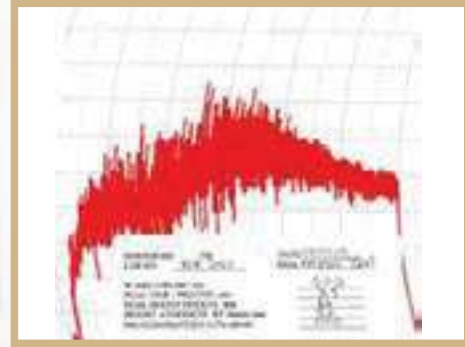
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

25

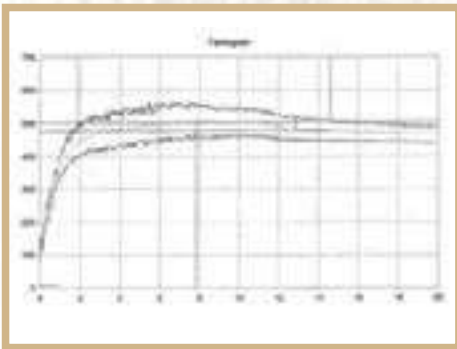


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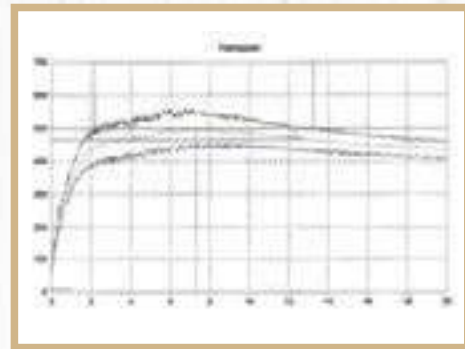


FARINOGRAM

25

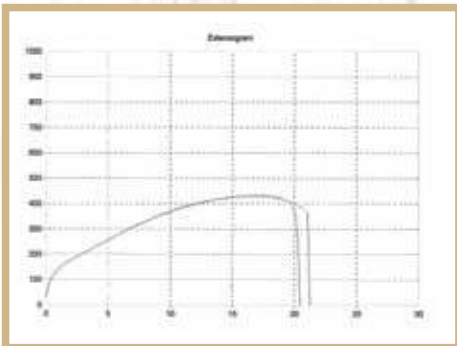


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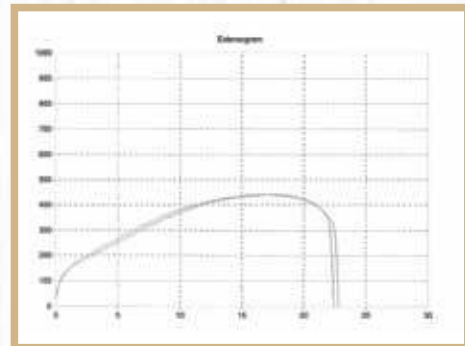


EXTENSOGRAM

25

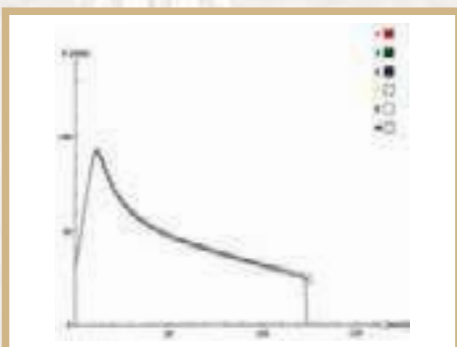


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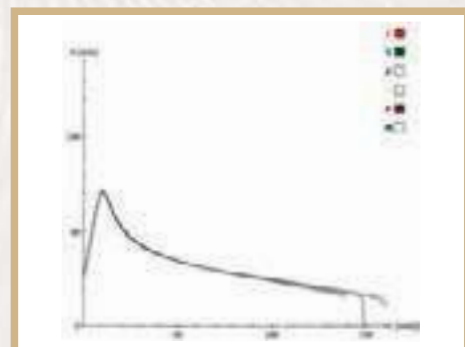


ALVEOGRAM

25



28



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South African Quality data per production region

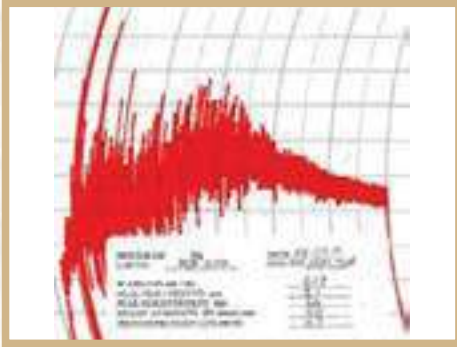
IRRIGATION WHEAT

PRODUCTION REGION	(29) Mpumalanga Southern Region				(32) Mpumalanga Western Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.7	-	-	-	13.5	12.7	14.5	0.91				
Falling number, sec	291	-	-	-	372	286	487	103.73				
1000 Kernel mass (13% mb), g	36.5	-	-	-	37.6	28.1	44.7	8.56				
Hectolitre mass (dirty), kg/hl	80.8	-	-	-	81.2	80.0	81.9	1.02				
Screenings (<1.8 mm sieve), %	2.43	-	-	-	3.32	0.03	9.32	5.20				
Total damaged kernels, %	0.82	-	-	-	0.52	0.28	0.72	0.22				
Combined deviations, %	4.03	-	-	-	4.55	1.21	10.34	5.03				
Number of samples	1				3							
CULTIVARS												
		SST 875	58.0		SST 875	52.0						
cultivars		SST 884	33.0		SST 835	20.3						
with highest %		SST 835	9.0		SABIE	9.7						
occurrence					PAN 3471	8.7						
					SST 884	6.7						
Number of samples	1				3							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.1	-	-	-	3.1	2.9	3.3	0.21				
Tail height (6 min), mm	50	-	-	-	51	51	51	0.00				
Number of samples	1				3							
	COMPOSITE SAMPLES											
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	72.8	-	-	-	-	-	76.3	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.4	-	-	-	-	-	12.1	-	-	-	-	-
Ash (db), %	0.60	-	-	-	-	-	0.55	-	-	-	-	-
Colour, KJ (wet)	-3.0	-	-	-	-	-	-3.6	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.63	-	-	-	-	-	93.64	-	-	-	-	-
a*	0.41	-	-	-	-	-	0.43	-	-	-	-	-
b*	9.06	-	-	-	-	-	9.51	-	-	-	-	-
RVA												
Peak Viscosity, cP	1997	-	-	-	-	-	2471	-	-	-	-	-
Minimum viscosity (Through), cP	1706	-	-	-	-	-	2034	-	-	-	-	-
Final Viscosity, cP	2103	-	-	-	-	-	2699	-	-	-	-	-
Peak Time, min	6.87	-	-	-	-	-	7.00	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	31.4	-	-	-	-	-	32.1	-	-	-	-	-
Dry gluten (14% mb), %	10.4	-	-	-	-	-	11.4	-	-	-	-	-
Gluten Index	95	-	-	-	-	-	97	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	58.9	-	-	-	-	-	59.8	-	-	-	-	-
Development time, min	6.0	-	-	-	-	-	7.4	-	-	-	-	-
Stability, min	8.2	-	-	-	-	-	9.3	-	-	-	-	-
Mixing tolerance index, BU	45	-	-	-	-	-	40	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	-	-	-	-	-	-	128	-	-	-	-	-
Maximum height, BU	-	-	-	-	-	-	417	-	-	-	-	-
Extensibility, mm	-	-	-	-	-	-	225	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	35.2	-	-	-	-	-	42.7	-	-	-	-	-
Stability (P), mm	64	-	-	-	-	-	67	-	-	-	-	-
Distensibility (L), mm	143	-	-	-	-	-	168	-	-	-	-	-
Configuration ratio (P/L)	0.45	-	-	-	-	-	0.40	-	-	-	-	-
MIXOGRAM												
Peak time, min	2.8	-	-	-	-	-	2.8	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1045	-	-	-	-	-	1130	-	-	-	-	-
Evaluation (see page 72)	0	-	-	-	-	-	0	-	-	-	-	-

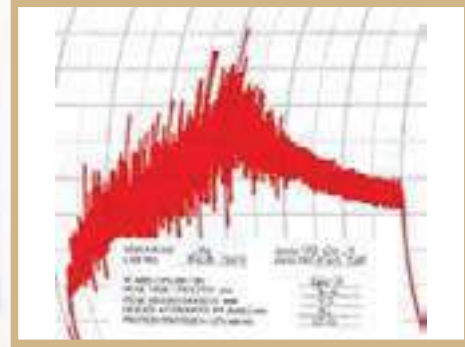
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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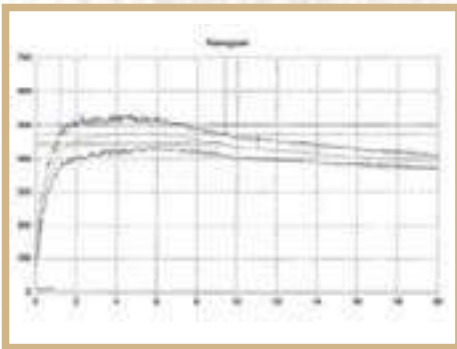


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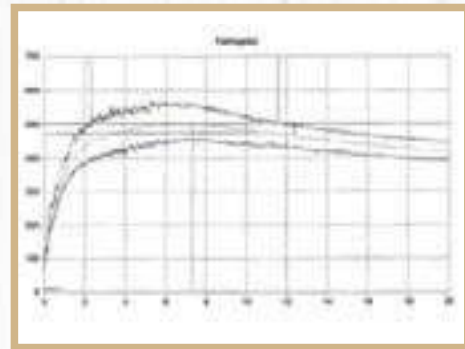


FARINOGRAM

29



32

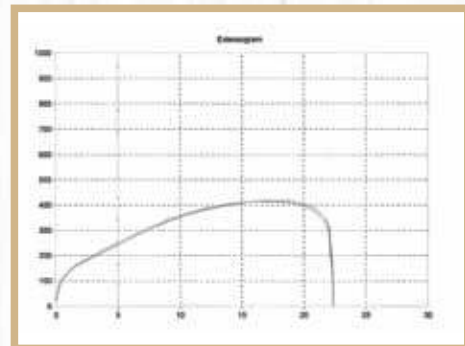


EXTENSOGRAM

29

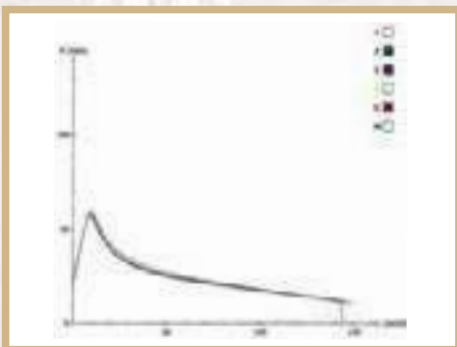


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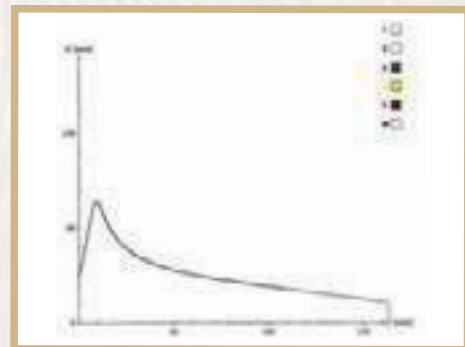


ALVEOGRAM

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South African Quality data per production region

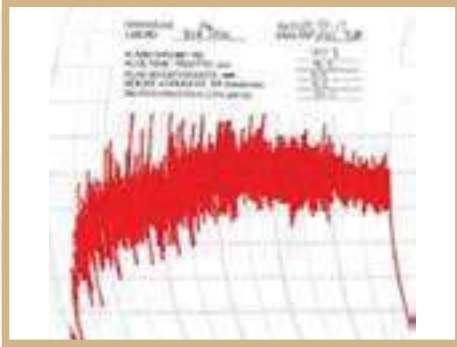
IRRIGATION WHEAT

PRODUCTION REGION	(33) Mpumalanga Northern Region				(34) Gauteng Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	12.2	10.6	13.5	0.83	13.2	12.6	13.9	0.64				
Falling number, sec	399	333	629	75.13	319	251	401	75.97				
1000 Kernel mass (13% mb), g	37.7	30.8	43.0	4.07	35.9	29.4	40.7	5.82				
Hectolitre mass (dirty), kg/hl	81.6	80.3	84.1	1.24	81.2	79.7	82.0	1.30				
Screenings (<1.8 mm sieve), %	1.04	0.33	2.96	0.80	1.57	0.49	3.52	1.69				
Total damaged kernels, %	0.80	0.10	2.56	0.64	1.30	0.24	2.52	1.15				
Combined deviations, %	2.25	1.27	4.62	1.00	3.38	2.48	4.08	0.82				
Number of samples	13				3							
CULTIVARS												
	SST 884 33.7				SST 875 62.0							
cultivars	SST 875 26.9				SST 843 17.3							
with highest %	DUZI 12.8				SST 884 12.3							
occurrence	SST 835 10.6				SST 835 5.0							
	SST 876 9.6				SST 876 3.3							
Number of samples	13				3							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.7	2.6	5.0	0.68	3.5	2.8	4.7	1.07				
Tail height (6 min), mm	51	45	57	3.46	52	48	58	5.29				
Number of samples	13				3							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.4	74.6	-	-	-	-	73.9	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.5	10.4	-	-	-	-	13.0	-	-	-	-	-
Ash (db), %	0.57	0.57	-	-	-	-	0.57	-	-	-	-	-
Colour, KJ (wet)	-3.5	-3.3	-	-	-	-	-3.1	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.40	93.22	-	-	-	-	93.38	-	-	-	-	-
a*	0.53	0.63	-	-	-	-	0.36	-	-	-	-	-
b*	10.16	10.30	-	-	-	-	9.03	-	-	-	-	-
RVA												
Peak Viscosity, cP	2550	2541	-	-	-	-	1762	-	-	-	-	-
Minimum viscosity (Through), cP	2003	2044	-	-	-	-	1540	-	-	-	-	-
Final Viscosity, cP	2866	2805	-	-	-	-	1891	-	-	-	-	-
Peak Time, min	7.00	7.00	-	-	-	-	6.67	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	30.0	26.6	-	-	-	-	35.0	-	-	-	-	-
Dry gluten (14% mb), %	10.7	9.5	-	-	-	-	12.3	-	-	-	-	-
Gluten Index	98	97	-	-	-	-	98	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	58.4	57.0	-	-	-	-	60.6	-	-	-	-	-
Development time, min	6.3	6.6	-	-	-	-	6.7	-	-	-	-	-
Stability, min	10.8	12.1	-	-	-	-	9.0	-	-	-	-	-
Mixing tolerance index, BU	27	23	-	-	-	-	41	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	119	104	-	-	-	-	143	-	-	-	-	-
Maximum height, BU	425	473	-	-	-	-	409	-	-	-	-	-
Extensibility, mm	203	159	-	-	-	-	251	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	42.5	39.4	-	-	-	-	44.5	-	-	-	-	-
Stability (P), mm	68	76	-	-	-	-	62	-	-	-	-	-
Distensibility (L), mm	164	121	-	-	-	-	210	-	-	-	-	-
Configuration ratio (P/L)	0.41	0.63	-	-	-	-	0.30	-	-	-	-	-
MIXOGRAM												
Peak time, min	2.9	3.5	-	-	-	-	2.7	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1078	1028	-	-	-	-	1226	-	-	-	-	-
Evaluation (see page 72)	0	0	-	-	-	-	0	-	-	-	-	-

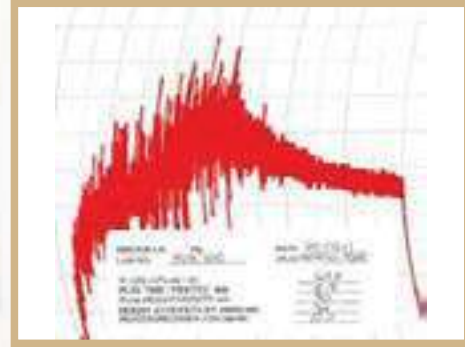
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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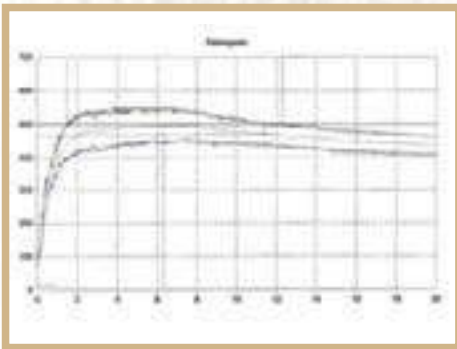


34

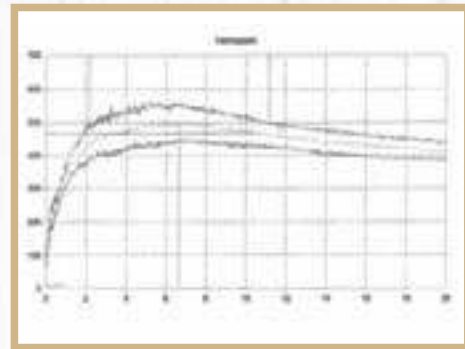


FARINOGRAM

33

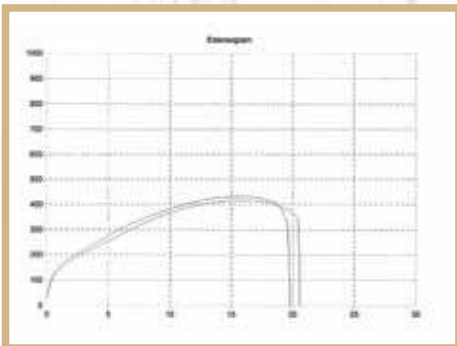


34

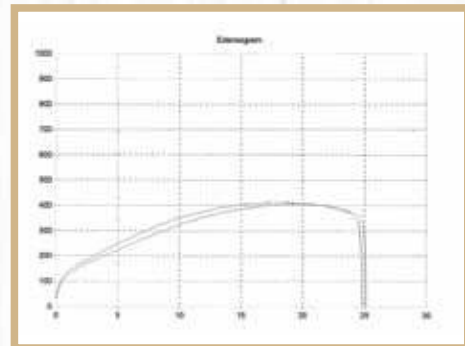


EXTENSOGRAM

33

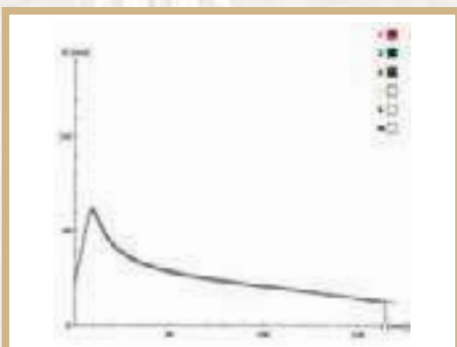


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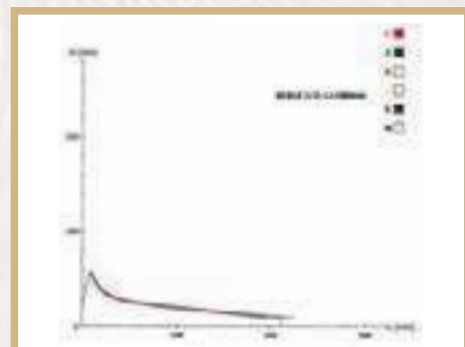


ALVEOGRAM

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South African Quality data per production region

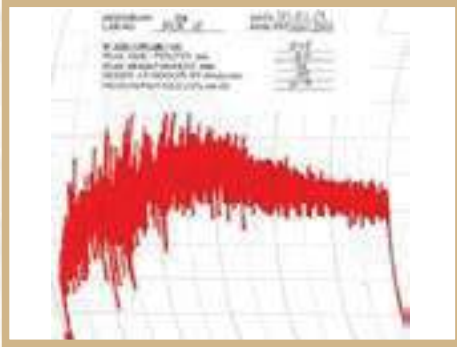
IRRIGATION WHEAT

PRODUCTION REGION	(35) Limpopo Region				(36) KwaZulu-Natal Region							
WHEAT												
	ave	min	max	stdev	ave	min	max	stdev				
Protein (12% mb), %	11.7	10.6	13.0	0.81	13.2	12.4	13.6	0.69				
Falling number, sec	354	297	428	44.92	379	344	401	30.44				
1000 Kernel mass (13% mb), g	39.1	32.6	44.1	2.88	39.6	39.0	40.6	0.87				
Hectolitre mass (dirty), kg/hl	82.2	80.7	84.7	1.00	81.8	81.6	82.0	0.20				
Screenings (<1.8 mm sieve), %	1.55	0.44	2.91	0.92	1.07	0.99	1.15	0.08				
Total damaged kernels, %	0.33	0.08	0.88	0.22	0.26	0.24	0.30	0.03				
Combined deviations, %	2.35	1.00	4.22	1.09	1.72	1.31	2.13	0.41				
Number of samples	11				3							
CULTIVARS												
	DUZI 30.9				SST 843 34.7							
cultivars	SST 884 23.4				SST 835 30.0							
with highest %	SST 875 21.3				SST 806 12.7							
occurrence	SST 843 9.0				SST 884 10.0							
	SST 876 7.7				PAN 3471 8.3							
Number of samples	11				3							
MIXOGRAM (Quadromat Junior)												
	ave	min	max	stdev	ave	min	max	stdev				
Peak time, min	3.0	2.3	3.8	0.57	3.1	2.3	3.8	0.75				
Tail height (6 min), mm	47	42	53	4.04	52	42	58	8.96				
Number of samples	11				3							
COMPOSITE SAMPLES												
CLASS AND GRADE	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	74.3	74.4	73.2	-	-	-	72.8	-	-	-	-	-
FLOUR												
Protein (12% mb), %	11.5	10.7	9.8	-	-	-	12.0	-	-	-	-	-
Ash (db), %	0.58	0.61	0.56	-	-	-	0.58	-	-	-	-	-
Colour, KJ (wet)	-3.5	-3.5	-3.9	-	-	-	-3.6	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.33	93.35	93.81	-	-	-	93.68	-	-	-	-	-
a*	0.49	0.43	0.40	-	-	-	0.42	-	-	-	-	-
b*	9.99	10.31	9.71	-	-	-	9.20	-	-	-	-	-
RVA												
Peak Viscosity, cP	2438	2427	2335	-	-	-	2276	-	-	-	-	-
Minimum viscosity (Through), cP	1895	2018	1818	-	-	-	1655	-	-	-	-	-
Final Viscosity, cP	2735	2752	2651	-	-	-	2556	-	-	-	-	-
Peak Time, min	7.00	7.00	7.00	-	-	-	7.00	-	-	-	-	-
GLUTEN												
Wet gluten (14% mb), %	29.4	28.3	26.5	-	-	-	32.6	-	-	-	-	-
Dry gluten (14% mb), %	10.3	9.7	8.6	-	-	-	11.2	-	-	-	-	-
Gluten Index	98	95	97	-	-	-	95	-	-	-	-	-
FARINOGRAM												
Water absorption (14% mb), %	59.8	58.0	58.9	-	-	-	61.0	-	-	-	-	-
Development time, min	6.6	5.3	5.4	-	-	-	7.0	-	-	-	-	-
Stability, min	10.7	9.0	8.5	-	-	-	9.1	-	-	-	-	-
Mixing tolerance index, BU	28	33	35	-	-	-	38	-	-	-	-	-
EXTENSOGRAM (45 min pull)												
Area, cm ²	113	92	100	-	-	-	126	-	-	-	-	-
Maximum height, BU	409	362	409	-	-	-	455	-	-	-	-	-
Extensibility, mm	203	185	178	-	-	-	205	-	-	-	-	-
ALVEOGRAM												
Strength (S), cm ²	41.8	34.4	36.1	-	-	-	43.9	-	-	-	-	-
Stability (P), mm	72	57	74	-	-	-	77	-	-	-	-	-
Distensibility (L), mm	148	165	131	-	-	-	150	-	-	-	-	-
Configuration ratio (P/L)	0.49	0.35	0.56	-	-	-	0.51	-	-	-	-	-
MIXOGRAM												
Peak time, min	3.2	3.0	3.1	-	-	-	3.0	-	-	-	-	-
100g BAKING TEST												
Loaf volume, cm ³	1049	1092	959	-	-	-	1082	-	-	-	-	-
Evaluation (see page 72)	0	0	0	-	-	-	0	-	-	-	-	-

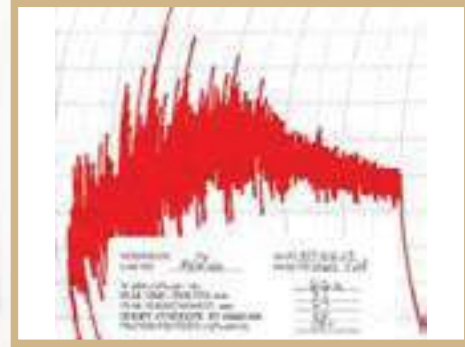
RHEOLOGICAL GRAPHS PER PRODUCTION REGION

MIXOGRAM

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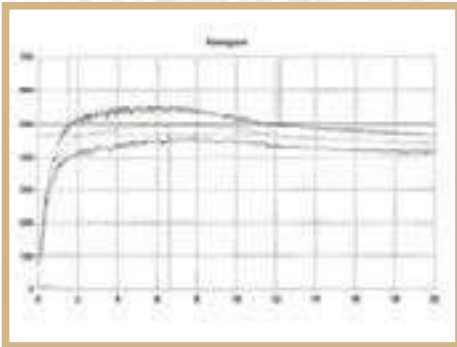


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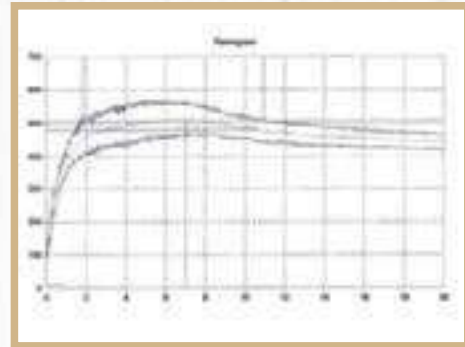


FARINOGRAM

35

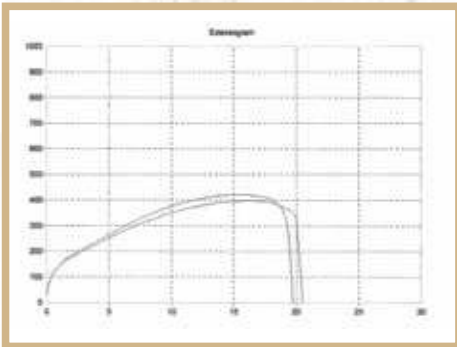


36

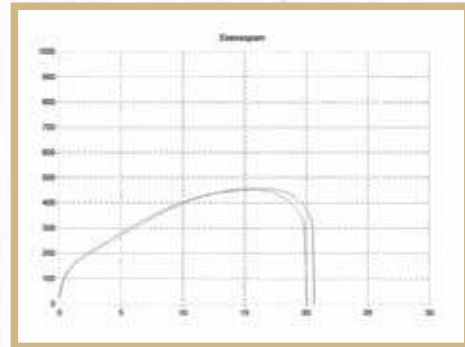


EXTENSOGRAM

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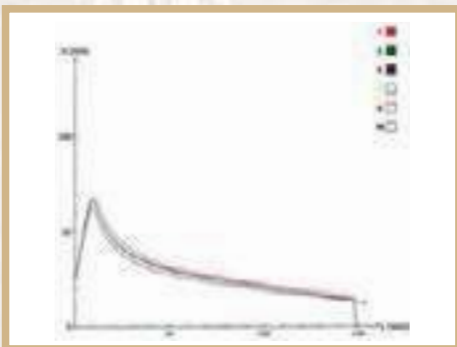


36

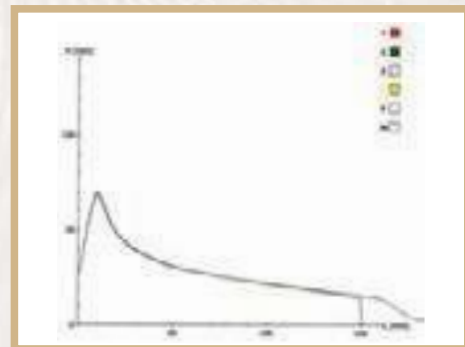


ALVEOGRAM

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