

## South African Quality data per production region

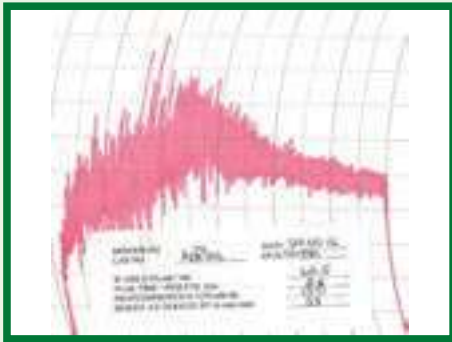
### WINTER RAINFALL WHEAT

PRODUCTION REGION	(2) Swartland Western Region					(3) Swartland Central Region						
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>		<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>			
Protein (12% mb), %	15.0	13.3	16.2	1.08		14.4	11.3	18.7	1.78			
Falling number, sec	397	380	414	12.33		402	319	509	38.79			
1000 Kernel mass (13% mb), g	31.2	28.4	32.9	1.37		31.5	24.1	40.1	4.18			
Hectolitre mass (dirty), kg/hl	77.1	72.5	79.8	2.55		78.6	71.2	81.7	2.74			
Screenings (<1.8 mm sieve), %	2.40	1.08	4.76	1.52		2.46	0.86	5.98	1.25			
Total damaged kernels, %	1.07	0.46	2.40	0.64		0.65	0.08	5.00	0.87			
Combined deviations, %	4.52	2.04	8.88	2.68		4.18	1.43	11.82	1.87			
<b>Number of samples</b>	<b>10</b>					<b>33</b>						
<b>CULTIVARS</b>												
		SST 88	49.7			SST 88	32.8					
cultivars with highest % occurrence		SST 015	19.3			SST 015	26.2					
		SST 087	16.6			SST 087	17.3					
		SST 056	11.7			SST 056	12.2					
		SST 027	1.8			SST 027	10.6					
<b>Number of samples</b>	<b>10</b>					<b>33</b>						
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>		<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>			
Peak time, min	2.6	2.4	2.8	0.13		2.7	2.0	3.7	0.35			
Tail height (6 min), mm	54	52	58	1.76		56	50	65	3.70			
<b>Number of samples</b>	<b>10</b>					<b>33</b>						
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	70.6	-	-	-	69.1	-	70.5	70.2	66.9	68.6	71.1	-
<b>FLOUR</b>												
Protein (12% mb), %	14.7	-	-	-	13.5	-	13.3	12.6	15.4	16.6	13.1	-
Ash (db), %	0.63	-	-	-	0.66	-	0.58	0.66	0.61	0.66	0.65	-
Colour, KJ (wet)	-3.5	-	-	-	-3.3	-	-3.7	-3.2	-3.5	-3.3	-3.5	-
Colour, Minolta CM5 (dry)												
L*	93.93	-	-	-	94.01	-	94.36	93.97	94.40	93.92	94.05	-
a*	0.53	-	-	-	0.43	-	0.44	0.43	0.45	0.54	0.48	-
b*	11.39	-	-	-	10.58	-	10.73	10.35	10.39	10.75	10.49	-
<b>RVA</b>												
Peak Viscosity, cP	2115	-	-	-	2194	-	2236	2171	2256	2110	2179	-
Minimum viscosity (Through), cP	1492	-	-	-	1579	-	1645	1481	1456	1452	1552	-
Final Viscosity, cP	2412	-	-	-	2485	-	2571	2455	2573	2295	2544	-
Peak Time, min	7.00	-	-	-	7.00	-	7.00	7.00	7.00	7.00	7.00	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	41.3	-	-	-	37.3	-	35.9	33.6	41.3	47.7	35.4	-
Dry gluten (14% mb), %	14.9	-	-	-	12.9	-	12.5	11.9	14.4	16.1	12.7	-
Gluten Index	91	-	-	-	96	-	98	96	98	91	92	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	62.4	-	-	-	62.1	-	62.3	61.0	62.1	63.9	61.6	-
Development time, min	7.7	-	-	-	6.5	-	7.5	8.1	11.8	10.1	6.6	-
Stability, min	13.9	-	-	-	10.0	-	13.5	12.7	15.8	15.6	8.7	-
Mixing tolerance index, BU	19	-	-	-	27	-	19	20	12	13	28	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	122	-	-	-	119	-	128	151	211	175	118	-
Maximum height, BU	381	-	-	-	364	-	377	482	524	441	346	-
Extensibility, mm	234	-	-	-	233	-	245	228	288	276	238	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	47.7	-	-	-	42.5	-	45.4	45.6	54.7	58.0	39.3	-
Stability (P), mm	74	-	-	-	80	-	89	81	76	79	73	-
Distensibility (L), mm	164	-	-	-	134	-	112	136	165	191	139	-
Configuration ratio (P/L)	0.45	-	-	-	0.60	-	0.79	0.60	0.46	0.41	0.53	-
<b>MIXOGRAM</b>												
Peak time, min	2.4	-	-	-	2.5	-	2.4	2.8	2.9	2.5	2.3	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1168	-	-	-	1119	-	1155	1110	1102	1015	1149	-
Evaluation (see page 69)	0	-	-	-	0	-	0	0	1	4	0	-

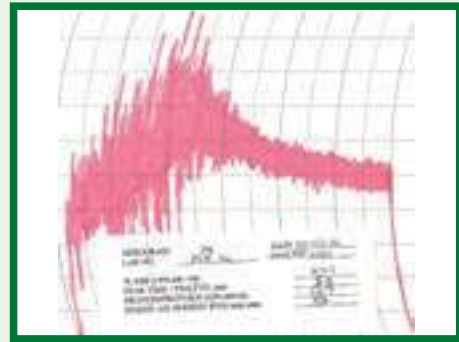
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

2

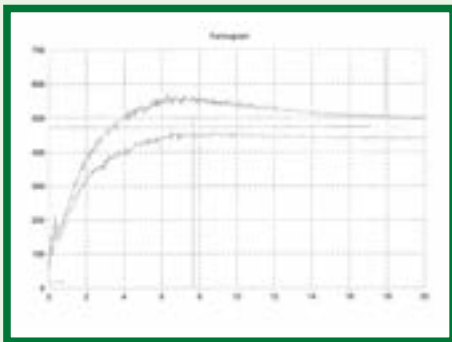


3

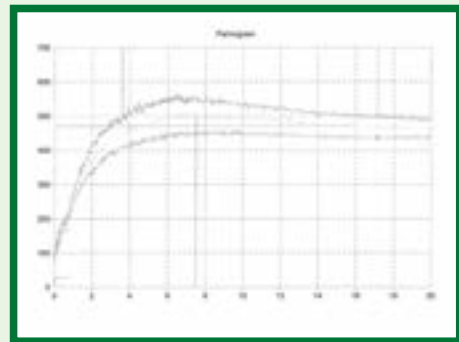


## FARINOGRAM

2

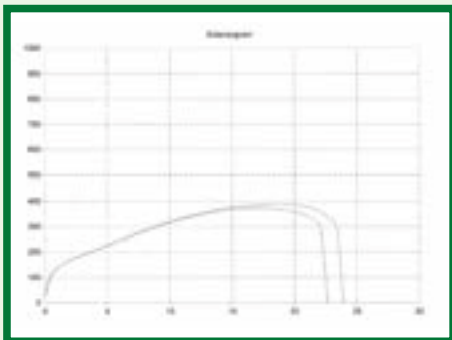


3

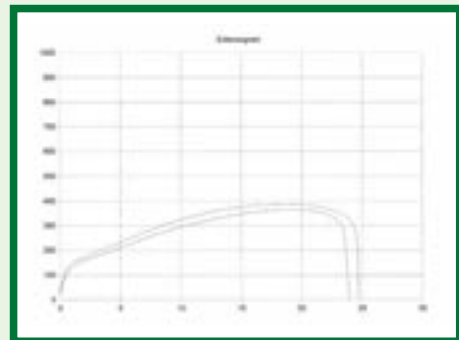


## EXTENSOGRAM

2

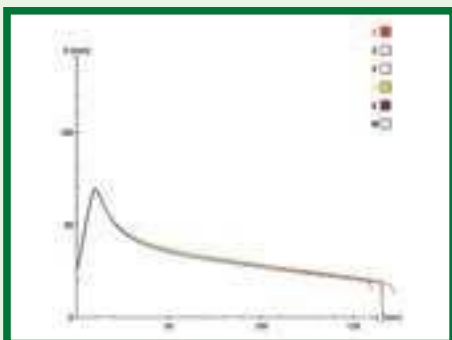


3

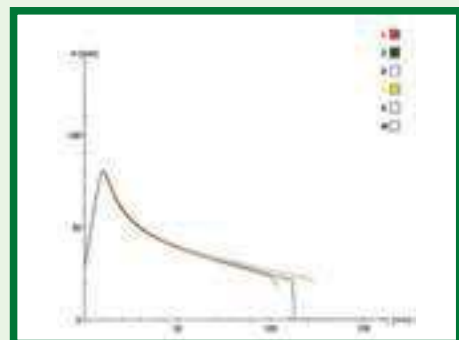


## ALVEOGRAM

2



3



## South African Quality data per production region

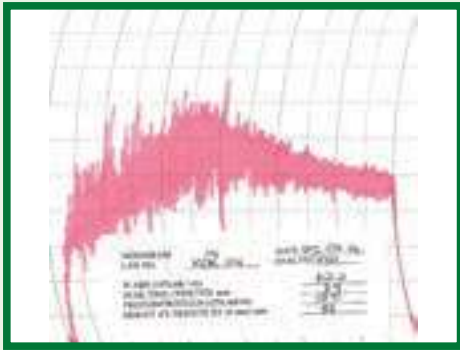
### WINTER RAINFALL WHEAT

PRODUCTION REGION	(4) Swartland Eastern Region					(5) Rüens Western Region						
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>		<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>			
Protein (12% mb), %	12.4	10.6	14.6	1.05		11.1	8.9	13.6	1.02			
Falling number, sec	379	333	417	29.23		377	340	405	20.09			
1000 Kernel mass (13% mb), g	33.5	30.9	37.5	1.73		43.4	35.7	50.6	3.21			
Hectolitre mass (dirty), kg/hl	80.5	78.8	82.1	1.05		81.0	72.0	83.9	2.52			
Screenings (<1.8 mm sieve), %	1.36	0.10	2.98	1.16		1.43	0.12	2.73	0.73			
Total damaged kernels, %	0.42	0.12	0.60	0.15		0.53	0.08	2.00	0.39			
Combined deviations, %	2.71	0.74	5.98	1.49		2.61	0.63	6.95	1.39			
<b>Number of samples</b>	<b>15</b>					<b>23</b>						
<b>CULTIVARS</b>												
		SST 88	32.6				SST 087	31.6				
cultivars with highest % occurrence		SST 015	23.5				SST 015	24.8				
		SST 087	23.2				SST 88	21.6				
		SST 056	14.2				SST 056	14.6				
		SST 027	4.3				SST 027	7.4				
<b>Number of samples</b>	<b>15</b>					<b>23</b>						
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>		<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>			
Peak time, min	2.8	2.4	3.1	0.22		2.5	2.0	3.0	0.27			
Tail height (6 min), mm	52	50	55	1.58		50	45	55	2.64			
<b>Number of samples</b>	<b>15</b>					<b>23</b>						
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	71.6	70.7	-	-	71.2	-	73.4	73.6	73.9	74.4	73.2	-
<b>FLOUR</b>												
Protein (12% mb), %	11.8	10.7	-	-	13.5	-	11.7	10.5	9.6	9.4	9.2	-
Ash (db), %	0.60	0.60	-	-	0.62	-	0.61	0.64	0.64	0.57	0.64	-
Colour, KJ (wet)	-3.9	-3.9	-	-	-3.6	-	-3.7	-4.0	-3.5	-3.8	-3.5	-
Colour, Minolta CM5 (dry) L*	94.18	94.21	-	-	94.15	-	94.17	94.12	93.88	94.01	94.07	-
a*	0.47	0.43	-	-	0.48	-	0.46	0.43	0.52	0.41	0.42	-
b*	11.08	10.54	-	-	10.90	-	9.62	9.74	10.15	10.08	9.45	-
<b>RVA</b>												
Peak Viscosity, cP	2125	2223	-	-	2216	-	2338	2202	2188	2200	2305	-
Minimum viscosity (Through), cP	1605	1714	-	-	1526	-	1645	1673	1664	1606	1700	-
Final Viscosity, cP	2531	2672	-	-	2552	-	2789	2591	2624	2582	2724	-
Peak Time, min	7.00	7.00	-	-	7.00	-	7.00	7.00	7.00	7.00	7.00	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	31.8	28.3	-	-	37.8	-	32.6	27.8	25.3	24.6	24.6	-
Dry gluten (14% mb), %	11.8	9.9	-	-	12.8	-	11.3	9.5	8.7	8.2	8.5	-
Gluten Index	97	98	-	-	95	-	97	96	97	94	94	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	59.9	59.2	-	-	61.4	-	60.2	59.8	58.2	58.5	57.3	-
Development time, min	6.0	4.3	-	-	6.7	-	5.3	4.4	3.5	2.8	3.2	-
Stability, min	9.2	8.0	-	-	10.1	-	7.5	6.2	5.6	4.6	4.8	-
Mixing tolerance index, BU	26	28	-	-	29	-	34	40	39	54	52	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	114	100	-	-	121	-	88	73	63	64	54	-
Maximum height, BU	386	369	-	-	387	-	315	291	279	295	236	-
Extensibility, mm	212	192	-	-	221	-	195	174	157	148	156	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	36.1	37.0	-	-	41.1	-	32.6	33.2	24.5	25.5	22.9	-
Stability (P), mm	79	78	-	-	78	-	72	77	73	75	64	-
Distensibility (L), mm	108	120	-	-	130	-	123	119	81	83	98	-
Configuration ratio (P/L)	0.73	0.65	-	-	0.60	-	0.59	0.65	0.90	0.90	0.65	-
<b>MIXOGRAM</b>												
Peak time, min	2.7	2.6	-	-	2.5	-	2.2	2.5	2.4	2.4	2.3	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1113	1062	-	-	1166	-	1060	893	891	873	909	-
Evaluation (see page 69)	0	0	-	-	0	-	0	0	0	0	0	-

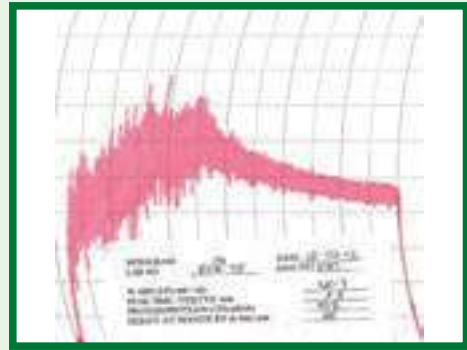
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

4

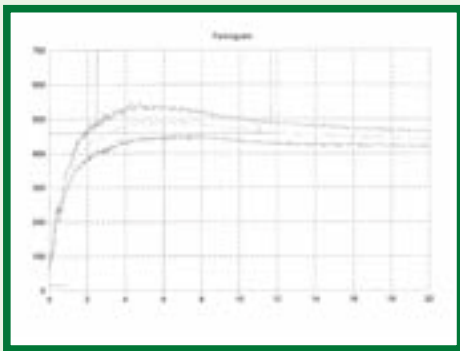


5

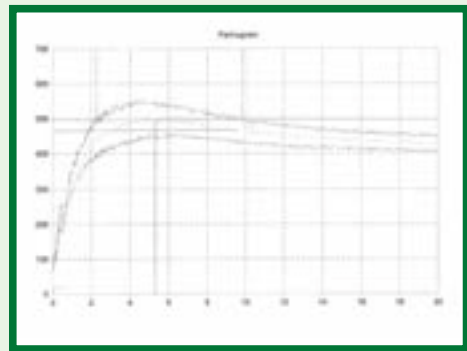


## FARINOGRAM

4

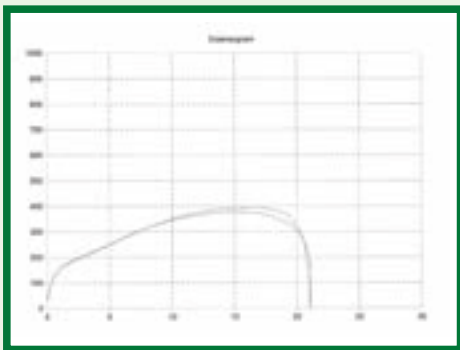


5

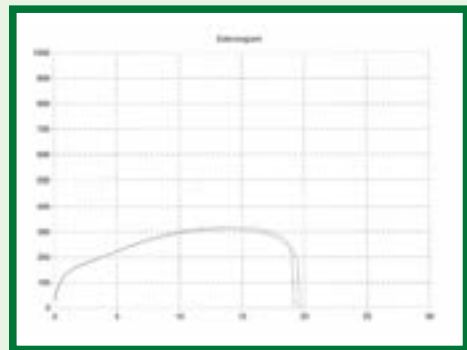


## EXTENSOGRAM

4

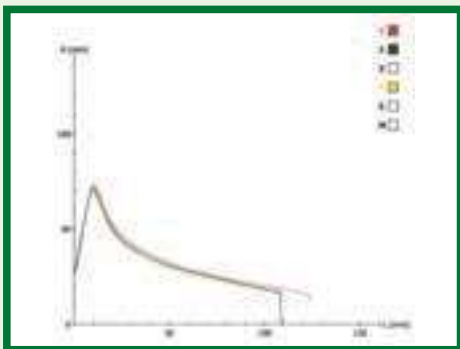


5

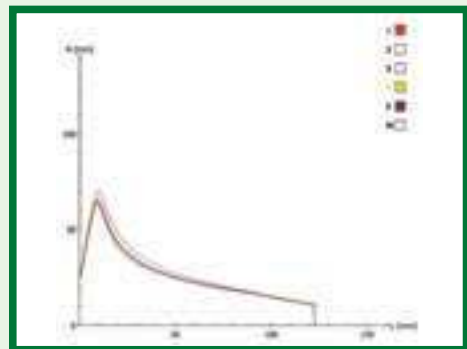


## ALVEOGRAM

4



5



## South African Quality data per production region

### WINTER RAINFALL WHEAT

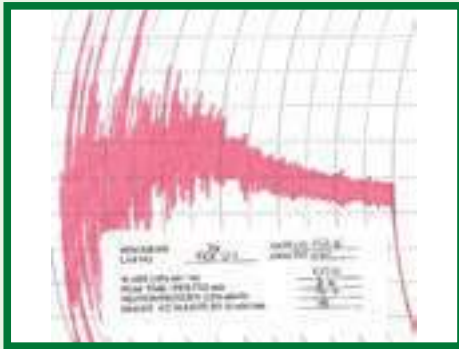
### IRRIGATION WHEAT

PRODUCTION REGION	(6) Rüens Eastern Region				(10) Griqualand-West							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	11.3	9.1	13.4	0.99	12.8	11.3	13.9	0.62				
Falling number, sec	357	325	401	20.74	378	334	443	24.57				
1000 Kernel mass (13% mb), g	42.1	34.6	45.9	3.49	37.7	30.7	42.2	2.97				
Hectolitre mass (dirty), kg/hl	80.7	78.4	83.1	1.11	84.0	80.3	86.2	1.56				
Screenings (<1.8 mm sieve), %	1.48	0.45	3.89	0.89	1.76	0.18	5.29	1.15				
Total damaged kernels, %	0.63	0.18	1.72	0.48	0.30	0.08	0.86	0.22				
Combined deviations, %	3.12	1.07	6.86	1.39	2.62	0.56	9.03	1.71				
<b>Number of samples</b>	<b>20</b>				<b>24</b>							
<b>CULTIVARS</b>												
	SST 087				SST 884							
	43.6				38.0							
cultivars	SST 88				SST 835							
with highest %	19.0				14.8							
occurrence	SST 056				SST 875							
	13.3				12.1							
	SST 027				PAN 3471							
	11.8				11.5							
	SST 015				SST 843							
	11.6				7.3							
<b>Number of samples</b>	<b>20</b>				<b>24</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	2.4	2.0	2.7	0.16	2.3	1.4	3.0	0.35				
Tail height (6 min), mm	52	47	55	2.09	48	41	55	3.45				
<b>Number of samples</b>	<b>20</b>				<b>24</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	73.6	73.4	73.2	74.1	73.1	-	74.8	74.7	-	73.1	-	-
<b>FLOUR</b>												
Protein (12% mb), %	11.8	10.6	9.6	8.2	10.5	-	11.9	10.5	-	12.2	-	-
Ash (db), %	0.62	0.63	0.67	0.62	0.61	-	0.65	0.67	-	0.66	-	-
Colour, KJ (wet)	-3.5	-3.3	-3.5	-3.9	-3.7	-	-3.9	-4.0	-	-3.5	-	-
Colour, Minolta CM5 (dry)												
L*	93.91	93.98	93.80	94.39	94.05	-	93.74	93.99	-	93.86	-	-
a*	0.46	0.43	0.47	0.28	0.46	-	0.59	0.57	-	0.58	-	-
b*	9.62	9.72	9.98	8.51	10.37	-	9.72	9.34	-	9.71	-	-
<b>RVA</b>												
Peak Viscosity, cP	2321	2210	2188	2857	2238	-	2236	2340	-	2250	-	-
Minimum viscosity (Through), cP	1647	1700	1730	1884	1700	-	1706	1757	-	1673	-	-
Final Viscosity, cP	2735	2636	2573	3261	2663	-	2580	2653	-	2400	-	-
Peak Time, min	7.00	7.00	7.00	7.00	7.00	-	7.00	7.00	-	7.00	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	32.0	28.6	24.7	21.3	28.3	-	34.2	29.2	-	33.9	-	-
Dry gluten (14% mb), %	11.4	10.1	8.4	7.0	9.7	-	11.4	9.9	-	11.9	-	-
Gluten Index	98	99	97	96	99	-	94	95	-	96	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	60.1	60.5	59.0	55.7	59.5	-	61.4	60.3	-	61.9	-	-
Development time, min	4.9	4.0	3.4	2.5	4.5	-	5.2	4.5	-	5.7	-	-
Stability, min	7.2	6.2	5.5	5.1	6.2	-	6.4	5.1	-	7.4	-	-
Mixing tolerance index, BU	36	42	47	54	43	-	41	46	-	35	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	105	78	65	-	86	-	91	82	-	93	-	-
Maximum height, BU	347	289	276	-	324	-	326	337	-	330	-	-
Extensibility, mm	213	191	162	-	188	-	198	171	-	199	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	35.8	32.9	25.5	22.9	30.4	-	36.7	28.1	-	35.9	-	-
Stability (P), mm	70	76	72	61	75	-	79	79	-	84	-	-
Distensibility (L), mm	144	121	96	110	100	-	114	82	-	99	-	-
Configuration ratio (P/L)	0.49	0.63	0.75	0.55	0.75	-	0.69	0.96	-	0.85	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.2	2.6	2.4	2.8	2.4	-	2.2	2.3	-	2.5	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1073	956	921	889	1005	-	1091	1025	-	1115	-	-
Evaluation (see page 69)	0	0	0	0	0	-	0	0	-	0	-	-

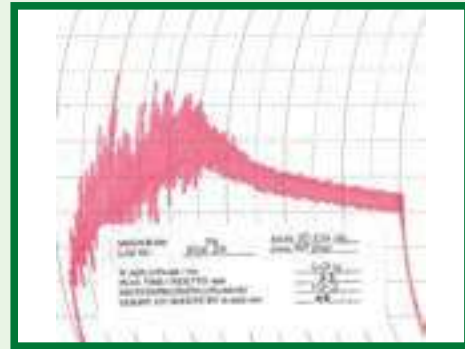
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

6

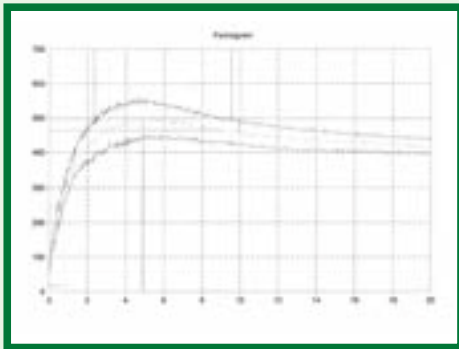


10

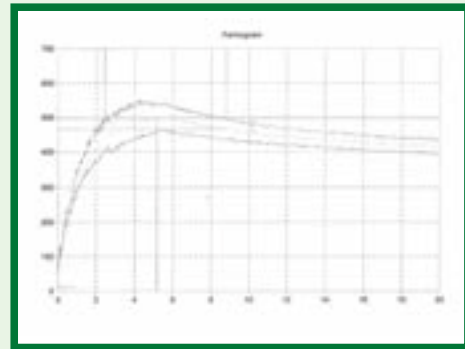


## FARINOGRAM

6

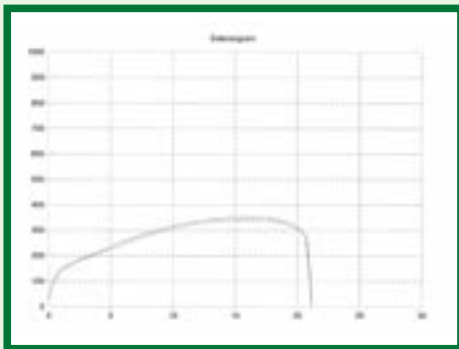


10

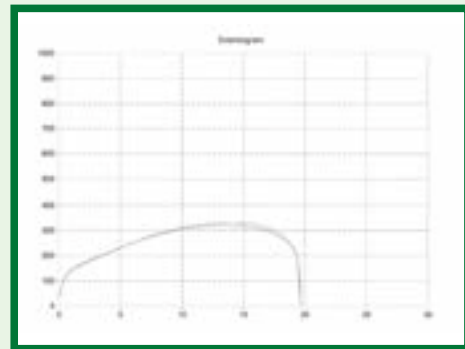


## EXTENSOGRAM

6

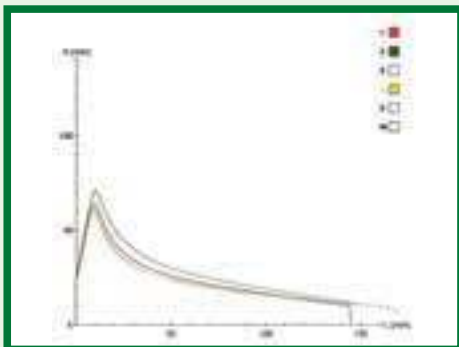


10

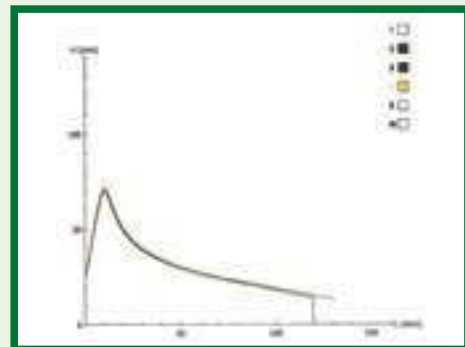


## ALVEOGRAM

6



10



## South African Quality data per production region

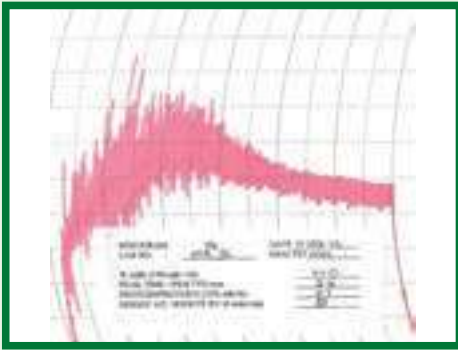
### IRRIGATION WHEAT

PRODUCTION REGION	(11) Vaalharts				(12) North-West Western Region							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	12.5	10.3	13.3	1.09	13.2	10.0	16.3	2.01				
Falling number, sec	408	344	516	67.42	409	362	438	23.00				
1000 Kernel mass (13% mb), g	37.1	34.1	39.1	1.87	36.8	26.4	42.5	6.00				
Hectolitre mass (dirty), kg/hl	83.2	81.4	84.0	0.91	82.0	77.7	84.9	2.48				
Screenings (<1.8 mm sieve), %	1.15	0.17	2.96	1.07	1.44	0.44	4.00	1.09				
Total damaged kernels, %	0.36	0.18	0.68	0.19	1.27	0.24	4.12	1.37				
Combined deviations, %	2.09	0.70	4.22	1.36	3.56	1.28	6.54	1.99				
<b>Number of samples</b>	<b>7</b>				<b>8</b>							
<b>CULTIVARS</b>												
	PAN 3471				SST 884							
cultivars	SST 835				SST 843							
with highest %	SST 884				DUZI							
occurrence	SST 875				SST 875							
	SST 843				PAN 3471							
<b>Number of samples</b>	<b>7</b>				<b>8</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	2.5	2.1	2.9	0.28	3.0	2.2	5.1	1.16				
Tail height (6 min), mm	50	46	54	2.37	53	45	72	9.34				
<b>Number of samples</b>	<b>7</b>				<b>8</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	74.5	75.5	75.0	-	-	-	74.8	74.6	74.1	-	71.7	-
<b>FLOUR</b>												
Protein (12% mb), %	12.3	10.8	9.5	-	-	-	12.1	11.0	9.4	-	14.2	-
Ash (db), %	0.69	0.67	0.71	-	-	-	0.64	0.62	0.69	-	0.68	-
Colour, KJ (wet)	-3.9	-3.9	-3.9	-	-	-	-3.7	-4.0	-3.6	-	-3.3	-
Colour, Minolta CM5 (dry)												
L*	93.77	93.78	93.94	-	-	-	93.98	93.96	93.44	-	93.72	-
a*	0.51	0.49	0.50	-	-	-	0.56	0.47	0.46	-	0.58	-
b*	9.72	9.80	9.22	-	-	-	9.18	9.08	9.79	-	9.24	-
<b>RVA</b>												
Peak Viscosity, cP	2344	2550	2514	-	-	-	2340	2244	2199	-	2190	-
Minimum viscosity (Through), cP	1800	2013	1927	-	-	-	1740	1612	1562	-	1596	-
Final Viscosity, cP	2517	2903	2828	-	-	-	2540	2495	2501	-	2358	-
Peak Time, min	7.00	7.00	7.00	-	-	-	7.00	7.00	7.00	-	7.00	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	32.7	29.6	27.2	-	-	-	35.0	30.5	25.5	-	34.6	-
Dry gluten (14% mb), %	11.3	10.1	7.5	-	-	-	12.0	9.9	8.4	-	12.6	-
Gluten Index	95	93	97	-	-	-	92	87	91	-	99	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	61.3	61.1	58.7	-	-	-	60.4	59.9	58.7	-	61.9	-
Development time, min	5.4	4.1	2.8	-	-	-	4.7	4.2	4.0	-	10.2	-
Stability, min	5.8	4.4	4.2	-	-	-	5.5	4.9	5.2	-	16.5	-
Mixing tolerance index, BU	55	47	52	-	-	-	46	46	49	-	14	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	101	64	63	-	-	-	90	72	70	-	171	-
Maximum height, BU	376	227	269	-	-	-	347	301	336	-	523	-
Extensibility, mm	193	191	161	-	-	-	187	166	149	-	240	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	37.5	28.0	25.7	-	-	-	32.1	28.4	22.2	-	62.5	-
Stability (P), mm	79	70	70	-	-	-	67	77	78	-	101	-
Distensibility (L), mm	119	113	100	-	-	-	119	89	60	-	117	-
Configuration ratio (P/L)	0.66	0.62	0.70	-	-	-	0.56	0.87	1.30	-	0.86	-
<b>MIXOGRAM</b>												
Peak time, min	2.3	1.9	2.2	-	-	-	2.2	2.2	2.4	-	3.7	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1138	987	908	-	-	-	1102	980	862	-	1150	-
Evaluation (see page 69)	0	0	0	-	-	-	0	0	0	-	0	-

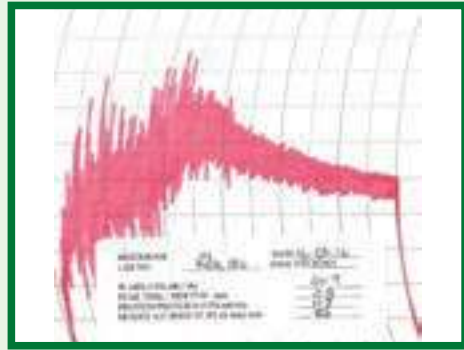
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

11

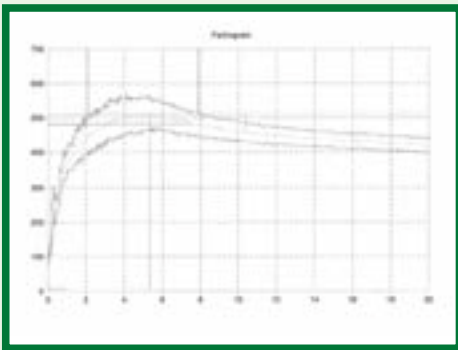


12

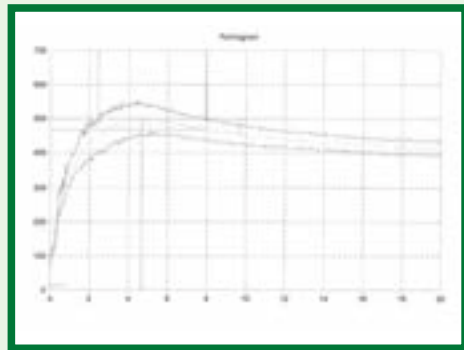


## FARINOGRAM

11

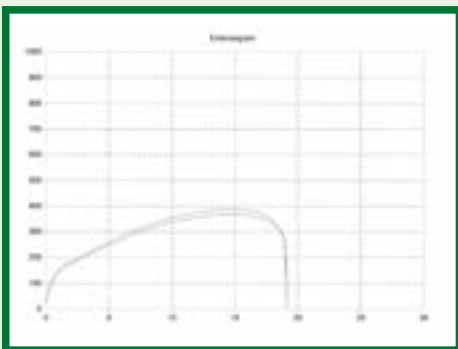


12

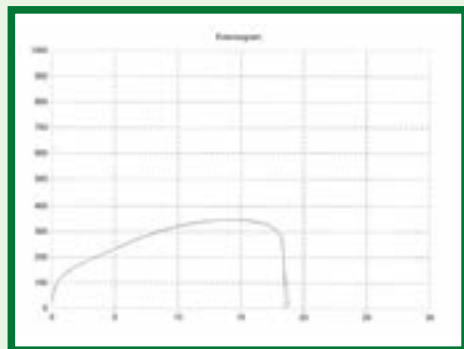


## EXTENSOGRAM

11

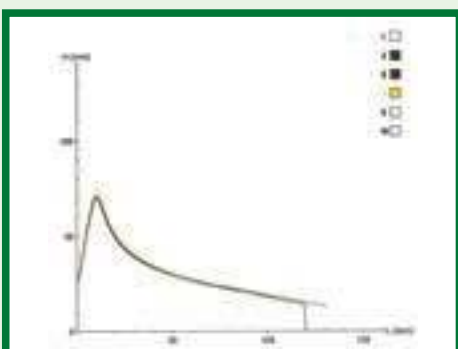


12

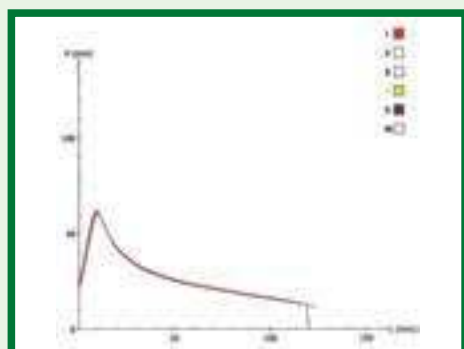


## ALVEOGRAM

11



12



39



## South African Quality data per production region

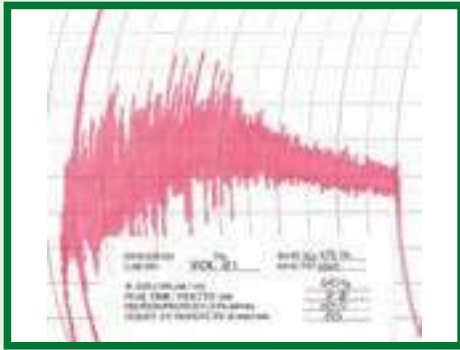
### IRRIGATION WHEAT

PRODUCTION REGION	(14) North-West Southern Region				(15) North-West Southern-Eastern Region							
	ave	min	max	stdev	ave	min	max	stdev				
<b>WHEAT</b>												
Protein (12% mb), %	12.2	11.2	13.6	0.86	12.6	11.6	13.5	0.78				
Falling number, sec	428	384	473	28.76	410	348	465	51.29				
1000 Kernel mass (13% mb), g	40.3	32.2	45.6	4.69	39.4	35.8	42.2	3.19				
Hectolitre mass (dirty), kg/hl	79.4	75.3	82.5	3.00	83.6	82.8	85.1	1.03				
Screenings (<1.8 mm sieve), %	1.80	0.54	7.00	1.81	1.19	0.48	1.91	0.63				
Total damaged kernels, %	0.57	0.14	1.08	0.39	0.50	0.08	0.84	0.31				
Combined deviations, %	3.34	1.12	9.34	2.19	2.11	1.06	3.00	0.96				
<b>Number of samples</b>	<b>11</b>				<b>4</b>							
<b>CULTIVARS</b>												
cultivars with highest % occurrence	SST 843		21.5		SST 884		38.3					
	SST 884		14.7		PAN 3471		36.8					
	SST 88		12.4		DUZI		11.0					
	SST 087		11.9		SST 835		6.5					
	SST 875		10.1		PAN 3478		4.0					
<b>Number of samples</b>	<b>11</b>				<b>4</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
Peak time, min	ave	min	max	stdev	ave	min	max	stdev				
Tail height (6 min), mm	3.0	2.3	3.9	0.56	2.4	2.3	2.4	0.05				
	54	46	59	3.80	51	50	52	0.96				
<b>Number of samples</b>	<b>11</b>				<b>4</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	B1	B2	B3	B4	UT	COW	B1	B2	B3	B4	UT	COW
BÜHLER EXTRACTION, %	73.8	73.8	74.7	-	73.9	-	73.9	76.3	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.8	11.1	11.3	-	11.0	-	12.0	10.9	-	-	-	-
Ash (db), %	0.67	0.70	0.72	-	0.76	-	0.70	0.69	-	-	-	-
Colour, KJ (wet)	-3.7	-3.2	-2.3	-	-2.6	-	-3.3	-3.7	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	94.07	93.94	93.47	-	93.68	-	93.89	93.66	-	-	-	-
a*	0.52	0.43	0.06	-	0.37	-	0.45	0.45	-	-	-	-
b*	9.31	8.99	9.02	-	9.10	-	9.34	10.25	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2415	2303	2438	-	2091	-	2293	2098	-	-	-	-
Minimum viscosity (Through), cP	1747	1655	1760	-	1521	-	1702	1565	-	-	-	-
Final Viscosity, cP	2571	2577	2862	-	2327	-	2537	2368	-	-	-	-
Peak Time, min	7.00	7.00	7.00	-	7.00	-	7.00	7.00	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	32.8	30.4	28.8	-	30.5	-	33.4	29.8	-	-	-	-
Dry gluten (14% mb), %	11.6	10.4	9.5	-	10.2	-	11.3	10.1	-	-	-	-
Gluten Index	99	96	96	-	95	-	95	93	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	59.7	60.1	59.4	-	60.6	-	60.6	62.3	-	-	-	-
Development time, min	8.2	5.5	8.2	-	5.5	-	5.2	4.6	-	-	-	-
Stability, min	10.4	7.1	12.6	-	7.2	-	6.6	5.9	-	-	-	-
Mixing tolerance index, BU	34	39	23	-	41	-	41	48	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	160	97	114	-	84	-	91	78	-	-	-	-
Maximum height, BU	534	394	438	-	318	-	343	300	-	-	-	-
Extensibility, mm	223	178	187	-	186	-	193	185	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	51.9	34.4	39.9	-	35.0	-	30.0	37.5	-	-	-	-
Stability (P), mm	79	87	90	-	90	-	78	89	-	-	-	-
Distensibility (L), mm	143	88	104	-	88	-	90	104	-	-	-	-
Configuration ratio (P/L)	0.55	0.99	0.87	-	1.02	-	0.87	0.86	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	3.3	2.7	3.7	-	2.7	-	2.3	2.3	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1190	1014	1085	-	1008	-	1084	1028	-	-	-	-
Evaluation (see page 69)	0	0	0	-	0	-	0	0	-	-	-	-

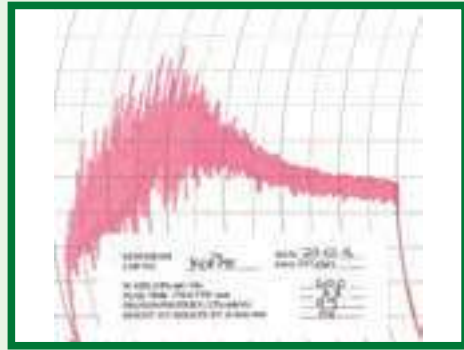
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

14

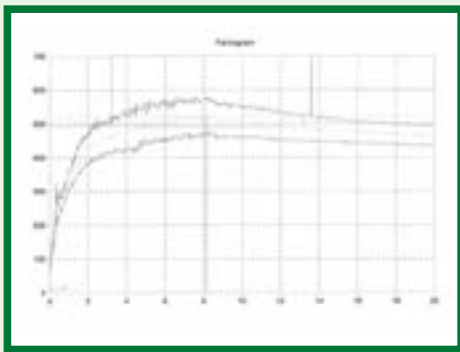


15

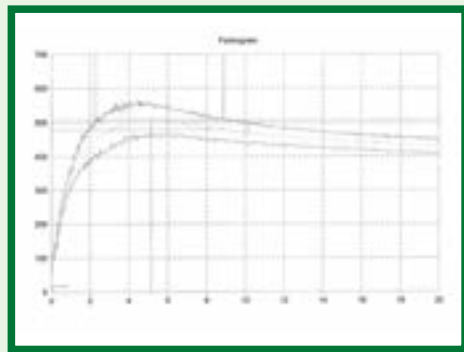


## FARINOGRAM

14

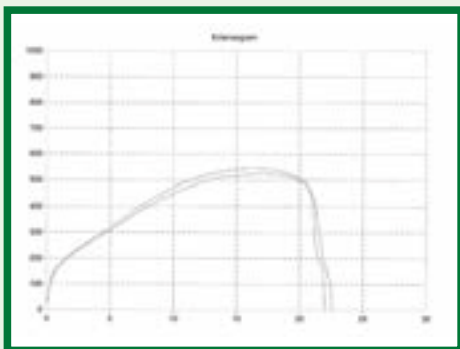


15

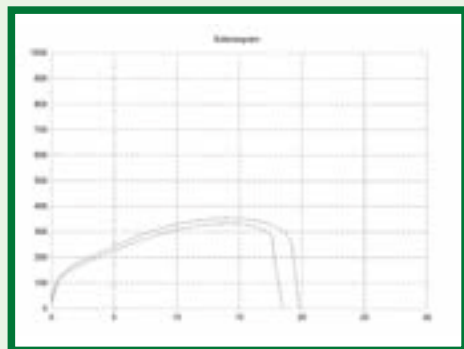


## EXTENSOGRAM

14

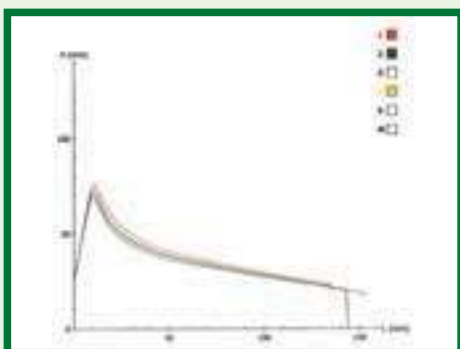


15

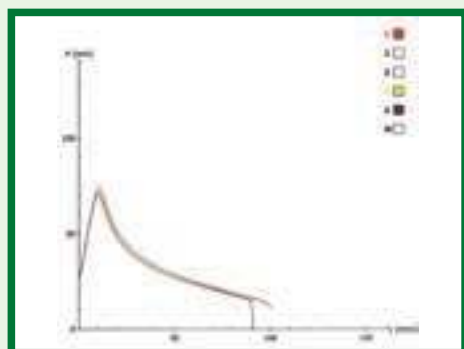


## ALVEOGRAM

14



15



## South African Quality data per production region

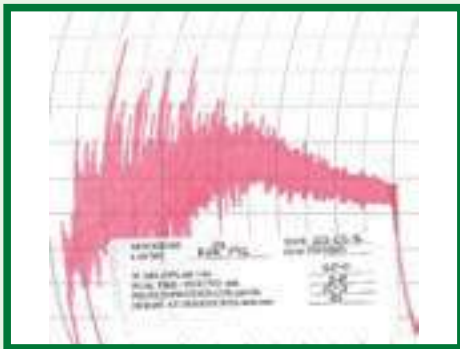
### IRRIGATION WHEAT

PRODUCTION REGION	(16) North-West Central Eastern Region				(18) North-West Central Region (Ventersdorp)							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	11.5	-	-	-	13.1	-	-	-				
Falling number, sec	540	-	-	-	430	-	-	-				
1000 Kernel mass (13% mb), g	39.0	-	-	-	38.7	-	-	-				
Hectolitre mass (dirty), kg/hl	83.8	-	-	-	82.5	-	-	-				
Screenings (<1.8 mm sieve), %	1.51	-	-	-	2.13	-	-	-				
Total damaged kernels, %	0.30	-	-	-	0.50	-	-	-				
Combined deviations, %	1.99	-	-	-	3.13	-	-	-				
<b>Number of samples</b>	<b>1</b>				<b>1</b>							
<b>CULTIVARS</b>												
		SST 843	37.0			PAN 3471	54.0					
cultivars with highest % occurrence		SST 884	22.0			SST 875	31.0					
		SST 015	15.0			SST 884	15.0					
		SST 835	14.0			-	-					
		SST 88	12.0			-	-					
<b>Number of samples</b>	<b>1</b>				<b>1</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.0	-	-	-	2.4	-	-	-				
Tail height (6 min), mm	51	-	-	-	50	-	-	-				
<b>Number of samples</b>	<b>1</b>				<b>1</b>							
	<b>COMPOSITE SAMPLES</b>											
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	-	74.5	-	-	-	-	76.1	-	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	-	10.4	-	-	-	-	12.3	-	-	-	-	-
Ash (db), %	-	0.68	-	-	-	-	0.63	-	-	-	-	-
Colour, KJ (wet)	-	-3.3	-	-	-	-	-3.4	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	-	93.93	-	-	-	-	93.60	-	-	-	-	-
a*	-	0.41	-	-	-	-	0.48	-	-	-	-	-
b*	-	8.92	-	-	-	-	9.33	-	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	-	2691	-	-	-	-	2468	-	-	-	-	-
Minimum viscosity (Through), cP	-	2007	-	-	-	-	1858	-	-	-	-	-
Final Viscosity, cP	-	2723	-	-	-	-	2712	-	-	-	-	-
Peak Time, min	-	7.00	-	-	-	-	7.00	-	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	-	28.2	-	-	-	-	34.1	-	-	-	-	-
Dry gluten (14% mb), %	-	9.3	-	-	-	-	11.8	-	-	-	-	-
Gluten Index	-	96	-	-	-	-	88	-	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	-	59.5	-	-	-	-	60.9	-	-	-	-	-
Development time, min	-	5.2	-	-	-	-	4.5	-	-	-	-	-
Stability, min	-	8.1	-	-	-	-	5.1	-	-	-	-	-
Mixing tolerance index, BU	-	37	-	-	-	-	66	-	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	-	108	-	-	-	-	96	-	-	-	-	-
Maximum height, BU	-	469	-	-	-	-	324	-	-	-	-	-
Extensibility, mm	-	165	-	-	-	-	209	-	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	-	38.2	-	-	-	-	40.9	-	-	-	-	-
Stability (P), mm	-	92	-	-	-	-	70	-	-	-	-	-
Distensibility (L), mm	-	97	-	-	-	-	163	-	-	-	-	-
Configuration ratio (P/L)	-	0.95	-	-	-	-	0.43	-	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	-	3.0	-	-	-	-	2.0	-	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	-	929	-	-	-	-	1145	-	-	-	-	-
Evaluation (see page 69)	-	0	-	-	-	-	0	-	-	-	-	-

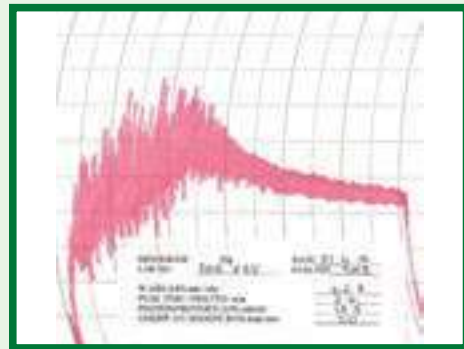
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

16

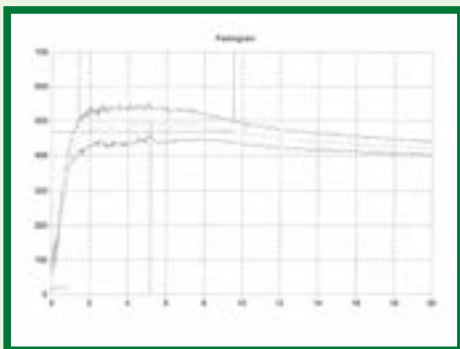


18

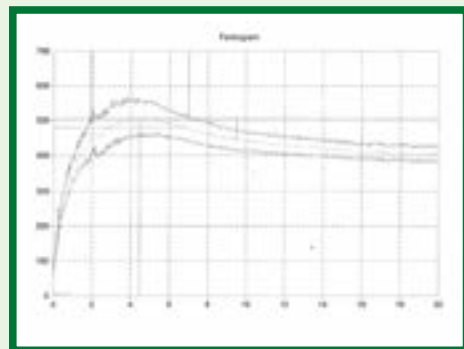


## FARINOGRAM

16



18

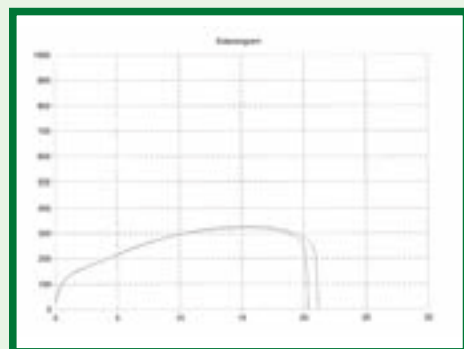


## EXTENSOGRAM

16

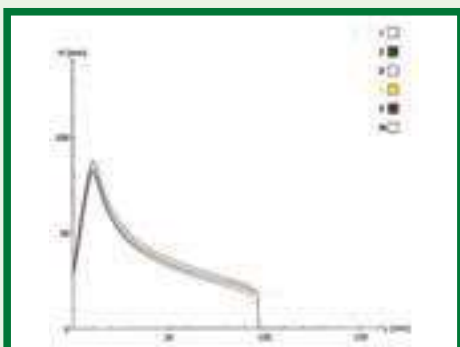


18

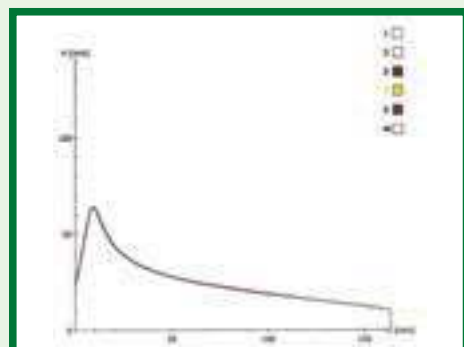


## ALVEOGRAM

16



18



43

## South African Quality data per production region

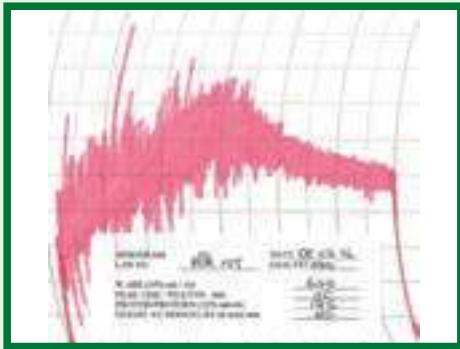
### IRRIGATION WHEAT

PRODUCTION REGION	(19) North-West Central Region (Lichtenburg)				(20) North-West Eastern Region							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	11.8	9.3	13.4	1.30	12.3	11.2	14.4	1.11				
Falling number, sec	402	363	433	19.05	425	395	445	18.88				
1000 Kernel mass (13% mb), g	38.8	32.6	46.0	4.73	35.2	28.9	38.8	3.28				
Hectolitre mass (dirty), kg/hl	81.1	74.5	84.5	2.51	83.8	81.6	84.6	1.07				
Screenings (<1.8 mm sieve), %	1.44	0.57	2.60	0.59	1.17	0.80	1.90	0.40				
Total damaged kernels, %	0.66	0.24	2.92	0.72	0.51	0.32	0.86	0.18				
Combined deviations, %	3.16	1.01	9.92	2.35	1.86	1.21	2.86	0.59				
<b>Number of samples</b>	<b>13</b>				<b>8</b>							
<b>CULTIVARS</b>												
	SST 843				SST 843							
cultivars	43.2				42.1							
with highest %	SST 087				SST 835							
occurrence	11.2				16.9							
	SST 056				SST 884							
	10.1				15.1							
	SST 015				SST 875							
	9.5				13.1							
	SST 884				PAN 3471							
	7.2				6.9							
<b>Number of samples</b>	<b>13</b>				<b>8</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.0	2.2	4.0	0.56	3.3	2.9	4.0	0.35				
Tail height (6 min), mm	54	46	59	4.07	52	50	60	3.49				
<b>Number of samples</b>	<b>13</b>				<b>8</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	74.3	73.9	-	73.6	-	-	72.4	73.7	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.1	10.6	-	9.2	-	-	12.5	10.4	-	-	-	-
Ash (db), %	0.60	0.63	-	0.64	-	-	0.64	0.63	-	-	-	-
Colour, KJ (wet)	-3.9	-3.7	-	-3.4	-	-	-3.6	-3.9	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.97	93.96	-	94.13	-	-	94.00	93.99	-	-	-	-
a*	0.49	0.50	-	0.40	-	-	0.48	0.47	-	-	-	-
b*	9.64	9.30	-	9.19	-	-	9.05	9.39	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2358	2248	-	2415	-	-	2326	2346	-	-	-	-
Minimum viscosity (Through), cP	1638	1650	-	1823	-	-	1616	1645	-	-	-	-
Final Viscosity, cP	2619	2578	-	2763	-	-	2625	2674	-	-	-	-
Peak Time, min	7.00	7.00	-	7.00	-	-	7.00	7.00	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	31.8	27.7	-	23.5	-	-	32.5	27.1	-	-	-	-
Dry gluten (14% mb), %	11.1	9.6	-	7.8	-	-	11.5	9.6	-	-	-	-
Gluten Index	99	97	-	95	-	-	99	98	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	60.9	60.5	-	56.6	-	-	60.2	59.1	-	-	-	-
Development time, min	7.2	6.0	-	3.3	-	-	8.6	7.0	-	-	-	-
Stability, min	8.8	8.2	-	5.0	-	-	13.7	9.2	-	-	-	-
Mixing tolerance index, BU	36	38	-	56	-	-	22	34	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	136	101	-	59	-	-	150	112	-	-	-	-
Maximum height, BU	456	380	-	283	-	-	541	497	-	-	-	-
Extensibility, mm	218	193	-	147	-	-	202	166	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	46.5	36.9	-	26.1	-	-	48.5	36.7	-	-	-	-
Stability (P), mm	89	84	-	64	-	-	87	88	-	-	-	-
Distensibility (L), mm	118	103	-	114	-	-	116	91	-	-	-	-
Configuration ratio (P/L)	0.75	0.82	-	0.56	-	-	0.75	0.97	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	3.0	2.9	-	2.6	-	-	3.4	3.0	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1078	914	-	902	-	-	1091	931	-	-	-	-
Evaluation (see page 69)	0	0	-	0	-	-	0	0	-	-	-	-

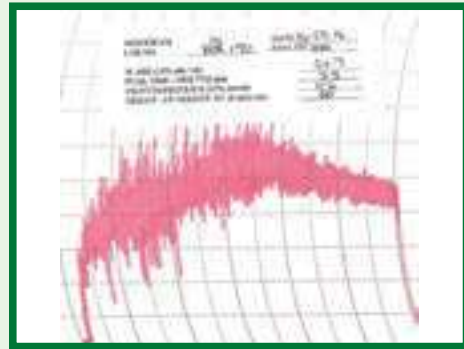
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

19

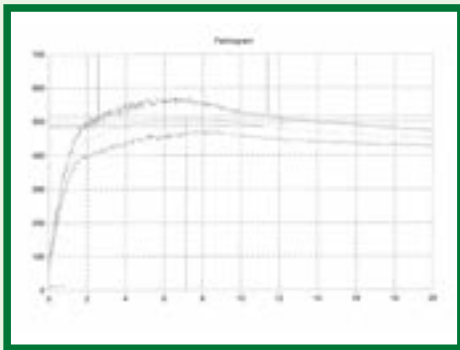


20

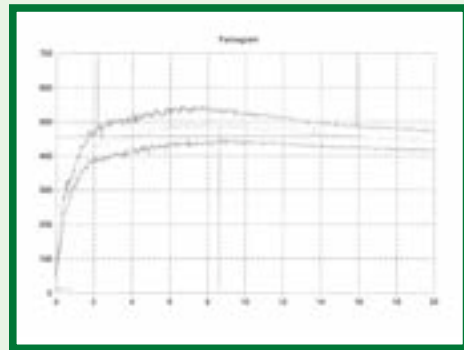


## FARINOGRAM

19

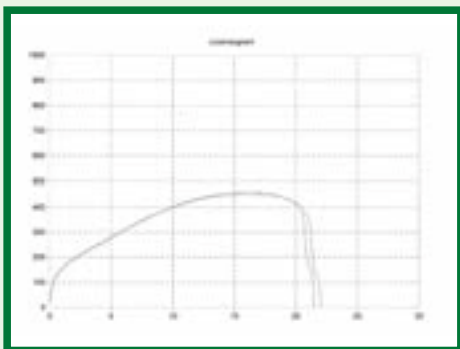


20



## EXTENSOGRAM

19

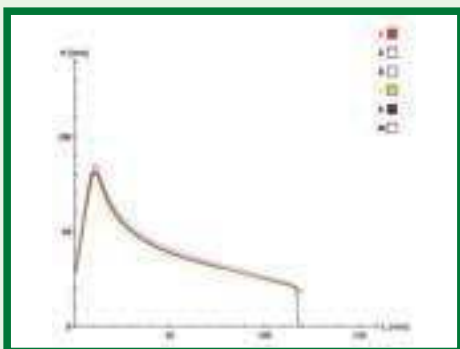


20

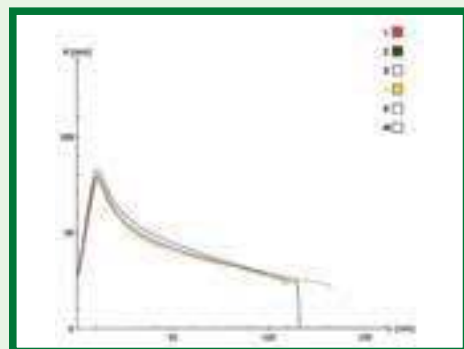


## ALVEOGRAM

19



20



45

## South African Quality data per production region

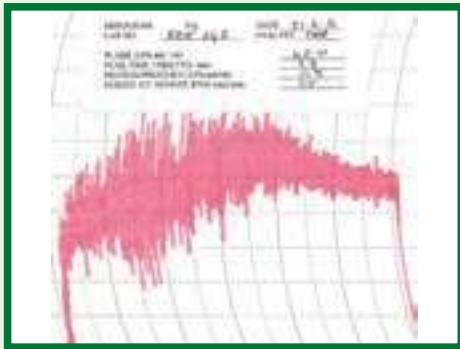
### SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(21) Free-State North-Western Region (Viljoenskroon)				(22) Free-State North-Western Region (Bothaville)							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	13.0	-	-	-	12.7	11.9	13.5	1.13				
Falling number, sec	460	-	-	-	409	386	431	31.82				
1000 Kernel mass (13% mb), g	33.7	-	-	-	35.4	35.1	35.7	0.42				
Hectolitre mass (dirty), kg/hl	78.7	-	-	-	83.2	83.0	83.4	0.28				
Screenings (<1.8 mm sieve), %	1.28	-	-	-	1.36	1.35	1.37	0.01				
Total damaged kernels, %	0.28	-	-	-	0.76	0.64	0.88	0.17				
Combined deviations, %	1.90	-	-	-	2.88	2.59	3.17	0.41				
<b>Number of samples</b>	<b>1</b>				<b>2</b>							
<b>CULTIVARS</b>												
	SST 884				SST 884							
cultivars	100.0				41.0							
with highest %	-				PAN 3471							
occurrence	-				SST 875							
	-				SST 387							
	-				8.5							
	-				-							
<b>Number of samples</b>	<b>1</b>				<b>2</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.8	-	-	-	2.4	2.1	2.7	0.42				
Tail height (6 min), mm	55	-	-	-	54	50	57	4.95				
<b>Number of samples</b>	<b>1</b>				<b>2</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	74.6	-	-	-	-	-	74.1	75.6	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.0	-	-	-	-	-	12.9	11.3	-	-	-	-
Ash (db), %	0.67	-	-	-	-	-	0.68	0.64	-	-	-	-
Colour, KJ (wet)	-3.1	-	-	-	-	-	-3.6	-3.7	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.34	-	-	-	-	-	93.74	93.74	-	-	-	-
a*	0.49	-	-	-	-	-	0.49	0.49	-	-	-	-
b*	9.57	-	-	-	-	-	9.51	10.16	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2723	-	-	-	-	-	2440	2355	-	-	-	-
Minimum viscosity (Through), cP	2056	-	-	-	-	-	1809	1825	-	-	-	-
Final Viscosity, cP	2687	-	-	-	-	-	2690	2654	-	-	-	-
Peak Time, min	7.00	-	-	-	-	-	7.00	7.00	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	31.1	-	-	-	-	-	36.2	30.5	-	-	-	-
Dry gluten (14% mb), %	11.0	-	-	-	-	-	12.3	10.2	-	-	-	-
Gluten Index	99	-	-	-	-	-	93	94	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	59.3	-	-	-	-	-	61.6	60.5	-	-	-	-
Development time, min	7.4	-	-	-	-	-	4.0	3.8	-	-	-	-
Stability, min	11.2	-	-	-	-	-	4.9	4.0	-	-	-	-
Mixing tolerance index, BU	26	-	-	-	-	-	54	51	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	146	-	-	-	-	-	92	77	-	-	-	-
Maximum height, BU	531	-	-	-	-	-	346	299	-	-	-	-
Extensibility, mm	201	-	-	-	-	-	188	179	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	45.9	-	-	-	-	-	35.9	29.7	-	-	-	-
Stability (P), mm	83	-	-	-	-	-	74	72	-	-	-	-
Distensibility (L), mm	124	-	-	-	-	-	128	108	-	-	-	-
Configuration ratio (P/L)	0.67	-	-	-	-	-	0.58	0.67	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	3.4	-	-	-	-	-	1.9	1.9	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1100	-	-	-	-	-	1093	1130	-	-	-	-
Evaluation (see page 69)	0	-	-	-	-	-	0	0	-	-	-	-

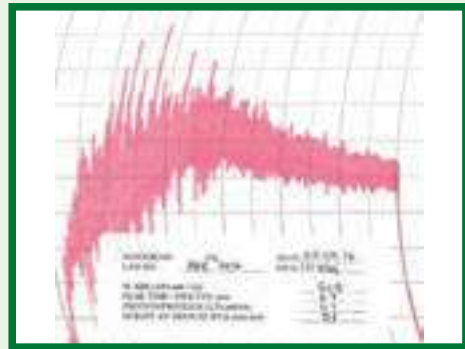
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

21

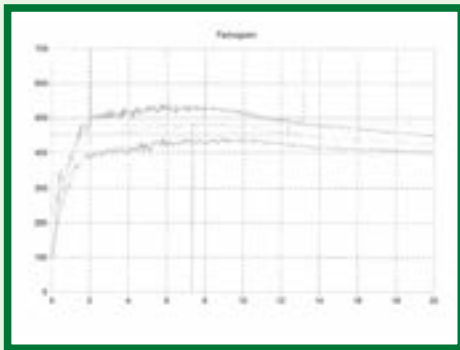


22

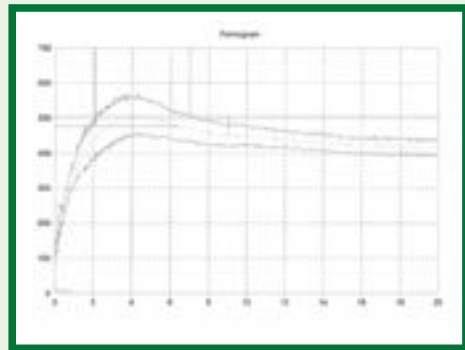


## FARINOGRAM

21

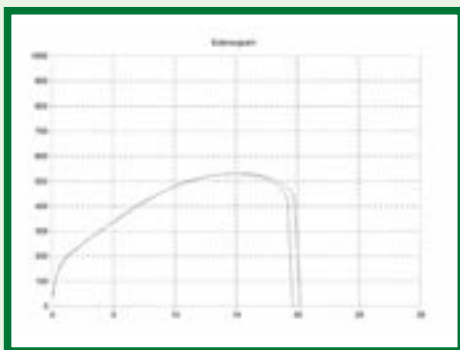


22

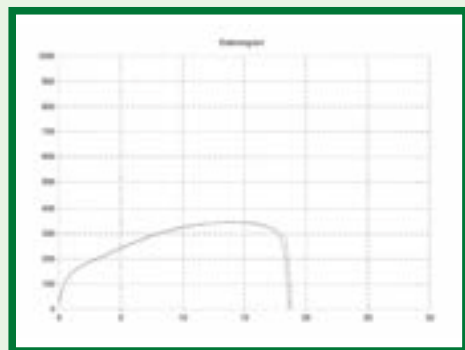


## EXTENSOGRAM

21

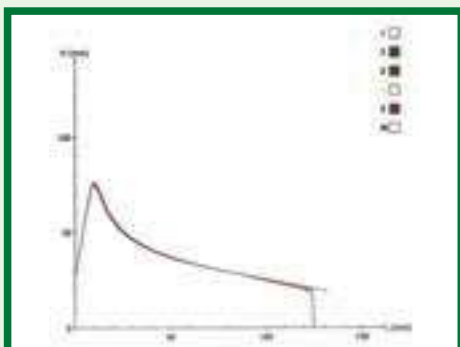


22

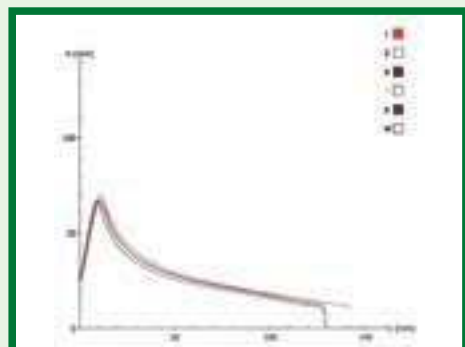


## ALVEOGRAM

21



22



47



## South African Quality data per production region

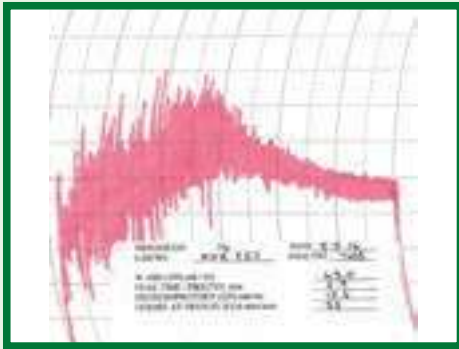
### SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(23) Free State North-Western Region (Bultfontein)				(24) Free State Central Region							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	13.7	10.7	16.7	1.87	12.3	10.7	14.8	1.37				
Falling number, sec	409	356	472	34.92	398	355	443	21.85				
1000 Kernel mass (13% mb), g	30.9	22.6	35.4	3.99	35.6	25.8	40.9	5.19				
Hectolitre mass (dirty), kg/hl	78.6	72.0	83.8	3.53	81.3	77.0	85.3	2.66				
Screenings (<1.8 mm sieve), %	3.63	1.98	10.28	2.77	1.82	1.00	2.50	0.51				
Total damaged kernels, %	0.48	0.08	0.92	0.27	0.31	0.12	0.66	0.15				
Combined deviations, %	4.70	2.90	11.82	2.99	2.61	1.82	3.34	0.43				
<b>Number of samples</b>	<b>8</b>				<b>11</b>							
<b>CULTIVARS</b>												
	PAN 3471 19.9				SST 875 21.7							
cultivars with highest % occurrence	PAN 3120 14.4				SST 835 15.7							
	PAN 3161 12.5				SST 884 9.5							
	SST 375 12.5				DUZI 9.1							
	SST 835 11.3				PAN 3478 8.8							
<b>Number of samples</b>	<b>8</b>				<b>11</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.2	2.7	3.7	0.36	2.6	2.1	3.1	0.35				
Tail height (6 min), mm	55	52	59	2.59	51	47	57	3.20				
<b>Number of samples</b>	<b>8</b>				<b>11</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	72.4	71.3	73.7	73.0	-	-	74.0	74.3	74.2	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.7	11.9	12.6	12.3	-	-	12.2	11.3	11.1	-	-	-
Ash (db), %	0.61	0.67	0.63	0.68	-	-	0.68	0.65	0.72	-	-	-
Colour, KJ (wet)	-3.2	-3.5	-3.1	-3.1	-	-	-3.7	-3.4	-3.2	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.16	93.43	93.42	93.32	-	-	93.84	93.69	93.38	-	-	-
a*	0.47	0.46	0.46	0.53	-	-	0.51	0.50	0.50	-	-	-
b*	10.60	9.76	9.48	10.07	-	-	9.36	9.52	10.20	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2458	2297	2386	2530	-	-	2468	2498	2934	-	-	-
Minimum viscosity (Through), cP	1849	1707	1861	1878	-	-	1837	1862	2307	-	-	-
Final Viscosity, cP	2750	2530	2483	2657	-	-	2669	2689	3131	-	-	-
Peak Time, min	7.00	7.00	7.00	7.00	-	-	7.00	7.00	6.93	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	34.4	32.3	34.0	32.0	-	-	34.0	30.9	31.2	-	-	-
Dry gluten (14% mb), %	12.1	11.7	11.7	11.4	-	-	12.0	10.5	10.3	-	-	-
Gluten Index	92	96	97	99	-	-	94	94	87	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	63.1	62.2	59.7	61.2	-	-	61.6	61.2	58.9	-	-	-
Development time, min	6.7	6.3	5.8	9.2	-	-	5.9	3.9	4.0	-	-	-
Stability, min	10.7	10.4	7.0	11.3	-	-	6.7	5.1	4.2	-	-	-
Mixing tolerance index, BU	25	24	40	36	-	-	44	52	61	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	106	107	123	145	-	-	114	84	78	-	-	-
Maximum height, BU	406	396	390	498	-	-	407	297	297	-	-	-
Extensibility, mm	185	194	224	213	-	-	202	201	184	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	51.4	42.8	39.4	53.1	-	-	38.1	31.0	26.6	-	-	-
Stability (P), mm	107	100	63	97	-	-	84	71	65	-	-	-
Distensibility (L), mm	101	93	182	120	-	-	106	111	101	-	-	-
Configuration ratio (P/L)	1.06	1.08	0.35	0.81	-	-	0.79	0.64	0.64	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.7	2.8	2.4	3.0	-	-	2.3	2.3	2.3	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1119	1071	1193	1131	-	-	1151	1111	1050	-	-	-
Evaluation (see page 69)	0	0	0	0	-	-	0	0	0	-	-	-

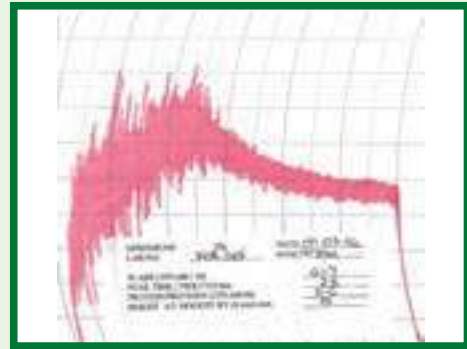
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

23

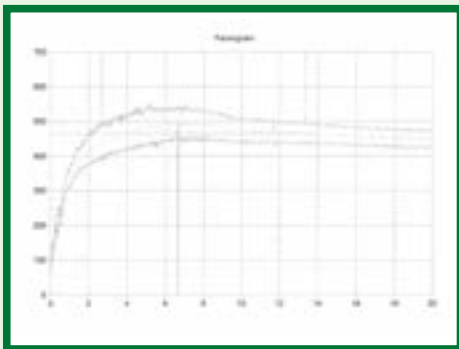


24

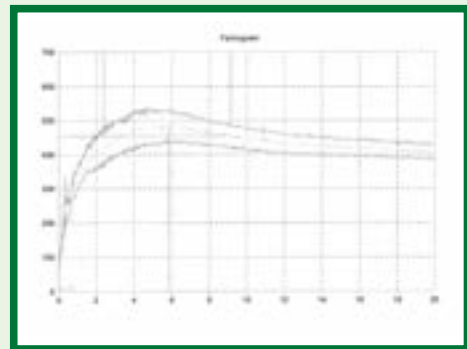


## FARINOGRAM

23

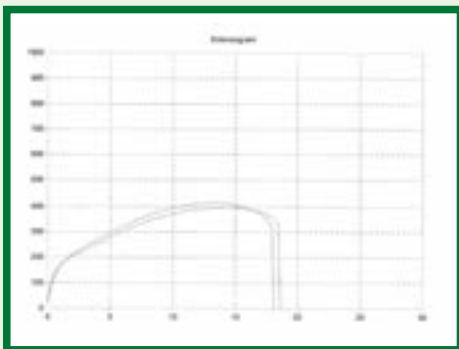


24

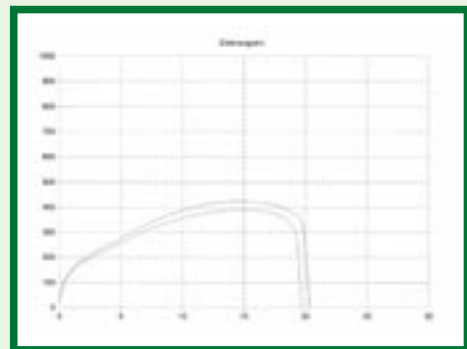


## EXTENSOGRAM

23

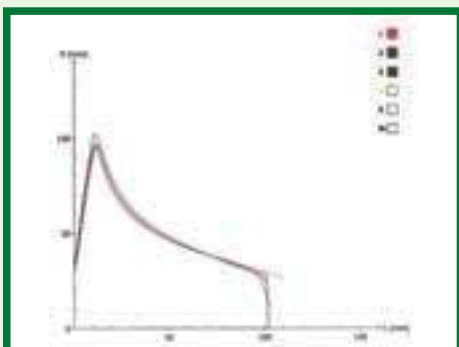


24

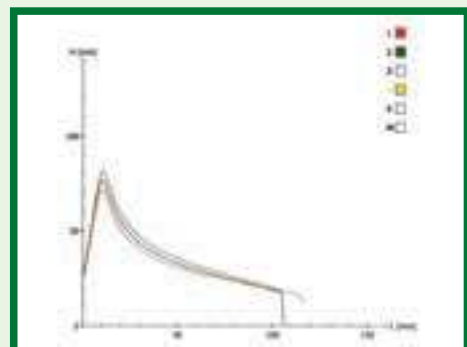


## ALVEOGRAM

23



24



## South African Quality data per production region

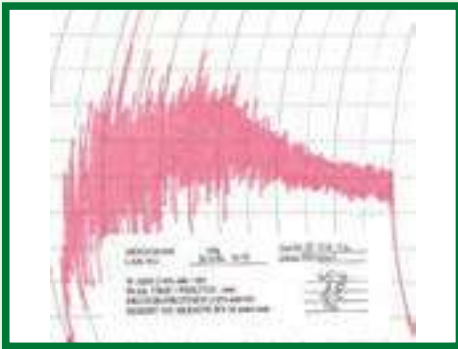
### SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(25) Free State South-Western Region				(26) Free State South-Eastern Region							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	13.5	11.4	15.3	1.45	13.8	11.6	15.9	3.04				
Falling number, sec	349	335	379	15.27	386	348	424	53.74				
1000 Kernel mass (13% mb), g	36.1	27.0	42.6	4.71	32.4	29.4	35.3	4.17				
Hectolitre mass (dirty), kg/hl	81.7	77.5	85.1	2.96	79.2	78.9	79.4	0.35				
Screenings (<1.8 mm sieve), %	2.17	0.34	6.48	1.95	1.66	1.01	2.30	0.91				
Total damaged kernels, %	0.45	0.10	0.68	0.17	0.62	0.32	0.92	0.42				
Combined deviations, %	3.21	0.90	8.40	2.41	2.78	2.67	2.88	0.15				
<b>Number of samples</b>	<b>9</b>				<b>2</b>							
<b>CULTIVARS</b>												
	PAN 3161				ELANDS							
cultivars	SST 875				SST 387							
with highest %	ELANDS				PAN 3368							
occurrence	SST 884				PAN 3161							
	PAN 3118				SST 347							
<b>Number of samples</b>	<b>9</b>				<b>2</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	2.7	2.2	3.1	0.32	2.9	2.6	3.2	0.42				
Tail height (6 min), mm	54	49	59	3.21	59	57	60	2.12				
<b>Number of samples</b>	<b>9</b>				<b>2</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	72.7	74.4	-	73.1	-	-	72.3	73.7	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.7	10.8	-	13.7	-	-	14.6	13.7	-	-	-	-
Ash (db), %	0.58	0.62	-	0.56	-	-	0.57	0.63	-	-	-	-
Colour, KJ (wet)	-3.5	-3.8	-	-3.3	-	-	-3.3	-3.2	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.57	93.66	-	93.16	-	-	93.42	92.99	-	-	-	-
a*	0.50	0.49	-	0.47	-	-	0.49	0.59	-	-	-	-
b*	10.11	9.71	-	9.55	-	-	10.38	10.41	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2167	2229	-	2332	-	-	2165	2313	-	-	-	-
Minimum viscosity (Through), cP	1569	1702	-	1788	-	-	1553	1618	-	-	-	-
Final Viscosity, cP	2457	2503	-	2648	-	-	2536	2652	-	-	-	-
Peak Time, min	7.00	7.00	-	7.00	-	-	7.00	7.00	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	35.1	28.8	-	38.2	-	-	41.0	36.9	-	-	-	-
Dry gluten (14% mb), %	12.2	9.6	-	13.6	-	-	14.2	13.1	-	-	-	-
Gluten Index	96	94	-	88	-	-	85	98	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	64.9	62.1	-	65.0	-	-	66.2	62.6	-	-	-	-
Development time, min	7.0	5.3	-	6.7	-	-	6.9	8.5	-	-	-	-
Stability, min	8.8	6.8	-	8.3	-	-	9.1	11.4	-	-	-	-
Mixing tolerance index, BU	26	39	-	33	-	-	24	28	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	108	79	-	103	-	-	119	130	-	-	-	-
Maximum height, BU	374	308	-	312	-	-	346	436	-	-	-	-
Extensibility, mm	201	177	-	231	-	-	245	217	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	47.1	29.7	-	54.6	-	-	52.6	53.2	-	-	-	-
Stability (P), mm	103	87	-	91	-	-	105	97	-	-	-	-
Distensibility (L), mm	102	78	-	139	-	-	105	115	-	-	-	-
Configuration ratio (P/L)	1.01	1.12	-	0.65	-	-	1.00	0.84	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.3	2.6	-	2.2	-	-	2.2	2.8	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1079	944	-	1162	-	-	1138	1131	-	-	-	-
Evaluation (see page 69)	0	0	-	0	-	-	0	0	-	-	-	-

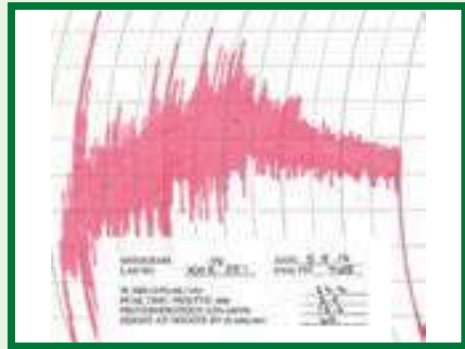
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

25

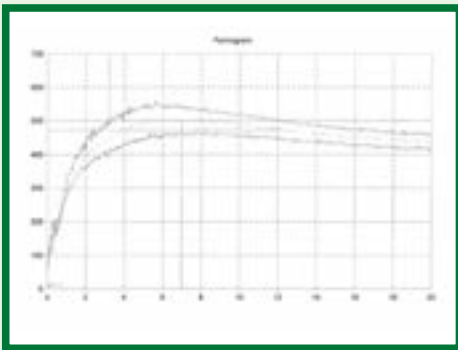


26

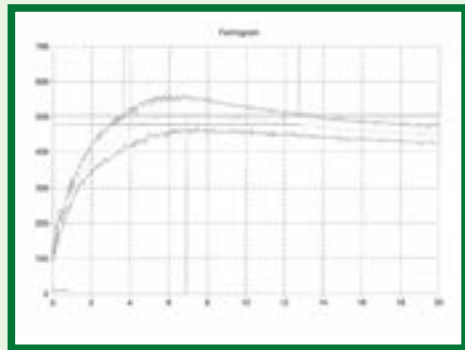


## FARINOGRAM

25



26

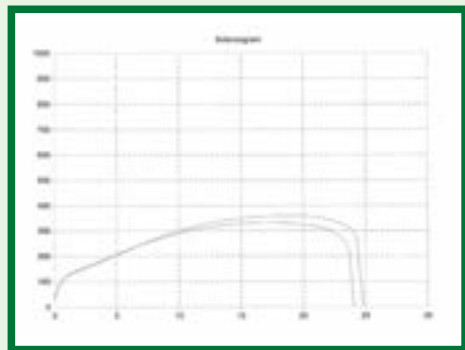


## EXTENSOGRAM

25

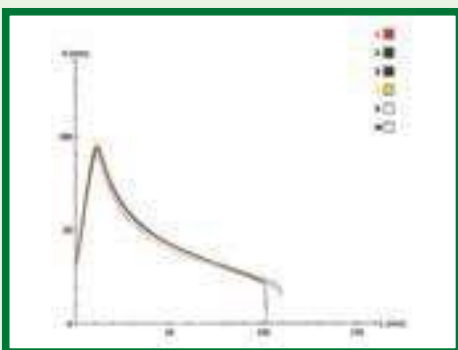


26

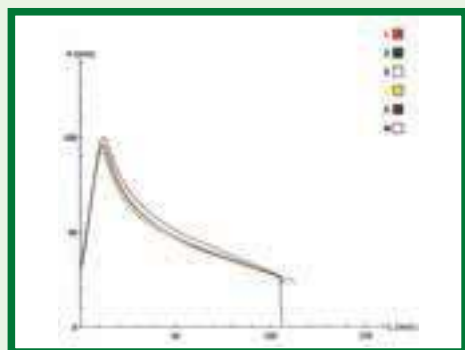


## ALVEOGRAM

25



26



## South African Quality data per production region

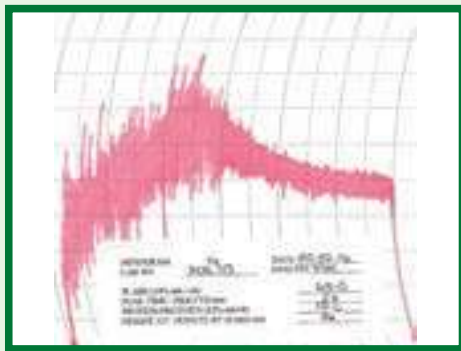
### SUMMER RAINFALL AND IRRIGATION WHEAT

PRODUCTION REGION	(28) Free State Eastern Region				(32) Mpumalanga Western Region							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	13.5	11.1	15.1	1.29	13.4	12.1	14.1	1.10				
Falling number, sec	379	339	419	27.25	401	367	430	31.80				
1000 Kernel mass (13% mb), g	36.3	28.3	42.1	3.99	33.3	30.1	38.7	4.70				
Hectolitre mass (dirty), kg/hl	81.4	76.1	84.5	2.65	80.6	77.9	83.7	2.92				
Screenings (<1.8 mm sieve), %	1.32	0.10	2.38	0.69	3.83	2.26	6.07	1.99				
Total damaged kernels, %	0.41	0.00	1.44	0.43	0.49	0.44	0.56	0.06				
Combined deviations, %	2.37	0.28	6.06	1.73	4.70	3.02	7.13	2.16				
<b>Number of samples</b>	<b>11</b>				<b>3</b>							
<b>CULTIVARS</b>												
	ELANDS				SST 835							
cultivars	SST 356				SST 875							
with highest %	SST 835				SST 884							
occurrence	SST 387				SST 843							
	SST 875				-							
<b>Number of samples</b>	<b>11</b>				<b>3</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	2.5	2.2	3.0	0.21	2.8	2.7	2.9	0.10				
Tail height (6 min), mm	54	48	61	3.88	56	52	59	3.79				
<b>Number of samples</b>	<b>11</b>				<b>3</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	72.9	74.8	-	-	74.3	-	75.8	-	-	73.9	-	-
<b>FLOUR</b>												
Protein (12% mb), %	12.8	11.9	-	-	11.8	-	11.1	-	-	13.3	-	-
Ash (db), %	0.62	0.64	-	-	0.69	-	0.64	-	-	0.70	-	-
Colour, KJ (wet)	-3.4	-3.6	-	-	-3.6	-	-3.6	-	-	-3.3	-	-
Colour, Minolta CM5 (dry)												
L*	93.56	93.75	-	-	93.59	-	93.79	-	-	93.28	-	-
a*	0.46	0.40	-	-	0.48	-	0.44	-	-	0.57	-	-
b*	9.84	8.99	-	-	9.25	-	9.17	-	-	10.06	-	-
<b>RVA</b>												
Peak Viscosity, cP	2224	2282	-	-	2427	-	2225	-	-	2380	-	-
Minimum viscosity (Through), cP	1601	1649	-	-	1725	-	1699	-	-	1771	-	-
Final Viscosity, cP	2560	2548	-	-	2747	-	2395	-	-	2574	-	-
Peak Time, min	7.00	7.00	-	-	7.00	-	7.00	-	-	7.00	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	34.2	32.1	-	-	32.8	-	29.6	-	-	36.4	-	-
Dry gluten (14% mb), %	11.8	11.0	-	-	10.8	-	10.2	-	-	13.2	-	-
Gluten Index	96	96	-	-	84	-	97	-	-	98	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	63.2	62.6	-	-	59.6	-	60.3	-	-	61.7	-	-
Development time, min	6.0	5.2	-	-	4.4	-	5.2	-	-	5.7	-	-
Stability, min	6.8	6.6	-	-	4.4	-	6.1	-	-	7.5	-	-
Mixing tolerance index, BU	36	39	-	-	61	-	56	-	-	34	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	107	93	-	-	85	-	97	-	-	135	-	-
Maximum height, BU	355	352	-	-	307	-	380	-	-	407	-	-
Extensibility, mm	213	192	-	-	192	-	182	-	-	235	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	39.1	41.4	-	-	32.5	-	33.6	-	-	42.5	-	-
Stability (P), mm	94	93	-	-	64	-	77	-	-	71	-	-
Distensibility (L), mm	95	107	-	-	157	-	107	-	-	160	-	-
Configuration ratio (P/L)	0.99	0.87	-	-	0.41	-	0.72	-	-	0.44	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.3	2.4	-	-	2.0	-	2.6	-	-	2.2	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1034	1015	-	-	1038	-	1023	-	-	1141	-	-
Evaluation (see page 69)	0	0	-	-	0	-	0	-	-	0	-	-

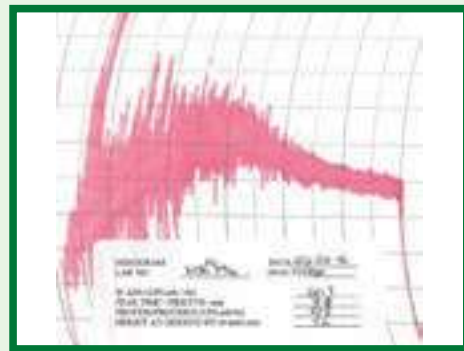
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

28

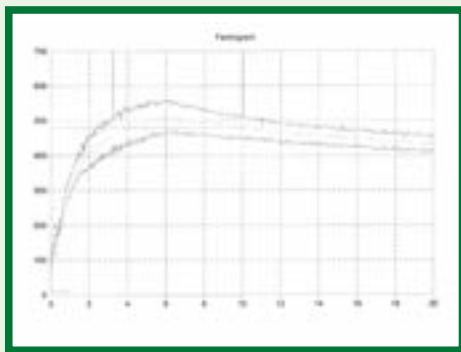


32

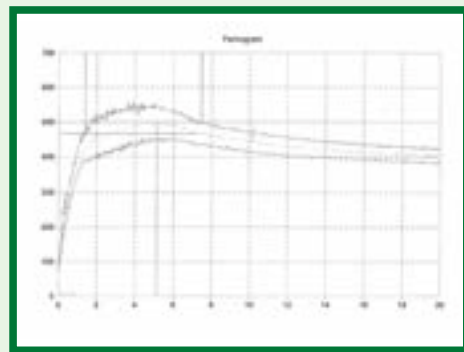


## FARINOGRAM

28



32

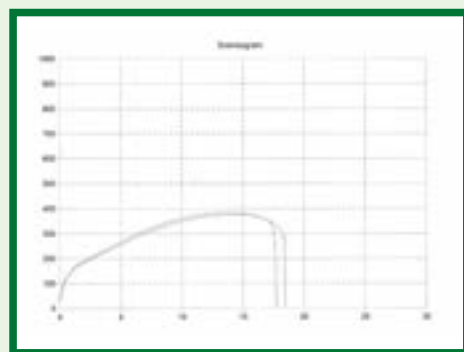


## EXTENSOGRAM

28

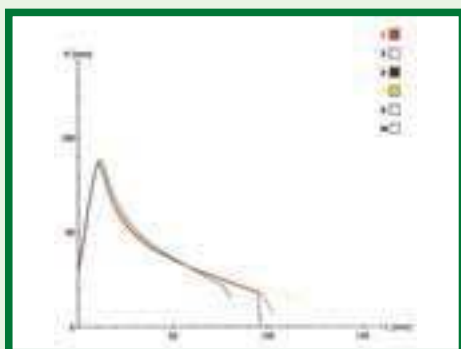


32

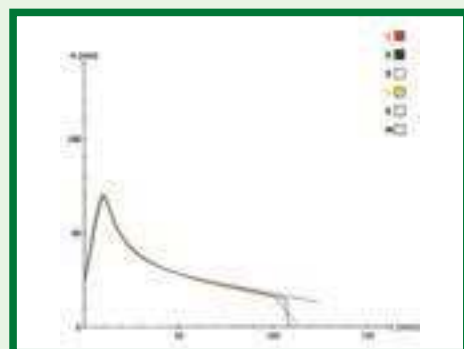


## ALVEOGRAM

28



32



53

## South African Quality data per production region

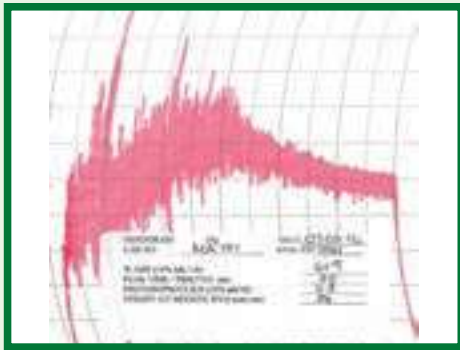
### IRRIGATION WHEAT

PRODUCTION REGION	(33) Mpumalanga Northern Region				(34) Gauteng							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	12.5	12.2	12.8	0.28	13.2	13.0	13.5	0.29				
Falling number, sec	391	355	407	24.39	399	369	434	32.72				
1000 Kernel mass (13% mb), g	38.6	37.6	39.5	0.90	39.3	35.9	43.2	3.68				
Hectolitre mass (dirty), kg/hl	85.4	85.3	85.4	0.05	81.4	79.2	84.6	2.82				
Screenings (<1.8 mm sieve), %	0.80	0.50	1.20	0.29	1.14	0.76	1.87	0.64				
Total damaged kernels, %	0.21	0.10	0.26	0.08	0.63	0.32	0.78	0.27				
Combined deviations, %	1.16	1.02	1.38	0.16	1.92	1.66	2.39	0.41				
<b>Number of samples</b>	<b>4</b>				<b>3</b>							
<b>CULTIVARS</b>												
	SST 884		45.3		SST 884		40.0					
cultivars with highest % occurrence	SST 843		19.5		SST 875		35.3					
	SST 875		10.0		SST 835		16.0					
	DUZI		9.8		SST 806		8.7					
	SST 835		6.3		-		-					
<b>Number of samples</b>	<b>4</b>				<b>3</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.0	2.9	3.1	0.10	2.7	2.3	3.1	0.40				
Tail height (6 min), mm	53	52	54	0.96	52	49	54	2.52				
<b>Number of samples</b>	<b>4</b>				<b>3</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	74.6	-	-	-	-	-	74.9	-	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	11.6	-	-	-	-	-	12.4	-	-	-	-	-
Ash (db), %	0.60	-	-	-	-	-	0.60	-	-	-	-	-
Colour, KJ (wet)	-3.7	-	-	-	-	-	-3.4	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.64	-	-	-	-	-	93.68	-	-	-	-	-
a*	0.51	-	-	-	-	-	0.46	-	-	-	-	-
b*	9.34	-	-	-	-	-	9.41	-	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2289	-	-	-	-	-	2320	-	-	-	-	-
Minimum viscosity (Through), cP	1674	-	-	-	-	-	1780	-	-	-	-	-
Final Viscosity, cP	2552	-	-	-	-	-	2463	-	-	-	-	-
Peak Time, min	7.00	-	-	-	-	-	7.00	-	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	30.0	-	-	-	-	-	34.0	-	-	-	-	-
Dry gluten (14% mb), %	10.4	-	-	-	-	-	11.6	-	-	-	-	-
Gluten Index	97	-	-	-	-	-	93	-	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	61.1	-	-	-	-	-	61.8	-	-	-	-	-
Development time, min	7.0	-	-	-	-	-	5.5	-	-	-	-	-
Stability, min	9.1	-	-	-	-	-	7.7	-	-	-	-	-
Mixing tolerance index, BU	34	-	-	-	-	-	33	-	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	117	-	-	-	-	-	91	-	-	-	-	-
Maximum height, BU	427	-	-	-	-	-	347	-	-	-	-	-
Extensibility, mm	197	-	-	-	-	-	188	-	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	45.7	-	-	-	-	-	43.7	-	-	-	-	-
Stability (P), mm	96	-	-	-	-	-	81	-	-	-	-	-
Distensibility (L), mm	104	-	-	-	-	-	133	-	-	-	-	-
Configuration ratio (P/L)	0.92	-	-	-	-	-	0.61	-	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.9	-	-	-	-	-	2.4	-	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1005	-	-	-	-	-	1053	-	-	-	-	-
Evaluation (see page 69)	0	-	-	-	-	-	0	-	-	-	-	-

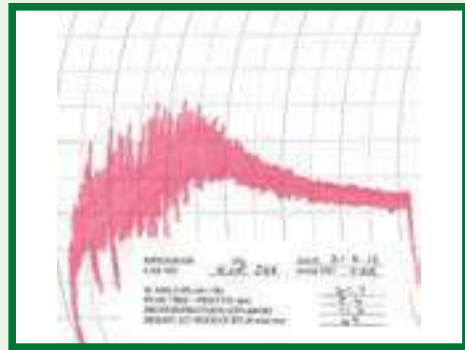
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

33

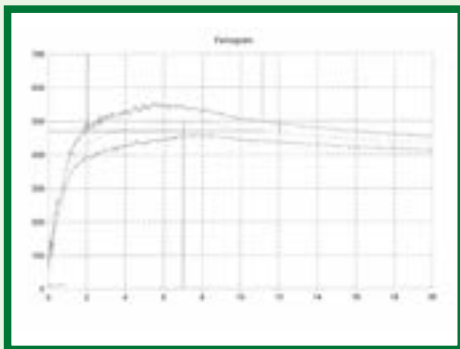


34

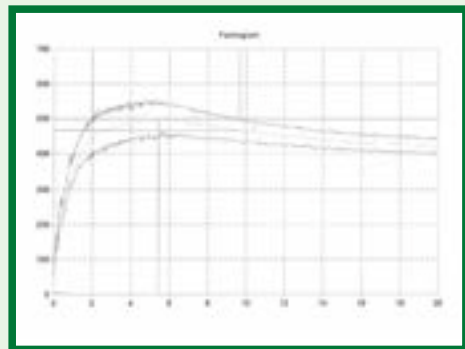


## FARINOGRAM

33



34

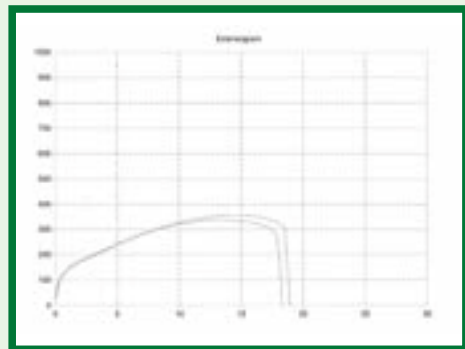


## EXTENSOGRAM

33

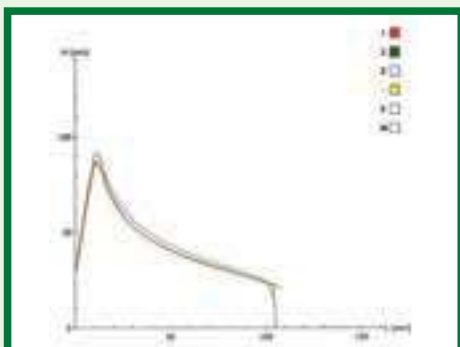


34

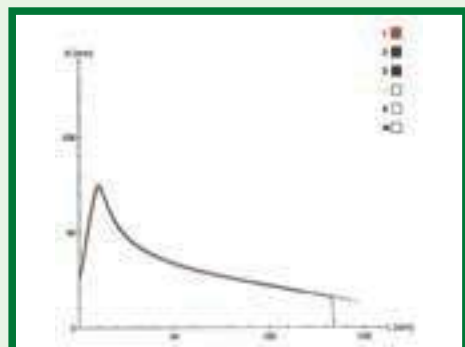


## ALVEOGRAM

33



34



55



## South African Quality data per production region

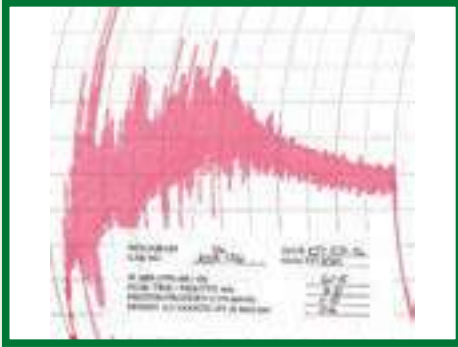
### IRRIGATION WHEAT

PRODUCTION REGION	(35) Limpopo Region				(36) Kwazulu-Natal							
<b>WHEAT</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Protein (12% mb), %	12.1	10.7	13.3	0.85	13.6	12.0	14.4	0.70				
Falling number, sec	401	337	548	55.27	429	305	487	54.67				
1000 Kernel mass (13% mb), g	38.5	30.4	45.2	4.25	37.3	35.3	40.6	1.58				
Hectolitre mass (dirty), kg/hl	82.3	76.7	85.4	2.52	84.0	82.9	85.4	0.77				
Screenings (<1.8 mm sieve), %	1.13	0.12	2.78	0.78	0.49	0.16	1.29	0.42				
Total damaged kernels, %	0.74	0.00	2.00	0.55	0.44	0.08	1.58	0.50				
Combined deviations, %	2.46	0.87	4.38	1.22	1.10	0.48	2.62	0.79				
<b>Number of samples</b>	<b>11</b>				<b>9</b>							
<b>CULTIVARS</b>												
	SST 884				SST 835							
cultivars	DUZI				SST 875							
with highest %	SST 835				SST 884							
occurrence	SST 843				PAN 3471							
	SST 875				SST 843							
<b>Number of samples</b>	<b>11</b>				<b>9</b>							
<b>MIXOGRAM (Quadromat Junior)</b>												
	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>	<b>ave</b>	<b>min</b>	<b>max</b>	<b>stdev</b>				
Peak time, min	3.1	2.3	3.9	0.54	2.9	2.5	3.4	0.35				
Tail height (6 min), mm	55	50	58	2.96	54	51	59	2.65				
<b>Number of samples</b>	<b>11</b>				<b>9</b>							
<b>COMPOSITE SAMPLES</b>												
<b>CLASS AND GRADE</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>UT</b>	<b>COW</b>
BÜHLER EXTRACTION, %	73.6	74.0	73.5	-	74.0	-	75.7	-	-	-	-	-
<b>FLOUR</b>												
Protein (12% mb), %	11.8	11.5	9.7	-	11.3	-	12.7	-	-	-	-	-
Ash (db), %	0.61	0.73	0.59	-	0.69	-	0.64	-	-	-	-	-
Colour, KJ (wet)	-3.7	-3.0	-3.5	-	-3.4	-	-3.4	-	-	-	-	-
Colour, Minolta CM5 (dry)												
L*	93.81	93.41	93.40	-	93.33	-	93.61	-	-	-	-	-
a*	0.45	0.53	0.38	-	0.50	-	0.53	-	-	-	-	-
b*	9.05	9.62	10.24	-	9.74	-	9.29	-	-	-	-	-
<b>RVA</b>												
Peak Viscosity, cP	2363	1939	2347	-	2409	-	2219	-	-	-	-	-
Minimum viscosity (Through), cP	1795	1481	1767	-	1746	-	1698	-	-	-	-	-
Final Viscosity, cP	2569	2081	2578	-	2681	-	2319	-	-	-	-	-
Peak Time, min	7.00	7.00	7.00	-	7.00	-	7.00	-	-	-	-	-
<b>GLUTEN</b>												
Wet gluten (14% mb), %	31.2	30.1	25.4	-	30.3	-	34.8	-	-	-	-	-
Dry gluten (14% mb), %	10.8	10.3	8.7	-	10.1	-	12.0	-	-	-	-	-
Gluten Index	97	96	98	-	96	-	94	-	-	-	-	-
<b>FARINOGRAM</b>												
Water absorption (14% mb), %	60.6	60.0	61.4	-	60.2	-	61.4	-	-	-	-	-
Development time, min	6.0	5.7	7.5	-	5.3	-	5.9	-	-	-	-	-
Stability, min	8.7	6.6	12.5	-	8.8	-	7.1	-	-	-	-	-
Mixing tolerance index, BU	34	48	22	-	25	-	46	-	-	-	-	-
<b>EXTENSOGRAM (45 min pull)</b>												
Area, cm <sup>2</sup>	133	91	111	-	108	-	144	-	-	-	-	-
Maximum height, BU	481	362	478	-	429	-	424	-	-	-	-	-
Extensibility, mm	204	181	171	-	183	-	243	-	-	-	-	-
<b>ALVEOGRAM</b>												
Strength (S), cm <sup>2</sup>	42.7	32.0	44.2	-	36.4	-	40.3	-	-	-	-	-
Stability (P), mm	89	74	112	-	87	-	72	-	-	-	-	-
Distensibility (L), mm	108	103	83	-	92	-	148	-	-	-	-	-
Configuration ratio (P/L)	0.82	0.72	1.35	-	0.95	-	0.49	-	-	-	-	-
<b>MIXOGRAM</b>												
Peak time, min	2.8	3.0	3.3	-	2.8	-	2.4	-	-	-	-	-
<b>100g BAKING TEST</b>												
Loaf volume, cm <sup>3</sup>	1020	994	855	-	997	-	1133	-	-	-	-	-
Evaluation (see page 69)	0	0	0	-	0	-	0	-	-	-	-	-

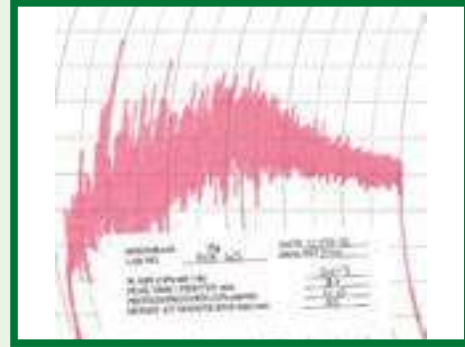
# RHEOLOGICAL GRAPHS PER PRODUCTION REGION

## MIXOGRAM

35

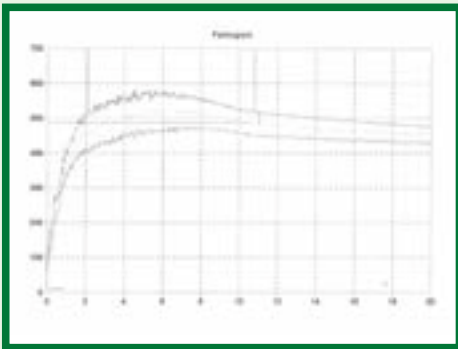


36

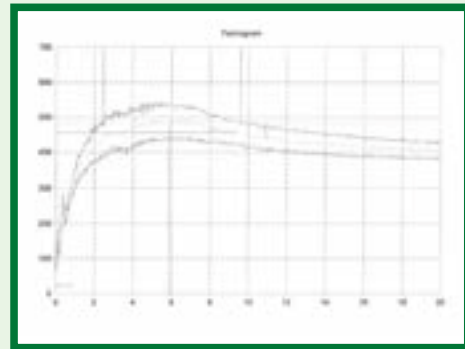


## FARINOGRAM

35



36

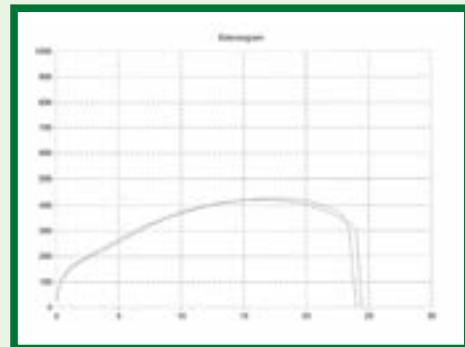


## EXTENSOGRAM

35

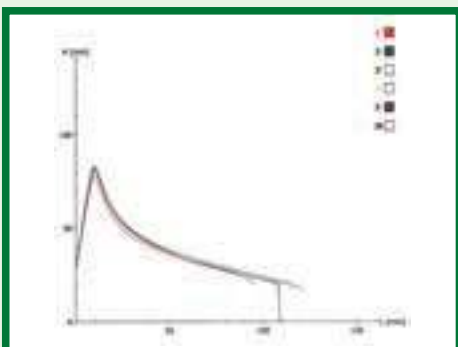


36

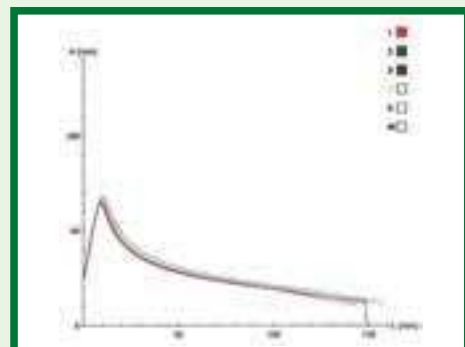


## ALVEOGRAM

35



36



57