

· 20th Edition ·



ARGENTINE WHEAT INSTITUTIONAL QUALITY REPORT

2017 | 2018 CROP

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WHEAT (TRITICUM AESTIVUM)

2017/2018 GROWING SEASON

FINAL CONSIDERATIONS AND SAMPLING STRUCTURE

The 2017/18 wheat crop season was marked by high yields in the main growing areas, as was the case in the past three seasons. On the other hand, protein content was generally low.

National production is estimated at 18.445 million tons, slightly higher than 2016/17 season, with 18,340 million tons. 5,897 million hectares were planted and 5,793 were harvested. Average national yield was 3,184 kg/h, down 124 kg/h from the national average corresponding to the previous growing season. Planting was under good soil moisture; rains were above average most of the months and planting was not possible in some plots with water excess. July to September temperatures were above average. Heading occurred about 5 to 7 days earlier in certain cultivars. No strong frosts were

recorded at seedling and tillering. Phosphate fertilizers were applied at planting. Nitrogen fertilization was used before planting or at planting/tillering. The incidence of foliar diseases was relevant due to predisposing factors and new races of wheat rust. There was an early attack of yellow rust that continued along the crop cycle; susceptible cultivars were very negatively affected. At the end of the cycle, in just a few cultivars, there was a light attack of stem rust, and a mild attack of wheat leaf spot, together with some fusarium. A light incidence of stem bacteriosis was detected in long and intermediate-cycle cultivars. Grain filling developed under optimum temperatures along the entire period. Harvest was under regular conditions, and grain yields were very good. Some plots in subregions IIN, IIS and IV presented yields close to their potentials, with 6,000 and 7,000 kg/h averages.

PLANTED AREA, HARVESTED AREA, PRODUCTION AND YIELD, BY SUB-REGIONS

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Based on data from the
Dirección de Cultivos Extensivos
de la Subsecretaría de
Agricultura. 2017-2018 Crop

SUBREGION	AREA PLANTED (HA)	AREA HARVESTED (HA)	YIELD (KG/HA)	PRODUCTION (TN)
I	658.590	649.715	2.832	1.840.229
II North	871.166	827.806	4.326	3.580.927
II South	714.240	699.725	4.410	3.085.819
III	417.530	413.230	2.687	1.110.361
IV	518.951	518.071	4.327	2.241.554
V North	703.620	699.745	3.079	2.154.600
V South	1.032.960	1.023.710	2.746	2.810.825
Northeast	409.308	402.786	1.863	750.445
Northwest	571.555	558.895	1.558	870.564
NATIONAL	5.897.920	5.793.683	3.184	18.445.322

SAMPLING

3.024 PRIMARY
SAMPLES

WHEAT
ANALYSIS

253 LOCALITY
COMPOSITE SAMPLES

WHEAT
ANALYSIS

FLOUR
ANALYSIS

7 SUBREGION
COMPOSITE SAMPLES

WHEAT
ANALYSIS

FLOUR
ANALYSIS

SAMPLING STRUCTURE

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SUBREGION	LOCALITY COMPOSITE SAMPLES	SAMPLING (TONS)	PRODUCTION (TONS)	PRODUCTION SAMPLED
I	19	67.430	1.840.229	3,7
II North	58	369.312	3.580.927	10,3
II South	26	84.000	3.085.819	2,7
III	23	85.130	1.110.361	7,7
IV	25	84.698	2.241.554	3,8
V North	42	185.150	2.154.600	8,6
V South	53	183.303	2.810.825	6,5
Northeast	2	9.000	750.445	1,2
Northwest	5	20.000	870.564	2,3
TOTALS	253	1.088.023	18.445.322	5,9

NATIONAL AVERAGES

Weighted averages by tons produced in each region

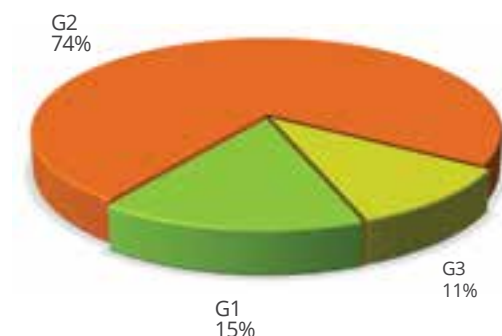
National Averages

Wheat

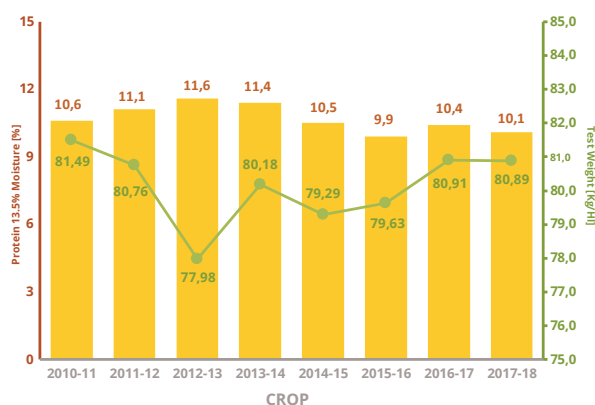
WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	76,35	85,30	80,89
Total Damaged Kernels (%)	0,00	1,82	0,40
Foreign Material (%)	0,06	1,50	0,36
Shrunken and Broken Kernels (%)	0,06	1,32	0,46
Yellow Berry Kernels (%)	0,00	39,20	6,59
Protein (13,5% Moisture) (%)	8,0	12,4	10,1
Protein (dry basis) (%)	9,2	14,3	11,8
Weight of 1000 Kernels (g.)	28,30	43,20	35,20
Ash (dry basis) (%)	1,487	2,266	1,791

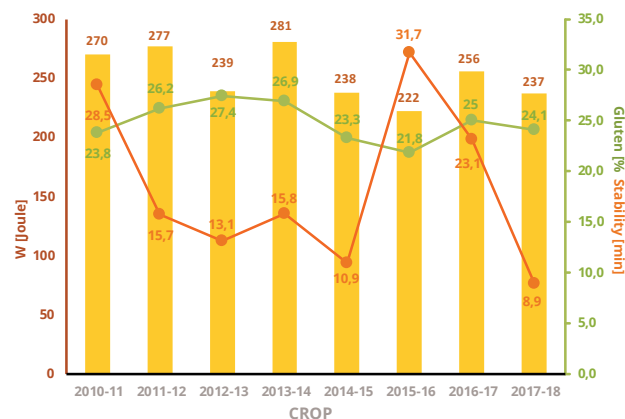
GRADE DISTRIBUTION



PROTEIN (13.5% MOISTURE) VS TEST WEIGHT



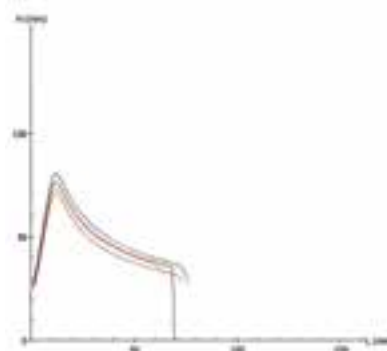
W, WET GLUTEN AND STABILITY



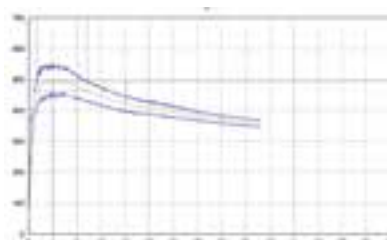
FLOUR ANALYSIS

FLOUR ANALYSIS		Minimum	Maximum	Average
MILLING	Wet Gluten (%)	16,1	29,5	24,1
	Dry Gluten (%)	5,6	11,1	8,5
	Falling Number (sec.)	295	560	392
	Flour Yield (%)	47,80	76,70	69,37
	Ash (dry basis) (%)	0,470	0,909	0,648
FARINOGRAM	Water Absorption (14% H°) (%)	52,1	65,2	57,9
	Development Time (min.)	1,4	13,2	4,2
	Stability (min.)	1,5	23,6	8,9
	Degree of Softening (12 min.)	22	106	57
ALVEOGRAM	P (mm)	60	148	89
	L (mm)	39	128	79
	W joules X 10 4	154	339	237
	P / L	0,47	3,29	1,13

ALVEOGRAM



FARINOGRAM



NATIONAL SUMMARY BY SUBREGIONS

Results of all the analyzed variables

Wheat

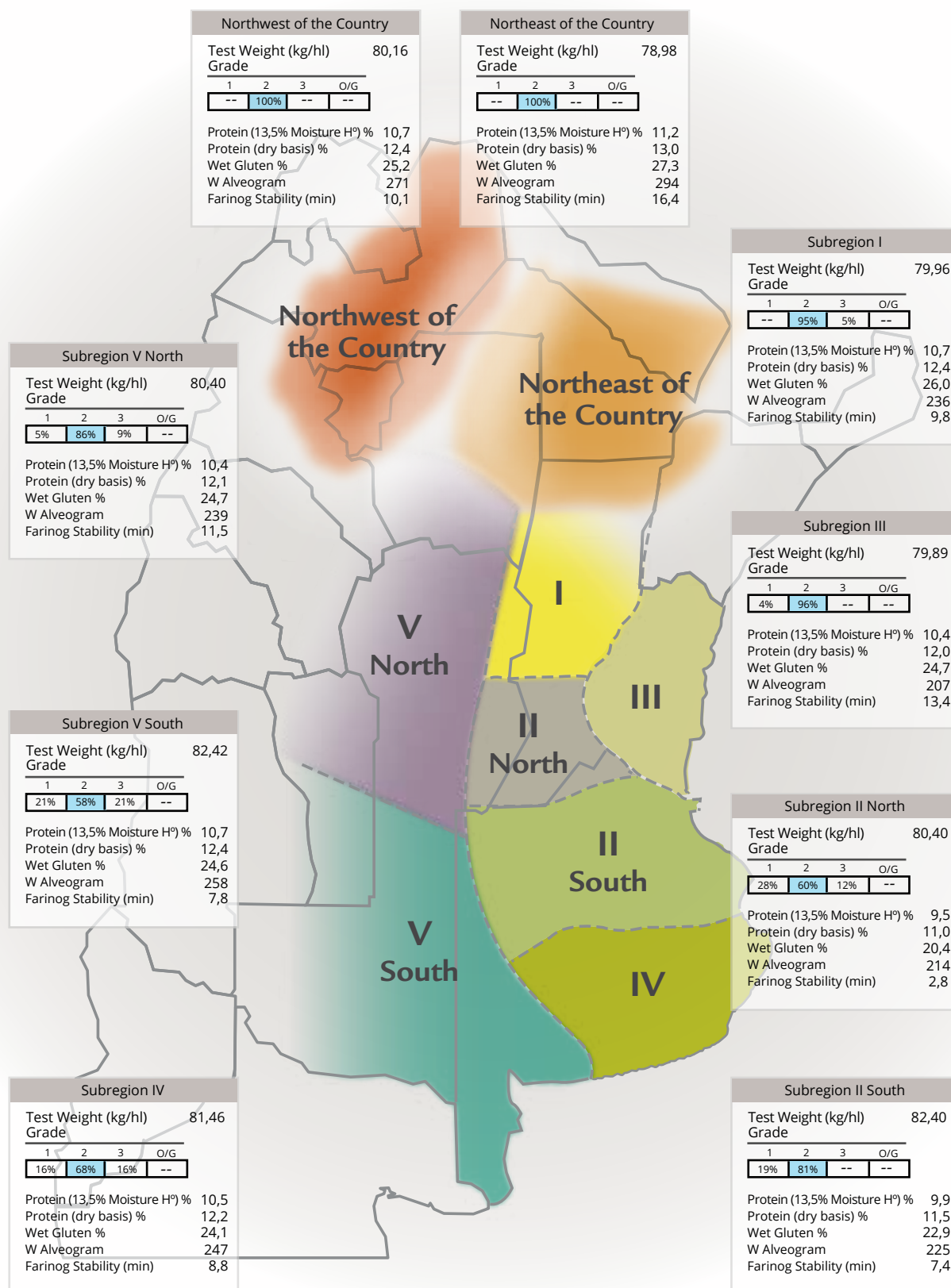
	SUBREGIONS									
	I	II N	II S	III	IV	V N	V S	NEA	NOA	PONDERED AVERAGE
GRAIN										
Test Weight (kg/hl)	79,96	80,40	82,40	79,89	81,46	80,40	82,42	78,98	80,16	80,89
Weight of 1000 kernels (gr)	32,88	35,10	36,19	33,87	37,87	34,34	36,31	30,44	32,70	35,16
Ash (dry basis) %	1,837	1,744	1,721	1,805	1,754	1,832	1,849	2,079	1,855	1,791
Protein (13,5% Moisture) (%)	10,7	9,5	9,9	10,4	10,5	10,4	10,7	11,2	10,7	10,1
Protein (dry basis) (%)	12,4	11,0	11,5	12,0	12,2	12,1	12,4	13,0	12,4	11,8
FLOUR										
Ash (dry basis) %	0,619	0,585	0,659	0,613	0,644	0,645	0,681	0,772	0,736	0,648
Color										
L	88,84	88,97	89,25	88,56	89,72	89,99	87,89	--	--	89,03
a	-1,70	-1,71	-1,85	-1,69	-1,81	-1,80	-1,65	--	--	-1,74
b	8,86	8,66	9,50	9,25	8,55	8,64	8,65	--	--	8,87
Moisture (%)	11,69	13,79	11,06	11,48	12,23	11,88	11,64	--	--	12,09
Protein (%)	10,0	8,7	9,0	9,9	9,6	9,4	9,9	--	--	9,4
Wet Gluten (%)	26,0	20,4	22,9	24,7	24,1	24,7	24,6	27,3	25,2	24,1
Dry Gluten (%)	8,8	6,9	8,5	8,9	8,4	8,7	8,5	10,1	9,3	8,5
Index Gluten (%)	99	100	99	93	99	98	98	--	--	98
Falling Number (seg)	401	418	398	393	391	377	414	415	340	392
Zeleny Test (cc)	38	35	31	35	42	38	36	--	--	36
FARINOGRAM										
Water Absorption (%)	57,5	56,6	56,9	58,2	59,2	56,8	60,5	55,8	57,9	57,9
Development Time (min)	4,3	2,0	3,3	7,1	3,2	6,1	2,9	6,5	4,4	4,2
Stability (min)	9,8	2,8	7,4	13,4	8,8	11,5	7,8	16,4	10,1	8,9
Degree of Softening (U.F.)	53	75	60	51	57	46	57	35	59	57
Quality Number	121	121	117	106	148	146	125	--	--	126
MIXOGRAM										
Development Time (min)	7,28	6,22	5,02	5,88	5,30	4,81	5,68	--	--	5,74
ALVEOGRAM										
P (mm)	71	86	95	84	100	89	97	84	91	89
L (mm)	104	69	65	72	71	77	80	103	94	79
G	20,5	17,5	18,5	21,8	19,4	18,8	20,3	--	--	19,5
W (Joules x 10-4)	236	214	225	207	247	239	258	294	271	237
P/L	0,68	1,24	1,47	1,16	1,41	1,15	1,22	0,82	0,97	1,13
le %	55,9	56,0	58,0	52,5	53,6	58,8	54,1	--	--	55,6
W (40) (Joules x 10-4)	132	140	149	111	154	143	146	--	--	139
CONSISTOGRAM										
WA 1700 (%) (Base 15%)	56,2	53,9	55,5	56,7	57,6	55,6	56,3	--	--	56,0
HYD2200 (%) (Base 15%)	53,7	51,4	53,0	54,2	55,0	53,1	53,8	--	--	53,5
PrMax (mb)	2270	2143	2198	2257	2394	2287	2065	--	--	2231
PrMax Time (Seg)	118	125	108	99	108	108	110	--	--	111
Tolerance (Seg)	217	271	282	175	227	263	267	--	--	243
Weakening 250 (mb)	391	163	194	551	398	295	233	--	--	318
Weakening 450 (mb)	886	748	795	966	959	776	648	--	--	825
RVA										
Maxim Viscosity (RVU)	174,17	195,25	177,67	168,42	174,50	210,08	174,92	--	--	182,14
Minimum Viscosity (RVU)	99,83	125,50	112,08	99,83	109,67	146,50	109,00	--	--	114,63
Final Viscosity (RVU)	202,42	231,17	207,08	201,00	196,21	243,00	195,92	--	--	217,97
BAKING										
Absorption (%)	61,0	60,0	61,0	61,0	61,0	61,0	61,0	--	--	60,9
Development Time (min)	3:00	2:30	3:00	3:00	3:00	3:00	3:30	--	--	3:00
Fermentation Time (min)	160	160	160	160	160	160	160	--	--	160
Loaf Volume (cc)	605	510	570	620	512	540	605	--	--	566
Specific Volume (cc/gr)	4,4	3,6	4,1	4,6	4,8	4,0	4,4	--	--	4,3

ARGENTINE WHEAT

Main Quality Parameters

Main Quality Parameters

Wheat



SUBREGION I – ANALYSIS RESULTS

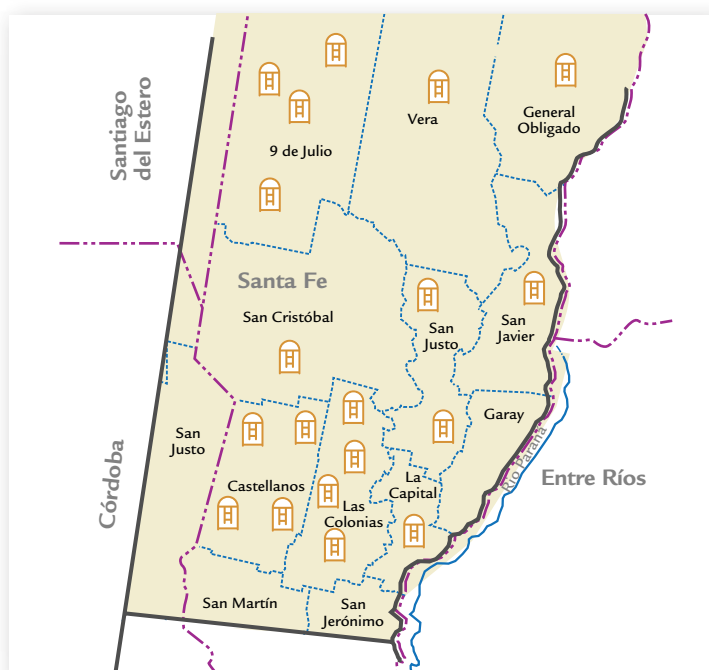
Weighted averages by tons of samples sets per location

Wheat

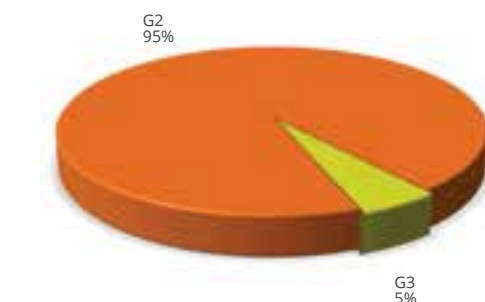
WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	77,60	81,80	79,96
Total Damaged Kernels (%)	0,18	1,82	1,00
Foreign Material (%)	0,12	1,20	0,37
Shrunken and Broken Kernels (%)	0,28	1,14	0,57
Yellow Berry Kernels (%)	0,00	14,20	5,31
Protein (13,5% Moisture) (%)	9,9	11,3	10,7
Protein (dry basis) (%)	11,4	13,1	12,4
Weight of 1000 Kernels (g.)	28,32	40,92	32,88
Ash (dry basis.) (%)	1,688	2,027	1,837

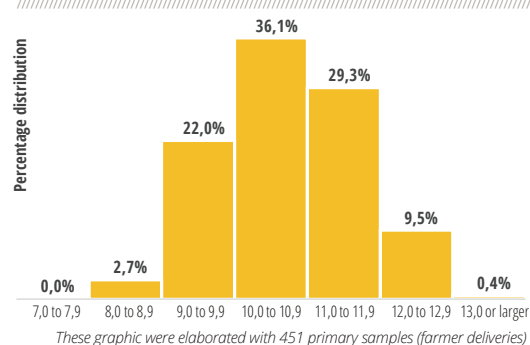
Total damaged kernels includes 0,12% green kernels, 0,06% frostand kernels, 0,69% kernels with fusarium and 0,12% insect chewed kernels . No damages due to carbon, calcinated kernels and burnt kernels.



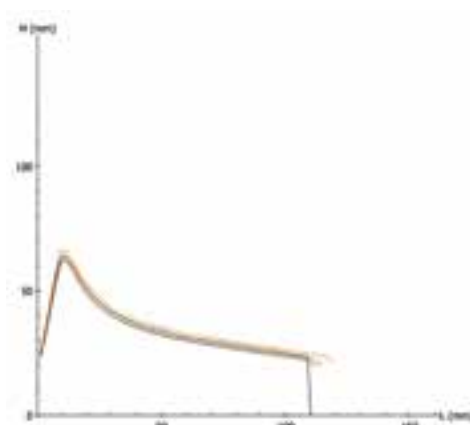
GRADE DISTRIBUTION



PROTEIN (13.5% MOISTURE)



ALVEOGRAM

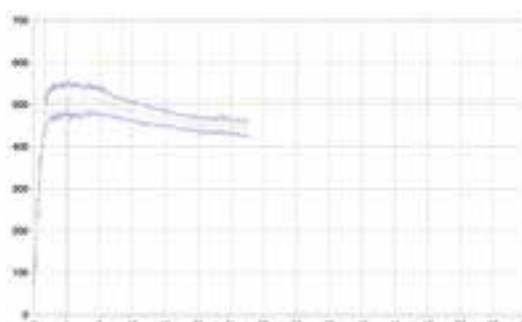


FLOUR ANALYSIS

	Minimun	Maximun	Average
Wet Gluten (%)	23,9	28,4	26,0
Dry Gluten (%)	8,1	9,6	8,8
MILLING Falling Number (sec.)	339	426	401
Flour Yield (%)	47,80	71,22	66,74
Ash (dry basis) (%)	0,495	0,715	0,619
Water Absorption (14% H°) (%)	54,7	61,3	57,5
FARINOGRAM Development Time (min.)	1,7	10,3	4,3
Stability (min.)	2,5	18,0	9,8
Degree of Softening (12 min.)	38	78	53
P (mm)	60	90	71
ALVEOGRAM L (mm)	79	128	104
W Joules x 10-4	198	282	236
P / L	0,47	1,13	0,68

These results were elaborated with 19 composite samples prepared proportionally from 451 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION II NORTH – ANALYSIS RESULTS

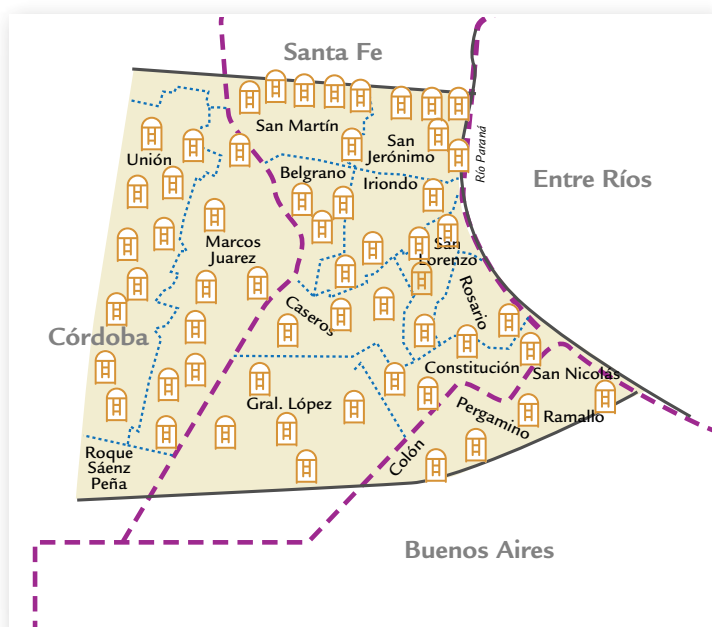
Weighted averages by tons of samples sets per location

Wheat

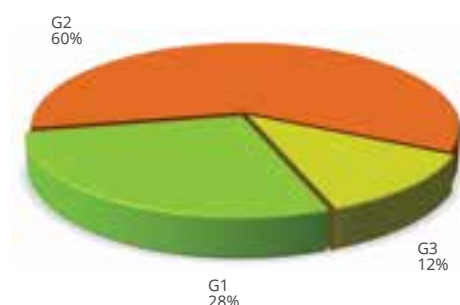
WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	77,00	84,10	80,40
Total Damaged Kernels (%)	0,00	1,00	0,33
Foreign Material (%)	0,10	1,00	0,28
Shrunken and Broken Kernels (%)	0,10	0,90	0,44
Yellow Berry Kernels (%)	0,40	39,20	11,96
Protein (13,5% Moisture) (%)	8,8	11,0	9,5
Protein (dry basis) (%)	10,2	12,7	11,0
Weight of 1000 Kernels (g.)	31,60	39,70	35,10
Ash (dry basis.) (%)	1,495	1,945	1,744

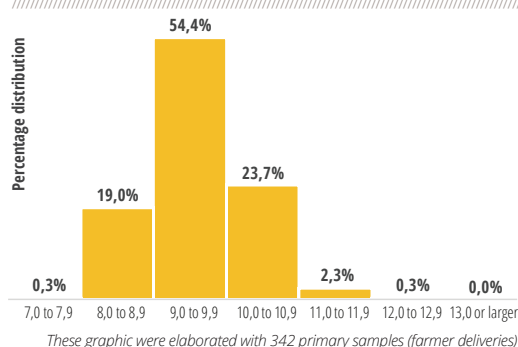
Total damaged kernels includes, 0,05% green kernels, 0,02% frosty kernels, 0,03% sprouted kernels, 0,07% insect chewed kernels, 0,10% kernels with fusarium, and 0,08% germ-chewed kernels. No damages due to carbon and burned grains.



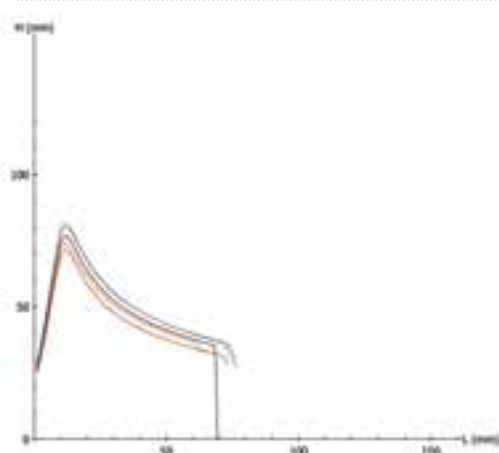
GRADE DISTRIBUTION



PROTEIN (13.5% MOISTURE)



ALVEOGRAM

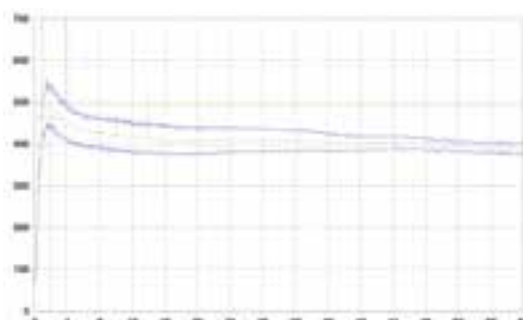


FLOUR ANALYSIS

	Minimun	Maximun	Average
Wet Gluten (%)	16,1	26,1	20,4
Dry Gluten (%)	5,6	8,7	6,9
MILLING Falling Number (sec.)	366	468	418
Flour Yield (%)	67,10	76,70	71,32
Ash (dry basis) (%)	0,485	0,745	0,585
Water Absorption (14% H ^o) (%)	53,5	60,1	56,6
FARINOGRAM Development Time (min.)	1,4	6,5	2,0
Stability (min.)	1,5	10,1	2,8
Degree of Softening (12 min.)	45	106	75
P (mm)	60	118	86
ALVEOGRAM L (mm)	40	107	69
W Joules x 10-4	166	263	214
P / L	0,57	2,95	1,24

These results were elaborated with 58 composite samples prepared proportionally from 342 primary samples (farmer deliveries).

FARINOGRAM



Wheat

Average

These results were elaborated with 26 composite samples prepared proportionally from 364 primary samples (farmer deliveries).

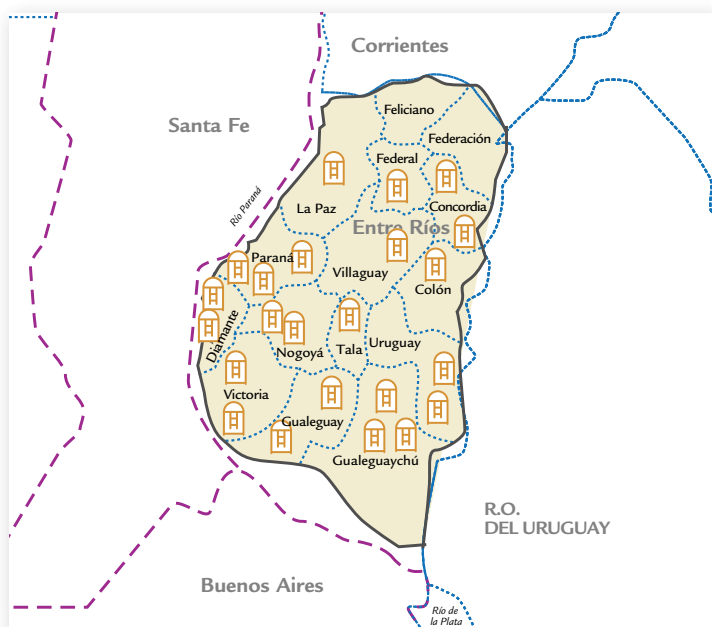
SUBREGION III – ANALYSIS RESULTS

Weighted averages by tons of samples sets per location

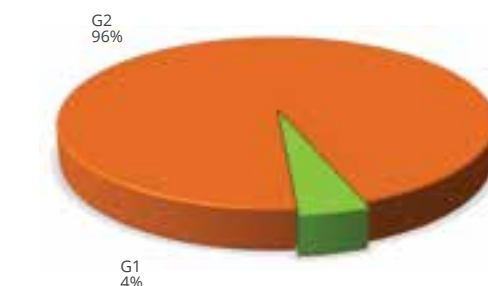
Wheat

WHEAT ANALYSIS	Minimun	Maximun	Average
Test Weight (kg/hl)	78,20	81,30	79,89
Total Damaged Kernels (%)	0,50	1,75	1,03
Foreign Material (%)	0,10	0,65	0,33
Shrunken and Broken Kernels (%)	0,24	1,15	0,67
Yellow Berry Kernels (%)	0,75	5,80	3,41
Protein (13,5% Moisture) (%)	10,1	10,7	10,4
Protein (dry basis) (%)	11,7	12,4	12,0
Weight of 1000 Kernels (g.)	28,30	37,02	33,87
Ash (dry basis.) (%)	1,560	2,040	1,805

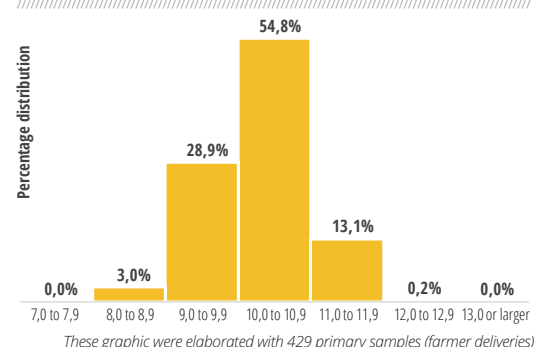
Total damaged kernels includes 0,24% green kernels, 0,06% sprouted kernels, 0,01% insect chewed kernels, 0,05% germ-chewed kernels and 0,62% kernels with fusarium. No damages due to carbon, frostand kernels, calcinated kernels and burnt kernels.



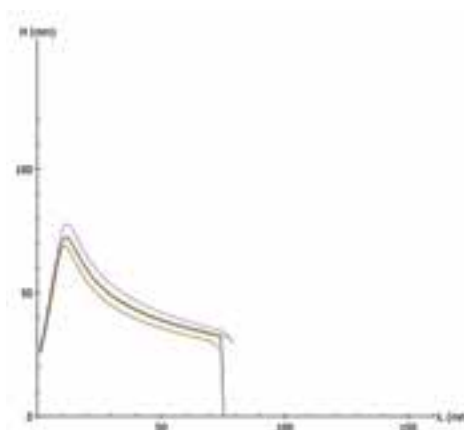
GRADE DISTRIBUTION



PROTEIN (13.5% MOISTURE)



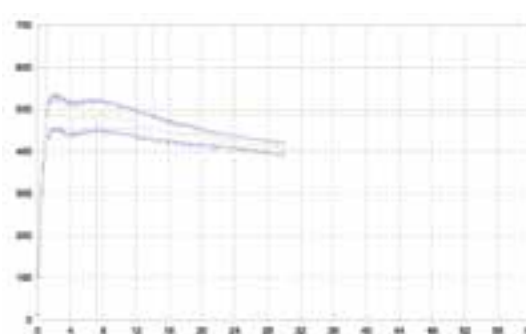
ALVEOGRAM



FLOUR ANALYSIS	Minimun	Maximun	Average
Wet Gluten (%)	20,8	26,6	24,7
Dry Gluten (%)	7,6	9,5	8,9
MILLING			
Falling Number (sec.)	366	412	393
Flour Yield (%)	66,97	73,12	69,89
Ash (dry basis) (%)	0,547	0,705	0,613
FARINOGRAM			
Water Absorption (14% H°) (%)	55,3	60,3	58,2
Development Time (min.)	2,1	10,0	7,1
Stability (min.)	6,3	20,2	13,4
Degree of Softening (12 min.)	30	82	51
ALVEOGRAM			
P (mm)	64	101	84
L (mm)	47	103	72
W Joules x 10-4	169	260	207
P / L	0,75	1,92	1,16

These results were elaborated with 23 composite samples prepared proportionally from 429 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION IV – ANALYSIS RESULTS

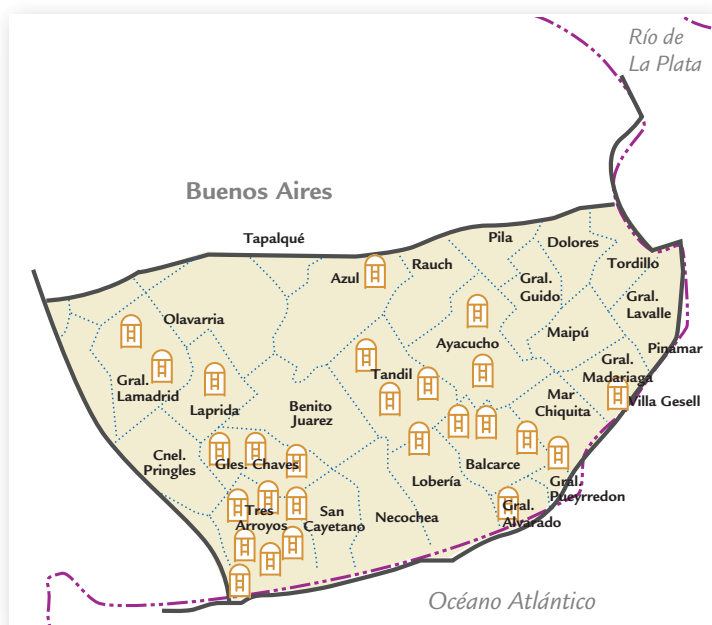
Weighted averages by tons of samples sets per location

Wheat

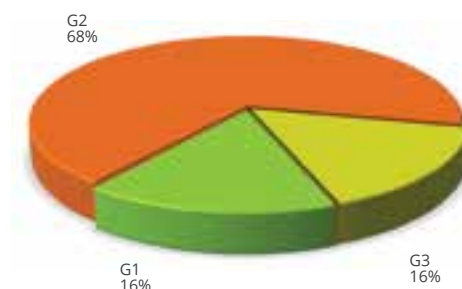
WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	78,20	85,30	81,46
Total Damaged Kernels (%)	0,00	0,52	0,19
Foreign Material (%)	0,06	1,08	0,45
Shrunken and Broken Kernels (%)	0,06	0,76	0,28
Yellow Berry Kernels (%)	0,40	8,80	2,79
Protein (13,5% Moisture) (%)	9,7	11,4	10,5
Protein (dry basis) (%)	11,2	13,2	12,2
Weight of 1000 Kernels (g.)	33,70	43,20	37,87
Ash (dry basis.) (%)	1,564	1,916	1,754

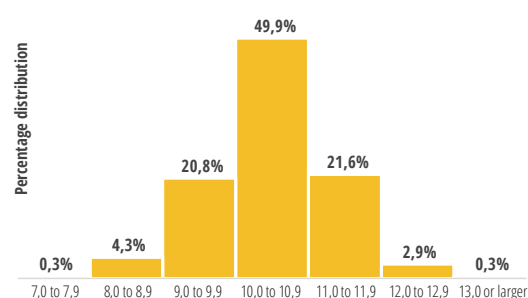
Total damaged kernels includes 0,05% frostand kernels, 0,01% sprouted kernels, 0,02% insect chewed kernels, 0,01% germ-chewed kernels, 0,02% calcinated kernels. No damages due to carbon, green kernels and burnt kernels.



GRADE DISTRIBUTION

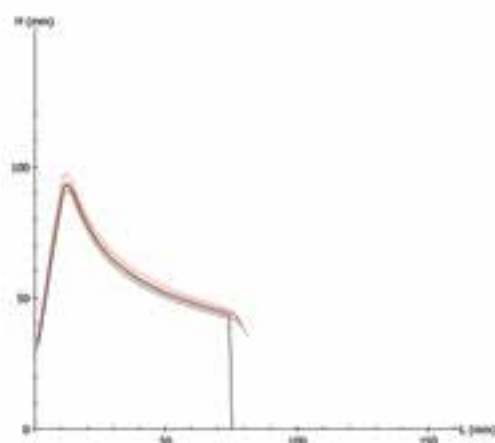


PROTEIN (13.5% MOISTURE)



These graphic were elaborated with 375 primary samples (farmer deliveries)

ALVEOGRAM

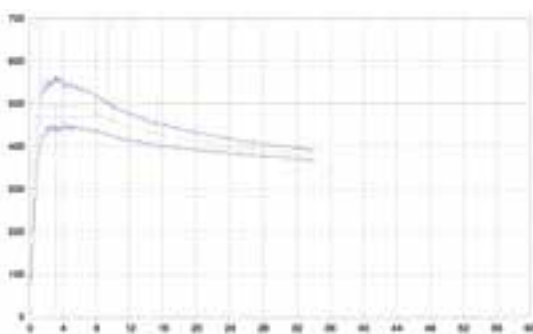


FLOUR ANALYSIS

	Minimun	Maximun	Average
Wet Gluten (%)	20,9	29,5	24,1
Dry Gluten (%)	7,6	10,1	8,4
MILLING			
Falling Number (sec.)	329	454	391
Flour Yield (%)	66,58	71,00	68,87
Ash (dry basis) (%)	0,540	0,742	0,644
FARINOGRAM			
Water Absorption (14% H°) (%)	55,0	63,0	59,2
Development Time (min.)	1,7	6,8	3,2
Stability (min.)	2,8	14,3	8,8
Degree of Softening (12 min.)	31	90	57
ALVEOGRAM			
P (mm)	85	148	100
L (mm)	42	119	71
W Joules x 10-4	198	306	247
P / L	0,76	3,29	1,41

These results were elaborated with 25 composite samples prepared proportionally from 375 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION V NORTH – ANALYSIS RESULTS

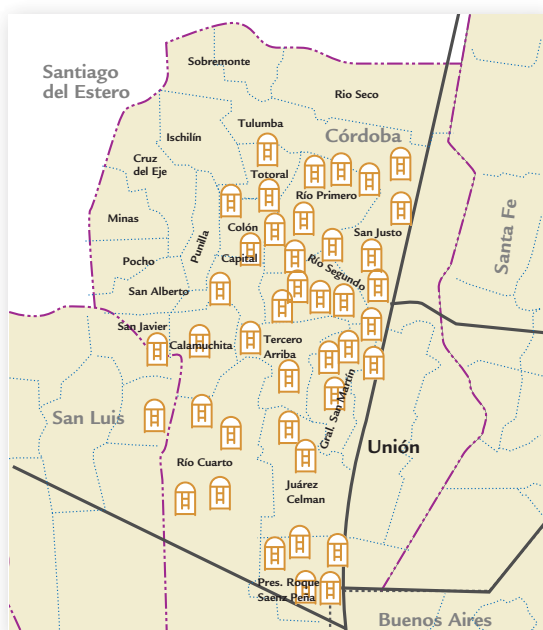
Weighted averages by tons of samples sets per location

Wheat

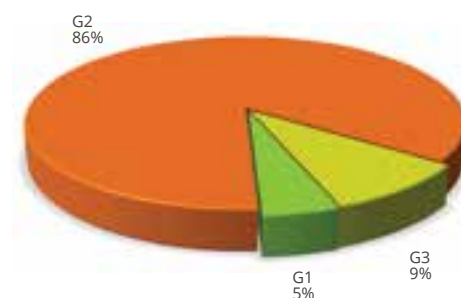
WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	76,35	84,40	80,40
Total Damaged Kernels (%)	0,04	1,18	0,39
Foreign Material (%)	0,09	1,33	0,35
Shrunken and Broken Kernels (%)	0,21	1,32	0,69
Yellow Berry Kernels (%)	0,00	20,87	3,57
Protein (13,5% Moisture) (%)	8,7	12,4	10,4
Protein (dry basis) (%)	10,1	14,3	12,1
Weight of 1000 Kernels (g.)	29,54	42,08	34,34
Ash (dry basis.) (%)	1,487	2,266	1,832

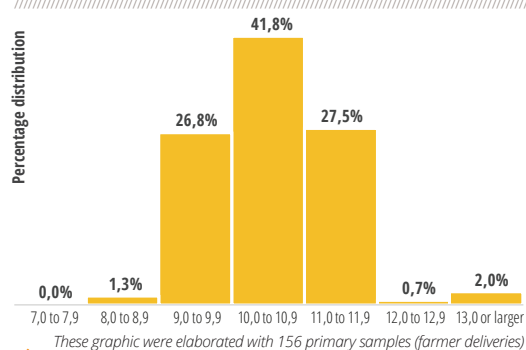
Total damaged kernels includes 0,10% green kernels, 0,01% frostand kernels, 0,02% sprouted kernels, 0,12% insect chewed kernels, 0,09% calcinated kernels and 0,06% germ-chewed kernels,. No damages due to carbon and burnt kernels.



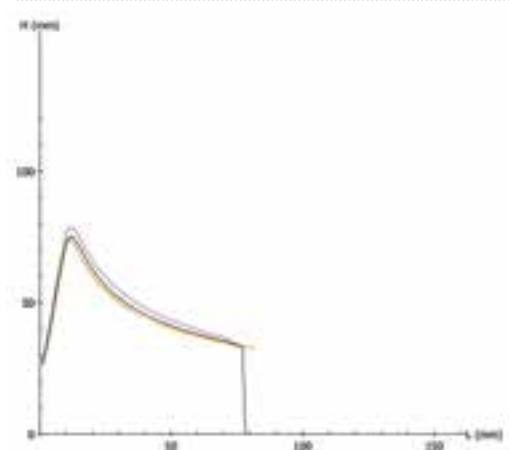
GRADE DISTRIBUTION



PROTEIN (13.5% MOISTURE)



ALVEOGRAM

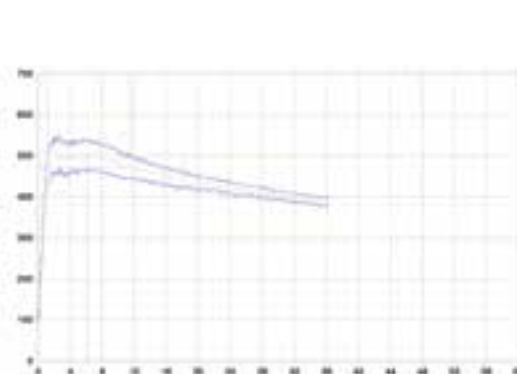


FLOUR ANALYSIS

	Minimun	Maximun	Average
Wet Gluten (%)	20,0	29,5	24,7
Dry Gluten (%)	7,4	11,1	8,7
MILLING Falling Number (sec.)	306	443	377
Flour Yield (%)	66,26	71,11	69,04
Ash (dry basis) (%)	0,477	0,819	0,645
Water Absorption (14% H°) (%)	54,4	60,6	56,8
FARINOGRAM Development Time (min.)	1,7	13,2	6,1
Stability (min.)	1,9	21,3	11,5
Degree of Softening (12 min.)	22	73	46
P (mm)	64	116	89
ALVEOGRAM L (mm)	39	107	77
W Joules x 10-4	166	291	239
P / L	0,62	2,82	1,15

These results were elaborated with 42 composite samples prepared proportionally from 153 primary samples (farmer deliveries).

FARINOGRAM



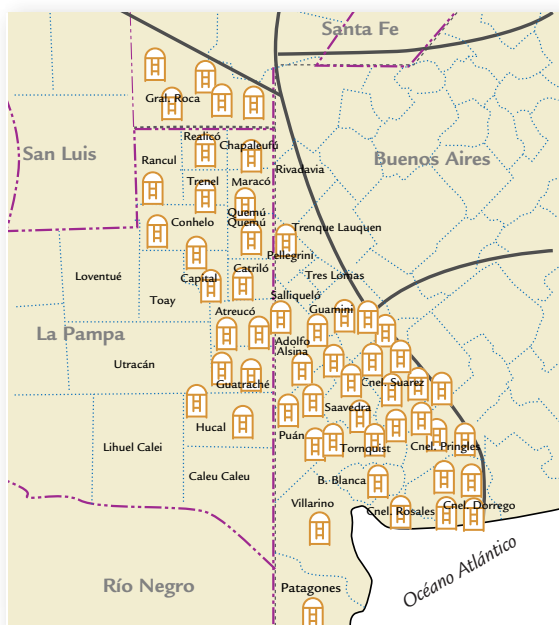
SUBREGION V SOUTH – ANALYSIS RESULTS

Weighted averages by tons of samples sets per location

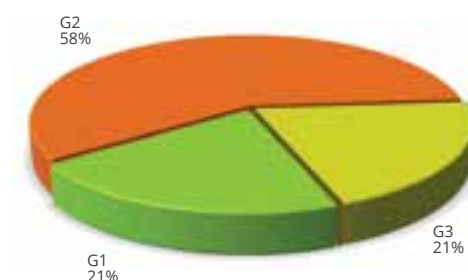
Wheat

WHEAT ANALYSIS	Minimun	Maximun	Average
Test Weight (kg/hl)	77,00	85,05	82,42
Total Damaged Kernels (%)	0,00	1,32	0,23
Foreign Material (%)	0,08	1,50	0,53
Shrunken and Broken Kernels (%)	0,10	0,80	0,33
Yellow Berry Kernels (%)	0,00	14,60	4,13
Protein (13,5% Moisture) (%)	9,4	12,2	10,7
Protein (dry basis) (%)	10,9	14,1	12,4
Weight of 1000 Kernels (g.)	30,40	42,80	36,31
Ash (dry basis.) (%)	1,503	2,068	1,849

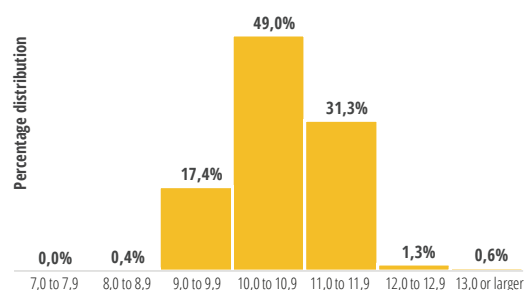
Total damaged kernels includes 0,02% green kernels, 0,10% frostand kernels, 0,02% sprouted kernels, 0,05% insect chewed kernels, 0,03% germ-chewed kernels and 0,01% calcinated kernels. No damages due to carbon and burnt kernels.



GRADE DISTRIBUTION

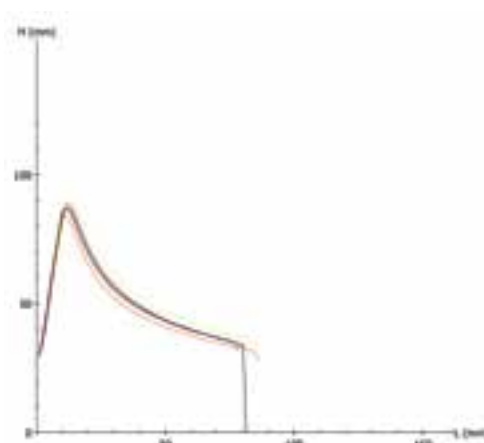


PROTEIN (13.5% MOISTURE)



These graphic were elaborated with 827 primary samples (farmer deliveries)

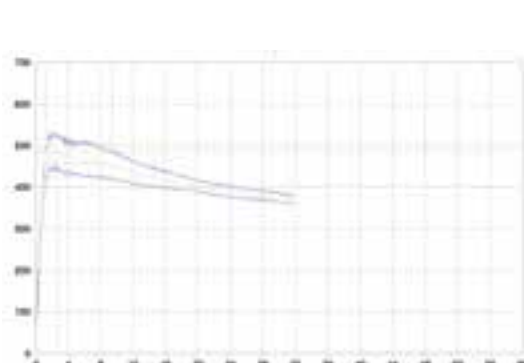
ALVEOGRAM



FLOUR ANALYSIS		Minimun	Maximun	Average
MILLING	Wet Gluten (%)	19,5	28,9	24,6
	Dry Gluten (%)	7,0	10,1	8,5
	Falling Number (sec.)	326	560	414
	Flour Yield (%)	66,10	71,40	69,20
	Ash (dry basis) (%)	0,544	0,909	0,681
FARINOGRAM	Water Absorption (14% H°) (%)	53,7	65,2	60,5
	Development Time (min.)	1,7	8,8	2,9
	Stability (min.)	3,1	17,7	7,8
	Degree of Softening (12 min.)	32	81	57
ALVEOGRAM	P (mm)	74	124	97
	L (mm)	56	116	80
	W Joules x 10-4	202	305	258
	P / L	0,64	2,14	1,22

These results were elaborated with 53 composite samples prepared proportionally from 827 primary samples (farmer deliveries).

FARINOGRAM



NORTH OF THE COUNTRY – ANALYSIS RESULTS

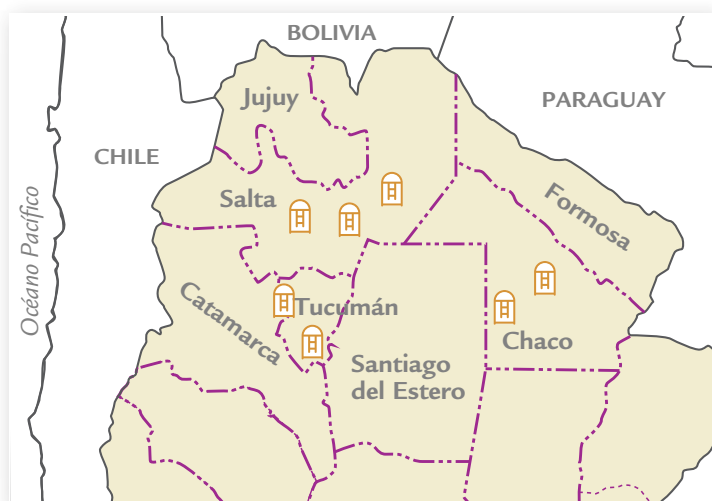
Weighted averages by tons of samples sets per location

Wheat

WHEAT ANALYSIS

	Minimun	Maximun	Average
Test Weight (kg/hl)	78,70	81,25	79,79
Total Damaged Kernels (%)	0,05	1,44	0,47
Foreign Material (%)	0,23	0,77	0,48
Shrunken and Broken Kernels (%)	0,07	0,66	0,40
Yellow Berry Kernels (%)	0,53	6,08	2,77
Protein (13,5% Moisture) (%)	10,2	12,1	10,9
Protein (dry basis) (%)	11,8	14,0	12,5
Weight of 1000 Kernels (g.)	30,43	34,24	31,97
Ash (dry basis.) (%)	1,786	2,137	1,924

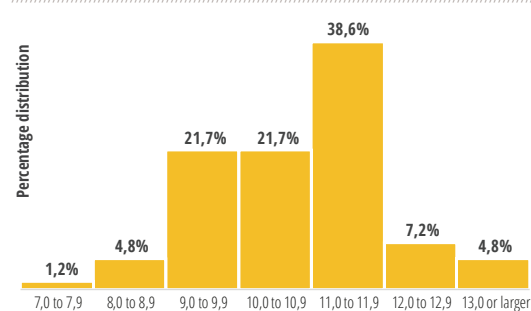
Total damaged kernels includes, 0,10% green kernels, 0,07% frosty kernels, 0,29% sprouted kernels, and 0,09% calcinated kernels. No damages due to carbon, insect chewed kernels, germ-chewed kernels, and burned grains.



GRADE DISTRIBUTION

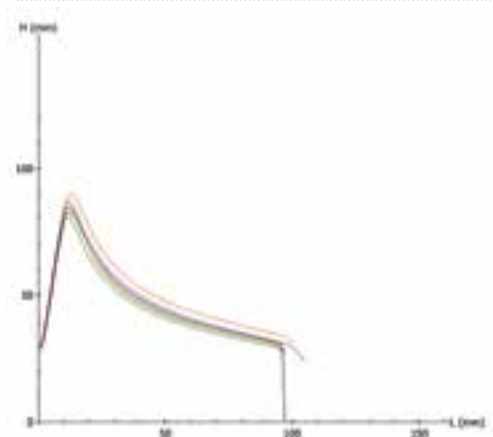


PROTEIN (13.5% MOISTURE)



These graphic were elaborated with 83 primary samples (farmer deliveries)

ALVEOGRAM

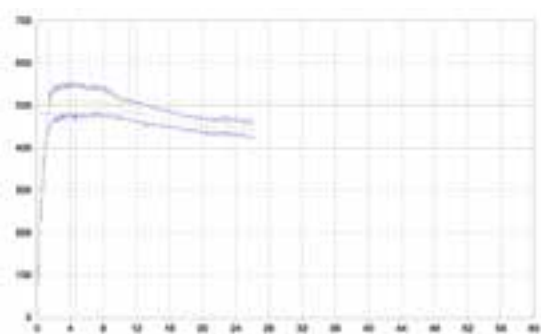


FLOUR ANALYSIS

	Minimun	Maximun	Average
Wet Gluten (%)	23,7	26,9	25,2
Dry Gluten (%)	8,8	9,9	9,3
MILLING Falling Number (sec.)	295	379	340
Flour Yield (%)	67,49	75,27	70,06
Ash (dry basis) (%)	0,654	0,899	0,736
Water Absorption (14% H ^o) (%)	56,2	60,1	57,9
FARINOGRAMA Development Time (min.)	2,9	6,1	4,4
Stability (min.)	7,9	12,9	10,1
Degree of Softening (12 min.)	39	82	59
ALVEOGRAMA P (mm)	87	100	91
L (mm)	75	120	94
W Joules x 10-4	228	339	271
P / L	0,73	1,33	0,97

These results were elaborated with 6 composite samples prepared proportionally from 83 primary samples (farmer deliveries).

FARINOGRAM



Analysis Results

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Total damaged kernels includes 0,01% green kernels, 0,16% frostand kernels, 0,02% sprouted kernels, 0,02% insect chewed kernels, 0,17% kernels with fusarium and 0,13% germ-chewed.

Reference: Ministerio de Agroindustria de la Nación.



ANALYSIS OF VARIABLES, BY RANGES

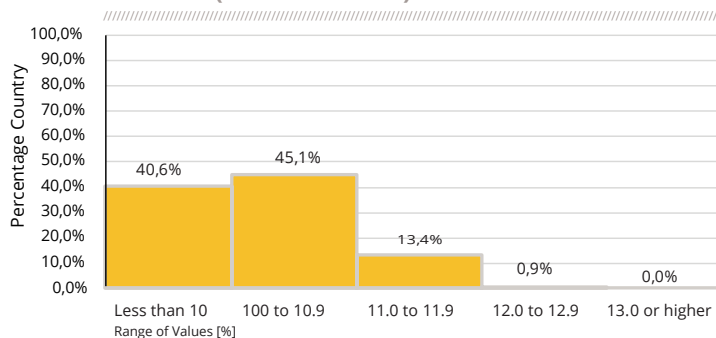
Wheat

Tables summarize the analysis of four variables: protein in grain, wet gluten, strength determined by alveograph measurement and farinographic stability.

Each variable was separated in ranges (first column). Averages were estimated for each range for each remaining variables (center column). This last column shows the percentage that corresponds to each range nationwide.

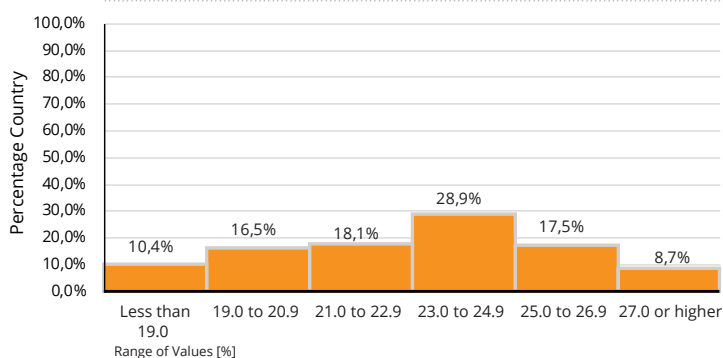
PROTEIN RANGE (13.5% Moisture)	Wet Gluten W Stability	Percentage Country
Less than 10	20,7 203 11,4	40,6%
10,0 to 10,9	24,3 203 44,6	45,1%
11,0 to 11,9	26,6 230 37,1	13,4%
12,0 to 12,9	28,7 273 12,5	0,9%
13,0 or higher	No data	0,0%

PROTEIN (13.5% Moisture)



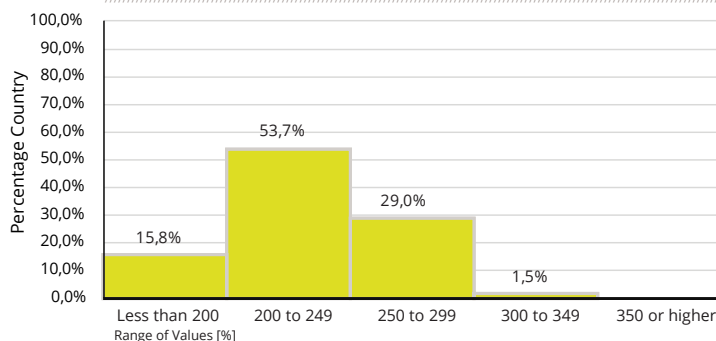
WET GLUTEN RANGE	Protein W Stability	Percentage Country
Less than 19,0	9,2 199 2,2	10,4%
19,0 to 20,9	9,6 217 9,8	16,5%
21,0 to 22,9	10,0 198 34,6	18,1%
23,0 to 24,9	10,4 194 54,2	28,9%
25,0 to 26,9	10,7 232 20,6	17,5%
27,0 or higher	11,4 238 31,1	8,7%

WET GLUTEN



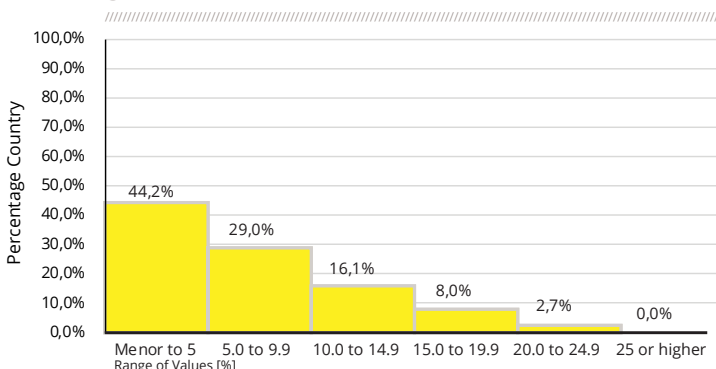
W RANGE	Gluten Proteína Estabilidad	Percentage Country
Less than 200	22,2 9,9 6,5	15,8%
200 to 249	22,9 10,1 7,3	53,7%
250 to 299	24,9 10,7 9,8	29,0%
300 to 349	26,6 11,1 10,1	1,5%
350 or higher	No data	0,0%

W



STABILITY RANGE	Wet Gluten Protein W	Percentage Country
Less than 5	20,7 10,1 231	44,2%
5,0 to 9,9	24,6 10,7 241	29,0%
10,0 to 14,9	25,4 10,4 252	16,1%
15,0 to 19,9	25,6 10,8 246	8,0%
20,0 to 24,9	24,0 10,4 252	2,7%
25 or higher	No data	0,0%

STABILITY





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