



ARGENTINE WHEAT

INSTITUTIONAL QUALITY REPORT

19th edition

2016 | 2017 CROP

WHEAT (TRITICUM AESTIVUM)

2016/2017 GROWING SEASON

FINAL CONSIDERATIONS AND SAMPLING STRUCTURE

The 2016/17 wheat growing season once again was marked by high yields in the main growing areas and by protein levels above those registered in the previous season, reaching almost 1%.

National production is estimated at 18.34 million tons, up 62.9% from 2015/16 season that reached 11.26 million tons. The average national yield was 3,308 kg/hectare, up 444 kg/ha from last season average.

The crop cycle started with good water availability in the soil, which favored seedling and crop growth. Grain filling was under no water stress in the central region. However, in the south, there was some water stress, which led to yields lower

than expected. In the central-north region, temperatures at planting and tillering were regular. At grain filling, October and November, temperatures were mild with peaks that favored a longer grain filling period, with better-developed grains of greater weight. Southbound, mid temperatures copied historical averages, (17/18 °C), but there were a significant variation and periods of extreme temperatures.

In the central-north wheat region, an early attack of wheat leaf rust (*Puccinia tritica*) continued along the season; susceptible cultivars suffered the most. Later a more serious attack of stem rust (*Puccinia graminis*) was detected in very susceptible cultivars. Yellow spot was mild as Bacterial leaf blight (*Pseudomonas syringae*). Fusarium appeared in very particular plots and did not disseminate. Bugs were detected early in the season. In the south, the incidence of foliar diseases was not important.

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

Based on data from the Ministerio de Agroindustria de la Nación. 2016-2017 Crop

SUBREGION	AREA PLANTED (HA)	AREA HARVESTED (HA)	YIELD (KG/HA)	PRODUCTION (TN)
I	585.900	526.675	2.980	1.569.706
II North	888.150	794.975	4.227	3.360.729
II South	948.000	851.770	4.326	3.684.423
III	375.800	346.060	3.242	1.121.848
IV	581.400	522.500	3.388	1.770.486
V North	1.019.600	916.570	3.138	2.876.198
V South	1.236.900	1.112.180	2.744	3.052.040
NORTHEAST	280.250	184.770	2.066	381.793
NORTHWEST	423.715	289.045	1.804	521.412
NATIONAL	6.339.715	5.544.545	3.308	18.338.635

SAMPLING

4.095 PRIMARY SAMPLES

WHEAT ANALYSIS

319 LOCALITY COMPOSITE SAMPLES

WHEAT ANALYSIS

FLOUR ANALYSIS

9 SUBREGION COMPOSITE SAMPLES

WHEAT ANALYSIS

FLOUR ANALYSIS

SAMPLING STRUCTURE

SUBREGION	LOCALITY COMPOSITE SAMPLES	SAMPLING (TONS)	PRODUCTION (TONS)	PRODUCTION SAMPLED
I	16	58.020	1.569.706	3,7
II North	68	399.786	3.360.729	11,9
II South	51	158.000	3.684.423	4,3
III	29	99.035	1.121.848	8,8
IV	31	117.063	1.770.486	6,6
V North	46	186.287	2.876.198	6,5
V South	67	236.785	3.052.040	7,8
NORTHEAST	4	14.000	381.793	3,7
NORTHWEST	7	24.000	521.412	4,6
TOTALS	319	1.292.976	18.338.635	7,0

NATIONAL AVERAGES

Weighted averages by tons produced in each region

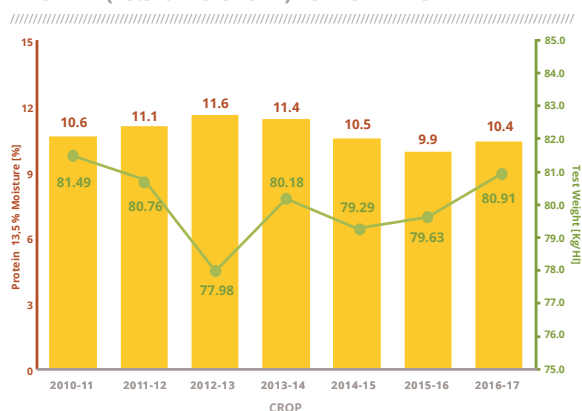
National Averages

Wheat

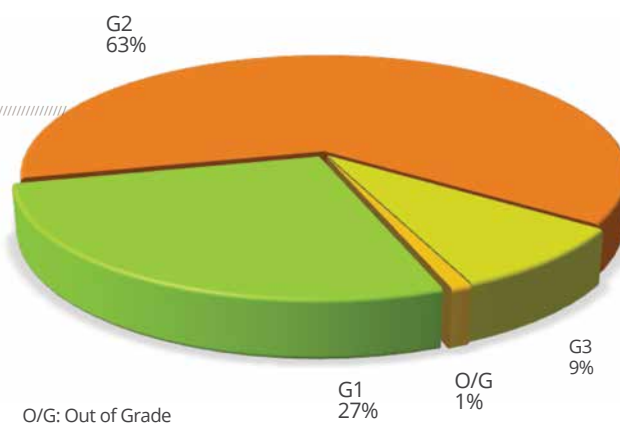
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	75,20	86,20	80,91
Total Damaged Kernels (%)	0,00	2,50	0,39
Foreign Material (%)	0,06	2,74	0,38
Shrunken and Broken Kernels (%)	0,04	2,12	0,47
Yellow Berry Kernels (%)	0,00	30,80	5,83
Protein (13,5% Moisture) (%)	8,3	13,0	10,4
Protein (S.S.S) (%)	9,6	15,0	12,0
Weight of 1000 Kernels (g.)	25,80	42,40	35,20
Ash (S.S.S.) (%)	1,243	2,119	1,756

PROTEIN (13.5% MOISTURE) VS TEST WEIGHT



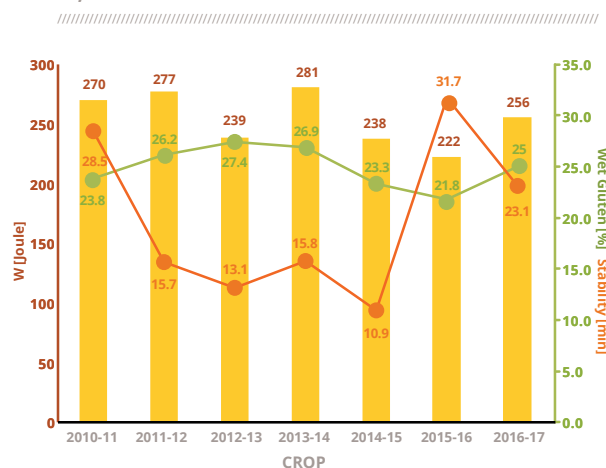
GRADE DISTRIBUTION



FLOUR ANALYSIS

FLOUR ANALYSIS		Minimum	Maximum	Average
MILLING	Wet Gluten (%)	16,4	32,2	25,0
	Dry Gluten (%)	6,1	11,9	9,1
	Falling Number (sec.)	244	509	395
	Flour Yield (%)	47,0	70,0	58,6
	Ash (dry basis) (%)	0,424	0,744	0,579
FARINOGRAM	Water Absorption (14% H ^o) (%)	50,5	62,8	56,0
	Development Time (min.)	1,3	43,7	12,6
	Stability (min.)	1,8	59,3	23,1
	Degree of Softening (12 min.)	0	90	30
ALVEOGRAM	P (mm)	47	162	93
	L (mm)	30	129	76
	W joules X 10-4	120	457	256
	P / L	0,43	3,57	1,22

W, WET GLUTEN Y ESTABILITY



NATIONAL SUMMARY BY SUBREGIONS

Results of all the analyzed variables

Wheat

SUBREGIONS

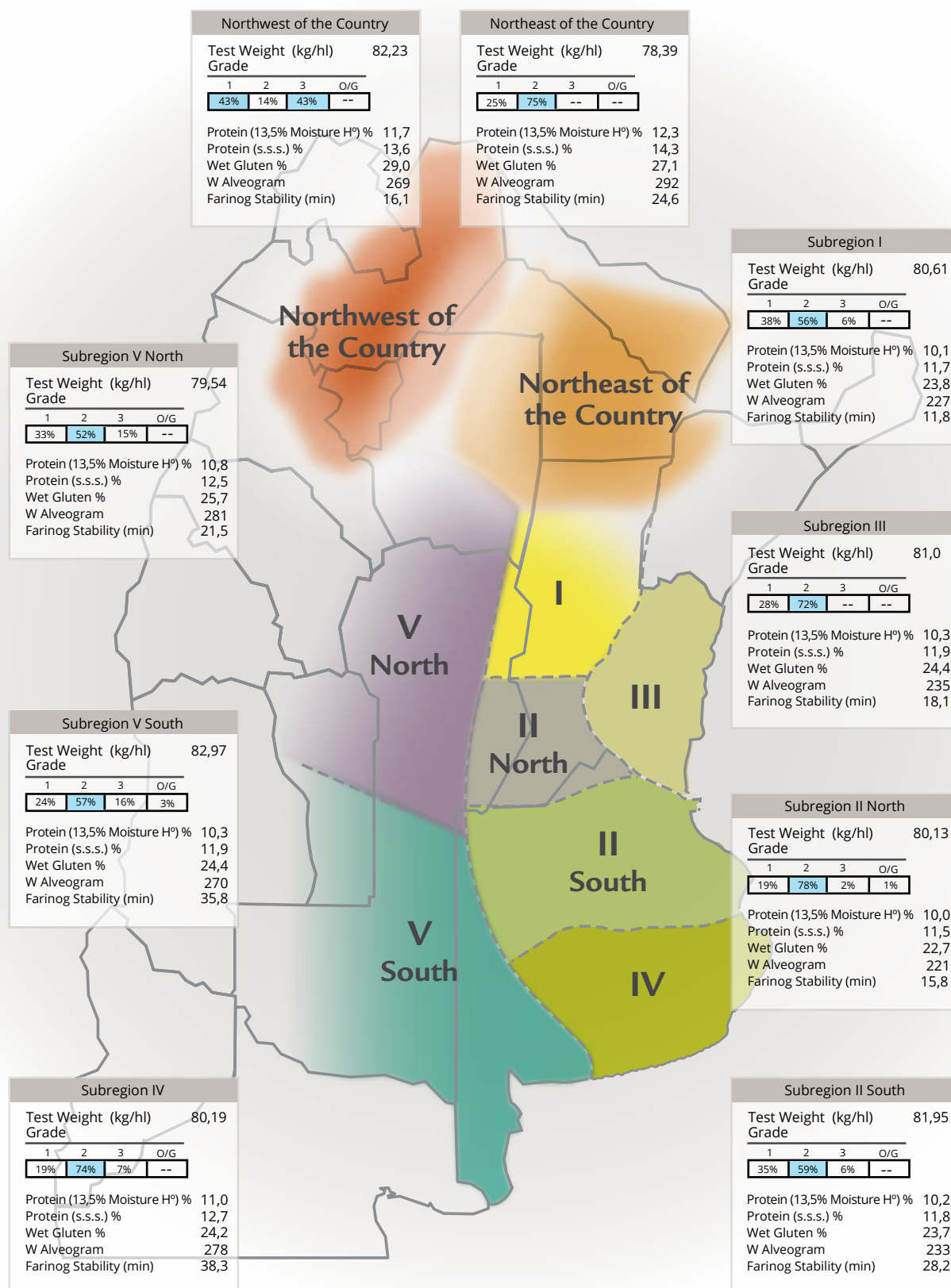
	I	II N	II S	III	IV	V N	V S	NEA	NOA	PONDERED AVERAGE
Test Weight (kg/hl)	80,61	80,13	81,95	81,00	80,19	79,54	82,97	78,39	82,23	80,91
Weight of 1000 kernels (gr)	35,09	33,90	36,09	39,37	34,49	35,32	34,39	33,20	35,60	35,20
Ahs (dry basis) %	1,768	1,800	1,705	1,728	1,649	1,702	1,806	2,040	1,746	1,756
Protein (13,5% Moisture) (%)	10,1	10,0	10,2	10,3	11,0	10,8	10,3	12,3	11,7	10,4
Protein (dry basis) (%)	11,7	11,5	11,8	11,9	12,7	12,5	11,9	14,3	13,6	12,0
Ash (dry basis) %	0,645	0,509	0,546	0,542	0,533	0,600	0,562	0,654	0,616	0,579
Color										
L	85,52	87,87	89,28	89,06	88,25	87,08	89,28	87,55	87,60	87,94
a	-1,25	-1,74	-1,59	-1,53	-1,60	-1,37	-1,86	-1,16	-1,27	-1,49
b	9,67	10,37	8,67	8,51	9,28	9,30	10,18	7,22	8,27	9,05
Moisture (%)	13,19	14,78	15,27	15,32	14,86	15,12	14,68	15,12	15,16	14,83
Protein (%)	9,5	8,7	8,9	8,8	9,6	10,0	9,2	10,6	10,6	9,5
Wet Gluten (%)	23,8	22,7	23,7	24,4	24,2	25,7	24,4	27,1	29,0	25,0
Dry Gluten (%)	8,5	8,1	8,8	8,8	8,8	9,3	8,8	10,0	10,7	9,1
Index Gluten (%)	100	100	99	98	99	100	100	93	93	98
Falling Number (sec)	424	380	408	380	417	403	412	412	321	395
Zeleny Test (cc)	24	24	28	27	31	30	27	26	27	27
FARINOGRAM										
Water Absorption (%)	54,0	54,1	55,2	55,6	56,1	56,1	57,4	55,9	59,9	56,0
Development Time (min)	6,3	7,1	14,3	9,0	24,0	11,0	17,5	16,1	9,4	12,6
Stability (min)	11,8	15,8	28,2	18,1	38,3	21,5	35,8	24,6	16,1	23,1
Degree pf Softening (U.F.)	48	45	20	33	12	29	19	27	40	30
Quality Number	138	216	346	185	437	204	487	255	197	274
MIXOGRAM										
Development Time (min)	5,08	6,80	7,16	4,87	7,10	6,06	6,11	7,75	5,29	6,25
ALVEOGRAM										
P (mm)	75	82	100	84	103	85	108	100	100	93
L (mm)	89	73	60	79	69	94	66	74	75	76
G	20,6	17,5	19,3	19,9	17,6	22,7	17,5	15,7	21,1	19,1
W (Joules x 10-4)	227	221	233	235	278	281	270	292	269	256
P/L	0,84	1,12	1,67	1,06	1,49	0,90	1,64	1,36	1,33	1,22
le %	58,0	62,5	62,8	57,1	61,9	57,6	60,3	67,6	59,8	60,8
W (40) (Joules x 10-4)	132	170	163	154	171	149	189	189	175	166
CONSISTOGRAMA										
WA 1700 (%) (Base 15%)	55,7	55,4	54,5	55,2	55,4	56,7	55,6	55,6	56,9	55,7
HYD2200 (%) (Base 15%)	53,2	52,9	52,0	52,7	52,9	54,2	53,1	53,1	54,4	53,2
PrMax (mb)	2360	2257	2096	2139	2091	2329	2182	2238	2214	2212
PrMax Time (Sec)	86	91	98	123	235	117	157	189	112	134
Tolerance (Sec)	225	260	302	291	374	234	331	292	287	288
Weakening 250 (mb)	433	272	141	132	12	339	51	74	159	179
Weakening 450 (mb)	1020	829	621	658	419	883	603	627	846	723
RVA										
Maxim Viscosity (RVU)	206,33	231,42	239,00	224,00	249,75	221,50	261,58	246,25	177,33	228,57
Minimum Viscosity (RVU)	122,17	140,00	155,67	136,42	162,71	124,50	183,58	147,33	94,25	140,74
Final Viscosity (RVU)	221,33	253,75	271,50	261,48	280,30	242,83	296,75	288,50	205,67	258,01
BAKING										
Absorption (%)	61,0	61,0	62,0	62,0	61,0	62,0	62,0	61,0	62,5	61,6
Development Time (min)	03:00	03:00	03:30	03:30	03:00	03:30	03:30	03:00	04:00	03:30
Fermentation Time (min)	160	160	160	160	160	160	160	160	160	160
Loaf Volume (cc)	630	640	650	610	628	650	625	570	585	621
Specific Volume (cc/gr)	4,6	4,8	4,9	4,5	4,6	4,9	4,6	4,1	4,3	4,6

ARGENTINE WHEAT

Main Quality Parameters

Main Quality Parameters

Wheat



SUBREGION I – ANALYSIS RESULTS

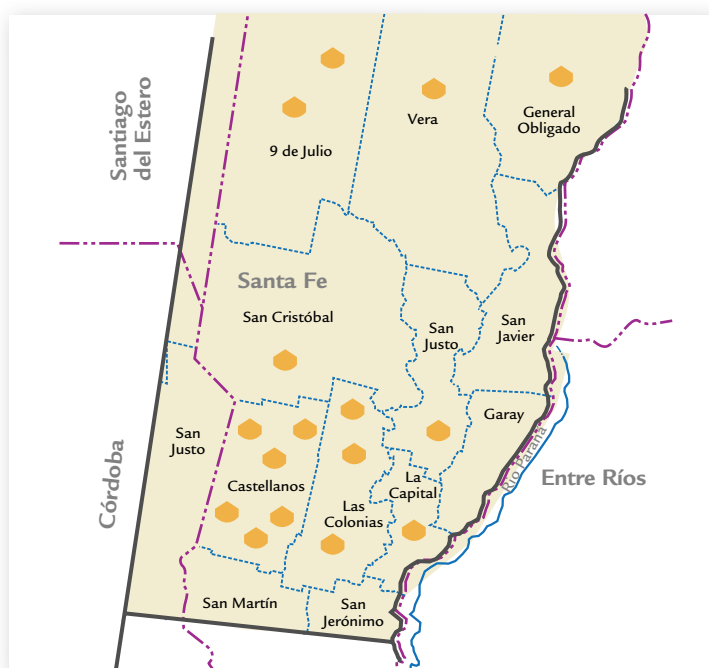
Weighted averages by tons of sample sets per location

Wheat

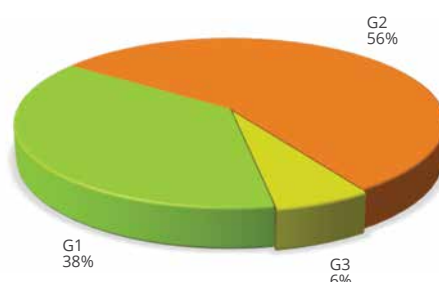
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	78,0	82,40	80,61
Total Damaged Kernels (%)	0,22	0,70	0,45
Foreign Material (%)	0,06	0,74	0,32
Shrunken and Broken Kernels (%)	0,20	1,20	0,59
Yellow Berry Kernels (%)	4,10	30,80	10,39
Protein (13,5% Moisture) (%)	8,9	10,8	10,1
Protein (S.S.S)(%)	10,3	12,5	11,7
Weight of 1000 Kernels (g.)	30,82	40,60	35,09
Ash (S.S.S.) (%)	1,696	1,896	1,768

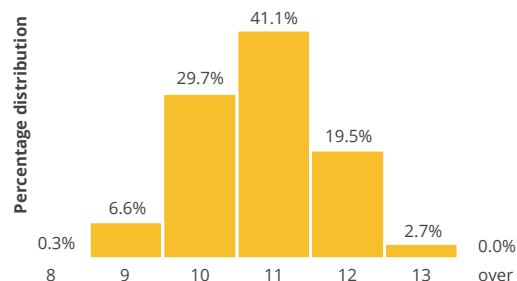
Total damaged kernels includes 0,04% green kernels, 0,09% frostand kernels, 0,04% sprouted kernels, 0,12% insect chewed kernels and 0,17 % calcinated kernels. No damages due to carbon and burnt kernels.



GRADE DISTRIBUTION

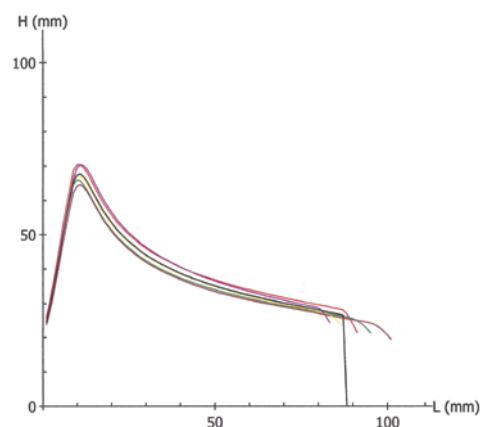


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 344 primary samples (farmer deliveries)

ALVEOGRAMA

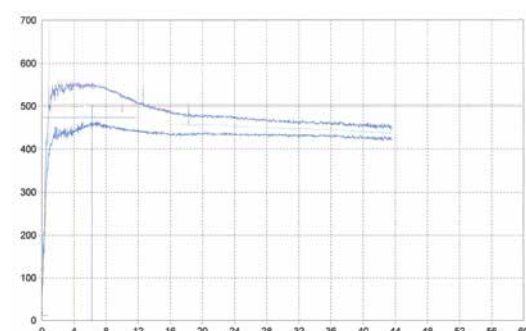


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	17,3	27,9	23,8
Dry Gluten (%)	6,2	9,7	8,5
MILLING Falling Number (sec.)	330	508	424
Flour Yield (%)	47,0	51,0	49,3
Ash (dry basis) (%)	0,538	0,742	0,645
Water Absorption (14% H ^o)(%)	51,7	55,5	54,0
FARINOGRAM Development Time (min.)	5,2	8,0	6,3
Stability (min.)	8,6	16,3	11,8
Degree of Softening (12 min.)	29	67	48
P (mm)	47	88	75
ALVEOGRAM L (mm)	61	115	89
W Joules x 10-4	154	275	227
P/L	0,43	1,44	0,84

These results were elaborated with 16 composite samples prepared proportionally from 344 primary samples (farmer deliveries)

FARINOGRAMA



SUBREGION II NORTH – ANALYSIS RESULTS

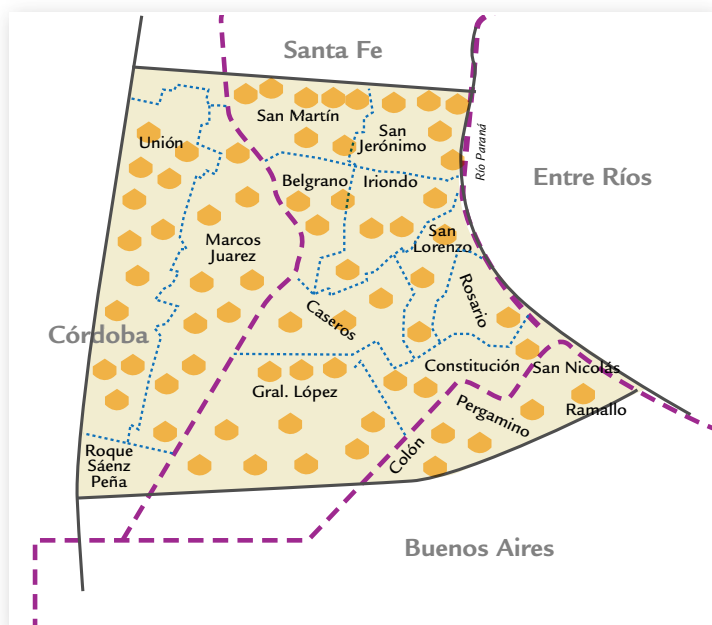
Weighted averages by tons of sample sets per location

Wheat

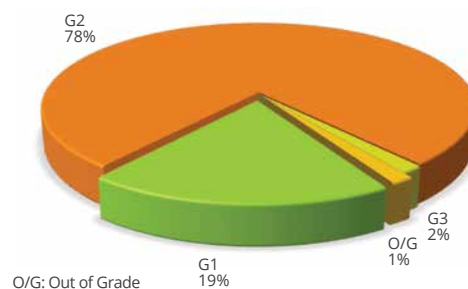
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	77,60	83,40	80,13
Total Damaged Kernels (%)	0,00	1,90	0,56
Foreign Material (%)	0,10	2,30	0,37
Shrunken and Broken Kernels (%)	0,10	1,10	0,48
Yellow Berry Kernels (%)	1,30	30,10	7,73
Protein (13,5% Moisture) (%)	9,0	10,9	10,0
Protein (S.S.S)(%)	10,4	12,6	11,5
Weight of 1000 Kernels (g.)	29,00	36,90	33,99
Ash (S.S.S.) (%)	1,655	1,925	1,800

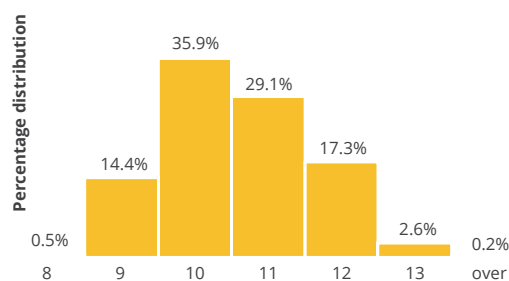
Total damaged kernels includes 0,01% de burnt kernels, 0,02% green kernels, 0,03% frosty kernels, 0,06% sprouted kernels, 0,04% insect chewed kernels, 0,27% calcinated kernels, and 0,14% germ-chewed kernels. No damages due to carbon.



GRADE DISTRIBUTION

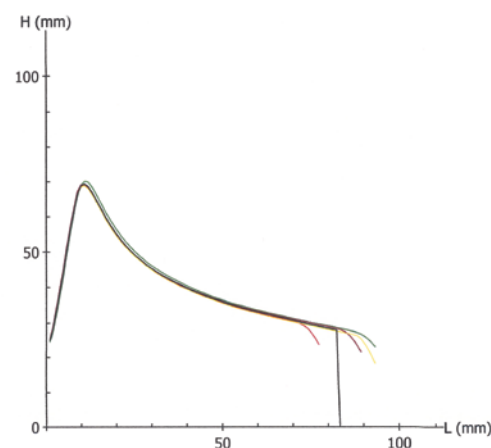


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 423 primary samples (farmer deliveries)

ALVEOGRAM

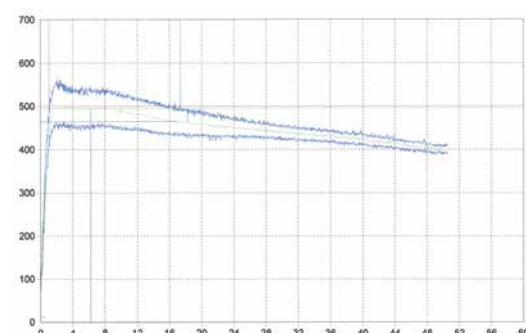


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	18,6	27,8	22,7
Dry Gluten (%)	6,5	9,7	8,1
MILLING Falling Number (sec.)	339	451	380
Flour Yield (%)	49,3	61,0	57,0
Ash (dry basis) (%)	0,455	0,585	0,509
Water Absorption (14% H ^o)(%)	50,5	56,9	54,1
FARINOGRAM Development Time (min.)	1,3	27,9	7,1
Stability (min.)	1,8	59,3	15,8
Degree of Softening (12 min.)	5	90	45
P (mm)	59	111	82
ALVEOGRAM L (mm)	36	109	73
W Joules x 10-4	154	314	221
P/L	0,54	3,08	1,12

These results were elaborated with 68 composite samples prepared proportionally from 423 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION II SOUTH – ANALYSIS RESULTS

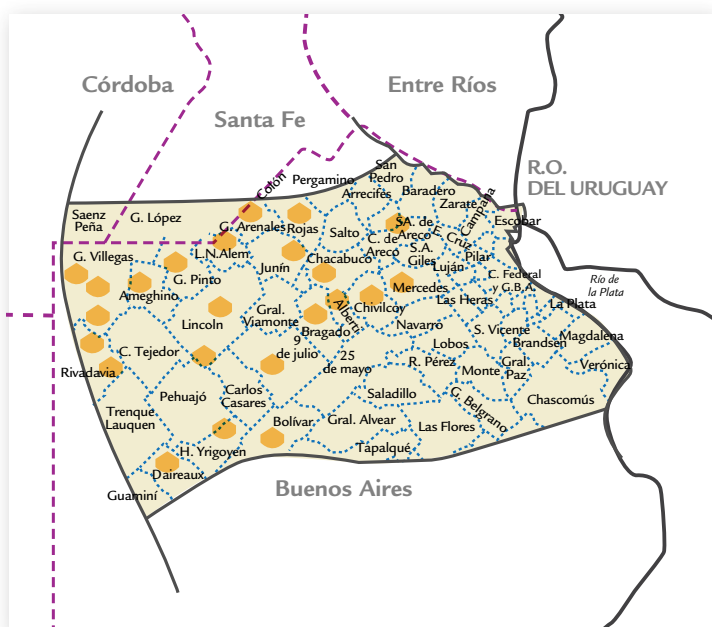
Weighted averages by tons of sample sets per location

Wheat

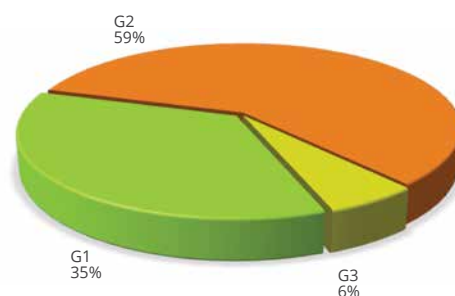
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	79,40	84,40	81,95
Total Damaged Kernels (%)	0,02	1,89	0,32
Foreign Material (%)	0,08	1,48	0,35
Shrunken and Broken Kernels (%)	0,04	1,00	0,32
Yellow Berry Kernels (%)	0,45	7,12	3,14
Protein (13,5% Moisture) (%)	8,3	11,7	10,2
Protein (S.S.S)(%)	9,6	13,5	11,8
Weight of 1000 Kernels (g.)	31,35	41,07	36,09
Ash (S.S.S.) (%)	1,550	2,055	1,705

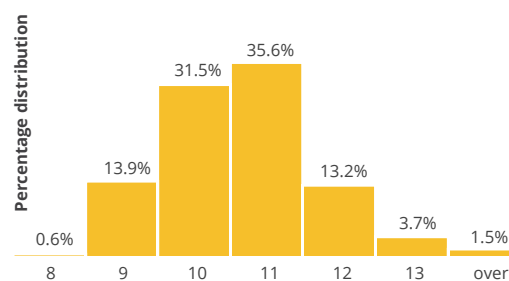
Total damaged kernels includes 0,03% green kernels, 0,03% frostand kernels, 0,04% sprouted kernels, 0,06% insect chewed kernels, 0,18% calcinated kernels. No damages due to carbon and burnt kernels.



GRADE DISTRIBUTION

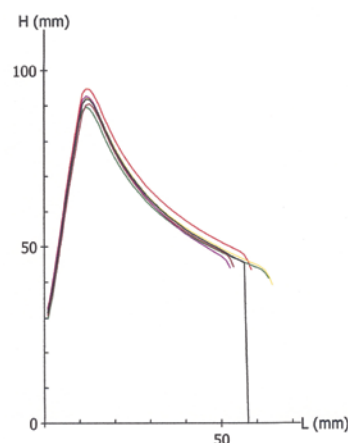


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 539 primary samples (farmer deliveries)

ALVEOGRAM

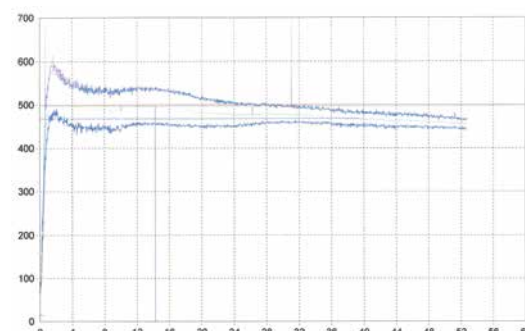


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	16,4	29,8	23,7
Dry Gluten (%)	6,1	11,0	8,8
MILLING Falling Number (sec.)	322	509	408
Flour Yield (%)	58,9	61,7	60,4
Ash (dry basis) (%)	0,457	0,641	0,546
Water Absorption (14% H°)(%)	50,8	59,8	55,2
FARINOGRAM Development Time (min.)	2,7	32,4	14,3
Stability (min.)	4,9	54,2	28,2
Degree of Softening (12 min.)	0	51	20
ALVEOGRAM P (mm)	67	126	100
L (mm)	30	99	60
W Joules x 10-4	120	324	233
P/L	0,68	3,28	1,67

These results were elaborated with 51 composite samples prepared proportionally from 539 primary samples (farmer deliveries).

FARINOGRAM



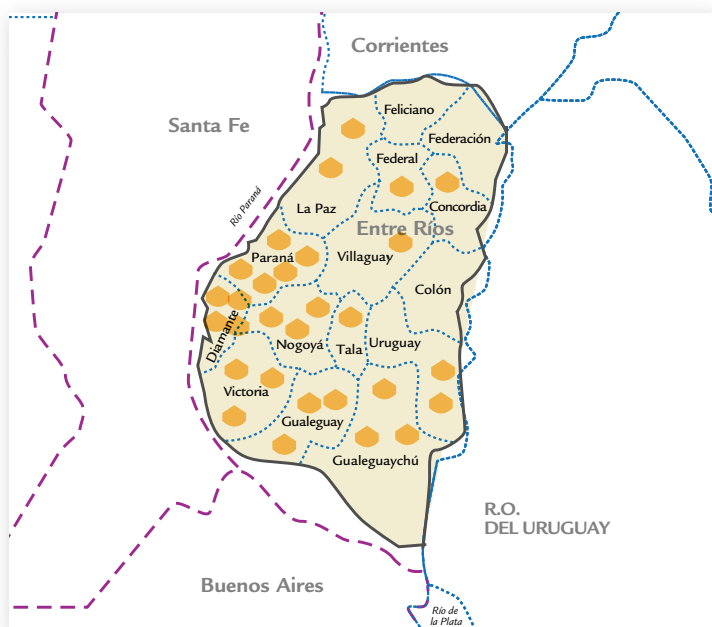
SUBREGION III – ANALYSIS RESULTS

Weighted averages by tons of sample sets per location

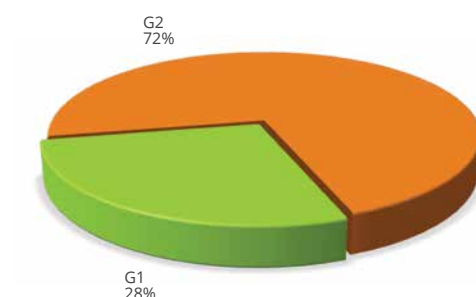
Wheat

WHEAT ANALYSIS	Minimum	Maximum	Average
Test Weight (kg/hl)	78,70	83,20	81,00
Total Damaged Kernels (%)	0,20	0,85	0,48
Foreign Material (%)	0,09	0,71	0,26
Shrunken and Broken Kernels (%)	0,17	1,05	0,46
Yellow Berry Kernels (%)	4,81	11,50	7,78
Protein (13,5% Moisture) (%)	9,7	10,9	10,3
Protein (S.S.S)(%)	11,2	12,6	11,9
Weight of 1000 Kernels (g.)	36,50	42,04	39,37
Ash (S.S.S.) (%)	1,410	1,970	1,728

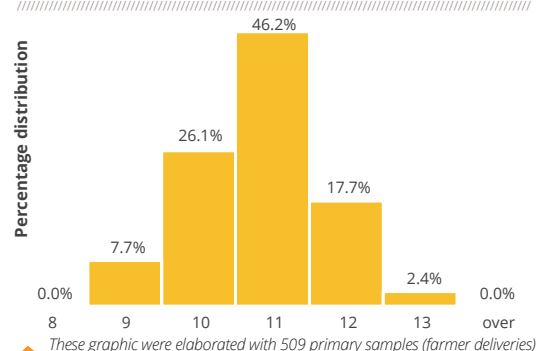
Total damaged kernels includes 0,15% green kernels, 0,06% sprouted kernels, 0,06% insect chewed kernels, 0,11% germ-chewed kernels and 0,11% calcinated kernels. No damages due to carbon, frost and kernels and burnt kernels.



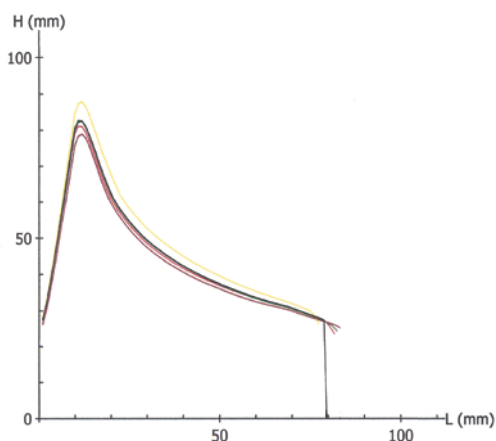
GRADE DISTRIBUTION



PROTEIN (13,5% MOISTURE) (%)



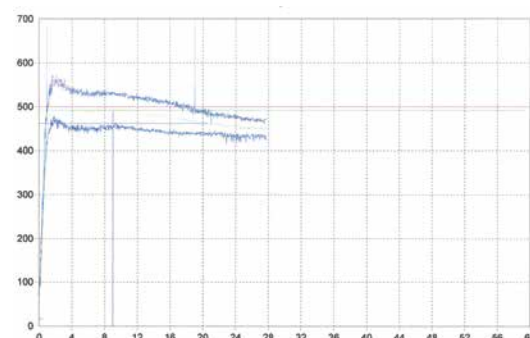
ALVEOGRAM



	Minimum	Maximum	Average
Wet Gluten (%)	21,2	26,6	24,4
Dry Gluten (%)	7,9	9,6	8,8
MILLING			
Falling Number (sec.)	286	427	380
Flour Yield (%)	50,5	63,0	58,5
Ash (dry basis) (%)	0,493	0,729	0,542
Water Absorption (14% H ^o)(%)	53,2	56,5	55,6
FARINOGRAM			
Development Time (min.)	3,1	20,0	9,0
Stability (min.)	11,3	38,8	18,1
Degree of Softening (12 min.)	8	61	33
ALVEOGRAM			
P (mm)	65	104	84
L (mm)	51	106	79
W Joules x 10-4	191	283	235
P/L	0,68	2,02	1,06

These results were elaborated with 29 composite samples prepared proportionally from 509 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION IV – ANALYSIS RESULTS

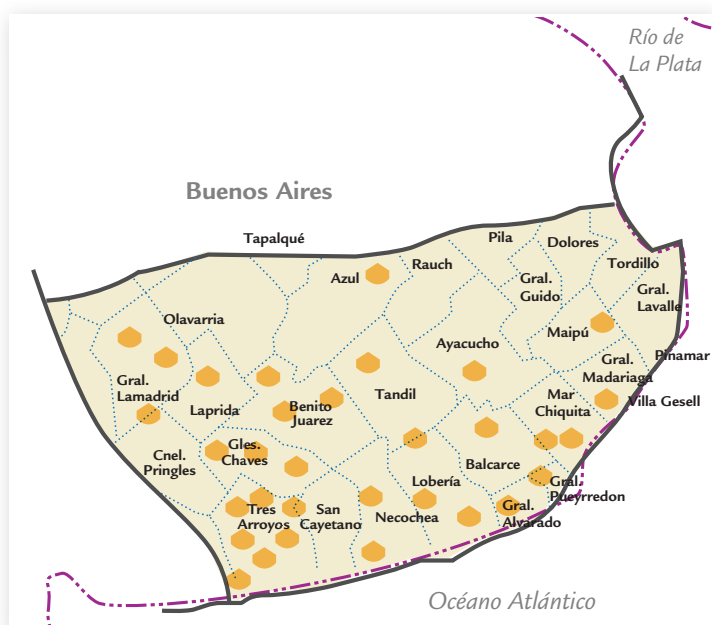
Weighted averages by tons of sample sets per location

Wheat

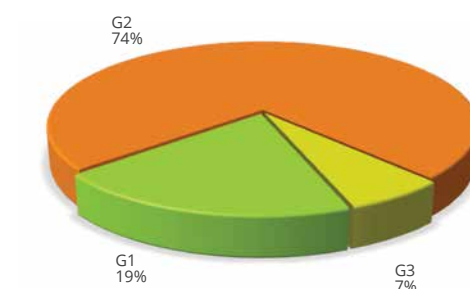
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	76,10	83,05	80,19
Total Damaged Kernels (%)	0,00	0,38	0,07
Foreign Material (%)	0,12	1,12	0,35
Shrunken and Broken Kernels (%)	0,20	1,30	0,53
Yellow Berry Kernels (%)	0,00	8,20	1,88
Protein (13,5% Moisture) (%)	9,7	12,8	11,0
Protein (S.S.S)(%)	11,2	14,8	12,7
Weight of 1000 Kernels (g.)	28,40	40,40	34,49
Ash (S.S.S.) (%)	1,469	1,842	1,649

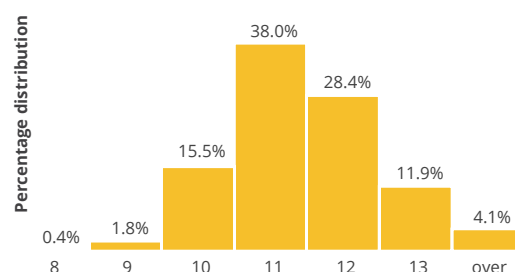
Total damaged kernels includes 0,02% frostand kernels, 0,01% sprouted kernels, 0,02% insect chewed kernels, 0,01% calcinated kernels. No damages due to carbon, green kernels and burnt kernels.



GRADE DISTRIBUTION

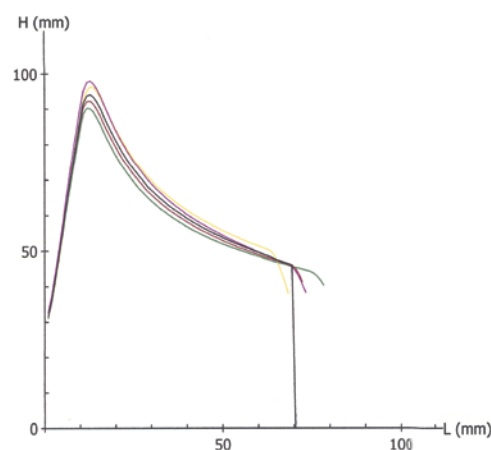


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 563 primary samples (farmer deliveries)

ALVEOGRAM

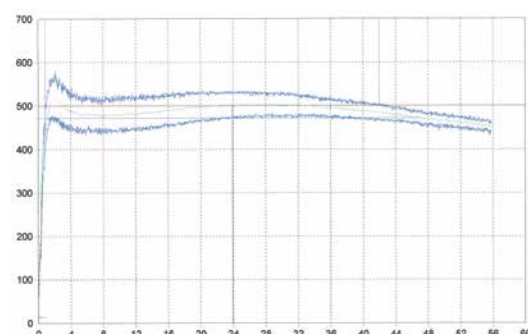


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	17,3	29,6	24,2
Dry Gluten (%)	6,4	10,8	8,8
MILLING Falling Number (sec.)	283	496	417
Flour Yield (%)	49,0	61,5	58,8
Ash (dry basis) (%)	0,480	0,627	0,533
Water Absorption (14% H°)(%)	52,9	61,2	56,1
FARINOGRAM Development Time (min.)	6,5	40,4	24,0
Stability (min.)	16,0	54,6	38,3
Degree of Softening (12 min.)	0	37	12
P (mm)	62	132	103
ALVEOGRAM L (mm)	48	129	69
W Joules x 10-4	197	412	278
P/L	0,48	2,44	1,49

These results were elaborated with 31 composite samples prepared proportionally from 563 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION V NORTH – ANALYSIS RESULTS

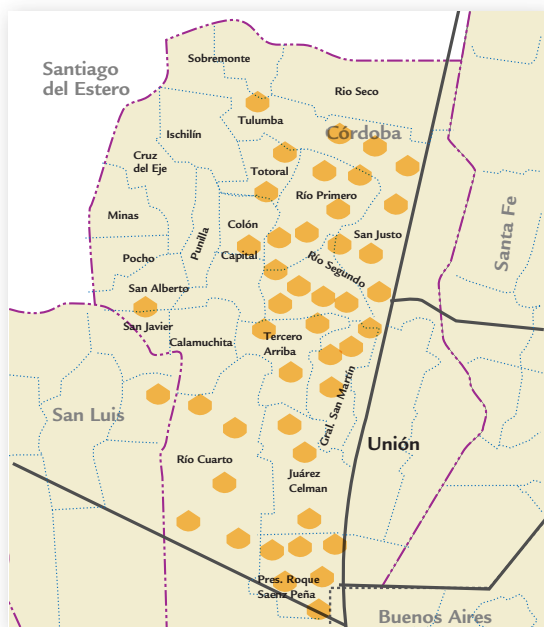
Weighted averages by tons of sample sets per location

Wheat

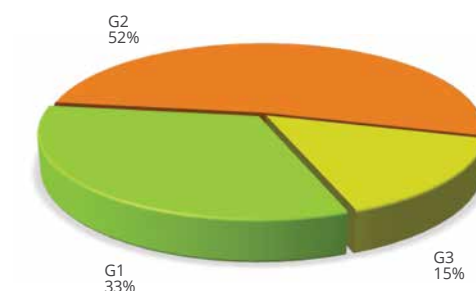
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	75,20	83,05	79,54
Total Damaged Kernels (%)	0,06	2,50	0,67
Foreign Material (%)	0,10	1,38	0,35
Shrunken and Broken Kernels (%)	0,10	1,36	0,40
Yellow Berry Kernels (%)	0,00	20,60	5,78
Protein (13,5% Moisture) (%)	9,5	12,6	10,8
Protein (S.S.S)(%)	11,0	14,6	12,5
Weight of 1000 Kernels (g.)	31,90	38,50	35,32
Ash (S.S.S.) (%)	1,433	2,119	1,702

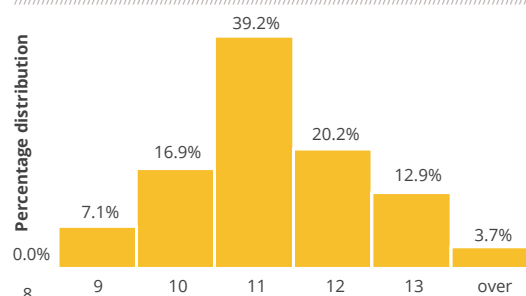
Total damaged kernels includes 0,07% green kernels, 0,04% frost-damaged kernels, 0,04% sprouted kernels, 0,11% insect chewed kernels, 0,29% calcinated kernels and 0,11% germ-chewed kernels. No damages due to carbon and burnt kernels.



GRADE DISTRIBUTION

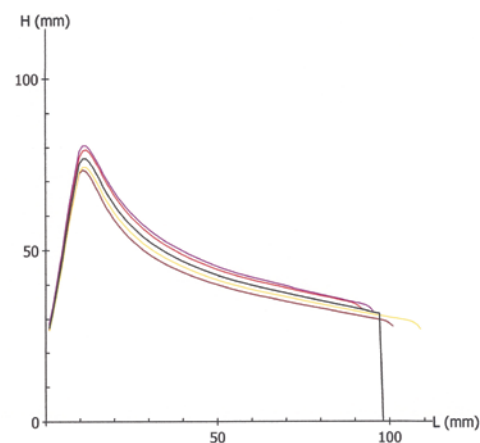


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 590 primary samples (farmer deliveries)

ALVEOGRAM

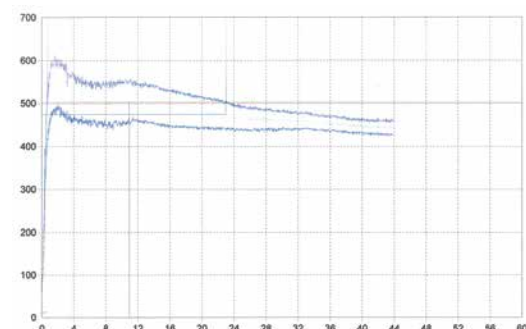


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	21,4	32,0	25,7
Dry Gluten (%)	7,8	11,3	9,3
MILLING Falling Number (sec.)	325	494	403
Flour Yield (%)	65,0	70,0	67,7
Ash (dry basis) (%)	0,424	0,702	0,600
Water Absorption (14% H ^o)(%)	53,2	62,7	56,1
FARINOGRAM Development Time (min.)	1,7	19,6	11,0
Stability (min.)	3,0	43,0	21,5
Degree of Softening (12 min.)	11	56	29
ALVEOGRAM P (mm)	58	106	85
L (mm)	69	125	94
W Joules x 10-4	196	339	281
P/L	0,52	1,51	0,90

These results were elaborated with 46 composite samples prepared proportionally from 590 primary samples (farmer deliveries).

FARINOGRAM



SUBREGION V SOUTH – ANALYSIS RESULTS

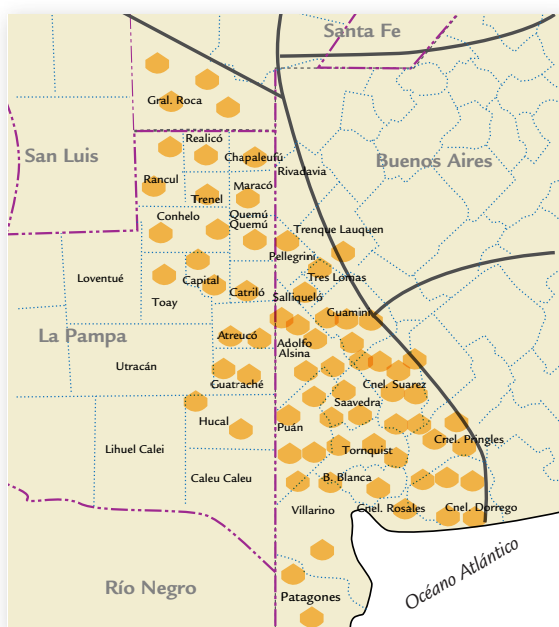
Weighted averages by tons of sample sets per location

Wheat

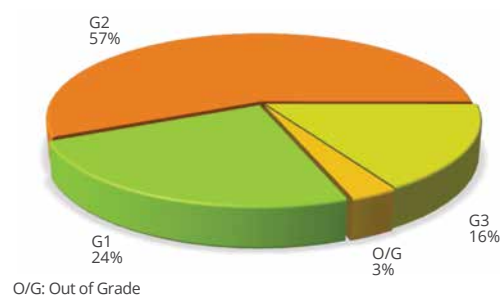
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	79,45	86,20	82,97
Total Damaged Kernels (%)	0,00	0,78	0,08
Foreign Material (%)	0,10	2,74	0,54
Shrunken and Broken Kernels (%)	0,06	2,12	0,56
Yellow Berry Kernels (%)	0,00	18,90	4,86
Protein (13,5% Moisture) (%)	9,0	13,0	10,3
Protein (S.S.S)(%)	10,4	15,0	11,9
Weight of 1000 Kernels (g.)	25,80	42,40	34,39
Ash (S.S.S.) (%)	1,618	2,022	1,806

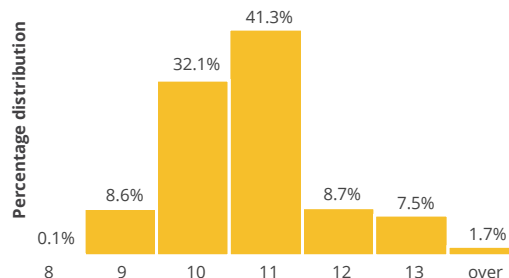
Total damaged kernels includes 0,01% sprouted kernels, 0,01% insect chewed kernels, 0,01% calcinated kernels and 0,05% germ-chewed kernels. No damages due to carbon, frostand kernels and green kernels.



GRADE DISTRIBUTION

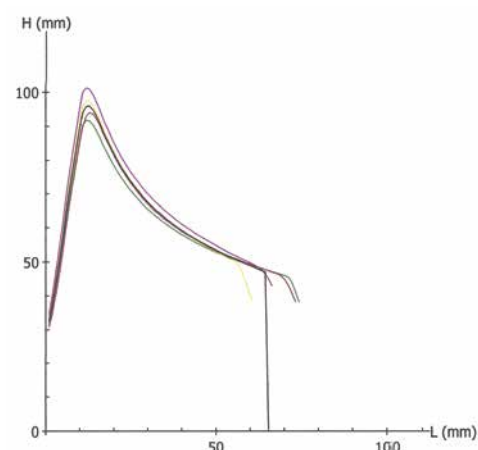


PROTEIN (13,5% MOISTURE) (%)



These graphic were elaborated with 1059 primary samples (farmer deliveries)

ALVEOGRAM

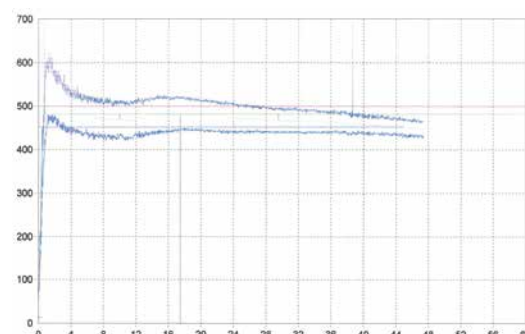


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	19,2	32,2	24,4
Dry Gluten (%)	6,9	11,7	8,8
MILLING			
Falling Number (sec.)	354	456	412
Flour Yield (%)	48,7	63,3	55,8
Ash (dry basis) (%)	0,480	0,698	0,562
Water Absorption (14% H ^o)(%)	54,2	62,8	57,4
FARINOGRAM			
Development Time (min.)	5,5	43,7	17,5
Stability (min.)	5,9	59,3	35,8
Degree of Softening (12 min.)	0	49	19
ALVEOGRAM			
P (mm)	82	162	108
L (mm)	42	97	66
W Joules x 10-4	187	457	270
P/L	0,97	3,57	1,64

These results were elaborated with 67 composite samples prepared proportionally from 1059 primary samples (farmer deliveries).

FARINOGRAM



NORTH OF THE COUNTRY – ANALYSIS RESULTS

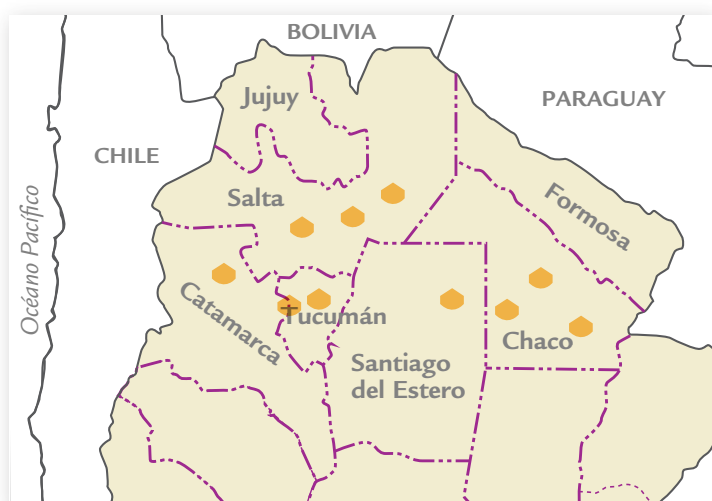
Weighted averages by tons of sample sets per location

Wheat

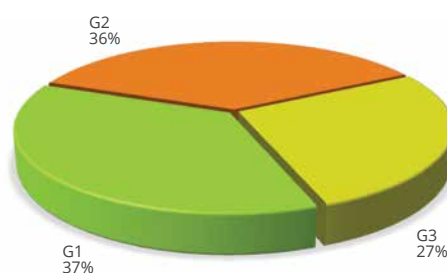
WHEAT ANALYSIS

	Minimum	Maximum	Average
Test Weight (kg/hl)	77,25	83,50	80,81
Total Damaged Kernels (%)	0,02	0,88	0,25
Foreign Material (%)	0,08	0,87	0,33
Shrunken and Broken Kernels (%)	0,04	0,58	0,29
Yellow Berry Kernels (%)	1,30	4,38	2,84
Protein (13,5% Moisture) (%)	10,8	12,6	12,0
Protein (S.S.S)(%)	12,5	14,6	13,9
Weight of 1000 Kernels (g.)	30,6	40,1	34,72
Ash (S.S.S.) (%)	1,243	2,092	1,854

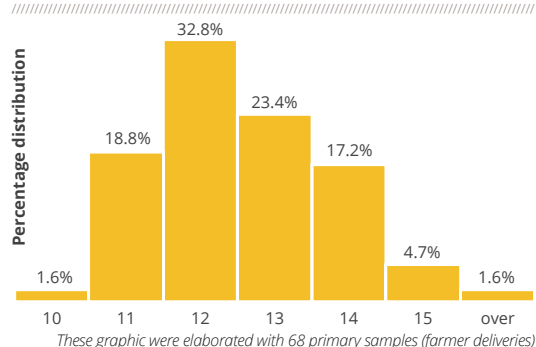
Total damaged kernels includes 0,01% de burnt kernels, 0,10% green kernels, 0,11% sprouted kernels, 0,04% insect chewed kernels, 0,02% frosty kernels and 0,01% calcinated kernels. No damages due to carbon and germ-chewed kernels.



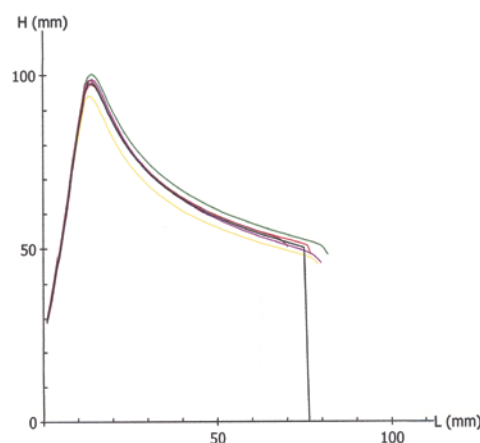
GRADE DISTRIBUTION



PROTEIN (13,5% MOISTURE) (%)



ALVEOGRAM

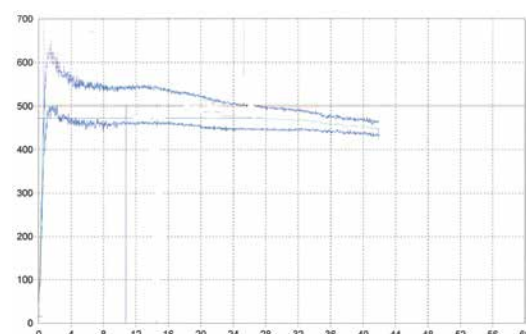


FLOUR ANALYSIS

	Minimum	Maximum	Average
Wet Gluten (%)	24,8	32,1	28,3
Dry Gluten (%)	9,2	11,9	10,5
MILLING			
Falling Number (sec.)	244	453	354
Flour Yield (%)	59,5	60,2	59,9
Ash (dry basis) (%)	0,497	0,744	0,630
Water Absorption (14% H ^o)(%)	53,5	61,9	58,4
FARINOGRAM			
Development Time (min.)	5,7	20,0	11,8
Stability (min.)	7,2	36,5	19,2
Degree of Softening (12 min.)	3	67	35
ALVEOGRAM			
P (mm)	78	132	100
L (mm)	53	83	74
W Joules x 10-4	215	379	277
P/L	0,98	2,15	1,34

These results were elaborated with 11 composite samples prepared proportionally from 68 primary samples (farmer deliveries).

FARINOGRAM



DURUM WHEAT – NATIONAL AVERAGES

Analysis Results

Averages
Durum Wheat

WHEAT ANALYSIS	Minimum	Maximum	Average
Test Weight (kg/hl)	75,20	85,05	80,67
Total Damaged Kernels (%)	0,00	1,04	0,18
Foreign Material (%)	0,06	3,48	0,63
Shrunken and Broken Kernels (%)	0,14	8,84	0,82
Vitreous Kernels (%)	6,00	86,00	51,92
Wheat (Triticum aestivum) (%)	0,64	14,46	3,51
Protein (13,5% Moisture) (%)	9,3	14,3	11,9
Protein (s.s.s.) (%)	10,8	16,5	13,8
Weight of 1000 Kernels (gr.)	34,50	52,80	44,12
Ash (% dry basis)	1,512	1,950	1,741

Total damaged kernels includes 0,03% calcinated kernels 0,01% green kernels, 0,04% sprouted kernels, 0,01% insect chewed kernels and 0,09% germ-chewed.

CROP 2016 / 2017

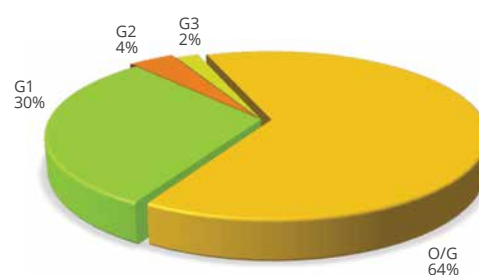
Planted Area (ha)	64.538
Harvested Area (ha)	62.828
Average Yeld (kg/ha)	2.585
Production (tn)	162.426

Reference: Ministerio de Agroindustria de la Nación.

O/G: Out of Grade

Observation: O/S (Out Standard) for condition:
G1 56%; G2 22%; G3: 22%

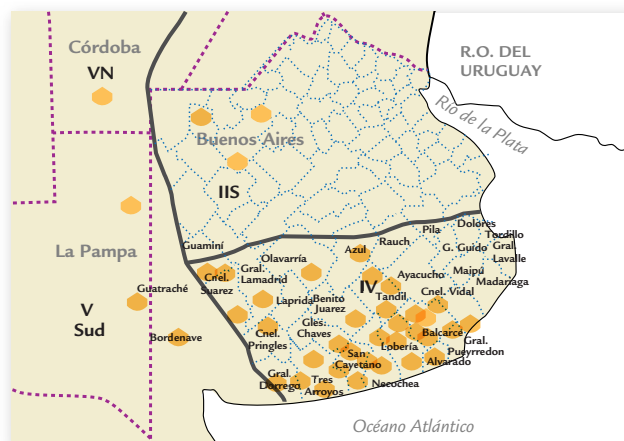
GRADE DISTRIBUTION



SEMOLIN ANALYSIS

	Minimum	Maximum	Average
Falling Number (seg.)	382	620	497
Color(B)	16,6	24,6	21,0
Wet Gluten (%)	20,3	36,5	29,4
Gluten Index	24	97	68
FARINOGRAPH Energy Level	21,6	37,5	27,4
FARINOGRAPH Degree Softening (%)	17	42	31

These results were elaborated with 50 composite samples.



ANALYSIS OF VARIABLES, BY RANGES

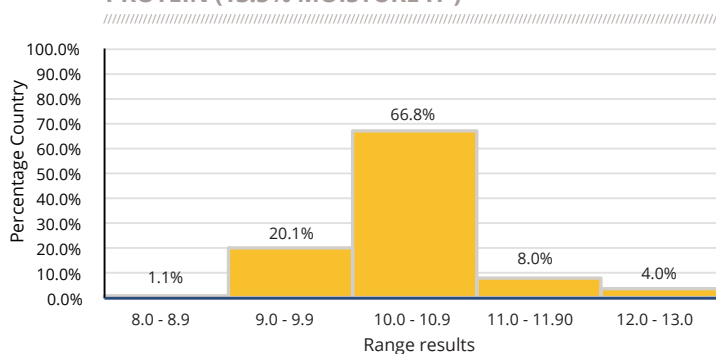
Wheat

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.

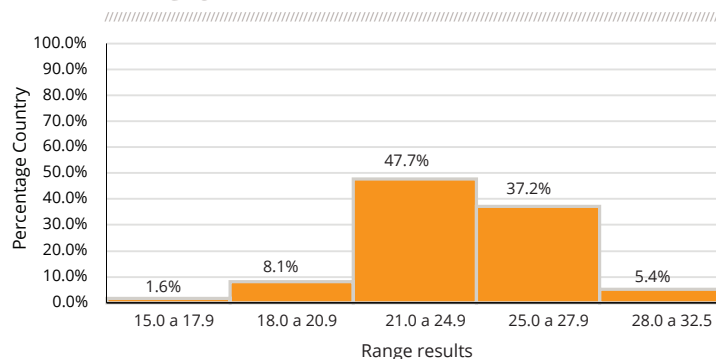
PROTEIN (13.5% Moisture) RANGE	Wet Gluten W Stability	Percentage Country
8,0 - 8,9	18,7 158 24,4	1,1
9,0 - 9,9	21,5 216 23,2	20,1
10,0 - 10,9	24,5 253 24,8	66,8
11,0 - 11,9	26,3 289 28,6	8,0
12,0 - 12,9	29,7 330 23,2	4,0

PROTEIN (13.5% MOISTURE H°)



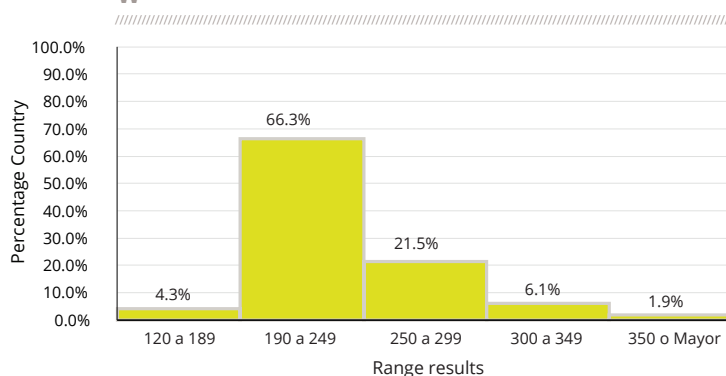
WET GLUTEN RANGE	Protein W Stability	Percentage Country
15 - 17,9	10,1 228 26,2	1,6
18,0 - 20,9	9,4 204 19,5	8,1
21,0 - 24,9	10,0 240 25,5	47,7
25,0 - 27,9	10,9 269 25,6	37,2
28,0 - 31,9	12,0 316 22,7	5,4

WEB GLUTEN



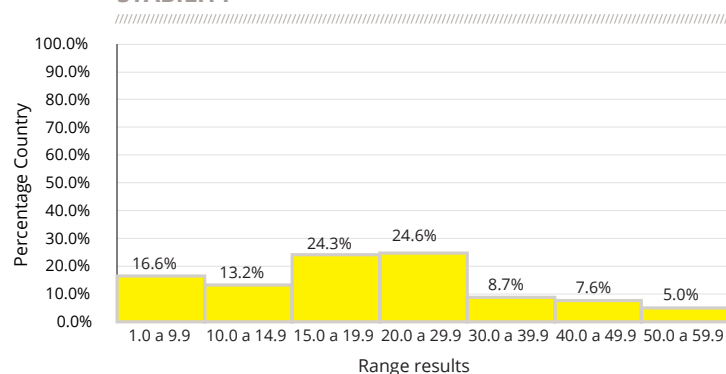
W RANGE	Wet Gluten Protein Stability	Percentage Country
120 - 189	19,9 9,2 17,0	4,3
190 - 249	23,3 10,1 22,3	66,3
250 - 299	25,4 10,6 27,8	21,5
300 - 349	25,1 11,1 29,8	6,1
350 - 399	30,1 12,5 28,1	1,9

W



STABILITY RANGE	Wet Gluten Protein W	Percentage Country
1,0 - 9,9	22,3 9,8 21,7	16,6
10,0 - 14,9	25,0 10,4 24,5	13,2
15,0 - 19,9	24,9 10,5 24,4	24,3
20,0 - 29,9	25,3 10,9 28,0	24,6
30,0 - 39,9	23,9 10,6 26,3	8,7
40 - 49,9	23,8 10,3 25,6	7,6
50 - 59,9	23,1 10,0 24,4	5,0

STABILITY





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