2021 / 2022 Crop

TRIGO ARGENTINO

Institutional quality report

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Bread wheat
2021/2022 Growing season

FINAL CONSIDERATIONS AND SAMPLING STRUCTURE

Argentine wheat production during 2021 registered a historical record with a final estimate of 21.8 million tons (21% above the average of the last five years).

In 2021, 6.6 million hectares were planted with wheat and the average yield was 3,440 kg/ha (this is 11.5% above the average of the last five years).

The area could have been larger due to lack of moisture for planting in the NOA and NEA, and a larger area for barley in the south of the wheat area.

The yields achieved in the center south of the province of Santa Fe, southeast of Córdoba and north of Buenos Aires were very high, as well as in the province of Entre Ríos.

Undoubtedly, the agroclimatic conditions of this wide region were favorable. With scarce but opportune rains during the cycle, the very good recharge of water in the soil at the time of planting made the difference. Although severe frosts were recorded during tillering, the good water availability prevented significant damage to crop biomass, while the difference with recent seasons was that there were no significant frosts during tillering. Temperatures during the critical period for yield were moderate. Although several days above 32 ºC were recorded during grain filling, which could have affected grain weight and hectoliter weight.

The other favorable factor to reach the production record in that region was the increased use of fertilizers. The input-output price ratio at the beginning of the 2021 campaign was very favorable, and together with the good availability of water in the soil, both producers and advisors decided to use more fertilizers in the crop. However, the high yield levels achieved limited grain protein content in many situations.

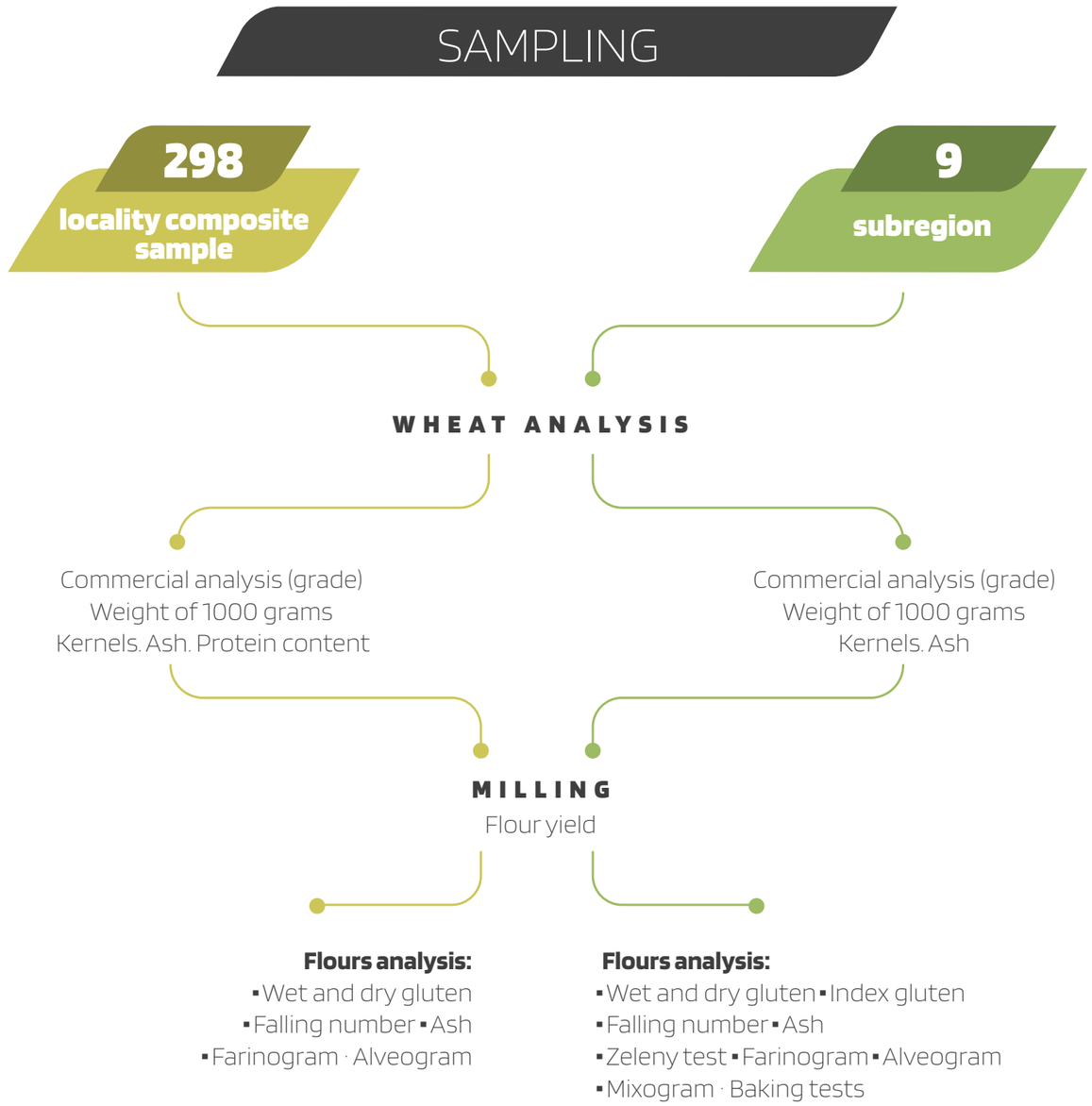
The diseases generally appeared late, and except for some specific situations with greater severity of leaf rust on some varieties, the diseases did not affect the expression of yield. It should be noted that in the last two seasons a change of varieties was also started, which is currently diversifying the behavior of the genetic material against diseases.

Planted acreage, harvested acreage, production and yield, by sub-regions

SUBREGION	AREA PLANTED	AREA HARVESTED	YIELD	PRODUCTION
Sub I	845.472	834.237	3,28	2.736.855
Sub II N	848.658	846.113	4,63	3.920.517
Sub II S	1.226.248	1.218.139	4,20	5.120.945
Sub III	560.000	559.600	3,36	1.878.980
Sub IV	492.225	491.415	4,15	2.037.431
Sub V N	615.685	585.462	3,00	1.755.663
Sub V S	1.012.124	944.394	2,73	2.576.337
NEA	397.190	370.130	1,34	497.315
NOA	430.587	399.046	1,26	501.376
TOTAL	**6.428.189**	**6.248.536**	**3,36**	**21.025.418**

SUBREGION	LOCALITY COMPOSITE	SAMPLING (TONS)	PRODUCTION (TONS)	PRODUCTION SAMPLED
I	24	90110	2.736.855	13,02%
II N	56	322713	3.920.517	18,65%
II S	58	203000	5.120.945	24,36%
III	30	103705	1.878.980	8,94%
IV	39	144980	2.037.431	9,69%
V N	26	105565	1.755.663	8,35%
V S	59	193109	2.576.337	12,25%
NEA	3	10000	497.315	2,37%
NOA	3	10000	501.376	2,38%
National	**298**	**1183182**	**21.025.418**	**100,00%**

Procedure to ontain analytical results



National summary by subregions
Results of all the analyzed variables

SUBREGIONS	I	II N	II S	III	IV	V N	V S	NEA	NOA	* Pondered Average
GRAIN										
Test Weight (kg/hl)	82,33	79,23	78,26	81,19	79,14	79,60	79,72	81,72	82,54	**79,6**
Weight of 1000 kernels (gr)	35,41	35,69	36,19	35,39	36,00	34,80	35,66	32,29	34,54	**35,6**
Ahs (dry basis) %	1,728	1,642	1,700	1,503	1,623	1,752	1,692	1,973	1,737	**1,666**
Protein (13,5% Moisture) (%)	10,1	10,7	10,6	10,2	10,3	10,9	11,4	10,5	10,1	**10,66**
Protein (dry basis) (%)	11,7	12,3	12,3	11,8	11,9	12,5	13,1	12,2	11,7	**12,32**
Ash (dry basis) %	0,458	0,595	0,623	0,586	0,578	0,617	0,586	0,724	0,577	**0,59**
Color										
L	88,47	88,55	88,95	89,08	89,33	89,31	88,61	89,13	88,67	**88,84**
a	-1,70	-1,56	-1,80	-1,73	-1,74	-1,72	-1,50	-1,66	-1,49	**-1,65**
b	8,79	8,36	8,55	8,81	8,66	8,52	8,12	8,62	8,00	**8,48**
HARINA										
Moisture (%)	11,26	11,95	13,29	12,95	12,75	13,71	12,09	12,55	12,63	**12,50**
Protein (%)	9,4	9,5	9,5	9,4	9,7	10,2	10,7	9,4	9,3	**9,8**
Wet Gluten (%)	23,9	22,2	24,2	23,2	23,7	26,2	26,8	22,6	21,9	**24,05**
Dry Gluten (%)	8,3	7,7	9,0	8,0	8,3	8,8	9,0	8,5	8,1	**8,38**
Index Gluten (%)	99	100	99	99	100	100	100	99	100	**100**
Falling Number (seg)	441	387	393	384	394	420	427	393	388	**402,26**
Zeleny Test (cc)	30	34	33	31	35	32	35	33	31	**33**
FARINOGRAM										
Water Absorption (%)	57,2	55,6	59	57,6	59,1	57,9	62,7	60,5	59,3	**58,54**
Development Time (min)	2,1	9,3	14,7	6,3	19,3	10,3	13,5	8,4	10,6	**11,4**
Stability (min)	5,3	16,8	37,6	11,3	35,3	19,7	27,5	27,7	31,8	**23,4**
Degree pf Softening (U.F.)	43	48	14	50	22	35	25	16	6	**33,41**
Quality Number	168	51	33	125	136	385	146	36	346	**121**
MIXOGRAM										
Development Time (min)	4,32	5,35	5,48	6,88	6,02	6,02	6,76	5,66	5,71	**5,81**
ALVEOGRAM										
P (mm)	97	103	101	96	96	104	125	117	123	**103,9**
L (mm)	56	62	65	62	61	74	65	49	43	**63,43**
G	19,3	20,3	18,4	18,4	15,5	18,9	16,7	14,8	15,3	**18,3**
W (Joules x 10-4)	206	234	236	219	223	269	307	232	219	**244,55**
P/L	1,89	2,00	1,67	1,94	1,68	1,59	2,03	2,45	2,94	**1,87**
Ie %	54,0	59,7	57,5	55,4	53,7	58,9	55,8	55,9	53,3	**57,0**
W (40) (Joules x 10-4)	206	234	236	219	223	269	307	232	219	**244,5**
RVA										
Maxim Viscosity (RVU)	178,67	173,17	163,25	182,25	153,54	184,92	141,67	165,08	158,42	**166,0**
Minimum Viscosity (RVU)	115,25	106,17	87,25	130,83	89,75	115,42	89,08	95,83	94,75	**101,6**
Final Viscosity (RVU)	212,42	19,00	178,92	224,33	168,79	213,00	166,08	181,08	176,83	**141,5**
BAKING										
Absorption (%)	58,2	58,6	57,9	57,9	56,0	58,7	61,4	60,3	62,4	**58,5**
Development Time (min)	03:00	03:30	03:30	03:00	02:45	03:30	03:30	03:00	03:00	**03:05**
Fermentation Time (min)	160	160	160	160	160	160	160	160	160	**160**
Loaf Volume (cc)	415	425	475	450	530	585	540	485	440	**482**
Specific Volume (cc/gr)	2,9	3	3,4	3,4	3,9	4,3	3,9	3,5	3,1	**3,5**

Argentine wheat
Main Quality Parameters

Subregion NOA

Test Weight (kg/hl)	82,54

Grade

1	2	3	F/E
33,33%	66,67%	0%	0%

Protein (13,5 Moisture) (%)	10,1
Protein (s.s.s.) (%)	11,7
Wet Gluten (%)	21,9
W Alveogram (Joules 10-4)	219
Farino Stability (min)	31,8

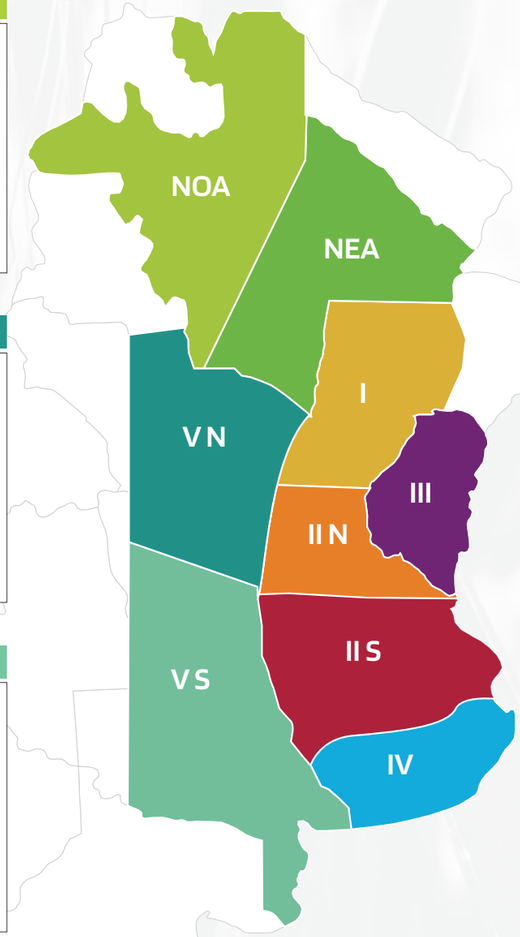
Subregion NEA

Test Weight (kg/hl)	81,72

Grade

1	2	3	F/E
0%	100%	0%	0%

Protein (13,5 Moisture) (%)	10,5
Protein (s.s.s.) (%)	12,2
Wet Gluten (%)	22,6
W Alveogram (Joules 10-4)	232
Farino Stability (min)	27,7



Subregion V N

Test Weight (kg/hl)	79,60

Grade

1	2	3	F/E
34,62%	53,85%	11,54%	0%

Protein (13,5 Moisture) (%)	10,9
Protein (s.s.s.) (%)	12,5
Wet Gluten (%)	26,2
W Alveogram (Joules 10-4)	296
Farino Stability (min)	19,7

Subregion I

Test Weight (kg/hl)	82,33

Grade

1	2	3	F/E
45,83%	54,17%	0%	0%

Protein (13,5 Moisture) (%)	10,1
Protein (s.s.s.) (%)	11,7
Wet Gluten (%)	23,9
W Alveogram (Joules 10-4)	206
Farino Stability (min)	5,3

Subregion V S

Test Weight (kg/hl)	79,72

Grade

1	2	3	F/E
10,17%	77,97%	11,86%	0%

Protein (13,5 Moisture) (%)	11,4
Protein (s.s.s.) (%)	13,1
Wet Gluten (%)	26,8
W Alveogram (Joules 10-4)	307
Farino Stability (min)	27,5

Subregion II N

Test Weight (kg/hl)	79,23

Grade

1	2	3	F/E
14,29%	78,57%	1,79%	5,36%

Protein (13,5 Moisture) (%)	10,7
Protein (s.s.s.) (%)	12,3
Wet Gluten (%)	22,2
W Alveogram (Joules 10-4)	234
Farino Stability (min)	16,8

Nacional

Test Weight (kg/hl)	79,60

Grade

1	2	3	F/E
24,5%	66,3%	8,2%	1%

Protein (13,5 Moisture) (%)	10,66
Protein (s.s.s.) (%)	12,32
Wet Gluten (%)	24,05
W Alveogram (Joules 10-4)	244,55
Farino Stability (min)	23,47

Subregion II S

Test Weight (kg/hl)	78,26

Grade

1	2	3	F/E
20,69%	62,07%	15,52%	1,72%

Protein (13,5 Moisture) (%)	10,6
Protein (s.s.s.) (%)	12,3
Wet Gluten (%)	24,2
W Alveogram (Joules 10-4)	236
Farino Stability (min)	37,6

Subregion III

Test Weight (kg/hl)	81,19

Grade

1	2	3	F/E
73,33%	26,67%	0%	0%

Protein (13,5 Moisture) (%)	10,2
Protein (s.s.s.) (%)	11,8
Wet Gluten (%)	23,2
W Alveogram (Joules 10-4)	219
Farino Stability (min)	11,3

Subregion IV

Test Weight (kg/hl)	79,14

Grade

1	2	3	F/E
10,26%	74,36%	12,82%	2,56%

Protein (13,5 Moisture) (%)	10,3
Protein (s.s.s.) (%)	11,9
Wet Gluten (%)	23,7
W Alveogram (Joules 10-4)	223
Farino Stability (min)	35,3

BREAD WHEAT

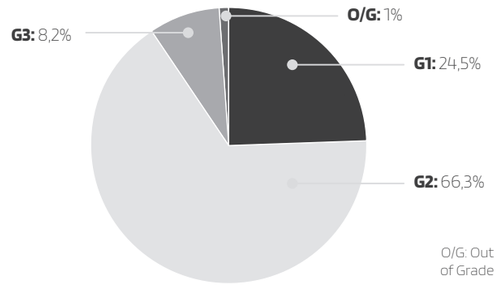
National averages

Weighted averages by tons produced in each region

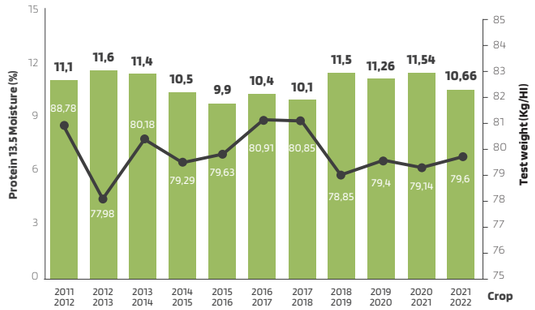
WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	78,26	82,54	79,60
Total Damaged Kernels (%)	0,12	1,46	0,50
Foreign Material (%)	0,24	0,58	0,39
Shrunken and Broken Kernels (%)	0,21	0,69	0,37
Yellow Berry Kernels (%)	1,81	11,70	3,69
Protein (13,5% Moisture) (%)	9,93	11,36	10,66
Protein (dry basis) (%)	11,48	13,13	12,32
Weight of 1000 Kernels (g.)	34,54	37,57	35,67
Ash (dry basis.) (%)	1,50	1,75	1,66

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,91	26,76	24,05
Dry Gluten (%)	7,72	9,00	8,38
Falling Number (sec.)	383,97	440,83	402,26
Flour Yield (%)	69,52	73,15	72,13
Ash (dry basis) (%)	0,46	0,62	0,59
FARINOGRAM			
Water Absorption (14% H°) (%)	53,12	62,40	58,54
Development Time (min.)	2,06	25,54	11,46
Stability (min.)	5,34	47,17	23,47
Degree of Softening (12 min.)	5,80	50,12	33,41
ALVEOGRAM			
P (mm)	82,21	124,95	103,90
L (mm)	42,80	73,96	63,43
W joules X 10 4	200,27	307,21	244,55
P / L	1,33	2,94	1,87

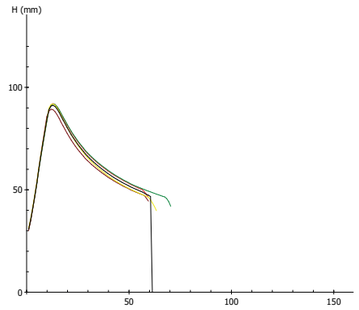
Grade distribution



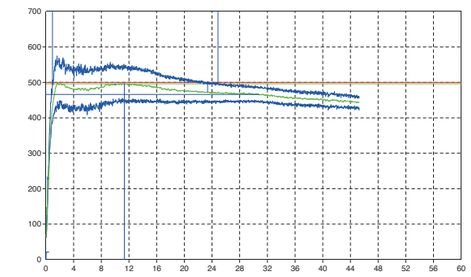
Protein 13,5% vs. Test weight



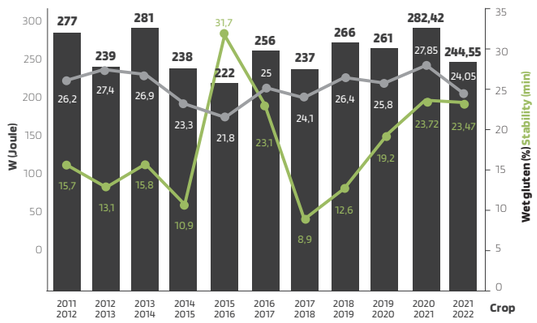
Alveogram



Farinogram



W, wet gluten y stability



BREAD WHEAT

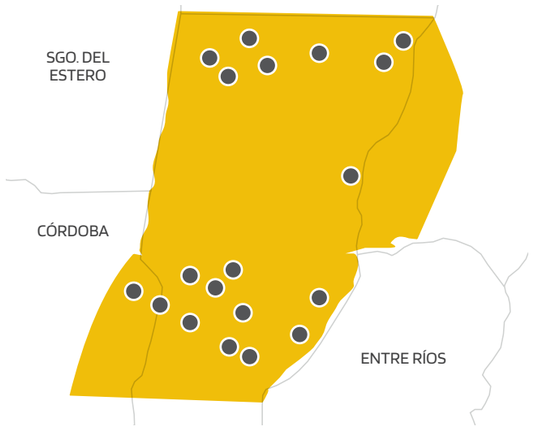
Subregion I. Analysis results

Weighted averages by tons of samples sets per location

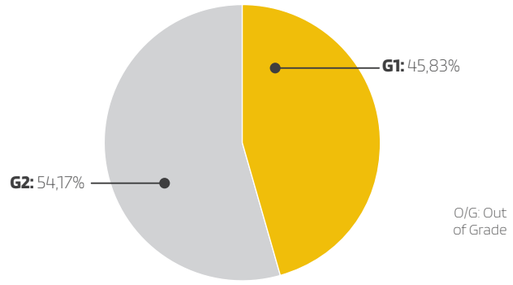
WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	79,90	84,80	82,33
Total Damaged Kernels (%)	0,10	0,64	0,35
Foreign Material (%)	0,05	0,60	0,24
Shrunken and Broken Kernels (%)	0,15	0,60	0,34
Yellow Berry Kernels (%)	3,50	18,20	11,70
Protein (13,5% Moisture) (%)	9,1	11,5	10,1
Protein (dry basis) (%)	10,5	13,3	11,7
Weight of 1000 Kernels (g.)	31,86	39,92	35,41
Cenizas (S.S.S.) (%)	1,422	1,984	1,728

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,7	28,0	23,9
Dry Gluten (%)	7,6	9,6	8,3
Falling Number (sec.)	412	451	441
Flour Yield (%)	65,1	74,4	70,5
Ash (dry basis) (%)	0,340	0,605	0,458
FARINOGRAM			
Water Absorption (14% H°) (%)	55,8	63,6	58,2
Development Time (min.)	1,3	7,8	2,1
Stability (min.)	1,5	16,5	5,3
Degree of Softening (12 min.)	17	69	43
ALVEOOGRAM (*)			
P (mm)	67	138	97
L (mm)	36	94	56
W Joules x 10-4	158	254	206
P / L	0,73	3,75	1,89

SD: No Statistical Data
(*) There is not enough data to estimate the statistical indicator

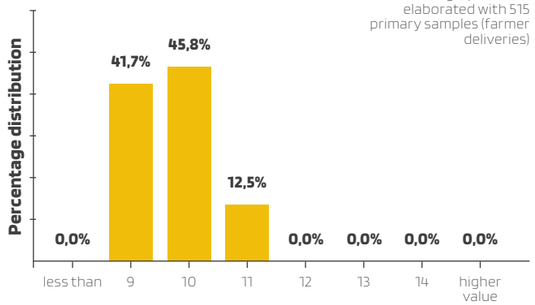


Grade distribution

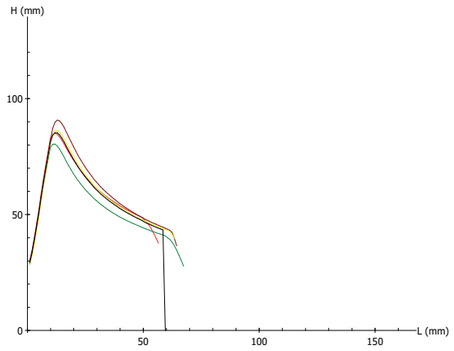


Protein (13.5% Moisture)

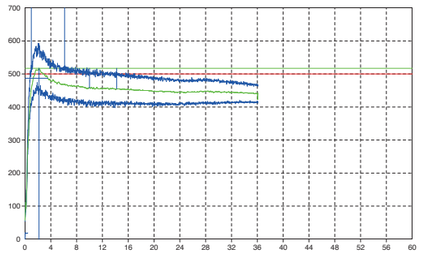
These graphic were elaborated with 515 primary samples (farmer deliveries)



Alveogram



Farinogram



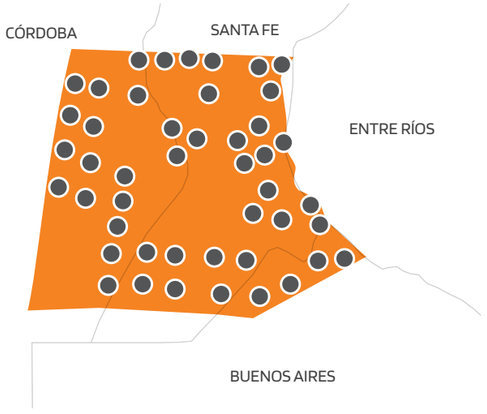
BREAD WHEAT

Subregion II N. Analysis results

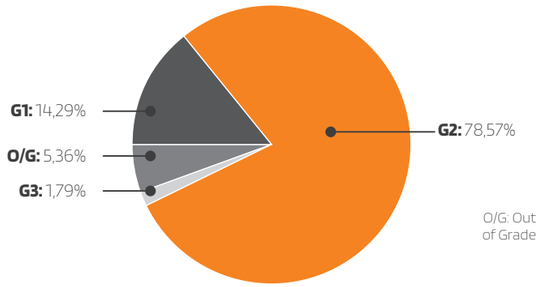
Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	77,20	82,30	79,23
Total Damaged Kernels (%)	0,10	7,30	0,6
Foreign Material (%)	0,10	3,10	0,38
Shrunken and Broken Kernels (%)	0,10	1,40	0,45
Yellow Berry Kernels (%)	1,00	9,80	4,27
Protein (13,5% Moisture) (%)	9,5	11,5	10,7
Protein (dry basis) (%)	11,0	13,3	12,3
Weight of 1000 Kernels (g.)	31,30	40,26	35,69
Cenizas (S.S.S.) (%)	1,255	1,825	1,642

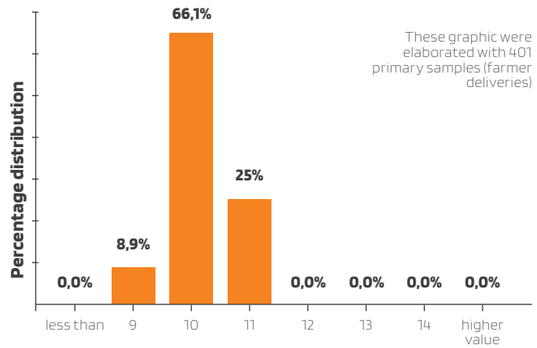
FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	18,7	26,8	22,2
Dry Gluten (%)	6,7	9,1	7,7
Falling Number (sec.)	323	460	387
Flour Yield (%)	68,4	75,2	71,7
Ash (dry basis) (%)	0,495	0,755	0,595
Water Absorption (14% H°) (%)	52,5	66,5	58,6
Development Time (min.)	1,5	23,0	9,3
Stability (min.)	1,2	44,1	16,8
Degree of Softening (12 min.)	4	113	48
ALVEOOGRAM			
P (mm)	78	170	103
L (mm)	18	99	62
W Joules x 10-4	128	319	234
P / L	0,79	8,56	2,00



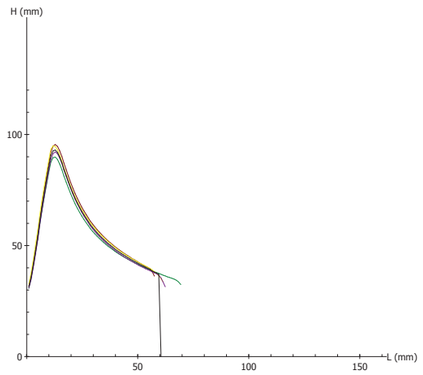
Grade distribution



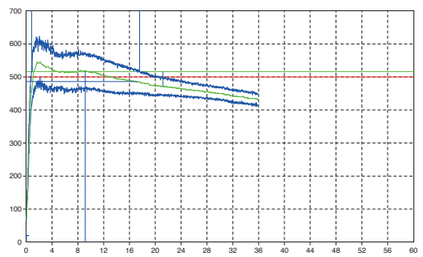
Protein (13.5% Moisture)



Alveogram



Farinogram



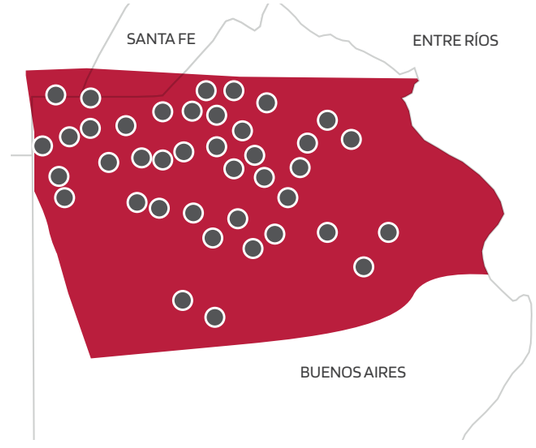
BREAD WHEAT

Subregion II S. Analysis results

Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	74,50	83,30	78,26
Total Damaged Kernels (%)	0,04	1,96	0,54
Foreign Material (%)	0,02	1,60	0,44
Shrunken and Broken Kernels (%)	0,04	0,72	0,21
Yellow Berry Kernels (%)	0,00	4,60	1,81
Protein (13,5% Moisture) (%)	9,3	12,2	10,6
Protein (dry basis) (%)	10,8	14,1	12,3
Weight of 1000 Kernels (g.)	29,78	39,99	36,19
Cenizas (S.S.S.) (%)	1,446	2,081	1,700

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	18,4	29,0	24,2
Dry Gluten (%)	6,8	10,7	9,0
Falling Number (sec.)	339	476	393
Flour Yield (%)	67,6	77,0	73,1
Ash (dry basis) (%)	0,491	1,787	0,623
FARINOGRAM			
Water Absorption (14% H°) (%)	52,5	63,5	57,9
Development Time (min.)	3,6	35,4	14,7
Stability (min.)	11,1	60,0	37,6
Degree of Softening (12 min.)	0	53	14
ALVEOOGRAM			
P (mm)	62	134	96
L (mm)	29	99	65
W Joules x 10-4	156	340	236
P / L	0,63	4,07	1,67



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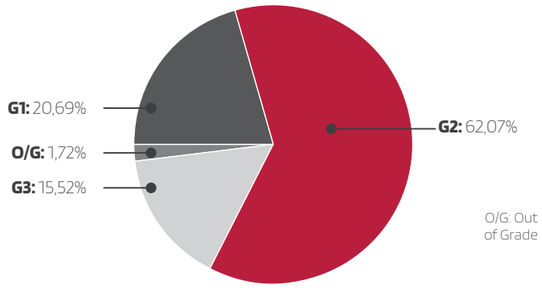
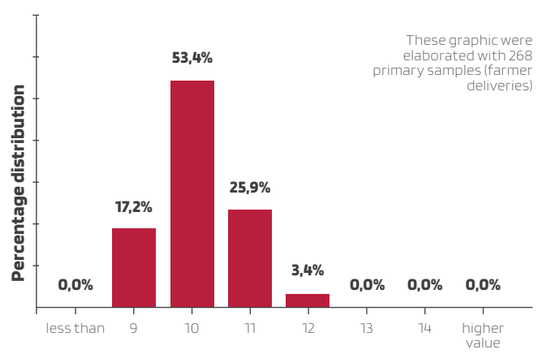


Protein (13.5% Moisture)



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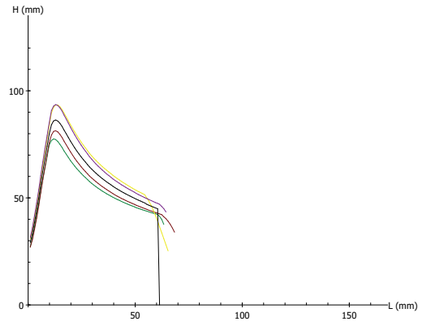

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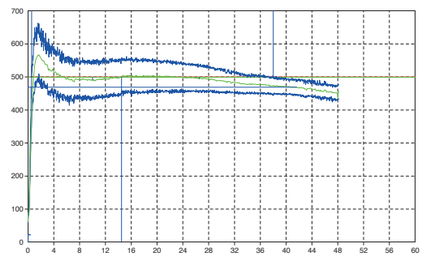
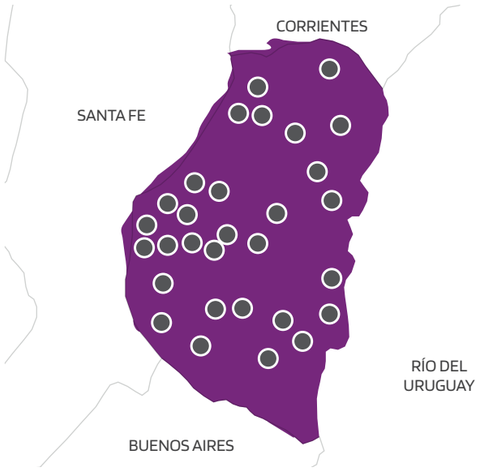


BREAD WHEAT

Subregion III. Analysis results
Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	79,30	83,30	81,19
Total Damaged Kernels (%)	0,04	0,63	0,19
Foreign Material (%)	0,08	0,92	0,27
Shrunken and Broken Kernels (%)	0,29	1,16	0,69
Yellow Berry Kernels (%)	0,97	10,12	3,88
Protein (13,5% Moisture) (%)	9,5	10,6	10,2
Protein (dry basis) (%)	11,0	12,3	11,8
Weight of 1000 Kernels (g.)	31,33	39,54	35,39
Cenizas (S.S.S.) (%)	1,220	1,780	1,503

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	18,4	25,8	23,2
Dry Gluten (%)	7,0	9,4	8,0
Falling Number (sec.)	353	437	384
Flour Yield (%)	68,6	75,6	72,2
Ash (dry basis) (%)	0,521	0,687	0,586
FARINOGRAM			
Water Absorption (14% H°) (%)	54,0	68,4	57,9
Development Time (min.)	1,6	29,7	6,3
Stability (min.)	1,1	41,9	11,3
Degree of Softening (12 min.)	11	104	50
ALVEOOGRAM			
P (mm)	67	170	97
L (mm)	20	92	62
W Joules x 10-4	139	268	219
P / L	0,73	8,50	1,94



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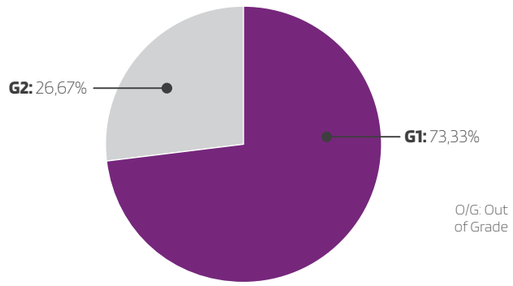
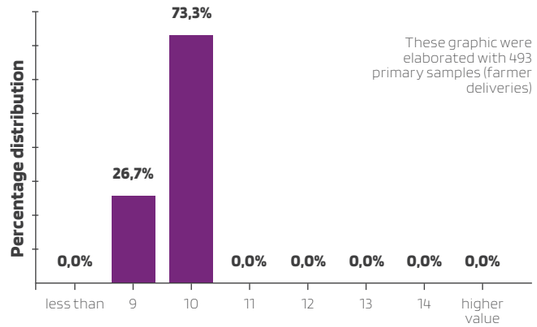


Protein (13.5% Moisture)



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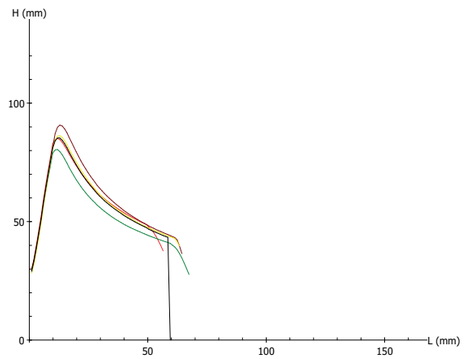

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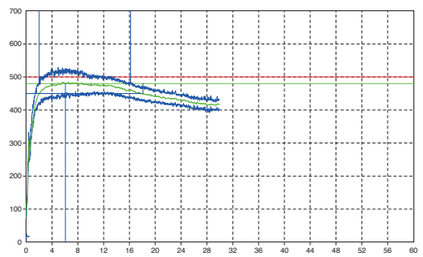
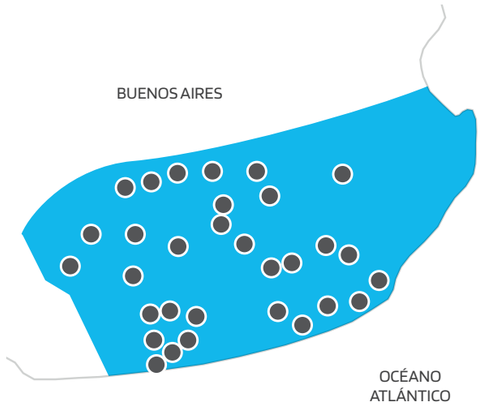


BREAD WHEAT

Subregion IV. Analysis results
Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	75,20	81,50	79,14
Total Damaged Kernels (%)	0,00	5,03	0,71
Foreign Material (%)	0,08	0,90	0,37
Shrunken and Broken Kernels (%)	0,04	0,76	0,28
Yellow Berry Kernels (%)	0,00	8,20	2,55
Protein (13,5% Moisture) (%)	9,1	11,5	10,3
Protein (dry basis) (%)	10,5	13,3	11,9
Weight of 1000 Kernels (g.)	32,13	39,82	36
Cenizas (S.S.S.) (%)	1,470	1,797	1,623

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	19,1	28,6	23,7
Dry Gluten (%)	7,1	9,7	8,3
Falling Number (sec.)	294	483	394
Flour Yield (%)	61,3	76,4	71,5
Ash (dry basis) (%)	0,448	0,681	0,578
FARINOGRAM			
Water Absorption (14% H°) (%)	0,0	64,0	56,0
Development Time (min.)	0,0	50,4	19,3
Stability (min.)	16,9	60,0	35,3
Degree of Softening (12 min.)	2	45	22
ALVEOOGRAM			
P (mm)	61	155	96
L (mm)	33	92	61
W Joules x 10-4	160	280	223
P / L	0,77	3,82	1,68



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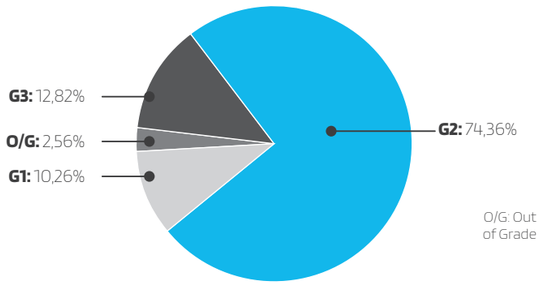
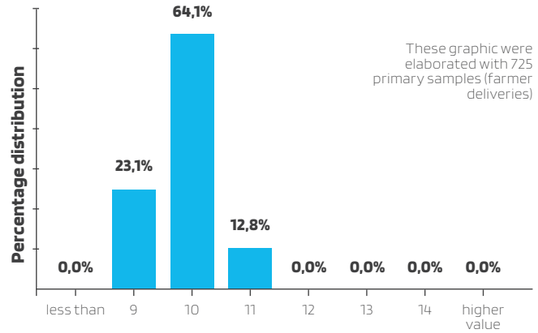


Protein (13.5% Moisture)



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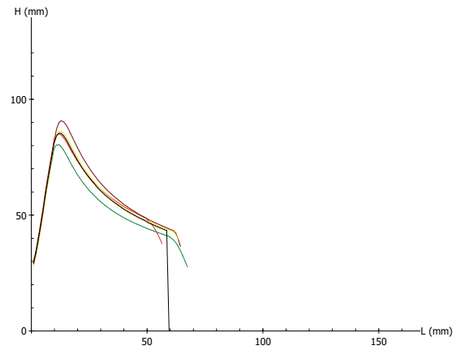

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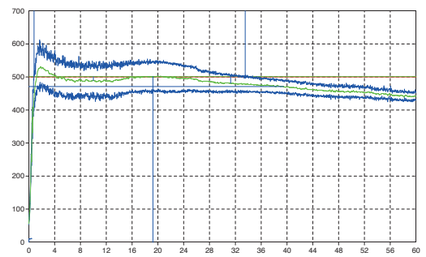
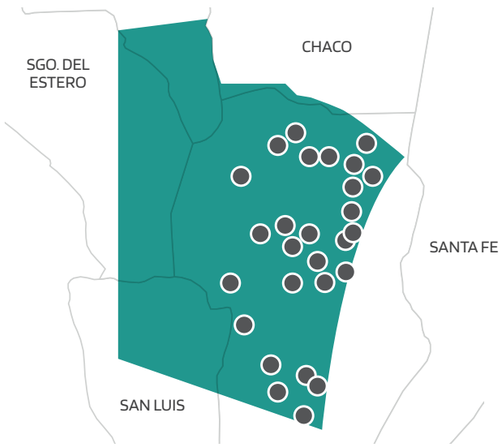


BREAD WHEAT

Subregion V N. Analysis results
Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	75,30	84,00	79,6
Total Damaged Kernels (%)	0,08	5,42	0,70
Foreign Material (%)	0,06	1,03	0,28
Shrunken and Broken Kernels (%)	0,14	1,00	0,36
Yellow Berry Kernels (%)	0,40	17,20	3,56
Protein (13,5% Moisture) (%)	7,7	12,3	10,9
Protein (dry basis) (%)	8,9	14,2	12,5
Weight of 1000 Kernels (g.)	31,04	38,89	34,80
Cenizas (S.S.S.) (%)	1,542	2,390	1,752

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,4	31,1	26,2
Dry Gluten (%)	7,1	10,4	8,8
Falling Number (sec.)	306	462	420
Flour Yield (%)	67,7	76,4	71,9
Ash (dry basis) (%)	0,527	0,765	0,617
FARINOGRAM			
Water Absorption (14% H°) (%)	54,8	65,5	58,7
Development Time (min.)	1,6	25,0	10,3
Stability (min.)	1,6	42,2	19,7
Degree of Softening (12 min.)	6	81	35
ALVEOOGRAM			
P (mm)	82	158	104
L (mm)	29	116	74
W Joules x 10-4	198	318	269
P / L	0,71	5,45	1,59



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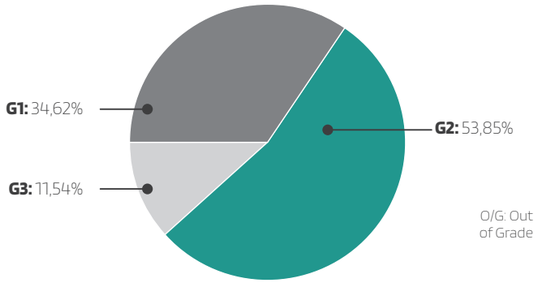
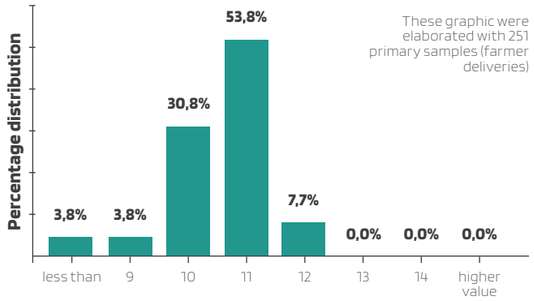


Protein (13.5% Moisture)



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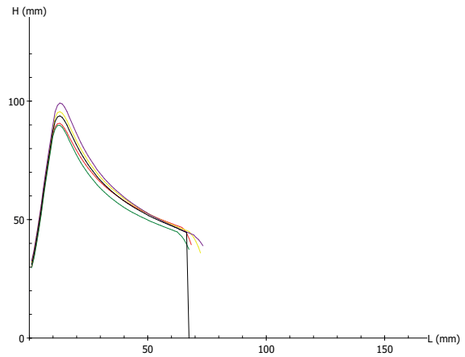

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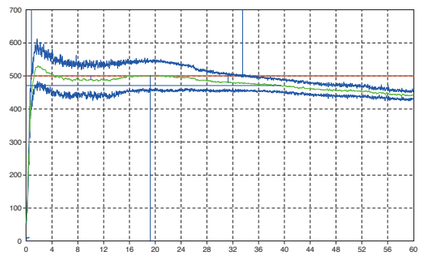
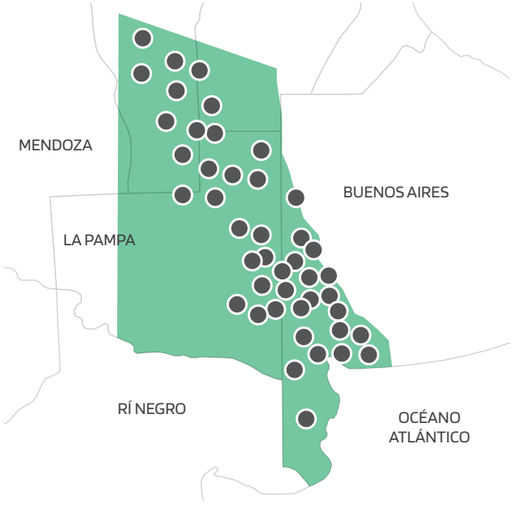


BREAD WHEAT

Subregion V S. Analysis results
Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	77,70	82,15	79,72
Total Damaged Kernels (%)	0,00	2,16	0,28
Foreign Material (%)	0,08	1,36	0,58
Shrunken and Broken Kernels (%)	0,06	0,90	0,31
Yellow Berry Kernels (%)	0,00	6,60	1,82
Protein (13,5% Moisture) (%)	10,0	13,9	11,4
Protein (dry basis) (%)	11,6	16,1	13,1
Weight of 1000 Kernels (g.)	29,70	39,08	35,66
Cenizas (S.S.S.) (%)	1,467	1,917	1,692

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,2	33,2	26,8
Dry Gluten (%)	7,1	11,3	9,0
Falling Number (sec.)	344	495	427
Flour Yield (%)	68,1	77,6	73,1
Ash (dry basis) (%)	0,412	0,758	0,586
FARINOGRAM			
Water Absorption (14% H°) (%)	53,5	68,2	61,4
Development Time (min.)	1,8	40,1	13,5
Stability (min.)	1,3	53,1	27,5
Degree of Softening (12 min.)	0	109	25
ALVEOOGRAM			
P (mm)	63	175	125
L (mm)	37	133	65
W Joules x 10-4	164	477	307
P / L	0,75	3,32	2,03



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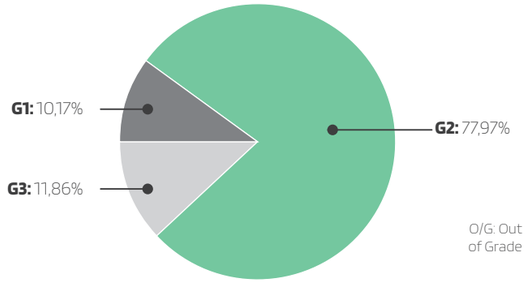
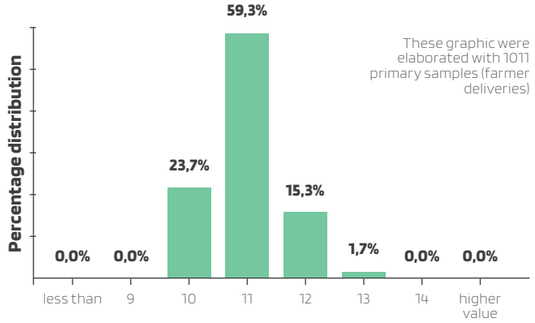


Protein (13.5% Moisture)



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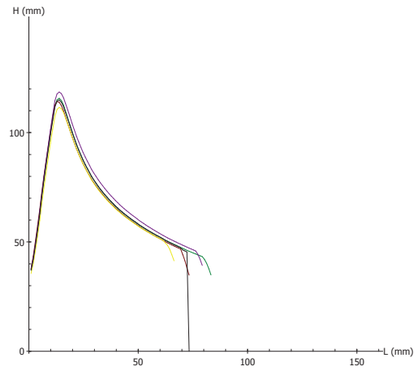

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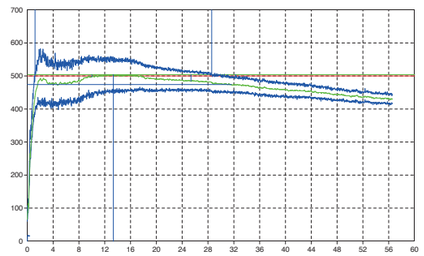


BREAD WHEAT

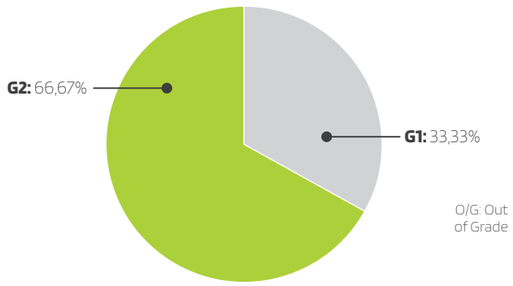
NOA. Analysis results

Weighted averages by tons of samples sets per location

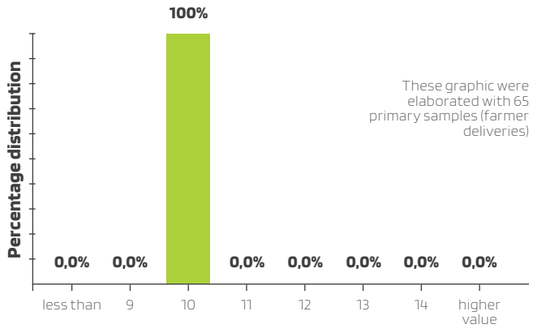
WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	82,10	83,10	82,54
Total Damaged Kernels (%)	0,10	0,40	0,22
Foreign Material (%)	0,26	0,40	0,32
Shrunken and Broken Kernels (%)	0,30	0,44	0,33
Yellow Berry Kernels (%)	2,06	3,64	3,22
Protein (13,5% Moisture) (%)	9,9	10,2	10,1
Protein (dry basis) (%)	11,4	11,8	11,7
Weight of 1000 Kernels (g.)	34,39	34,96	34,54
Cenizas (S.S.S.) (%)	1,706	1,758	1,737

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,2	22,7	21,9
Dry Gluten (%)	7,9	8,4	8,1
Falling Number (sec.)	366	412	388
Flour Yield (%)	69,9	72,1	71,2
Ash (dry basis) (%)	0,516	0,629	0,577
FARINOGRAM			
Water Absorption (14% H°) (%)	60,0	65,5	62,4
Development Time (min.)	5,1	16,2	10,6
Stability (min.)	26,1	36,2	31,8
Degree of Softening (12 min.)	3	8	6
ALVEOOGRAM			
P (mm)	115	131	123
L (mm)	37	50	43
W Joules x 10-4	205	235	219
P / L	2,30	3,54	2,94

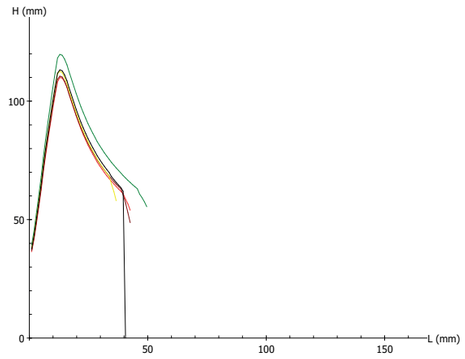
Grade distribution



Protein (13.5% Moisture)



Alveogram



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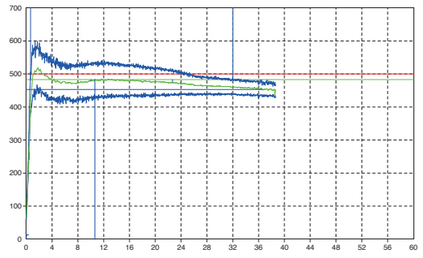


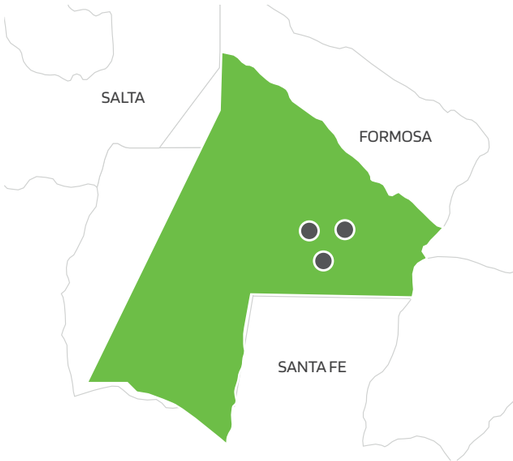
BREAD WHEAT

NEA. Analysis results

Weighted averages by tons of samples sets per location

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	80,10	82,80	81,72
Total Damaged Kernels (%)	0,16	0,95	0,52
Foreign Material (%)	0,22	0,33	0,28
Shrunken and Broken Kernels (%)	0,20	0,30	0,27
Yellow Berry Kernels (%)	4,80	6,42	5,91
Protein (13,5% Moisture) (%)	10,3	10,9	10,5
Protein (dry basis) (%)	11,9	12,6	12,2
Weight of 1000 Kernels (g.)	31,49	32,89	32,29
Cenizas (S.S.S.) (%)	1,938	1,988	1,973

FLOUR ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
MILLING			
Wet Gluten (%)	21,8	23,1	22,6
Dry Gluten (%)	8,5	8,6	8,5
Falling Number (sec.)	376	431	393
Flour Yield (%)	71,7	73,3	72,4
Ash (dry basis) (%)	0,681	0,778	0,724
FARINOGRAM			
Water Absorption (14% H°) (%)	58,2	62,0	60,3
Development Time (min.)	4,5	15,0	8,4
Stability (min.)	19,0	34,5	27,7
Degree of Softening (12 min.)	8	24	16
ALVEOOGRAM			
P (mm)	101	137	117
L (mm)	44	55	49
W Joules x 10-4	215	260	232
P / L	1,84	3,04	2,45



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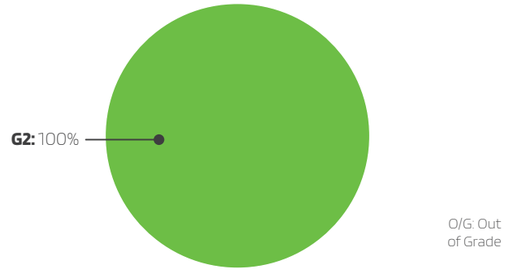
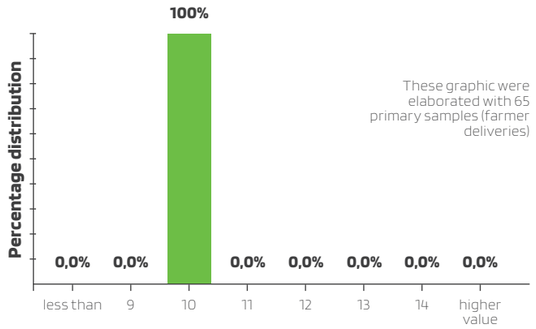
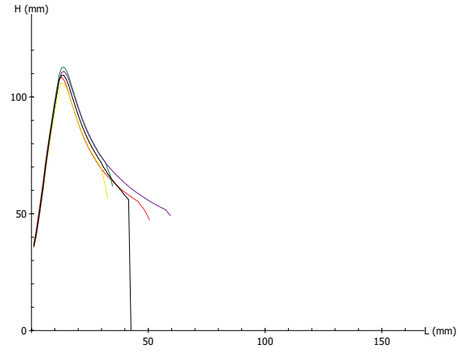


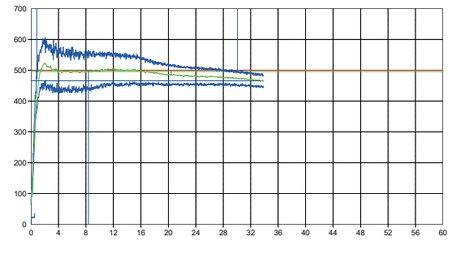
Protein (13.5% Moisture)



Alveogram



Farinogram



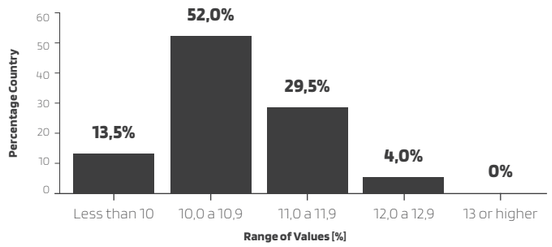
BREAD WHEAT

Analysis of variables by ranges

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.

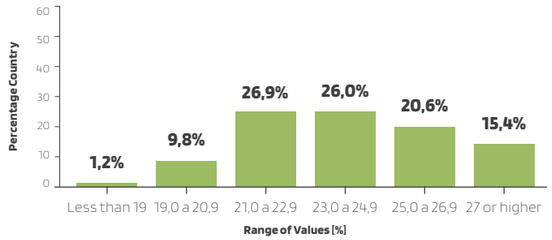
Protein

PROTEIN (13,5% MOISTURE)	WET GLUTEN W STABILITY	PERCENTAGE COUNTRY
Less than 10	21,2 | 192 | 22,4	13,5%
10,0 a 10,9	23,4 | 233 | 23,6	52,0%
11,0 a 11,9	26,3 | 279 | 24,0	29,5%
12,0 a 12,9	29,4 | 334 | 25,1	4,0%
13,0 or higher	37,8 | 457 | 26,4	0%



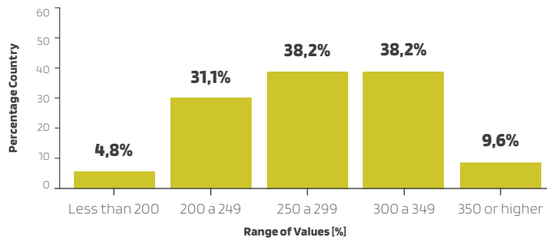
Wet Gluten

WET GLUTEN	WET GLUTEN W STABILITY	PERCENTAGE COUNTRY
Less than 19,0	9,8 | 180 | 12,8	1,2%
19,0 a 20,9	10,0 | 192 | 26,0	9,8%
21,0 a 22,9	10,2 | 220 | 22,6	26,9%
23,0 a 24,9	23,9 | 10 | 233,6	26,0%
25,0 a 26,9	10,9 | 266 | 26,2	20,6%
27.0 or higher	11,7 | 309 | 25,3	15,4%



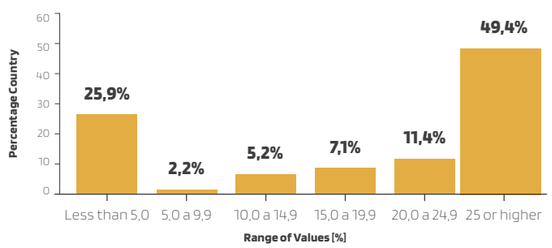
W

W	WET GLUTEN PROTEIN.STABILITY	PERCENTAGE COUNTRY
Less than 200	21,3 | 9,9 | 16,9	4,8%
200 a 249	22,4 | 10,1 | 21,2	31,1%
250 a 299	23,9 | 10,6 | 23,1	38,2%
300 a 349	25,9 | 11,0 | 26,2	38,2%
350 or higher	28,2 | 11,9 | 29,5	9,6%



Stability

STABILITY	WET GLUTEN PROTEIN W	PERCENTAGE COUNTRY
Less than 5,0	22,4 | 10,3 | 217	25,9%
5,0 a 9,9	24,0 | 10,0 | 196	2,2%
10,0 a 14,9	25,7 | 11,0 | 239	5,2%
15,0 a 19,9	26,1 | 11,1 | 259	7,1%
20,0 a 24,9	26,2 | 11,1 | 275	11,4%
25 or higher	24,2 | 10,7 | 254	49,4%

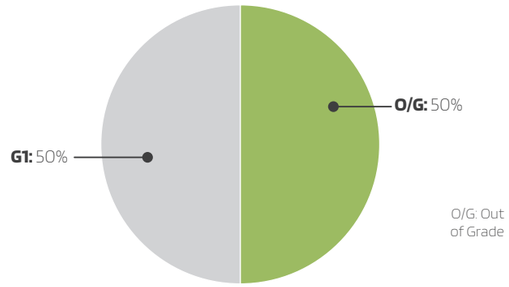


DURUM WHEAT

National averages
Analysis Results

WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Test Weight (kg/hl)	80,80	82,60	**81,70**
Total Damaged Kernels (%)	0,00	0,18	**0,09**
Foreign Material (%)	0,28	0,64	**0,44**
Shrunken and Broken Kernels (%)	0,24	0,96	**0,56**
Yellow Berry Kernels (%)	31	48	**39**
Protein (13,5% Moisture) (%)	0,20	1,16	**0,61**
Protein (dry basis) (%)	9,6	10,1	**9,8**
Weight of 1000 Kernels (g.)	11,1	11,7	**11,3**
Cenizas (S.S.S.) (%)	39,60	43,00	**41,18**
Cenizas (s.s.s.) %	1,700	1,860	**1,762**

Grade distribution



WHEAT ANALYSIS	MINIMUN	MAXIMUN	AVERAGE
Falling Number (seg.)	423	444	**435**
Colour(B)	17,6	20,4	**18,9**
Wet Gluten (%)	18,7	23,6	**20,6**
Gluten Index	59	98	**84**
FARINOGRAM			
Energy Level	25,7	29,8	**28,2**
ALVEOOGRAM			
Degree Softening (%))	20	30	**26**

CROP 2021-2022	
Planted Area (ha)	104.102,00
Harvested Area (ha)	102.320,00
Average Yeld (Kq/ha)	2.890,70
Production (tn)	295.776,00

Reference: Secretaría de Agroindustria de la Nación

Trigo Argentino
INFORME DE SU CALIDAD

Asociación de Cooperativas Argentinas

AFA Agricultores Federados Argentinos

Cámara Arbitral de Cereales Bahía Blanca - Argentina

Bolsa de Comercio de Rosario

Bolsa de Cereales

BCCBA Bolsa de Cereales de Córdoba

Bolsa de Cereales y Productos Bahía Blanca

Cámara Arbitral de Cereales BCSF

CABC Cámara Arbitral de la Bolsa de Cereales

Cámara Arbitral de Cereales de Entre Ríos

Cámara Arbitral de Cereales Rosario - BCR

CIARA Cámara de la Industria Aceitera de la República Argentina

Centro de Exportadores de Cereales

faim federación argentina de la industria molinera

Federación de Centros y Entidades Gremiales de Acopiadores de Cereales Buenos Aires

INTA

senasa Servicio Nacional de Sanidad y Calidad Agroalimentaria

Ministerio de Agricultura, Ganadería y Pesca
Presidencia de la Nación