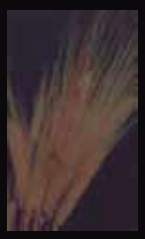
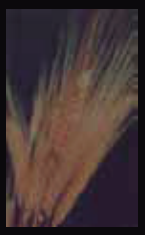
2013/2014 Crop





ARGENTINE WHEAT

Institutional Quality Report

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Argentine Wheat

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2013/2014 Crop

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Elaborated by:

- **Agricultores Federados Argentinos S.C.L.**
  Argentine Federated Farmers S.C.L.
- **Asociación de Cooperativas Argentinas Cooperativa Limitada.**
  Argentine Cooperatives Association LTD Coop.
- **Bolsa de Cereales y Productos de Bahía Blanca.**
  Bahía Blanca Grain and Products Exchange.
- **Bolsa de Cereales de Buenos Aires.**
  Buenos Aires Grain Exchange.
- **Bolsa de Comercio de Rosario.**
  Rosario Stock Exchange.
- **Cámara Arbitral de Cereales de Bahía Blanca.**
  Bahía Blanca Grain Arbitration Chamber.
- **Cámara Arbitral de Cereales de Entre Ríos.**
  Entre Ríos Grain Arbitration Chamber.
- **Cámara Arbitral de Cereales de la Bolsa de Comercio de Rosario.**
  Rosario Stock Exchange Grain Arbitration Chamber.
- **Cámara Arbitral de Cereales de la Bolsa de Comercio de Santa Fe.**
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- **Bolsa de Cereales y Cámara de Cereales y Afines de Córdoba Tribunal Arbitral.**
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- **Centro de Exportadores de Cereales.**
  Grain Exporters Association.
- **Federación Argentina de la Industria Molinera.**
  Argentine Federation of Milling Industry.
- **Federación de Centros y Entidades Gremiales de Acopiadores de Cereales.**
  Federation of Country Elevators Association.
- **Ministerio de Agricultura, Ganadería y Pesca (MAGyP).**
  Ministry of Agriculture, Livestock and Fishery.
- **Instituto Nacional de Tecnología Agropecuaria (INTA).**
  Argentine Institute for Agricultural Technology.
- **Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA).**
  National Agrifood Healt and Quality Service.
- **Chacra Experimental Integrada Barrow (Convenio INTA – MAA, Bs. As.)**
  Barrow Experimental Station.

Argentine Wheat
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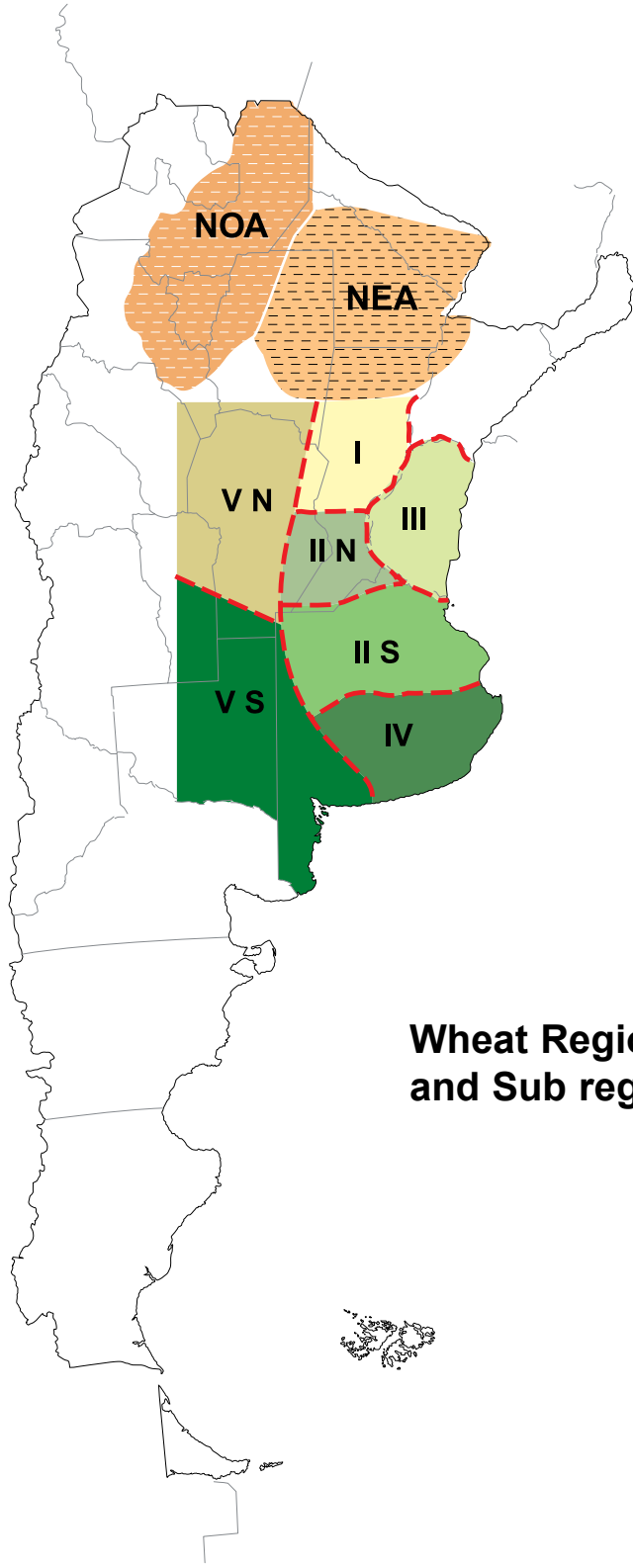
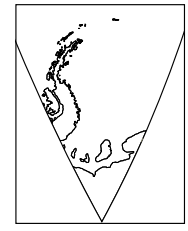


Wheat Region and Sub regions



BREAD WHEAT

Triticum aestivum

Introduction

From the climatic point of view, the year was classified as 'neutral' for the "El Niño Southern Oscillation" phenomenon.

Sowed, harvested area, yields and production per sub region

Sub region	Sowed Area (ha)	Harvested Area (ha)	Yield (Kg/ha)	Production (tn)
I	403,700	360,600	1,682	606,370
II N	413,300	400,500	2,684	1,075,095
II S	382,345	371,155	3,748	1,391,245
III	284,940	280,640	2,959	830,348
IV	451,580	451,280	4,578	2,066,009
V N	507,610	447,790	1,347	603,280
V S	1,064,420	1,058,120	2,335	2,471,132
Northeast	91,670	51,130	602	30,790
Northwest	48,505	19,570	1,675	32,770
National	**3,648,070**	**3,440,785**	**2,647**	**9,107,039**

Based on data from the Ministery of Agriculture, Livestock and Fishery. Crop 2013 - 2014

In the Central-Northern region environmental conditions were characterized by a good water supply in the soil profile at sowing, with abundant rains in May. From June rains were scarce, not only in the winter months but also in September and October. Water availability was limiting in the expression of crop yields in some areas. During grain filling stage, approximately from mid-October to mid-November, temperatures were too high for a proper grain growth rate. Average temperatures during the growing season, except for August, were higher than the historical average. Moreover, in August, many days with frosts were recorded, which added up to the lack of rains, generated stress conditions in the crop. October presented a mean of 2.1 ºC over the average, shortening the period of grain filling and affecting its quality. Regarding diseases, no significant levels of incidence or severity in leaves or ears were recorded. In susceptible cultivars, high levels of stem rust (Puccinia graminis) were observed. There was no presence of ear Fusarium. Yields ranged from 500 kg/ha and non-harvested lots in the driest areas, up to 6000 kg/ha in areas with better environmental conditions. Where low yield were registered, the protein content and industrial quality was very good, falling a little in the zones with high yield.

In the Southern region, there were good conditions for sowing, with proper temperature and soil moisture. Crops developed normally, with good tillering and no frosts. In October and November, rains were within the average and temperatures below the historical, causing a delay in heading stage. From the end of November until harvest, there were scarce rains and high temperatures. Long-cycle cultivars had no significant yield losses; conversely, short-cycle cultivars were under water and thermal stress, with yield losses, mainly in shallow soils.

Leaf diseases had little effect. The susceptible varieties had a moderate severity of leaf rust (Puccinia triticina); and stem rust was detected (Puccinia graminis), which justified a chemical control with a good response to the application.

Proper rains and mid-low temperatures at the critical stage of the crop were determinant for the yields. Generally, yields were from average to high, varying according to the areas, rains and technology applied by the producer. The Eastern part of the sub-region had excellent yields, decreasing towards the West, though with a high level. Yields were between 3500 and 6000 kg/ha, with good test weight and excellent grain color.

Organization and Methodology:

Sampling structure

It was agreed to obtain samples which represent about 4,000 tons each, reaching a total of 192 analysis to be performed.

The sampling was planned proportionally to the territorial division (district or department) sown area, and the average yield registered the last three years, according to the Ministry of Agriculture, Livestock and Fishery data. In accordance with the estimated production resulting, the composite sample number to be obtained by each district or department was determined to achieve a proportional representativeness of each locality.

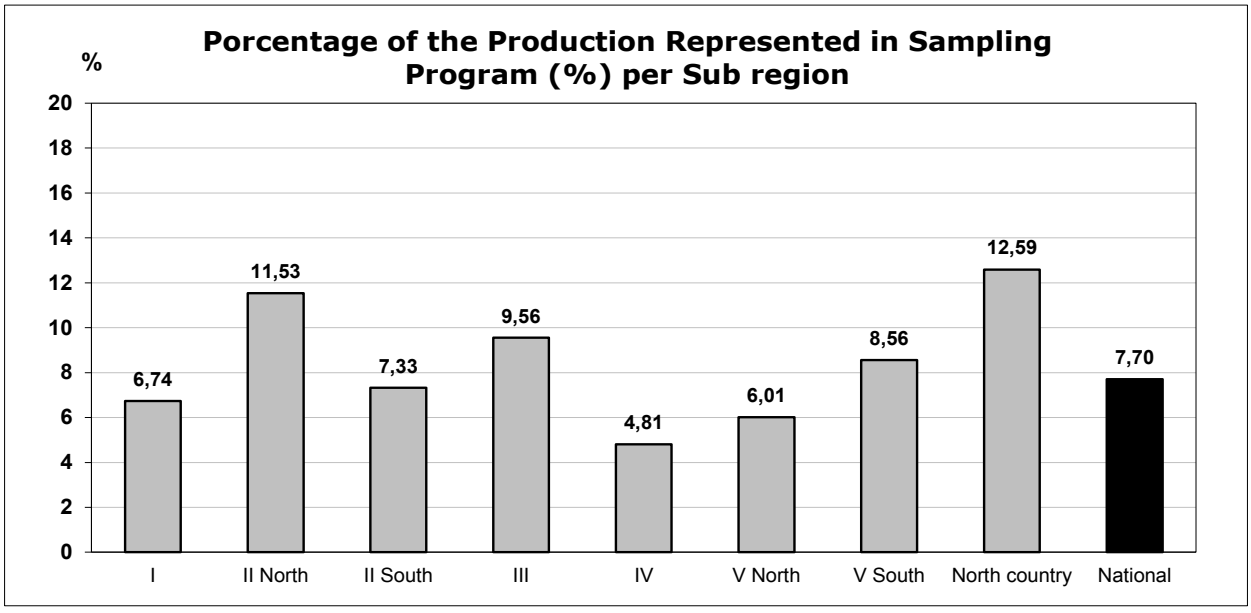
The Argentine Cooperatives Association, the Federation of Country Elevators Association, Argentine Federated Farmers and the Argentine Federation of Milling Industry, through the cooperatives, country elevators and mills selected for each locality, submitted the primary operations samples (trade samples of farmer deliveries) which were starting points to make the locality composite samples, according to instructions given to those in charge of the sampling.

Likewise the National Directorate for Processing and Marketing of Agricultural and Forestry Products. Ministry of Agriculture, Livestock and Fisheries of Argentina bring the support in the sampling

Sub region	Locality Composite	Sampling (tons)	Production (tons)	Production Sampled (%)
I	13	40,870	606,370	6.74
II North	31	124,000	1,075,095	11.53
II South	29	102,000	1,391,245	7.33
III	21	79,345	830,348	9.56
IV	29	99,385	2,066,009	4.81
V North	11	36,261	603,280	6.01
V South	55	211,417	2,471,132	8.56
North of the Country	3	8,000	63,560	12.59
TOTAL	**192**	**701,278**	**9,107,039**	**7.70**

Based on data from the Ministry of Agriculture, Livestock and Fishery. Crop 2013 / 2014

These primary samples had to represent between 100 and 250 ton, and be selected so they reflected the zone production conditions as well as possible, being 3,121 samples used for this sampling program, in such a way a sampled tonnage of 7.70% of the national wheat production, which amounted to 9,107,039 tons, was reached.



Procedure

The primary samples were sent to the respective Arbitration Chambers Laboratories according to the wheat sub region of origin. The Santa Fe Arbitration Chamber received samples from the Sub region I, the Rosario Chamber those from the Sub region II N, the Buenos Aires Chamber those from the Sub regions II S, IV, NW and the NE of the country, the Entre Ríos Chamber those from the Sub region III, the Bahía Blanca Chamber those from the Sub regions IV and V S, and the Córdoba Chamber those from the Sub region V N.

These Arbitration Chambers made **Locality Composite Samples** of 4 kg of wheat, representative of 4000 tons each one. These ones performed the commercial analysis (grade), weight of 1000 kernels, and ash .

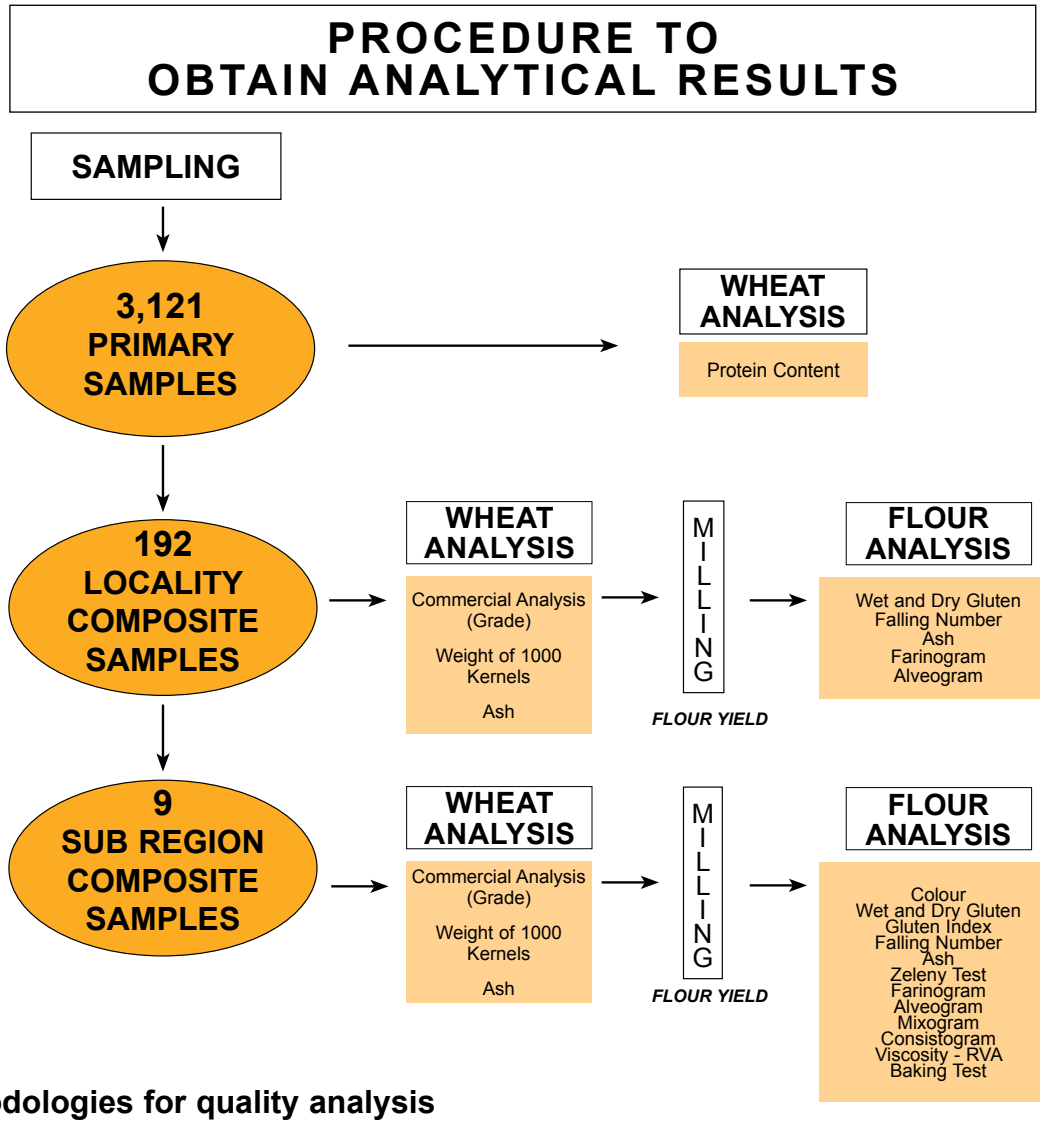
The composite samples were sent to the SENASA Laboratory to carry out the Bühler grinding, reserving a part in order to prepare the Sub region Composite Samples. It was decided to use only one mill for all the composite samples by locality, so as to minimize differences in the flour features due to the grinding.

With the flour resulting from the grinding, the Arbitration Chambers, in this case Buenos Aires, Bahía Blanca and Rosario, carried out the analyses of Falling Number, Gluten, Alveogram, Farinogram and Ash.

Prior to performing the analysis a ring test was carried out among the participating laboratories so that the results could be comparative.

On the other hand, with the locality composite samples portions kept apart, and in proportion to their representativeness, The Arbitration Chambers made the **Composite Sample of each Sub region**, 9 in total, weighing 4 kg each one, and performing Test Weight, Proteins, Ash and Weight of 1000 kernels in wheat. These samples were used by the SENASA to perform the grinding in Bühler mill and then, The Marcos Juarez Experimental Station of INTA carried out the following analyses in flour: Falling Number, Gluten, Ash, Zeleny Test, Alveogram, Farinogram, Mixogram and Baking Test.

The present report was coordinated by the Agrifood Quality Direction of the SENASA.



Methodologies for quality analysis

In order to evaluate the industrial quality of wheat, characteristics of grain, its behavior in milling, different analytical values, alveographic and farinographic curves, and bread quality, are taken into consideration.
Agricultural and weather conditions can easily affect quality, and even the most remarkable varieties can present a questionable quality. Consequently any qualitative abnormality must be observed in different environments or periods of cultivation in order to assure that the result is due tothe variety.
Grain characteristics are prominent quality factors in wheat appraisal. To a low test weight corresponds an unsatisfactory milling, low flour yield and inferior quality.
Behavior in the milling is another important aspect in the quality criterion. Wheat of low extraction of flour or high ash content constitutes a real problem. While some areas are favorable for the highest amount of minerals, there are certain varieties which have lower ash content in the grain and, therefore, in the flour.
The quantity and quality of flour proteins are essential to determine the bread quality. Rheologic analysis include indirect determinations of quality such as alveographic, mixographic and farinographic curves which provide the necessary information to evaluate bread force, time for dough development, water absorption and stability or behavior during kneading.
Bread quality of wheat is determined by flour absorption of water, time of kneading, dough aspect, volume of bread, porosity and whiteness of the crumb. All those characteristics constitute the bread value of wheat, being some of them considered in a subjective way and others through equipement.

The volume of bread is one of the most important factors of flour potential force, since it demonstrates the gluten capacity of expansion through gas produced by the contact between yeast and sugars, and at the same time, the ability to hold the gas during the whole expansion.
Wheat with a low loaf volume, or with a high one, but with huge alveolus or holes inside, are not desired, as they are the evidence of weak flours. It is essential to know the flour protein content during baking, since at a low level there will be less expansion and final volume, which is not due to the quality but to the quantity of proteins.

WHEAT

Test Weight (SAGPyA 1262/04 Resolution)
It is an important quality factor around the world and it is influenced by grain shape, uniformity, density and size. The content of foreign material and broken kernels have also an influence on it. To a high Test weight in a certain wheat corresponds high flour yield. It is defined as the weight of 100 litres wheat volume, as is, expressed in kg/hl. It is determined by the use of a Schopper balance.

Moisture (IRAM* 15850)
This test is carried out by previous milling and then drying at 130º C +/- 3º C under normal pressure in an oven with forced air circulation, during an hour.

Foreign material (SAGPyA 1262/04 Resolution)
All kernels or pieces of kernels, other than wheat, and any other inert material.

Total damaged kernels (SAGPyA 1262/04 Resolution)
Kernels or pieces of wheat kernels that are substantially altered in their structure, such us: heat damaged, green, frozen, sprouted, calcinated and germ or insect chewed kernels.

Smutty kernels (SAGPyA 1262/04 Resolution)
Wheat kernels that have been changed into a black mass due to fungus (Tilletia spp.) attack. Kernel external appearance is often round and gray.

Shrunken and broken kernels (SAGPyA 1262/04 Resolution)
Kernels or pieces of kernels that have readily passed through a 1,6 x 9,5 mm oblong-hole sieve. This determination shall be done after separating foreign material, damaged and smutty kernels.

Yellow berry kernels (SAGPyA 1262/04 Resolution)
Kernels with starchy endosperm in more than a half of their structure, showing a yellowish appearance.

Protein Content - 13.5% moisture basis (SAGPyA 1262/04 Resolution - Chemist Method from ICC Nº 105 – IRAM* 15852)
Proteins are complex organic compounds containing nitrogen. Flour proteins are responsible for obtaining gluten, once this one and water were put in contact. Proteins were determined in flour by the Kjeldahl method, while they were quantified in grain by rapid methods based on reflectance and transmittance (NIR - NIRT).

Weight of 1000 kernels (IRAM* 15853)
Its value is related to the quantity of flour that is possible to obtain from a wheat. This analysis is carried out by the counting of kernels using an electronic seed counter, and weighing them. Broken kernels and foreing material are previously removed from the sample by hand-picking.

Ash (Method from ICC Nº 104 – IRAM* 15851)

Ash determination conforms one of the best methods to measure the milling process efficiency. The ash content of certain flour can give an idea about the percentage of bran or minerals that it has.
The mineral matter is found in the residue that remains when the flour is ignited. The organic matters, such as starch, proteins, sugars (carbon hydrates), etc., are ignited, but the mineral matter remains as ash.
Ash content is determined by ignition at 900º C +/- 25º C using furnace until a constant weight is reached.

MILLING (IRAM* 15854 - Part I and II)

Grain must be prepared to reach 15,5 % of moisture, which is the appropriated state to mill, in order to separate the bran from the endosperm. The milling is performed in an automatic experimental MLU–202 Bühler mill.

FLOUR

Moisture (IRAM* 15850)

This test is carried out by drying at 130º C +/- 3º C under normal pressure conditions in an oven with forced air circulation, during an hour.

Gluten (AACC 3812 - IRAM* 15864 3rd edition)

Gluten is a plastic - elastic substance with a yellowish colour wich is isolated by washing the dough with a solution of sodium chloride and subsequently centrifugation to remove the starch and the soluble proteins (albumins and globulins), remaining the insoluble (gliadins and glutenins), which constitute wet gluten and dry gluten. The result is expressed in percentage .
The gluten main characteristic is the coherence and the agglutination that it gives to starch cells. During baking gluten is the one that retains gases, which are originated during the fermentation due to yeast effect.
The methodology is carried out using the “Glutomatic” system.

Zeleny Test (AACC Nº 56-61-IRAM* 15875)

This is an orientation test on the quality of a protein, estimating the gluten strength. It is associated with the quantity and the quality of proteins. The isopropyl alcohol in a slightly acid media (lactic acid solution) acts on the gluten (proteins) producing a swelling. The bigger this swelling is, the more precipitate volume will be obtained, and consequently the volume of bread will be better.

Falling Number (Hagberg – Perten Method - AACC Nº 56-81-IRAM* 15862)

This test measures flour alpha amylase activity, from which depends the fermentative capacity of dough during baking. These enzymes activity in wheat is variable, being affected by climate harvest conditions.
Wet and hot conditions contribute to an increase in the enzymes activity, especially in germinated kernels, making the dough more liquid and obtaining sticky - crumbed breads. In order to know the alpha amylase activity, the Falling Number is used. A general idea of the enzyme activity is obtained through this method, according to the falling time in seconds. It is determinated on a 7g of flour with 15% of moisture.

Colorimeter (Minolta Chroma Meter CR-410)

It is used to determine the color of flour in an objective, easy and fast way since this is a very important parameter for the milling and bakery industry.
It is expressed through a tristimulus method, Hunter-Lab and measures:
L: brightness. L=100 white, L=0 black. The nearest to 100, the whiter the flour is.
a and b= express color values. +a: green, -a: red, +b: yellow, -b: blue. For white flour it should be between +/- 1 or 2 and b below 10. A value above 10 expresses a yellowish color.

RHEOLOGY

Farinogram (Brabender Farinograph - ICC Nº 115 – IRAM* 15855)

It is used to prove dynamically dough properties in order to evaluate the quality of flour and the properties of dough process. The parameters recorded during the analysis show the behavior in the kneading, the water absorption capacity, the time that dough takes to get the best consistency and the stability or flour tolerance to mixing.

Mixogram (Swanson Mixograph - AACC Nº 54-40)

It determines the time of mixing or development (DT), and stability through a graphic drawn by the equipment due to the resistance of dough. Low value of DT is evidence of a bad bakery quality.

Alveogram (Chopin Alveograph - ICC Nº 121 – IRAM* 15857). Chopin Manufacturer's Method. Boulogne, France.

The alveograph test simulates graphically the dough behavior during the fermentation process, imitating the dough alveolus formation due to CO2 produced by yeast action in large scale. By air inflation, this test measures the resistance to deformation and extensibility of test pieces from the dough with a certain thickness, thus obtaining curves called alveograms, where the area under it suggests the bakery strength (W). The maximum over pressure, which is related to the resistance of dough to deformation (P) is the tenacity, and the abscissa at the rupture point expresses the curve length (L), extensibility or index of swelling (G). P/L or P/G curve configuration ratios designs the dough equilibrium.

Consistograph (Chopin Alveograph NG Consistograph)

The consistograph makes it possible to carry out consistograph measurements as well as alveograph with adapted hydration. In a first test at constant hydration, water absorption in flour is measured and then, the test is carried out at adapted hydration. In this way, the dough behavior is evaluated during mixing. The parameters measured are:

TPr Max: time to reach the peak of Maximum Pressure.
Tol: tolerance, time when pressure is superior to PrMax-20%.
D250: weakening of dough to 250 seconds.
D450: weakening of dough to 450 seconds.
WAC: hydration equivalent to 1700 mb based at 15% H2O.
HYDRA: hydration equivalent to 2200 mb based at 15% H2O.

Rapid Visco Analyser (RVA viscoanalyiser- Newport Scientific-Standard ICC 162)

It quantifies the viscosity, determines the resistance of dough with basic of starch when subjected to a constant stirring action, incorporating time and temperature conditions. The sample is subjected to a classical cooking cycle (preheating-heating-stand) where the viscosity records a behavior that depends mainly on the starch origin and properties. It measures the following:

Maximum viscosity: maximum level of water absorption of the granules which produce a peak of viscosity.
Medium viscosity: granules break down due to stirring and polymers leach giving a decrease in viscosity.
End viscosity: in this period of temperature decrece, starch retro gradation takes place, this phenomenon gives way to the formation of gel and the amylose is the main responsible. Here, a new increase of viscosity occurs, reaching the final point of the test.
Dough Tº: increase of viscosity which corresponds to the beginning of gelatinization of starch granules.
Break down: difference between maximum and medium viscosity. It makes it possible to know the stability of the granule to cooking.
Set Back: difference between maximum and end viscosity, associated to dough retro gradation.

BAKING TEST (Official Method modified by EEA Marcos Juárez Laboratory) IRAM* 15858-1

Is the most representative test of wheat industrial quality since, in a small scale, is a direct testing in which the flour aptitude to make a bread with good characteristics is evaluated. It allows to value the different stages in dough manufacturing, noticing the time it takes to develop and gain consistence, its behavior during fermentation, the bread volume and its inner and outer appearance.

The outcoming values reflect the behaviour of the flour in an experimental method with short fermentation terms, while in industrial bread-making, with longer fermentation terms, such results can be different.

* References: IRAM: Instituto Argentino de Normalización y Certificación (Argentine Standards and Certification Institute).

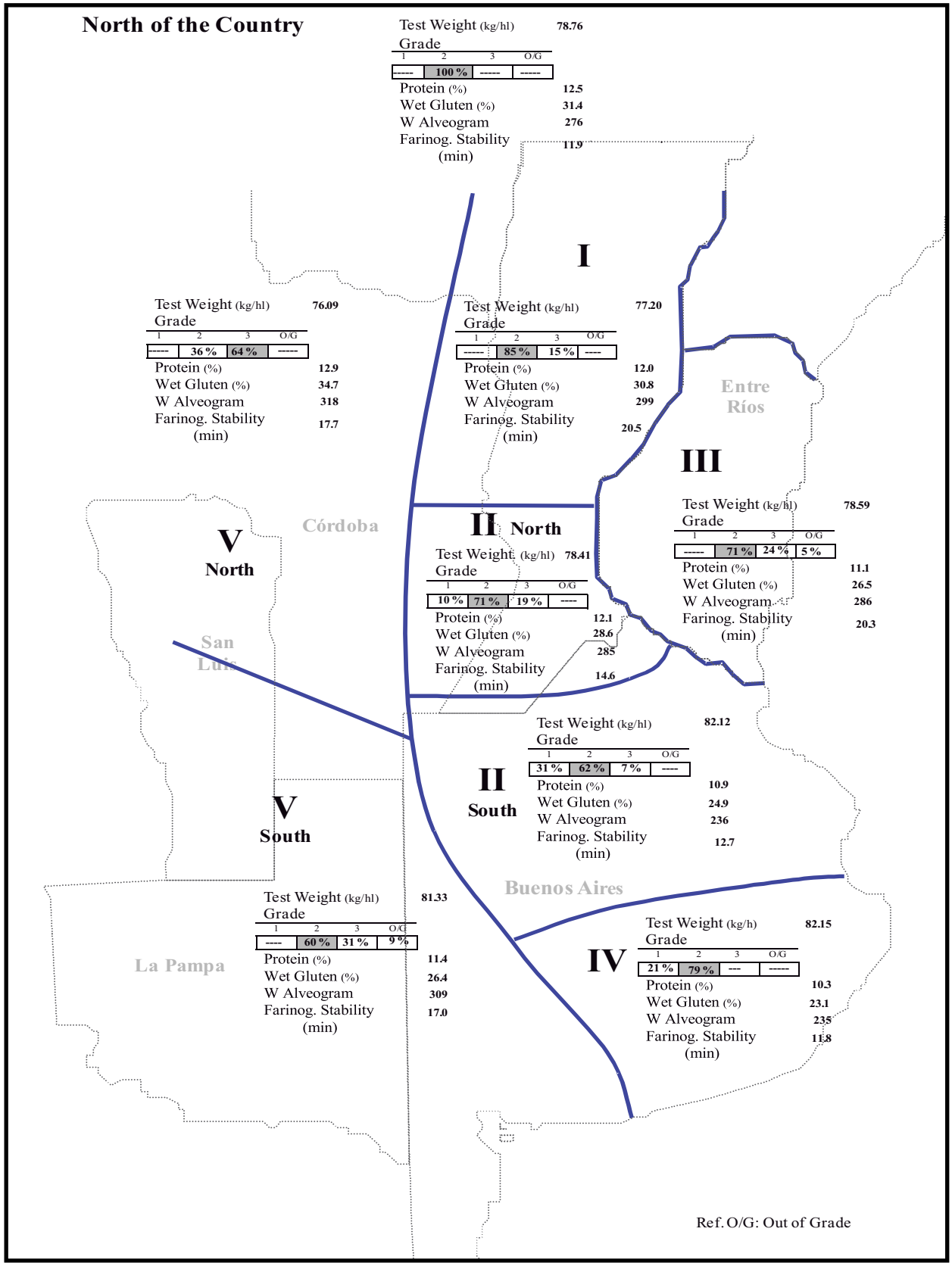
Ex-SAGPyA N° 1262 / 04
ARGENTINE STANDARD FOR WHEAT

GRADE	Bonus and Discounts per Grade %	Minimum Test Weight per hectolitre Kg/hl	PERCENTS MAXIMUM LIMITS OF: Foreign Material %	Damaged Kernels: Heat Damaged Kernels %	Damaged Kernels: Total %	Smutty Kernels %	Yellow Berry Kernels %	Shrunken and Broken Kernels % (1)	Insect Bored Kernels %	Sweet clover seeds (Melilotus sp.) Seeds/ 100 g	MOISTURE Max %	Live Insects and arachnids	PROTEIN CONTENT Bonus and Discounts (for each percentage or proportional fraction of the protein content)
1	+ 1.5	79.00	0.20	0.50	1.00	0.10	15.00	0.50	0.50	8	14.0	FREE	More than 11.0 %: Bonus 2 % 11.0 %: - 10.0-10.9 %: Discount 2 % 9.0-9.9 %: Discount 3 % Less than 9.0 %: Discount 4 %
2	-	76.00	0.80	1.00	2.00	0.20	25.00	1.20					
3	- 1.0	73.00	1.50	1.50	3.00	0.30	40.00	2.00					

(1) All Wheat kernels or pieces of them that pass through a sieve with 1,6 mm wide and 9,5 mm long holes, excluding damaged kernels.

Protein content: basis 11 % (moisture basis of 13,5 %)
According to protein content there will be bonus or discounts. Those lots which test weight is under 75 Kg/hl are excluded of bonus.

Argentine Wheat
Main Quality Parameters



Sub region I
Background for the crop

The area planted was larger than 2012/13 campaign. Planting began in mid-May and ended in June. Soil moisture was adequate in most of the sub-region, but not in the Western part, where it did not reach the necessary levels to assure a good emergence of seedlings.

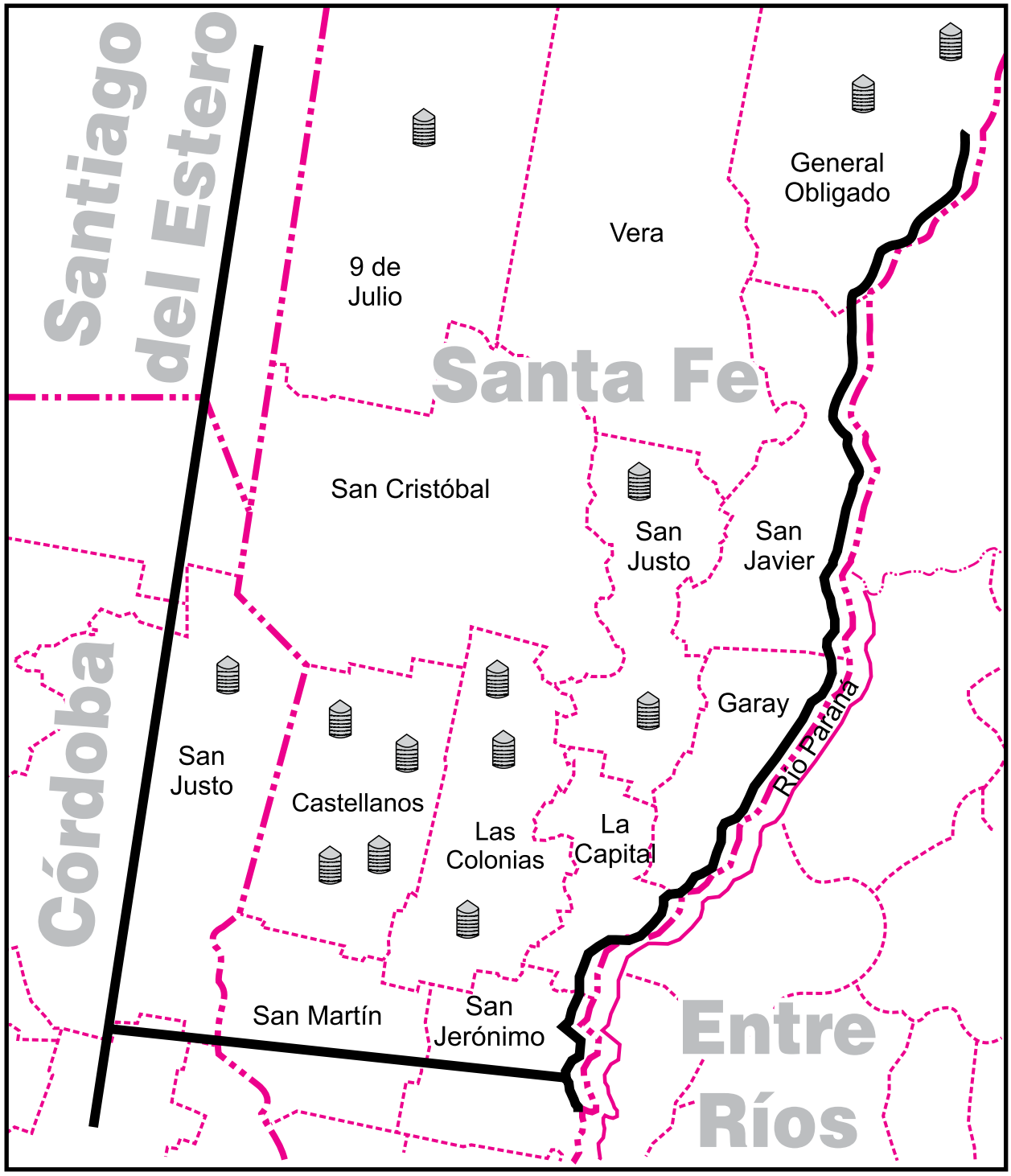
As a consequence of adverse weather conditions, with water and thermal stress, some crops presented plants with scarce height, low number of tillers per plant and therefore, fewer ears per plant.

There was also a fewer amount of grains per ear due to their smaller size.

The adversities affecting crops determined that some lots were used to animal consumption through feed rolls or direct grazing.

Fertilization at sowing stage was lower than normal; only starter with nitrogen, phosphide and potassium was applied. At tillering, re-fertilization was very low due to the lack of proper soil moisture.

Frosts occurred in September were critical to influence the final yield, which in some zones of the West of the sub-region averaged 700 to 800 kg/ha, being affected in some cases the commercial quality, with presence of frozen and green grains. As a general average of the sub-region a yield close to 1700 kg/ha was reached.



Each reference represents near 250 to 4,000 tons sampled

Subregion I Wheat

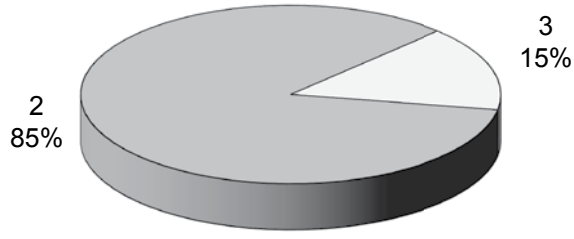
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	75.20	78.80	77.20	1.03	0.01
Total Damaged Kernels (%)	0.22	2.60	0.54	0.57	1.07
Foreign Material (%)	0.06	0.50	0.19	0.14	0.77
Shrunken and Broken Kernels (%)	0.38	1.20	0.63	0.22	0.35
Yellow Berry Kernels (%)	0.00	0.00	0.00	0.00	0.00
Protein (13.5% Moisture) (%)	10.9	13.8	12.0	0.8	0.07
Weight of 1000 Kernels (gr.)	26.40	32.10	29.19	1.47	0.05
Ash (% dry basis)	1.676	2.118	1.932	0.113	0.06

Total damaged kernels includes 0.06% green kernels, 0.10% sprouted kernels, 0.32% insect chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	27.5	35.5	30.8	2.9	0.09
	Dry Gluten (%)	9.3	12.0	10.5	0.9	0.09
	Falling Number (sec.)	334	412	372	19	0.05
	Flour Yield (%)	68.4	72.7	70.6	1.2	0.02
	Ash (dry basis) (%)	0.618	0.729	0.686	0.039	0.06
FARINOGRAM	Water Absorption (14% H°) (%)	54.7	58.9	56.0	1.1	0.02
	Development Time (min.)	3.4	20.5	9.1	4.2	0.46
	Stability (min.)	14.2	29.6	20.5	4.2	0.21
	Degree of Softening (12 min.)	21	42	29	6	0.21
ALVEOGRAM	P (mm)	73	92	82	6	0.07
	L (mm)	82	125	109	14	0.13
	W Joules x 10^{-4}	270	342	299	24	0.08
	P / L	0.60	1.12	0.75	0.16	0.21

These results were elaborated with 13 composite samples prepared proportionally from 270 primary samples (farmer deliveries)

Sub region Data

In this sub region the wheat production was 606,370 tons., the 6.7% of the national total. Were sampled 40,870 tons., the 6.74 % of the sub region production.

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS									
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
1	Gral. Obligado	3120	2	78.20	0.48	0.14	0.62	0.00	11.2	31.45	1.806
2	Gral. Obligado	2700	2	77.50	0.28	0.06	1.20	0.00	13.2	26.40	2.097
3	9 de Julio	1950	2	78.30	0.54	0.10	0.54	0.00	12.0	30.14	1.832
4	Castellanos	3650	3	75.20	0.52	0.10	0.80	0.00	12.7	29.35	1.925
5	Castellanos	3380	2	77.80	0.42	0.14	0.38	0.00	12.3	29.30	1.908
6	Castellanos	3810	2	76.10	0.34	0.50	0.42	0.00	12.1	28.80	1.960
7	Castellanos	3770	2	78.80	0.22	0.10	0.42	0.00	11.3	29.66	1.895
8	Las Colonias	2850	2	78.10	0.30	0.10	0.48	0.00	11.6	32.10	1.982
9	Las Colonias	3020	2	76.40	0.34	0.14	0.50	0.00	11.3	27.50	2.005
10	Las Colonias	3820	2	77.60	0.38	0.20	0.70	0.00	10.9	28.42	1.868
11	San Justo (Santa Fe)	2850	2	77.00	0.30	0.08	0.88	0.00	12.5	27.95	1.676
12	San Justo (Santa Fe)	3100	2	76.60	0.50	0.18	0.78	0.00	11.5	30.50	2.052
13	San Justo (Córdoba)	2850	3	76.50	2.60	0.50	0.56	0.00	13.8	28.02	2.118

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
1	Gral. Obligado	28.2	9.3	379	70.6	55.0	8.0	21.8	22	85	88	272	0.97	0.729
2	Gral. Obligado	35.1	12.0	358	69.4	56.6	10.1	21.0	28	77	121	322	0.64	0.718
3	9 de Julio	31.1	10.3	412	70.4	56.7	11.8	20.8	33	91	96	315	0.95	0.704
4	Castellanos	34.6	11.7	343	72.7	55.6	6.3	17.0	33	73	122	279	0.60	0.707
5	Castellanos	31.5	10.6	381	68.4	56.0	8.9	21.1	27	83	125	339	0.66	0.658
6	Castellanos	32.5	10.9	362	70.9	56.3	7.0	15.6	42	75	118	280	0.64	0.719
7	Castellanos	28.2	10.0	387	71.0	55.6	10.7	20.8	28	92	82	270	1.12	0.618
8	Las Colonias	27.6	9.6	375	71.4	55.5	7.0	22.9	21	79	115	295	0.69	0.689
9	Las Colonias	27.5	9.5	365	70.7	54.7	7.2	23.2	23	78	122	309	0.64	0.697
10	Las Colonias	28.4	9.7	388	72.0	55.0	20.5	29.6	30	85	105	308	0.81	0.622
11	San Justo (Santa Fe)	32.9	11.3	371	71.5	57.5	6.4	14.2	39	82	112	303	0.73	0.645
12	San Justo (Santa Fe)	28.8	9.8	388	69.6	55.8	8.7	23.1	23	84	93	272	0.90	0.728
13	San Justo (Córdoba)	35.5	12.0	334	69.0	58.9	3.4	14.7	28	87	119	342	0.73	0.708

Sub region II North
Background for the crop

Water availability was a limiting factor in the expression of the wheat crop yield. At the beginning of June, the initial water supply in the soil profile was 197 mm, which represented approximately a 65 % of the maximum level of available soil water up to two meters deep. At tillering and stem elongation the water supply was of only 24 mm and 30 mm at heading, occurred by the end of September and mid-October. During grain filling, from mid-October to mid-November, more abundant rains (270 mm) occurred -77 % of the accumulated rains-.

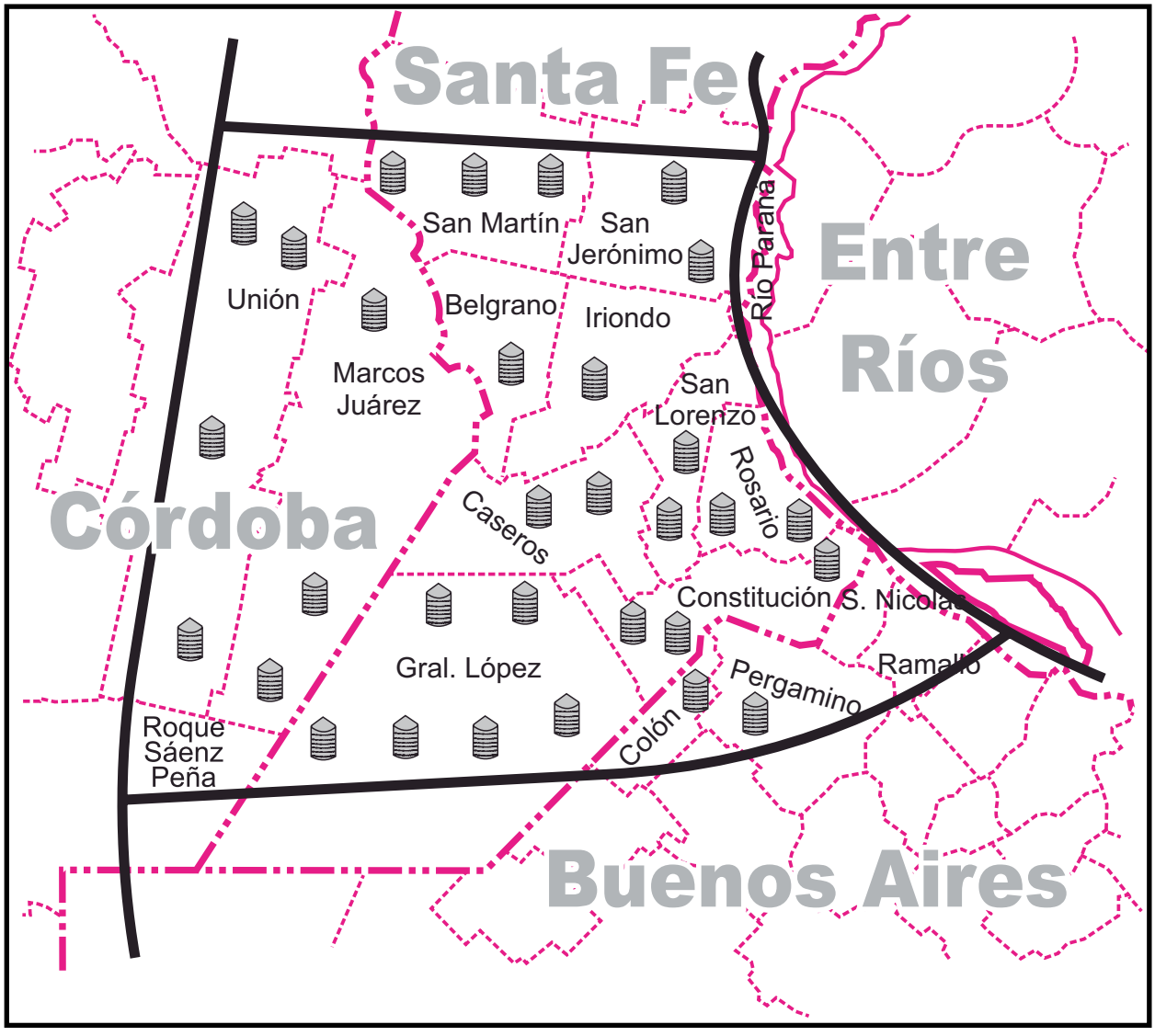
Maximum average temperatures surpassed in 2 ºC the historical, with significant differences in early September (+8 ºC) and during October (+4.5 ºC). Regarding the minimum temperatures, were in average similar to the historical ones, with two specific increases, in the first decade of September (+ 4.4 ºC) and in the second decade of October (+ 3.4 ºC).

During grain filling, approximately since mid-October to mid-November, the maximum and minimum temperatures were relatively high favoring a proper grain growth rate.

With respect to leaf diseases, there was only presence of orange rust and yellow spot, with an average of severity percentage lower than 5 %, considered as low. There was no presence of Fusarium head blight.

Yields of wheat crops were variable, from 600 kg/ha in drier areas and with problems due to late frosts, where some plots were not harvested, until 5500 to 6000 kg/ha in lots of areas with better soils, with timely rains or with the contribution of aquifers. The average yield in the sampled area was close to 2700 kg/ha.

Sub region
II North
Wheat



Each reference represents near 4,000 tns sampled.

Results of the Analyses

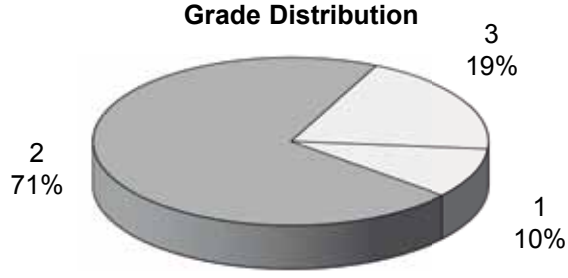
Composite Samples by Locality. Averages were weighted by Tonnage.

Sub region II North Wheat

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	76.60	80.40	78.41	0.88	0.01
Total Damaged Kernels (%)	0.20	2.50	0.97	0.54	0.56
Foreign Material (%)	0.10	2.00	0.30	0.35	1.14
Shrunken and Broken Kernels (%)	0.20	1.60	0.64	0.28	0.43
Yellow Berry Kernels (%)	0.00	2.00	0.60	0.64	1.07
Protein (13.5% Moisture) (%)	11.0	13.7	12.1	0.6	0.05
Weight of 1000 Kernels (gr.)	27.40	35.50	31.18	1.87	0.06
Ash (% dry basis)	1.655	2.085	1.858	0.115	0.06

Total damaged kernels includes 0.02% frosty kernels, 0.55% sprouted kernels, 0.10% insect chewed kernels and 0.29 % germ-chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	19.2	34.8	28.6	2.8	0.10
	Dry Gluten (%)	6.6	12.0	9.8	0.9	0.10
	Falling Number (sec.)	184	452	393	48	0.12
	Flour Yield (%)	68.1	74.4	71.3	1.7	0.02
	Ash (dry basis) (%)	0.525	0.755	0.644	0.054	0.08
FARINOGRAM	Water Absorption (14% H°) (%)	56.0	60.1	58.1	0.9	0.02
	Development Time (min.)	1.4	13.4	7.3	3.7	0.50
	Stability (min.)	1.5	24.3	14.6	7.7	0.53
	Degree of Softening (12 min.)	17	109	41	24	0.58
ALVEOGRAM	P (mm)	76	116	91	9	0.10
	L (mm)	41	132	93	18	0.20
	W Joules x 10^{-4}	194	347	285	31	0.11
	P / L	0.61	2.66	0.98	0.38	0.36

These results were elaborated with 31 composite samples prepared proportionally from 426 primary samples (farmer deliveries)

Sub region Data

In this subregion the wheat production was 1,075,095 tons., the 11.08% of the national total. Were sampled 124,000 tons., the 11.53 % of the subregion production.

Sub region II North Wheat

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS									
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
101	San Martín	4000	2	77,50	0,90	0,10	0,90	0,00	13,7	27,40	1,975
102	San Martín	4000	2	78,40	0,20	0,10	0,80	0,30	12,8	31,30	1,935
103	San Martín	4000	2	78,60	0,60	0,20	0,60	0,40	13,0	29,40	2,015
104	San Jerónimo	4000	3	80,40	0,90	0,20	0,60	0,40	12,0	32,10	1,955
105	San Jerónimo	4000	2	79,10	1,50	0,20	0,70	0,50	12,6	30,00	1,915
106	Caseros	4000	3	77,20	0,50	0,70	1,60	2,00	11,6	29,10	1,875
107	Caseros	4000	2	78,30	0,30	0,30	0,80	1,50	11,7	31,70	1,875
108	Belgrano	4000	1	79,40	0,50	0,20	0,40	2,30	11,5	31,50	1,865
109	Iriondo	4000	2	79,00	1,30	0,20	0,60	1,00	11,8	30,00	1,755
110	San Lorenzo	4000	2	78,60	0,60	0,10	0,90	0,50	11,7	30,40	1,815
111	San Lorenzo	4000	2	77,90	0,60	0,20	0,80	0,60	12,1	28,50	1,795
112	Rosario	4000	2	79,40	0,50	0,30	0,90	0,20	12,6	29,10	1,665
113	Rosario	4000	2	78,21	0,40	0,20	0,30	0,40	12,1	29,20	1,935
114	Constitución	4000	2	79,50	1,10	0,10	1,00	0,00	12,2	31,50	1,725
115	Constitución	4000	3	78,70	1,00	2,00	0,60	0,10	12,2	32,60	1,705
116	Constitución	4000	3	79,00	1,20	0,20	0,40	0,40	11,7	32,30	1,745
117	General López	4000	1	79,60	0,80	0,10	0,40	1,60	11,2	33,70	1,755
118	General López	4000	2	78,70	1,00	0,10	0,40	0,50	11,0	33,20	1,655
119	General López	4000	1	79,10	0,80	0,20	0,40	0,50	11,2	35,50	1,695
120	General López	4000	2	77,90	0,60	0,30	0,70	1,20	11,7	32,30	1,835
121	General López	4000	2	77,00	0,30	0,30	0,70	0,20	12,3	31,70	1,795
122	General López	4000	2	78,70	1,30	0,20	0,60	1,80	11,4	33,70	1,745
123	Marcos Juárez	4000	2	77,60	1,10	0,10	0,50	0,10	12,7	29,90	2,025
124	Marcos Juárez	4000	2	76,60	1,10	0,40	1,00	0,20	12,4	30,00	2,085
125	Marcos Juárez	4000	2	77,10	1,70	0,20	0,50	0,00	12,5	30,30	2,015
126	Unión	4000	2	76,70	1,40	0,50	0,30	0,00	12,5	29,70	1,935
127	Unión	4000	3	78,20	2,50	0,20	0,60	0,00	12,3	30,20	1,915
128	Unión	4000	2	78,80	1,60	0,70	0,30	0,10	12,6	30,60	1,985
129	Unión	4000	3	78,50	2,30	0,20	0,70	0,20	12,0	31,50	1,955
130	Colón	4000	2	78,60	1,10	0,20	0,60	0,20	12,0	34,80	1,855
131	Pergamino	4000	2	78,30	0,50	0,40	0,20	1,30	12,9	33,50	1,795

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
101	San Martín	34,8	12,0	438	69,6	59,4	10,3	17,7	31	90	109	323	0,83	0,685
102	San Martín	31,7	10,9	433	70,6	57,9	8,2	17,0	28	86	114	323	0,75	0,615
103	San Martín	27,7	9,6	338	68,9	58,8	7,1	14,8	35	91	90	277	1,01	0,615
104	San Jerónimo	30,6	10,5	373	68,1	58,6	4,6	18,0	24	95	92	300	1,03	0,645
105	San Jerónimo	32,5	11,1	389	69,8	58,8	9,2	17,0	32	88	108	319	0,81	0,635
106	Caseros	26,5	9,4	393	69,7	56,0	10,0	18,5	30	76	102	262	0,75	0,575
107	Caseros	27,4	9,4	416	71,0	57,2	10,1	19,2	25	88	89	265	0,99	0,625
108	Belgrano	27,0	9,3	368	69,4	57,3	8,7	16,7	35	87	89	261	0,98	0,655
109	Iriondo	27,5	9,4	404	69,5	58,2	12,0	20,8	23	102	78	288	1,31	0,645
110	San Lorenzo	28,0	9,5	387	70,1	57,7	11,6	22,5	22	96	83	285	1,16	0,715
111	San Lorenzo	28,5	9,8	429	70,2	57,4	13,4	24,3	18	90	95	294	0,95	0,685
112	Rosario	29,9	10,3	435	70,9	57,2	12,2	23,8	19	84	118	330	0,71	0,645
113	Rosario	29,7	9,9	452	74,0	56,9	10,8	21,5	24	81	132	347	0,61	0,615
114	Constitución	30,5	10,3	407	72,2	57,5	10,0	21,0	25	87	102	301	0,85	0,595
115	Constitución	28,4	9,6	184	73,1	58,9	2,2	3,2	87	82	96	278	0,85	0,595
116	Constitución	27,4	9,5	384	70,4	56,6	11,3	23,4	17	85	109	311	0,78	0,605
117	General López	26,3	8,9	370	73,6	59,1	1,7	1,7	74	90	75	248	1,20	0,625
118	General López	24,0	8,3	387	73,0	57,6	2,2	2,1	70	89	68	229	1,31	0,575
119	General López	26,0	8,8	367	73,5	59,2	2,0	2,2	69	106	68	268	1,56	0,645
120	General López	28,0	9,9	403	72,8	59,0	2,1	2,7	63	96	83	282	1,16	0,675
121	General López	28,3	9,9	431	73,6	57,8	1,8	2,4	72	94	85	276	1,11	0,645
122	General López	25,6	8,8	369	72,5	59,0	2,2	2,0	78	97	71	252	1,37	0,545
123	Marcos Juárez	30,1	10,3	422	71,4	59,1	6,7	16,8	32	96	91	300	1,05	0,675
124	Marcos Juárez	31,7	10,9	410	71,3	57,4	8,9	18,9	30	88	95	276	0,93	0,665
125	Marcos Juárez	30,1	10,3	393	71,4	58,7	6,8	12,9	44	77	117	273	0,66	0,755
126	Unión	30,4	10,4	339	70,4	58,2	6,5	13,8	40	91	98	297	0,93	0,735
127	Unión	30,3	10,2	396	69,4	57,7	7,8	19,2	26	90	97	287	0,93	0,675
128	Unión	30,9	10,6	394	70,1	57,3	7,7	19,5	29	82	116	307	0,71	0,675
129	Unión	28,6	9,7	394	72,5	57,4	6,9	18,1	28	86	96	271	0,90	0,755
130	Colón	28,6	9,6	442	72,8	60,1	10,2	19,2	26	116	76	326	1,53	0,525
131	Pergamino	19,2	6,6	433	74,4	58,2	1,4	1,5	109	109	41	194	2,66	0,655

Sub region II South
Background for the crop

Wheat area had a significant decrease with respect to the historical average for the region. Many lots were left to winter fallowing for summer crop cultivation.

From the climatic point of view, the year was classified as 'neutral' for the ENSO phenomenon (El Niño Southern Oscillation). There was good water availability accumulated in the soil profile, thus achieving good plant stand.

Sowing dates were in June and July. Long and short-cycle varieties were used, although there was a slight trend towards long-cycle crops.

Phosphate fertilization was applied during sowing and nitrogen fertilization after emergence or during sowing-tillering. The first stages of the crop grown in limiting moisture conditions, especially during tillering, therefore many producers did not fertilized at this stage.

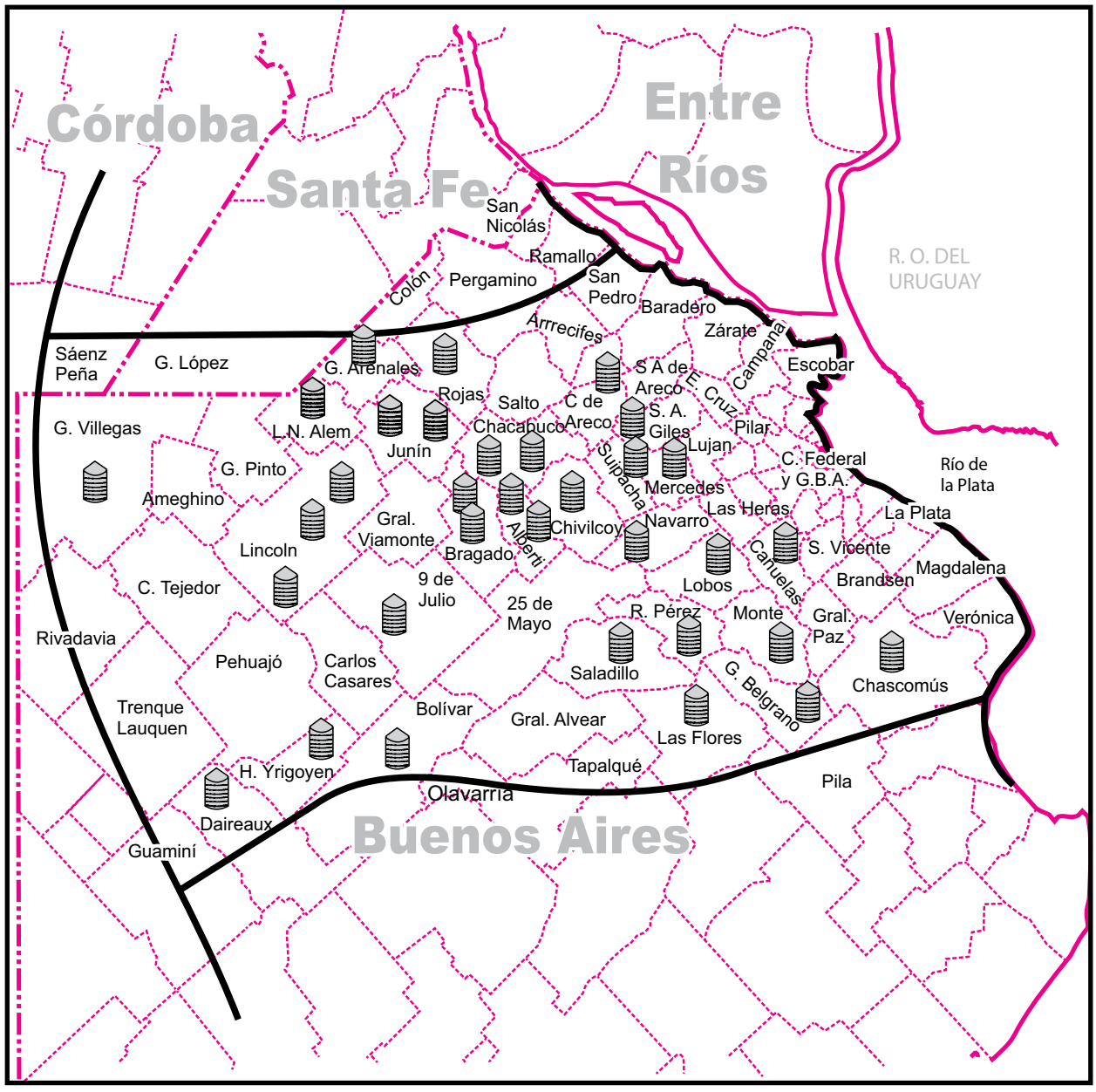
From mid-September, starting of stem elongation, there was also hydric deficit with low rains in comparison to the historical average, which continued until the beginning of heading-flowering (first half of October).

By the end of heading-flowering (3 º to 4 º October week) rains occurred favored the beginning of grain filling. Grain filling was characterized by moderate average temperatures, with no significant thermal stress, characteristic of this period.

Late attacks of Leaf Rust (Puccinia triticina) and Stem Rust (Puccinia graminis) were observed on susceptible varieties, the latter with more incidence. No significant attacks of Ear Fusarium (Fusarium graminearum) were observed.

There was a very good grain filling, with no excessive rains and very good test weight values, between 79 and 85 kg/hl. Harvest took place in excellent weather conditions with no rains. Yields were very good in general, as well as commercial quality of grains. Average yield was 4200 kg/ha, with a range between 3800 kg/ha and 5200 kg/ha.

Sub region
II South
Wheat



Each reference represents near 4,000 tns sampled.

Results of the Analyses

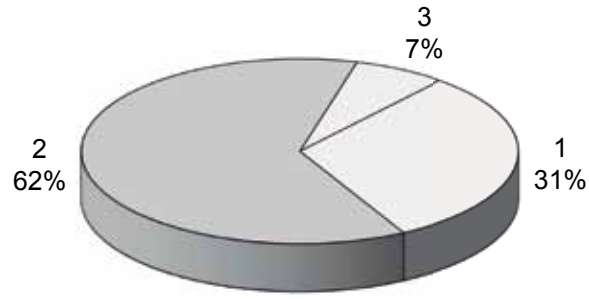
Composite Samples by Locality. Averages were weighted by Tonnage.

Sub region II South Wheat

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	79,50	84,90	82,12	1,36	0,02
Total Damaged Kernels (%)	0,06	1,65	0,26	0,30	1,15
Foreign Material (%)	0,09	1,20	0,36	0,30	0,83
Shrunken and Broken Kernels (%)	0,14	0,71	0,36	0,12	0,34
Yellow Berry Kernels (%)	0,00	6,00	1,97	1,27	0,64
Protein (13,5% Moisture) (%)	9,5	11,7	10,9	0,6	0,05
Weight of 1000 Kernels (gr.)	34,01	42,27	36,42	1,33	0,04
Ash (% dry basis)	1,524	1,844	1,693	0,076	0,04

Total damaged kernels includes 0.02% green kernels, 0.01% frosty kernels, 0.04% sprouted kernels, 0.05% calcinated kernels and 0.11% insect chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	20,0	28,6	24,9	2,1	0,08
	Dry Gluten (%)	7,4	10,6	9,2	0,8	0,08
	Falling Number (sec.)	354	475	419	31	0,08
	Flour Yield (%)	69,1	74,8	71,9	1,6	0,02
	Ash (dry basis) (%)	0,472	0,790	0,618	0,084	0,14
FARINOGRAM	Water Absorption (14% H°) (%)	55,9	59,6	57,7	0,9	0,02
	Development Time (min.)	1,4	13,7	5,1	2,2	0,43
	Stability (min.)	1,8	24,0	12,7	5,1	0,40
	Degree of Softening (12 min.)	22	84	46	16	0,35
ALVEOGRAM	P (mm)	68	128	97	12	0,12
	L (mm)	39	94	64	12	0,19
	W Joules x 10^{-4}	168	317	236	37	0,16
	P / L	0,87	2,91	1,52	0,49	0,30

These results were elaborated with 29 composite samples prepared proportionally from 414 primary samples (farmer deliveries)

Sub region Data

In this sub region the wheat production was 1,391,245 tons., the 15.3% of the national total. Were sampled 102,000 tons., the 7.33 % of the subregion production.

Sub region II South Wheat

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS									
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5% Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
200	Carmen de Areco	2000	1	82.15	0.08	0.18	0.50	1.58	10.6	37.59	1.713
201	Chacabuco	4000	2	81.25	0.42	0.36	0.44	1.50	11.2	36.85	1.730
202	Chacabuco	4000	1	81.50	0.29	0.10	0.27	1.79	10.3	36.33	1.763
203	Gral. Arenales	4000	3	81.05	1.65	1.20	0.16	1.39	11.6	34.01	1.825
204	Junín	4000	2	80.60	0.28	0.66	0.50	0.94	11.4	34.52	1.744
205	Junín	4000	2	82.85	0.13	0.26	0.46	1.02	11.6	35.74	1.732
206	Rojas	4000	1	81.95	0.15	0.14	0.40	1.60	11.0	35.35	1.767
207	San Andrés de Giles	4000	2	82.60	0.17	0.24	0.28	4.64	9.8	35.71	1.644
208	Alberti	4000	2	81.05	0.15	0.26	0.35	1.54	11.3	37.46	1.688
209	Alberti	2000	2	79.45	0.20	0.22	0.20	2.05	11.7	37.89	1.844
210	Bragado	4000	1	83.05	0.32	0.20	0.46	2.60	11.2	36.02	1.689
211	Bragado	4000	2	81.95	0.18	0.25	0.71	2.40	10.9	35.47	1.610
212	9 de Julio	4000	1	81.95	0.13	0.20	0.34	2.36	10.6	36.06	1.554
213	Bolivar	4000	2	84.85	0.32	0.71	0.43	0.64	10.7	37.84	1.680
214	Daireaux	4000	2	84.40	0.28	0.26	0.48	0.00	11.3	37.60	1.642
215	Hipólito Irigoyen	2000	2	81.95	0.10	0.32	0.14	1.56	10.3	42.27	1.524
216	Chivilcoy	4000	2	81.50	0.10	0.26	0.17	2.53	10.9	38.34	1.654
217	Suipacha - Mercedes	2000	2	83.05	0.08	0.30	0.22	0.00	10.7	36.83	1.730
218	Gral. Villlegas	4000	2	80.80	0.18	0.30	0.32	2.24	11.2	35.98	1.803
219	Leandro N. Alem	4000	2	80.60	0.20	0.24	0.32	0.78	11.3	35.61	1.755
220	Lincoln	4000	3	79.45	0.34	1.20	0.32	1.48	11.0	35.10	1.738
221	Lincoln	4000	2	82.40	0.06	0.72	0.32	2.78	11.7	35.42	1.715
222	Lincoln	4000	2	81.70	0.14	0.30	0.34	3.17	11.0	37.15	1.727
223	Lobos	2000	2	83.50	0.29	0.25	0.23	2.99	10.1	36.89	1.665
224	San Miguel del Monte	2000	2	81.95	0.38	0.29	0.18	0.00	10.3	36.30	1.601
225	Navarro	2000	1	82.40	0.18	0.12	0.32	0.86	10.8	37.37	1.742
226	Roque Perez	4000	1	83.95	0.12	0.09	0.47	1.93	9.5	36.37	1.635
227	Saladillo	4000	1	84.60	0.23	0.14	0.44	5.80	9.9	37.11	1.579
228	Cañuelas-Gral. Belgrano-Chas.- L. Flores	4000	1	82.85	0.10	0.18	0.42	2.60	10.4	36.08	1.588

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
200	Carmen de Areco	26,6	9,9	384	74,8	58,7	4,6	12,8	45	83	79	244	1,05	0,692
201	Chacabuco	27,0	10,0	354	70,9	57,8	5,6	14,4	41	93	70	242	1,33	0,620
202	Chacabuco	23,7	8,8	414	72,6	57,2	4,2	10,8	47	91	59	204	1,54	0,650
203	Gral. Arenales	26,2	9,7	406	71,4	57,5	4,8	17,6	23	96	64	241	1,50	0,570
204	Junín	24,4	9,0	381	70,0	57,4	5,0	15,2	37	102	63	256	1,62	0,679
205	Junín	25,2	9,3	381	70,7	58,4	5,5	24,0	22	113	59	280	1,92	0,524
206	Rojas	26,1	9,7	409	69,4	56,8	5,8	21,1	25	91	66	227	1,38	0,675
207	San Andrés de Giles	21,5	8,0	383	73,2	56,9	1,7	1,9	79	101	44	194	2,30	0,518
208	Alberti	24,9	9,2	399	71,9	57,7	4,7	12,1	42	97	49	184	1,98	0,696
209	Alberti	25,2	9,3	417	73,4	58,1	4,7	13,0	41	94	56	205	1,68	0,488
210	Bragado	23,8	8,8	411	71,1	56,9	4,0	9,6	48	81	73	214	1,11	0,609
211	Bragado	27,2	10,1	403	70,1	59,6	9,6	14,1	48	93	73	244	1,27	0,508
212	9 de Julio	25,7	9,5	453	71,4	59,1	5,5	14,9	31	94	62	216	1,52	0,777
213	Bolivar	24,1	8,9	412	70,1	57,4	4,1	11,8	39	103	52	215	1,98	0,472
214	Daireaux	25,3	9,4	415	70,0	59,2	4,2	12,6	41	87	58	193	1,50	0,715
215	Hipólito Irigoyen	26,4	9,8	440	71,5	58,3	13,7	18,2	41	106	56	242	1,89	0,541
216	Chivilcoy	28,0	10,4	407	71,9	58,2	7,2	9,6	71	68	78	168	0,87	0,719
217	Suipacha - Mercedes	25,8	9,6	379	70,8	58,0	11,0	17,8	42	84	64	209	1,31	0,526
218	Gral. Villlegas	26,8	9,9	441	73,8	55,9	6,1	14,8	37	90	78	261	1,15	0,590
219	Leandro N. Alem	26,3	9,7	449	74,5	58,0	5,1	12,1	48	103	74	279	1,39	0,693
220	Lincoln	24,4	9,1	471	74,0	55,9	4,7	14,6	42	106	71	292	1,49	0,541
221	Lincoln	28,6	10,6	462	73,5	57,9	4,5	15,2	34	94	94	317	1,00	0,790
222	Lincoln	25,3	9,4	433	73,4	56,9	4,6	12,7	44	113	66	289	1,71	0,550
223	Lobos	23,9	8,9	427	74,0	57,4	4,7	7,9	74	96	65	234	1,48	0,640
224	San Miguel del Monte	23,8	8,8	380	73,8	57,9	4,1	12,4	46	100	67	255	1,49	0,610
225	Navarro	24,0	8,9	467	70,5	58,1	5,6	11,4	50	100	67	243	1,49	0,650
226	Roque Perez	20,0	7,4	432	72,7	58,1	1,9	1,8	84	109	39	183	2,79	0,590
227	Saladillo	21,6	8,0	457	69,1	57,4	1,4	2,6	78	98	74	269	1,32	0,630
228	Cañuelas-Gral.Belgrano-Chascomús-Las Flores	21,7	8,1	475	72,4	57,0	5,6	12,6	48	128	44	233	2,91	0,577

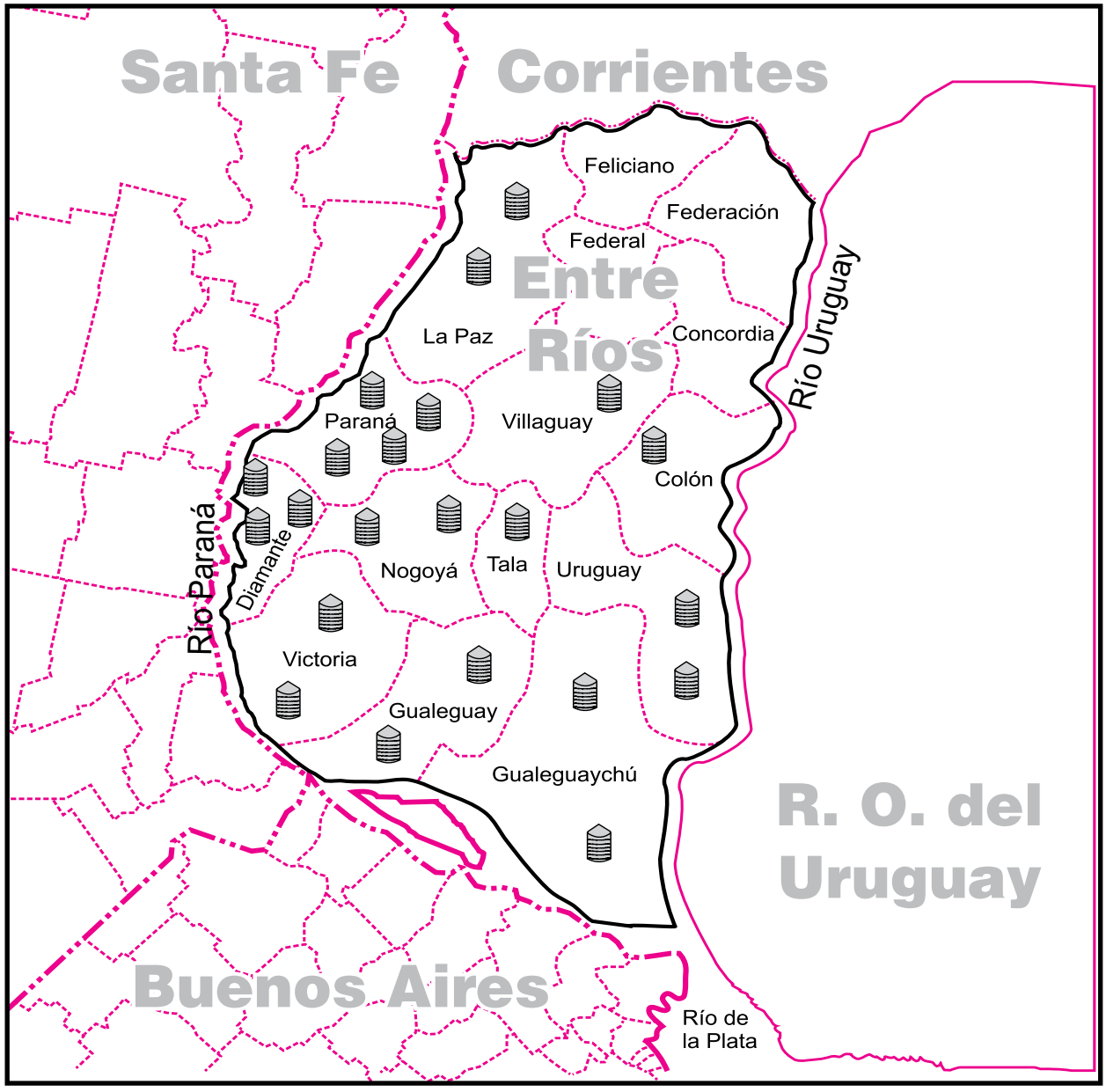
Sub region III
Background for the crop

Environmental conditions were characterized by good water supply in the soil profile during the autumn months, although with water deficit during March and April, but compensated with abundant rains during May. From June, rains were scarce, not only in winter months but also during September and October.

Average temperatures during the growing season, except for August, were higher than the historical average. Furthermore, during August, several days with frosts were recorded, which added up to the scarce rains of that month and the previous ones, generated stress conditions for the crop. October had an average of 2.1 ºC above the historical value, thus shortening the period of grain filling and affecting its quality.

As regards diseases, no significant levels of incidence or severity in leaves or ears were detected. In highly susceptible cultivars, significant levels of Stem Rust (Puccinia graminis) were observed.

Average yields obtained in the province were close to 3000 kg/ha. Despite they were better than those obtained in the previous year affected by strong epiphytic of scab (Fusarium), they did not reach the levels obtained in the 2011 campaign, in which the average yield was more than 3400 kg/ha.



Each reference represents near 4,000 tns sampled.

Sub region III Wheat

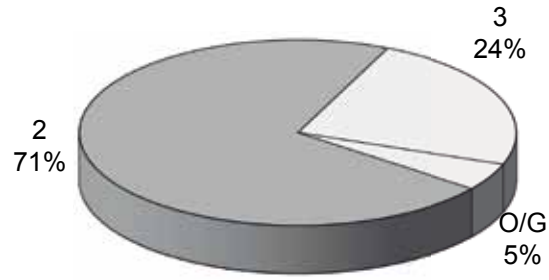
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	76,40	80,40	78,59	1,07	0,01
Total Damaged Kernels (%)	0,26	3,32	1,03	0,68	0,66
Foreign Material (%)	0,09	1,05	0,28	0,21	0,75
Shrunken and Broken Kernels (%)	0,18	1,57	0,71	0,32	0,46
Yellow Berry Kernels (%)	0,00	11,00	4,08	2,70	0,66
Protein (13,5% Moisture) (%)	10,4	12,2	11,1	0,4	0,04
Weight of 1000 Kernels (gr.)	30,40	36,80	33,35	1,46	0,04
Ash (% dry basis)	1,510	1,860	1,718	0,080	0,05

Total damaged kernels includes 0.01% burnt kernels, 0.02% green kernels, 0.61% sprouted kernels, 0.13% calcinated kernels, 0.10% insect chewed kernels and 0.05% germ-chewed kernels.

Grade Distribution



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	24.5	29.6	26.5	1.3	0.05
	Dry Gluten (%)	8.3	9.9	9.0	0.4	0.05
	Falling Number (sec.)	273	390	355	31	0.09
	Flour Yield (%)	69.7	73.8	71.4	1.1	0.02
	Ash (dry basis) (%)	0.539	0.679	0.618	0.036	0.06
FARINOGRAM	Water Absorption (14% H°) (%)	53.7	58.0	55.8	1.0	0.02
	Development Time (min.)	2.0	17.9	8.4	3.6	0.43
	Stability (min.)	3.5	29.7	20.3	6.6	0.32
	Degree of Softening (12 min.)	15	51	29	10	0.36
ALVEOGRAM	P (mm)	79	107	88	7	0.08
	L (mm)	70	125	98	13	0.14
	W Joules x 10^{-4}	239	324	286	20	0.07
	P / L	0.68	1.53	0.90	0.21	0.22

These results were elaborated with 21 composite samples prepared proportionally from 433 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 830,348 tons., the 9.1% of the national total. Were sampled 79,345 tons., the 9.56 % of the subregion production.

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS								
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
300	Paraná	3970	2	78.00	1.84	0.19	0.96	10.99	10.4	32.80	1.760
301	Paraná	4040	2	78.20	1.69	0.26	0.62	6.59	11.0	32.50	1.710
302	Paraná	3795	2	77.70	0.61	0.17	0.68	5.49	11.5	33.20	1.780
303	Paraná	4055	3	77.50	1.26	0.34	1.24	4.70	10.9	31.90	1.690
304	Villaguay	2155	O/G	77.40	3.32	0.34	0.34	0.84	12.2	36.80	1.770
305	Diamante	4025	2	79.70	0.46	0.60	0.60	1.20	10.9	36.30	1.770
306	Diamante	3970	3	77.80	1.24	0.09	1.57	2.18	10.8	31.20	1.860
307	Diamante	4035	2	79.60	0.41	0.27	0.44	1.30	11.6	33.80	1.820
308	La Paz	3985	3	78.30	2.20	0.50	0.66	8.10	11.4	34.10	1.510
309	La Paz	3975	3	77.70	2.05	0.22	0.92	4.35	11.9	32.70	1.600
310	Rosario del Tala	2340	2	78.50	0.26	0.13	0.96	4.15	10.7	33.90	1.660
311	Gualeguay	3590	3	79.30	0.61	1.05	0.87	4.61	10.4	34.70	1.590
312	Gualeguay	3885	2	79.80	0.43	0.27	0.48	4.35	10.8	34.90	1.690
313	Gualeguaychú	4055	2	78.10	0.73	0.09	0.38	1.32	11.0	34.10	1.710
314	Gualeguaychú	4025	2	79.80	0.73	0.14	0.92	2.35	10.7	34.20	1.740
315	Nogoyá	4065	2	80.40	0.84	0.27	0.66	0.00	11.0	32.80	1.730
316	Nogoyá	3970	2	80.00	0.55	0.30	0.42	5.05	11.5	33.70	1.720
317	Concepción del Uruguay	2120	2	77.60	0.65	0.17	0.72	7.20	10.4	31.40	1.710
318	Concepción del Uruguay	3985	2	76.40	1.15	0.13	0.90	1.68	10.8	30.40	1.810
319	Victoria	5265	2	79.50	0.82	0.30	0.18	6.05	11.0	33.80	1.690
320	Victoria	4040	2	77.80	0.34	0.09	0.51	2.84	11.4	32.10	1.750

Sub region III Wheat

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
300	Paraná	24.5	8.4	371	71.0	54.7	2.0	3.5	48	84	79	239	1.06	0.562
301	Paraná	26.2	9.0	367	72.19	54.3	6.7	25.4	16	84	103	290	0.82	0.605
302	Paraná	27.9	9.6	308	72.5	53.7	6.3	23.0	22	82	111	300	0.74	0.658
303	Paraná	25.7	8.8	361	70.5	56.3	2.3	4.9	51	87	102	291	0.85	0.667
304	Villaguay	29.6	9.9	273	70.1	58.0	6.8	14.5	47	85	125	324	0.68	0.666
305	Diamante	24.9	8.6	370	69.7	55.8	9.0	26.6	16	97	90	300	1.08	0.648
306	Diamante	26.9	9.2	291	71.5	55.2	7.9	25.0	20	89	104	312	0.86	0.620
307	Diamante	28.7	9.7	376	70.8	57.1	10.0	22.6	24	99	86	293	1.15	0.679
308	La Paz	28.4	9.6	329	72.5	55.9	6.9	14.5	45	81	111	288	0.73	0.585
309	La Paz	28.1	9.7	307	71.3	56.8	9.2	21.5	26	85	106	302	0.80	0.625
310	Rosario del Tala	25.9	9.0	390	71.6	56.4	12.5	23.0	32	94	86	281	1.09	0.573
311	Gualeguay	24.8	8.5	380	71.4	56.0	17.9	29.7	22	107	70	278	1.53	0.592
312	Gualeguay	25.9	8.7	360	72.8	55.6	11.1	22.7	23	90	90	274	1.00	0.573
313	Gualeguaychú	27.3	9.3	387	70.7	57.6	10.5	20.7	31	94	88	271	1.07	0.627
314	Gualeguaychú	25.2	8.7	356	71.9	56.2	15.2	24.8	29	96	79	268	1.22	0.539
315	Nogoyá	26.0	9.0	344	73.8	56.0	9.1	22.6	24	89	104	302	0.86	0.621
316	Nogoyá	27.2	9.3	384	72.9	56.1	7.1	18.1	34	82	120	313	0.68	0.599
317	Concepción del Uruguay	24.6	8.3	382	69.8	55.1	9.1	23.2	20	91	85	255	1.07	0.626
318	Concepción del Uruguay	25.4	8.6	383	70.4	55.2	7.5	18.4	30	79	102	252	0.77	0.641
319	Victoria	26.0	8.9	351	70.1	55.8	5.1	17.4	31	83	106	273	0.78	0.633
320	Victoria	27.3	9.0	368	70.5	54.9	6.9	26.8	15	83	110	297	0.75	0.638

Sub region IV
Background for the crop

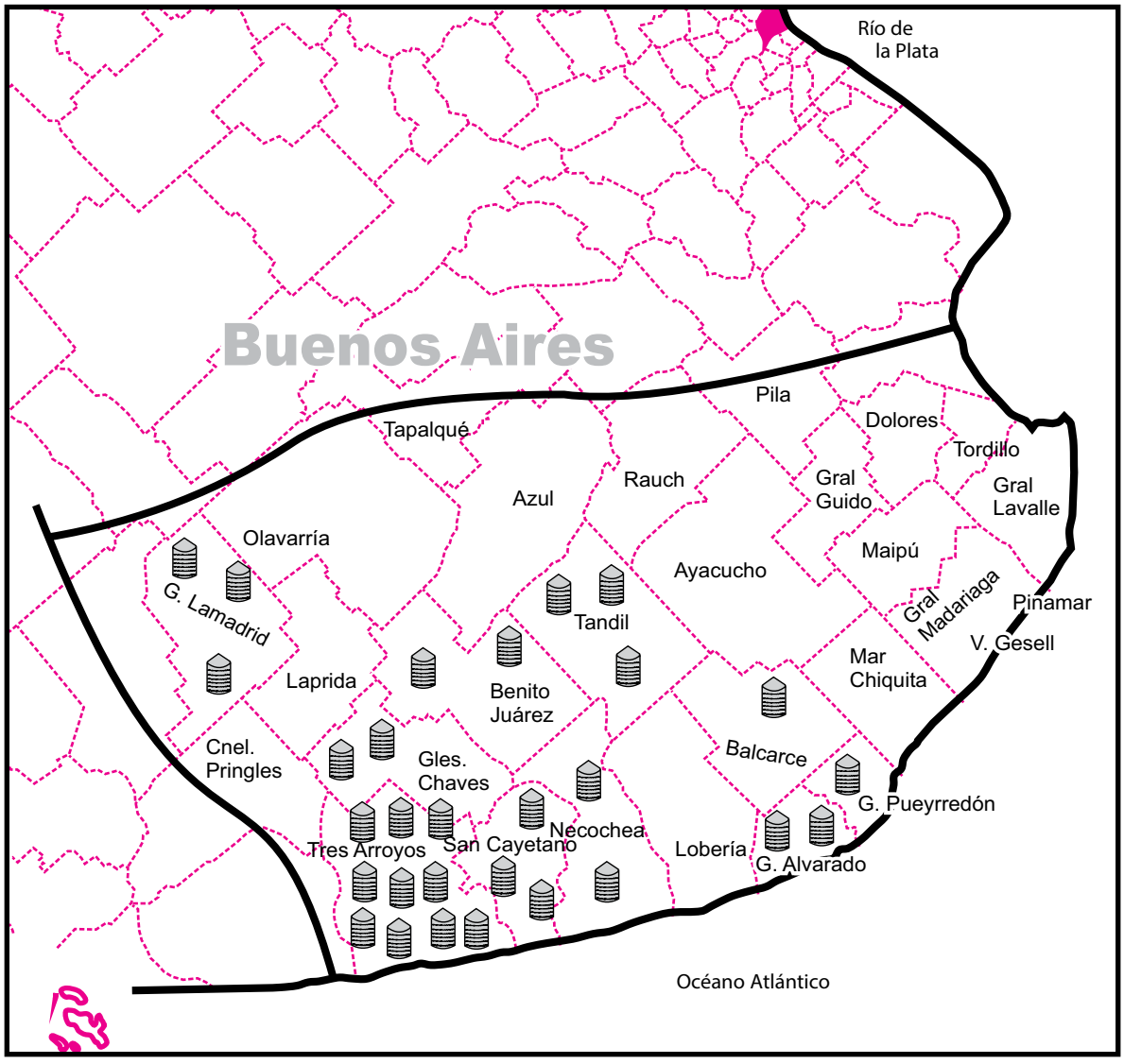
Weather conditions were favorable during the first stages of the crop. All the sub-region presented good conditions for sowing, with no delays in meeting the sowing dates of long-cycle and short-cycle crops. With proper soil temperature and humidity, wheat crop developed normally, with good tillering and with no frosts that could reduce the leaf surface.

During October, rains were within the average, with temperatures lower than the historical average, producing a delay in the heading stage. Rains at the beginning of November were adequate with temperatures lower than the average, similar to October. Since the end of November up to the harvest stage, rains were scarce and with high temperatures; in shallow soils stress was observed towards the end of the month. Long-cycle crops underwent yellow ripening by the beginning of December and therefore they did not present a significant yield loss, conversely, the short-cycle crops, with a slightly delayed filling, were under water and thermal stress during a significant part of grain filling, which caused yield losses mainly in shallow soils.

Leaf diseases were negligible. The susceptible varieties had a moderate severity regarding Leaf Rust (Puccinia triticina); and Stem Rust (Puccinia graminis) was detected in several cultivars, which justified a chemical control and a good response to the application.

Proper rains and mid-low temperatures in the critical stage of the crop determined the yields in most of the sub-region. In general, yields were average to high and varied according to the zone, rains and technology applied by the producers. The Eastern zone of the sub-region had excellent yields, decreasing towards the West, though maintaining a high level. Yields were between 3500 and 6000 kg/ha with good test weights and excellent color.

Sub region
IV
Wheat



Each reference represents near 4,000 tns sampled.

Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Sub region IV Wheat

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	77.30	85.30	82.15	1.61	0.02
Total Damaged Kernels (%)	0.00	0.64	0.08	0.12	1.46
Foreign Material (%)	0.14	0.76	0.36	0.18	0.49
Shrunken and Broken Kernels (%)	0.07	1.04	0.47	0.21	0.45
Yellow Berry Kernels (%)	0.00	4.00	2.04	1.15	0.56
Protein (13,5% Moisture) (%)	9.6	10.9	10.3	0.4	0.04
Weight of 1000 Kernels (gr.)	32.90	41.90	36.43	2.77	0.08
Ash (% dry basis)	1.561	1.830	1.713	0.062	0.04

Total damaged kernels includes 0.02% burnt kernels, 0.03% sprouted kernels, 0.01% calcinated kernels and 0.02% germ-chewed kernels.

Grade Distribution

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	19.7	25.7	23.1	1.7	0.07
	Dry Gluten (%)	7.3	9.1	8.3	0.5	0.06
	Falling Number (sec.)	372	460	426	21	0.05
	Flour Yield (%)	70.0	74.6	71.6	1.2	0.02
	Ash (dry basis) (%)	0.510	0.722	0.630	0.056	0.09
FARINOGRAM	Water Absorption (14% H°) (%)	56.5	60.7	58.9	1.1	0.02
	Development Time (min.)	3.8	8.8	5.7	1.0	0.18
	Stability (min.)	7.8	38.7	11.8	5.3	0.45
	Degree of Softening (12 min.)	22	67	50	10	0.20
ALVEOGRAM	P (mm)	88	136	109	15	0.13
	L (mm)	37	74	57	12	0.21
	W Joules x 10^{-4}	202	285	235	21	0.09
	P / L	1.28	3.42	1.92	0.71	0.35

These results were elaborated with 29 composite samples prepared proportionally from 522 primary samples (farmer deliveries)

Sub region Data

In this subregion the wheat production was 2,066,009 tons., the 22.7% of the national total. Were sampled 99,385 tons., the 4.81 % of the subregion production.

Sub region IV Wheat

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS								
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
400	Tandil	4000	1	85.30	0.06	0.30	0.50	0.31	10.3	36.40	1.684
401	Necochea	4000	2	77.25	0.12	0.63	0.36	2.90	10.7	39.10	1.708
403	Gral. Alvarado	4000	2	81.50	0.15	0.37	0.07	1.35	9.7	40.10	1.612
404	Tandil	4000	2	83.50	0.02	0.22	0.26	2.19	10.0	39.40	1.642
405	Gral. Alvarado	4000	1	80.35	0.44	0.17	0.19	2.12	9.6	40.50	1.595
406	Necochea	4000	2	79.90	0.15	0.31	0.15	0.75	9.7	40.90	1.689
407	Gral. Pueyrredón	4000	1	81.95	0.04	0.19	0.27	2.54	9.9	41.90	1.680
408	Balcarce	4000	1	82.60	0.19	0.18	0.33	0.96	10.4	40.90	1.677
409	Benito Juarez	4000	2	80.15	0.15	0.39	0.28	0.70	10.4	35.01	1.714
410	Benito Juarez	4000	1	82.40	0.17	0.14	0.33	1.80	10.3	38.20	1.726
501	General Lamadrid	2690	2	80.80	0.16	0.72	0.80	0.40	9.8	35.10	1.812
502	General Lamadrid	4000	2	82.40	0.00	0.76	0.78	3.80	9.7	34.00	1.714
503	General Lamadrid	1100	2	81.95	0.64	0.74	0.86	2.80	10.3	37.30	1.751
504	Gonzáles Cháves	2250	2	83.05	0.00	0.40	1.04	1.80	10.4	33.60	1.771
505	Gonzáles Cháves	3351	2	84.40	0.00	0.24	0.60	0.20	10.9	34.20	1.830
508	San Cayetano	4000	2	83.50	0.00	0.30	0.46	4.20	10.6	34.80	1.696
509	San Cayetano	1250	2	82.60	0.00	0.26	0.48	2.80	10.7	33.90	1.681
510	San Cayetano	1166	1	83.50	0.00	0.20	0.38	3.20	9.9	35.30	1.642
511	Tandil	1128	2	83.70	0.00	0.30	0.26	2.70	9.7	37.80	1.561
513	Tres Arroyos	4000	2	82.60	0.00	0.64	0.70	2.10	10.7	32.90	1.773
514	Tres Arroyos	4000	2	83.05	0.08	0.50	0.40	2.20	10.7	33.50	1.751
515	Tres Arroyos	4000	2	82.15	0.06	0.30	0.60	3.20	10.8	34.00	1.757
516	Tres Arroyos	4250	2	81.25	0.00	0.22	0.72	1.80	10.8	33.60	1.758
517	Tres Arroyos	4009	2	82.60	0.00	0.20	0.54	0.40	10.5	35.00	1.726
518	Tres Arroyos	4009	2	81.95	0.00	0.30	0.60	3.50	10.0	34.70	1.793
519	Tres Arroyos	4003	2	83.70	0.06	0.34	0.60	3.40	10.4	36.30	1.772
520	Tres Arroyos	2147	2	80.80	0.00	0.68	0.50	3.80	10.6	34.30	1.772
521	Tres Arroyos	4001	2	83.05	0.00	0.40	0.44	2.20	10.0	34.60	1.606
522	Tres Arroyos	4002	2	82.40	0.00	0.48	0.50	1.20	10.3	35.30	1.726

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
400	Tandil	22.1	8.2	442	72.0	58.1	6.2	14.9	39	127	44	230	2.89	0.633
401	Necochea	23.4	8.7	418	73.6	59.7	4.7	10.6	55	127	47	238	2.70	0.643
403	Gral. Alvarado	20.3	7.5	429	71.5	59.6	7.0	12.6	45	104	37	211	2.81	0.595
404	Tandil	20.5	7.6	437	73.1	58.9	5.7	14.7	31	136	40	226	3.40	0.523
405	Gral. Alvarado	21.5	8.0	433	70.9	59.4	5.3	9.7	54	130	38	204	3.42	0.649
406	Necochea	19.7	7.3	375	72.4	60.7	3.8	10.7	42					0.573
407	Gral. Pueyrredón	24.1	8.9	452	71.3	59.8	5.8	11.6	54	120	51	234	2.35	0.628
408	Balcarce	21.4	7.9	425	72.7	60.4	4.0	8.7	57	128	44	228	2.91	0.553
409	Benito Juarez	21.6	8.0	431	71.7	58.8	4.0	12.5	36	122	48	234	2.54	0.605
410	Benito Juarez	22.7	8.4	433	70.4	59.9	6.3	11.9	46	129	41	220	3.15	0.510
501	General Lamadrid	24.1	8.6	409	70.9	59.0	4.7	7.8	59	97	62	224	1.56	0.604
502	General Lamadrid	21.8	7.6	404	70.2	58.5	6.8	10.8	48	96	57	205	1.69	0.663
503	General Lamadrid	22.7	7.9	442	70.4	58.6	4.6	9.9	49	99	71	255	1.39	0.641
504	Gonzáles Cháves	23.0	8.1	452	70.5	60.3	5.2	10.3	52	108	60	245	1.80	0.668
505	Gonzáles Cháves	25.7	9.1	460	70.5	60.5	8.8	38.7	22	120	60	285	2.00	0.712
508	San Cayetano	23.5	8.3	428	71.5	60.2	6.3	9.2	55	108	56	233	1.93	0.674
509	San Cayetano	25.7	9.0	430	70.6	58.6	5.5	9.8	53	100	66	245	1.52	0.633
510	San Cayetano	21.9	7.7	403	71.3	58.2	5.1	9.7	49	98	54	202	1.81	0.660
511	Tandil	22.0	7.6	393	71.3	56.5	6.3	12.5	41	96	55	203	1.75	0.540
513	Tres Arroyos	25.2	9.1	440	70.4	59.2	6.4	10.5	57	109	68	278	1.59	0.672
514	Tres Arroyos	24.8	8.7	432	72.0	58.2	6.2	11.1	54	99	74	266	1.34	0.633
515	Tres Arroyos	25.6	9.0	438	71.9	58.9	6.8	9.4	62	97	71	249	1.38	0.698
516	Tres Arroyos	25.2	8.9	434	71.6	58.4	5.7	10.6	54	100	69	256	1.45	0.679
517	Tres Arroyos	24.8	8.6	406	73.5	58.1	5.7	7.9	67	88	69	220	1.28	0.678
518	Tres Arroyos	23.3	8.2	372	70.7	56.6	5.4	11.8	41	94	69	245	1.36	0.577
519	Tres Arroyos	24.1	8.4	450	71.2	58.6	4.8	8.3	65	94	67	225	1.40	0.722
520	Tres Arroyos	25.0	8.7	446	72.4	57.0	6.1	12.4	47	95	74	259	1.28	0.604
521	Tres Arroyos	22.9	8.0	409	70.0	58.1	6.2	10.3	53	99	61	231	1.63	0.684
522	Tres Arroyos	22.8	8.0	429	74.6	56.7	5.7	11.5	43	92	63	216	1.46	0.582

Climatology 2013 / 2014

Weather and Wheat Crop 2013 - 2014 in Argentina

José L. Aiello – Alfredo C. Elorriaga

Weather behavior during the wheat campaign 2013-2014 is described using a method to calculate the water reservoirs in the soil and its anomalies. These latter are named 'Classification of Soil Humidity' and were calculated as a monthly average during all the entire wheat cycle, but come from a daily analysis, and express the degree of deviation from the habitual conditions for each region and period of year. Moisture classification is a proper indicator since it summarizes the behavior of the most relevant climatic variables, such as the spatial-temporal distributions of rains and their interaction with the evapotranspiration, which in turns depends on temperature, solar radiation, winds and atmospheric humidity.

The maps, which are used operationally and for any period of time, in this case are monthly and contain a politic subdivision by department, which may be associated to the main wheat areas of the country, representing here only Pampean provinces. The presentation of map sequence that classify the soil moisture and a description of its behavior allow the reader to have a clear idea of which was the weather evolution of wheat crop, and agronomic considerations are described in another section of this report. We should clarify that the habitual or normal conditions are not always the best suited for the crop in all regions and periods of the year; therefore, during the winter and early spring, normal conditions might be hydric deficit in regions located at the west and northwest of the wheat region, such as the V North sub-region, however these same conditions could represent situations of some soil water excess in the east center and south east of the wheat region.

MAY 2013
The beginning of wheat crop presented a normal distribution of moisture in the Province of Buenos Aires, except in its Western area and a dry pulse in the North of the Province of Córdoba.

JUNE 2013
An intensification of a dry pulse turned into low edaphic moisture conditions in the West of the Province of Buenos Aires. In the rest of the region shown in the map, there were no great variations and the surface humidity conditions suitable for sowings continued, allowing perform them in time.

JULY 2013
July was a dry month in the West of the Pampean region and normal in the remaining regions. The lack of rainfall and subsequent losses of edaphic moisture were a matter of concern among producers.

AUGUST 2013
There was a change in August made by a significant recharge of soil moisutre in the wheat crops of the Southeast of the Province of Buenos Aires, representing a very good indicator of the yields of this region. There were also improvements in the rest of the Pampean region.

SEPTEMBER 2013
Climate effect led to a reduction of water reserves in the soil except in the East-central part of the Province of Entre Ríos and in the East and Southeast of the Province of Buenos Aires.

OCTUBER 2013
Water reserves remained low except in the South of the Province of Buenos Aires where very good wheat yields were predicted.

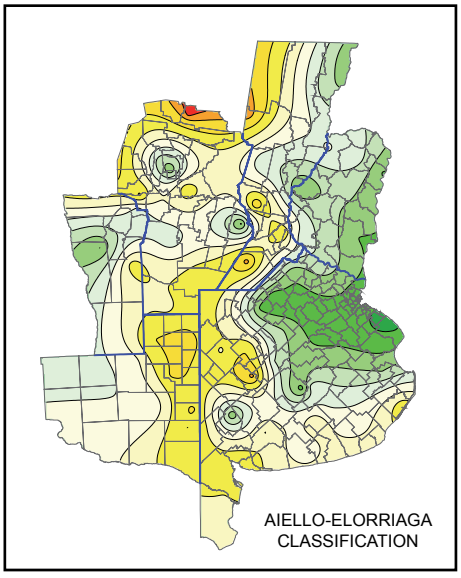
NOVEMBER 2013
There were very good conditions in soil profiles due to good water supply, and excesses can be observed in the Provinces of Santa Fe, Entre Ríos, and in the North of Córdoba.

DECEMBER 2013
As a month of harvest, soil moisture distribution allowed suitable conditions for labours.

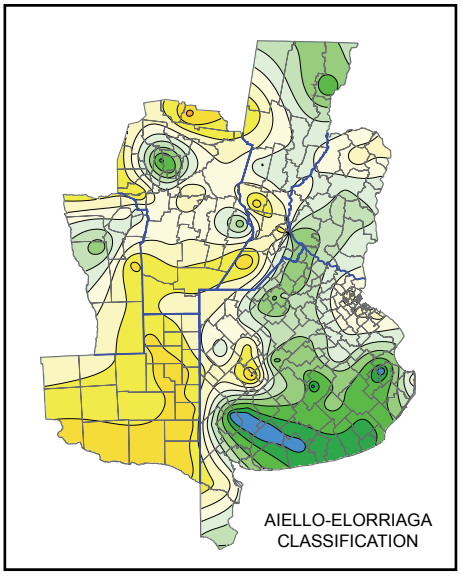
JANUARY 2014
Very good conditions to finish the wheat crop harvest.

SOIL HUMIDITY CLASSIFICATION
2013 / 2014 WHEAT CROP

MAY 2013



AUGUST 2013



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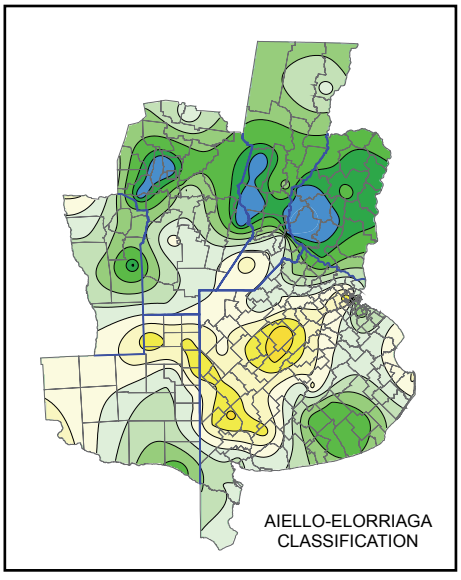
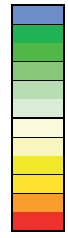
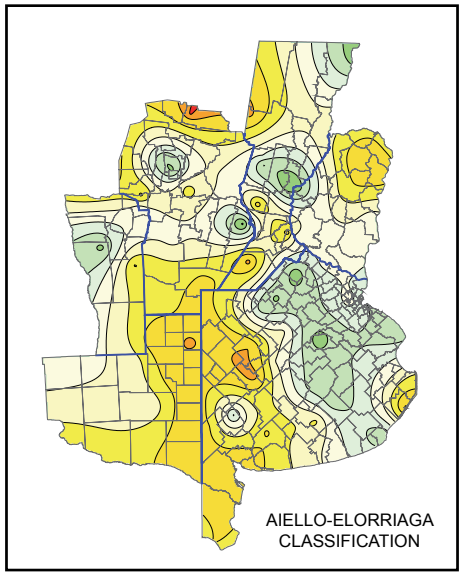




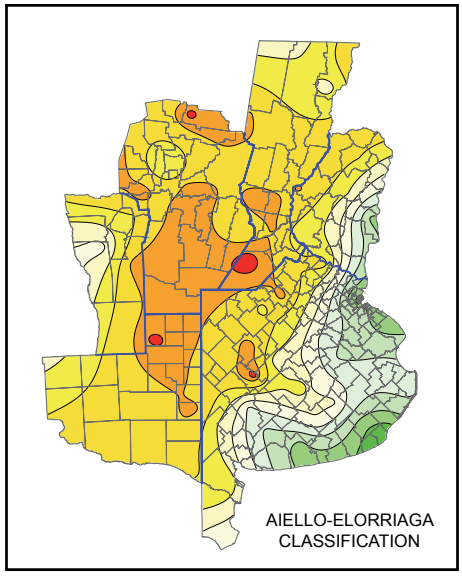
Extremely wetter than usual.
Much wetter than usual.
Wetter than usual.
Approximately normal for the season.
Drier than usual.
Much drier than usual.
Extremely drier than usual.

SOIL HUMIDITY CLASSIFICATION
2013 / 2014 WHEAT CROP

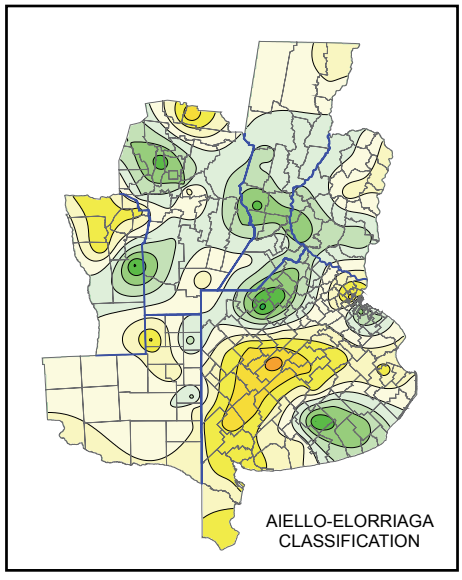
JUNE 2013

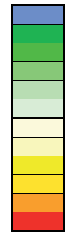


SEPTEMBER 2013



DECEMBER 2013





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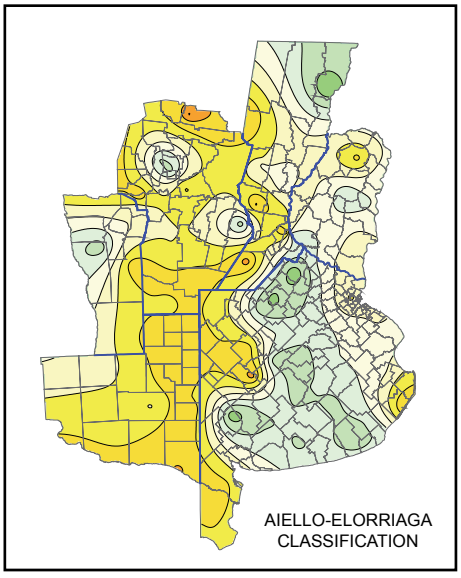
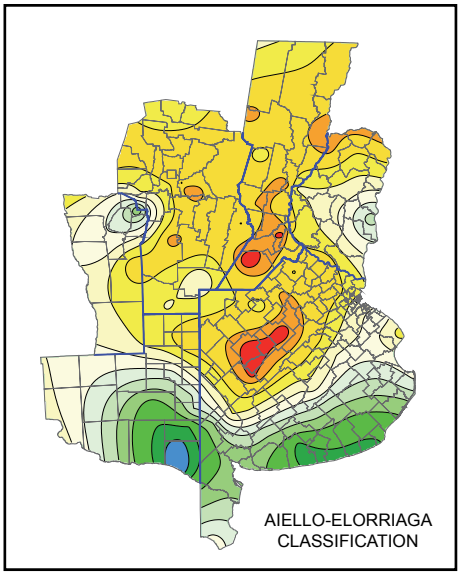
SOIL HUMIDITY CLASSIFICATION
2013 / 2014 WHEAT CROP

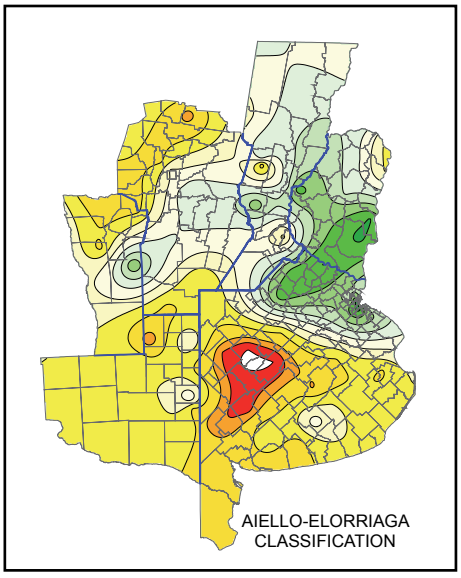
JULY 2013

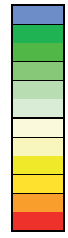


OCTOBER 2013



JANUARY 2014





Extremely wetter than usual.
Much wetter than usual.
Wetter than usual.
Approximately normal for the season.
Drier than usual.
Much drier than usual.
Extremely drier than usual.

Sub region V North
Background for the crop

The sown area was higher than 2012/13 campaign , surpassing the 500,000 has. Sowing during May and June was done with proper moisture in some departments; however, in others, moisture was scarce to assure proper germination.

From June until September inclusive, no rains were recorded or there were scarce rains. During the stages of growing and development, the crops underwent adverse climatic conditions with water and thermal stress, which resulted in plants with a smaller height than normal, fewer tillers per plant, thus resulting in fewer ears per plant fewer grains per ear.

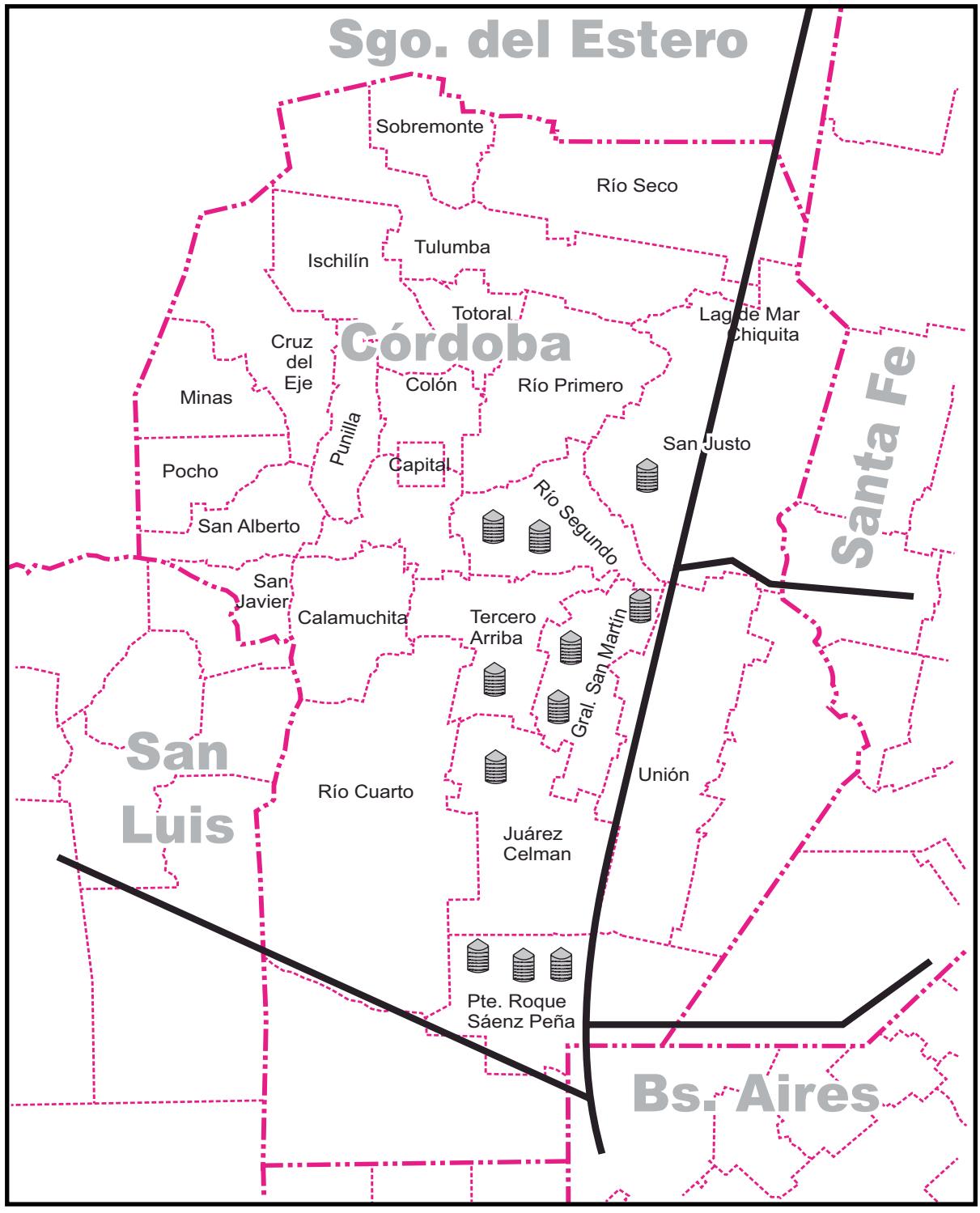
Phenological stages of booting and flowering developed with no soil moisture in the root area, mainly affecting late sowings with intermediate and short-cycle varieties. Early sowing crops with long-cycle varieties, that were fertilized and had good initial moisture, were in better conditions.

Grain filling developed with drought, severe frosts in September, which resulted in few grains per ear and less weight thereof. Photothermal coefficient 'Q' at earing did not exceed the value of one, which prevented obtaining high yields.

Yields were significantly lower than normal, not exceeding in some departments values between 400 and 800 kg/ha. Many lots were not harvested by considered uneconomical.

Conversely, crops with artificial watering yielded between 3500 and 4500 kg/ha. The rest of the subregion presented lower values, 1050 kg/ha in the department of Tercero Arriba, 770 kg/ha in the department of Río Segundo and 1600 kg/ha in the department of General San Martín. At the South of this latter department, in the zone of La Laguna, Etruria and Chazón, yields of 3000 kg/ha were obtained as a result of early sowing and excellent water supply.

Sub region V North Wheat



Each reference represents near 4,000 tns sampled.

Sub region V North Wheat

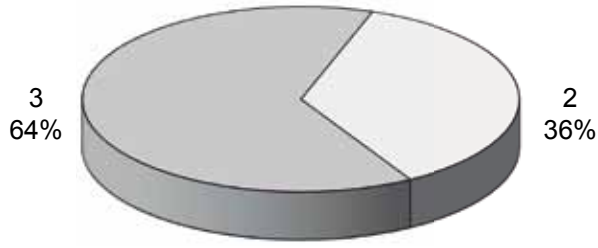
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	72.80	79.30	76.09	2.00	0.03
Total Damaged Kernels (%)	0.72	5.43	1.79	1.00	0.56
Foreign Material (%)	0.02	0.78	0.30	0.26	0.87
Shrunken and Broken Kernels (%)	0.64	2.05	1.22	0.42	0.35
Yellow Berry Kernels (%)	0.00	1.00	0.31	0.18	0.58
Protein (13,5% Moisture) (%)	11.6	14.6	12.9	0.9	0.07
Weight of 1000 Kernels (gr.)	25.11	30.76	28.02	2.06	0.07
Ash (% dry basis)	1.980	2.410	2.097	0.151	0.07

Total damaged kernels includes 0.21% green kernels, 0.02% frosty kernels, 1.15% sprouted kernels, 0.15% insect chewed kernels, 0.01% calcinated kernels and 0.23% germ-chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	30.9	40.3	34.7	2.8	0.08
	Dry Gluten (%)	10.6	13.7	11.7	1.0	0.08
	Falling Number (sec.)	302	397	357	29	0.08
	Flour Yield (%)	68.2	72.9	70.4	1.6	0.02
	Ash (dry basis) (%)	0.667	0.906	0.785	0.068	0.09
FARINOGRAM	Water Absorption (14% H°) (%)	56.1	60.1	58.0	1.0	0.02
	Development Time (min.)	4.8	8.4	6.6	1.3	0.19
	Stability (min.)	13.2	22.3	17.7	2.1	0.12
	Degree of Softening (12 min.)	25	43	32	4	0.14
ALVEOGRAM	P (mm)	66	93	84	7	0.08
	L (mm)	89	150	121	22	0.18
	W Joules x 10^{-4}	270	370	318	33	0.10
	P / L	0.45	1.04	0.69	0.19	0.27

These results were elaborated with 11 composite samples prepared proportionally from 192 primary samples (farmer deliveries)

Sub region Data

In this subregion the wheat production was 603,280 tn tons., the 6.6% of the national total. Were sampled 36,261 tons., the 6.01 % of the subregion production.

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS								
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
600	Roque Sáenz Peña	3500	2	79.25	1.11	0.02	0.91	0.40	12.3	30.76	1.980
601	Roque Sáenz Peña	3500	2	79.25	0.72	0.02	0.64	0.70	11.7	30.24	2.000
602	Roque Sáenz Peña	3000	2	77.70	0.83	0.03	0.90	0.30	12.8	30.21	2.000
603	General San Martín	3400	3	76.35	2.40	0.31	1.66	0.00	11.6	27.73	2.010
604	General San Martín	3300	3	76.10	2.63	0.30	1.49	0.20	13.5	27.46	2.040
605	General San Martín	3150	3	75.20	1.52	0.21	1.16	0.20	12.8	27.98	2.020
606	Tercero Arriba	4000	3	74.10	2.92	0.58	1.15	0.50	14.6	25.40	2.410
607	Río Segundo	3000	3	74.50	2.86	0.03	2.05	0.30	13.0	25.11	2.360
608	Río Segundo	3700	3	72.75	1.66	0.40	1.68	0.20	13.9	25.24	2.160
609	San Justo	779	3	76.10	5.43	0.44	1.14	0.20	12.2	29.00	1.990
610	Juárez Celman	4932	2	76.10	0.79	0.78	0.81	0.30	12.8	29.58	2.010

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
600	Roque Sáenz Peña	32,0	10,7	382	70,3	57,9	8,4	16,4	37	89	90	270	0,99	0,736
601	Roque Sáenz Peña	30,9	10,6	397	70,5	57,5	7,6	20,8	26	93	89	286	1,04	0,652
602	Roque Sáenz Peña	33,0	11,2	373	68,2	57,3	7,9	17,5	35	80	121	298	0,66	0,727
603	General San Martín	32,0	10,7	333	72,7	57,2	5,7	18,6	25	91	90	289	1,01	0,667
604	General San Martín	33,2	11,5	380	72,9	57,1	6,1	22,3	30	86	128	355	0,67	0,801
605	General San Martín	35,9	11,8	366	70,4	57,3	7,9	17,5	35	73	150	303	0,49	0,748
606	Tercero Arriba	40,3	13,7	362	69,8	60,1	7,5	17,7	29	89	128	370	0,70	0,906
607	Río Segundo	34,5	11,6	312	68,8	57,9	6,4	15,9	35	81	139	340	0,58	0,759
608	Río Segundo	37,6	13,0	302	68,3	58,2	4,8	16,5	32	77	147	355	0,52	0,829
609	San Justo	31,6	10,6	328	70,3	56,1	6,3	13,2	43	66	146	293	0,45	0,735
610	Juárez Celman	36,0	11,9	362	71,8	58,9	4,9	15,6	37	82	121	313	0,68	0,773

Sub region V South
Background for the crop

Crops started with proper moisture, allowing early sowings timely, and until the end of September conditions were promising for wheat.

In areas of deeper soils were direct sowing was carried out, fertilization and weed control was performed.

By mid-September there was a frost, and later, temperatures were adequate.

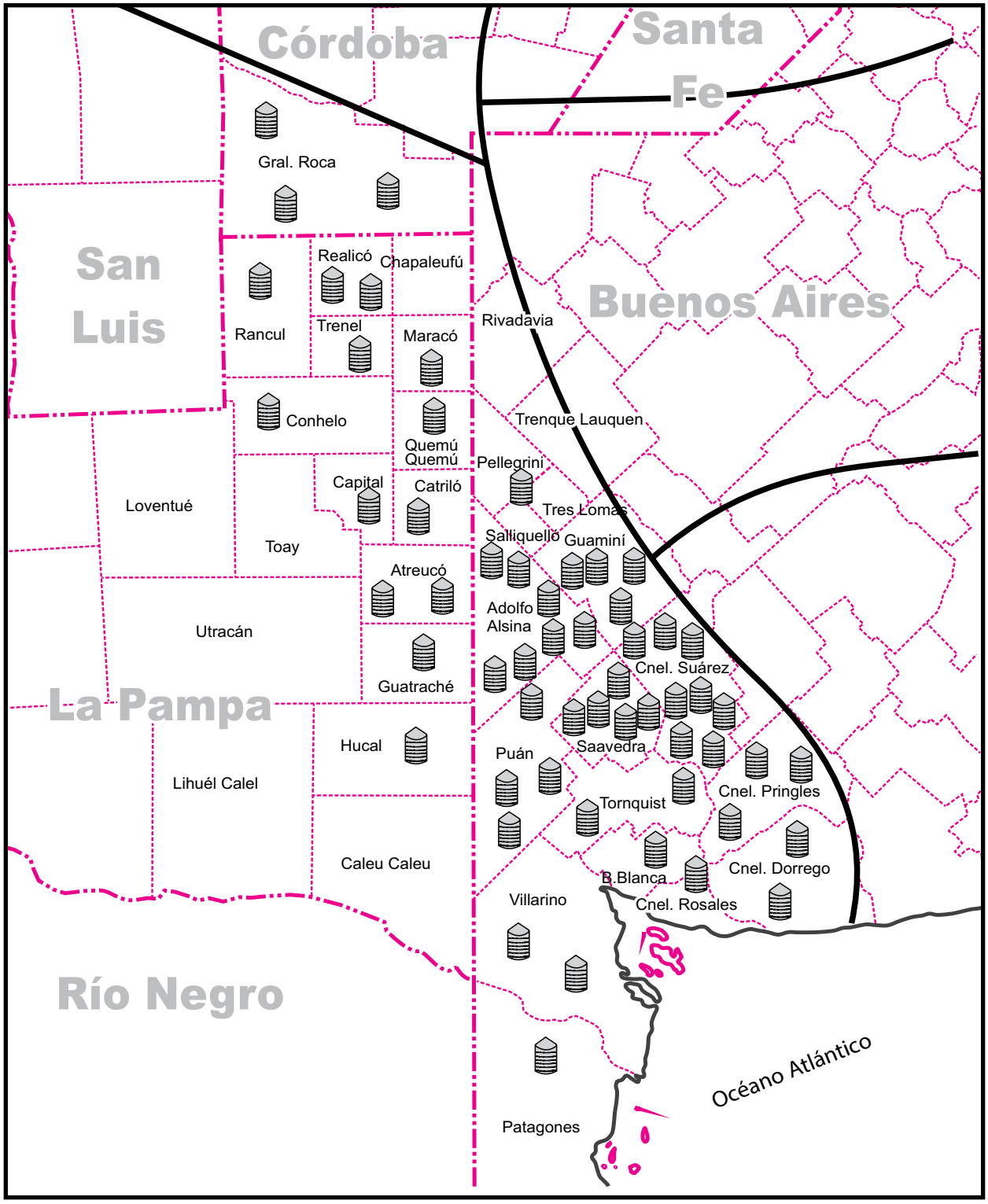
October and November, which are critical for grain filling, were generally dry. In the second half of November, there were days with high temperature and hot winds by the time the water supply in shallow soils had dried up, which resulted in different harvest dates according the area.

November 2013 was one of the eight campaigns with 22 mm of rains or less, in the last 33 years.

In the most affected areas, there was a decrease in grain weight.

The driest districts or localities with shallow soils yielded from 300 kg/ha (General San Martín, La Pampa province) to 900-1000 kg/ha (Stroeder, Patagones); and the areas with hills or deeper soils yields reached 3800 to 4000 kg/ha (Huanguelén, Coronel Suarez, Buenos Aires province).

Sub region V South Wheat



Each reference represents near 4,000 tns sampled.

Results of the Analyses

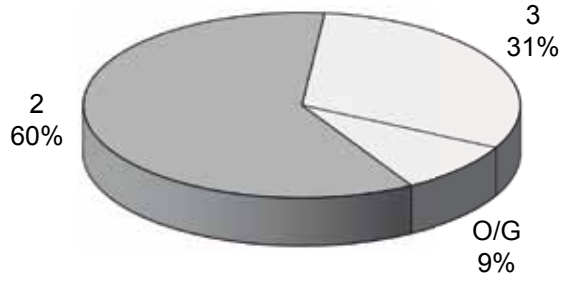
Composite Samples by Locality. Averages were weighted by Tonnage.

Sub region V South Wheat

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	76.80	86.20	81.33	1.68	0.02
Total Damaged Kernels (%)	0.00	0.62	0.09	0.14	1.49
Foreign Material (%)	0.24	2.02	0.68	0.39	0.57
Shrunken and Broken Kernels (%)	0.20	2.30	0.99	0.51	0.51
Yellow Berry Kernels (%)	0.00	19.00	2.13	2.42	1.14
Protein (13,5% Moisture) (%)	8.8	14.3	11.4	1.0	0.09
Weight of 1000 Kernels (gr.)	27.00	36.50	31.63	2.48	0.08
Ash (% dry basis)	1.647	2.112	1.878	0.111	0.06

Total damaged kernels includes 0.02% green kernels, 0.01% sprouted kernels, 0.02% insect chewed kernels and 0.03% germ-chewed kernels.

Grade Distribution



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	18.9	36.9	26.4	3.4	0.13
	Dry Gluten (%)	6.7	12.9	9.3	1.2	0.13
	Falling Number (sec.)	367	471	418	26	0.06
	Flour Yield (%)	61.6	73.3	69.0	3.0	0.04
	Ash (dry basis) (%)	0.520	0.843	0.674	0.061	0.09
FARINOGRAM	Water Absorption (14% H°) (%)	55.3	61.8	58.6	1.4	0.02
	Development Time (min.)	1.9	15.2	7.2	2.3	0.32
	Stability (min.)	4.5	42.7	17.0	9.1	0.53
	Degree of Softening (12 min.)	10	71	39	14	0.36
ALVEOGRAM	P (mm)	68	135	103	15	0.15
	L (mm)	55	144	84	20	0.23
	W Joules x 10^{-4}	198	404	309	42	0.14
	P / L	0.47	2.31	1.22	0.46	0.35

These results were elaborated with 55 composite samples prepared proportionally from 900 primary samples (farmer deliveries)

Sub region Data

In this subregion the wheat production was 2,471,132 tons., the 27.1% of the national total. Were sampled 211,417 tons., the 8.56 % of the subregion production.

Sub region V South Wheat

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS								
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
700	Atreucó	3013	3	81.50	0.00	0.50	1.52	0.80	11.4	29.90	2.053
701	Atreucó	2004	2	81.25	0.00	0.62	1.04	0.20	12.2	30.30	2.009
702	Conhelo	3778	2	80.35	0.00	0.62	1.04	0.40	13.1	32.00	2.112
703	Guatraché	3999	3	81.70	0.12	0.92	0.94	0.50	12.5	27.30	2.012
704	Hucal	2820	O/G	76.80	0.00	1.82	1.98	0.20	13.3	27.50	1.916
705	Maracó	2251	2	78.35	0.06	0.76	1.06	2.20	11.9	33.50	1.755
706	Quemú - Quemú	2045	3	79.00	0.08	0.28	1.90	3.40	12.2	33.50	1.961
707	Rancul	2118	3	79.25	0.16	0.38	1.84	0.40	13.8	29.60	2.026
708	Realicó	2283	2	80.80	0.24	0.36	1.10	0.20	14.0	30.40	2.000
709	Realicó	2270	O/G	79.25	0.14	0.54	2.18	0.80	14.3	30.40	2.104
710	Trenel	2170	3	77.70	0.40	1.44	1.42	0.20	13.0	30.80	2.031
712	Adolfo Alsina	3965	O/G	80.35	0.10	1.08	2.30	2.40	11.9	29.40	2.109
713	Adolfo Alsina	4160	2	81.25	0.00	0.72	1.20	6.60	11.5	31.00	1.982
714	Adolfo Alsina	4000	O/G	80.35	0.06	0.88	2.22	0.80	11.8	27.10	2.100
715	Adolfo Alsina	4005	3	80.35	0.00	0.96	1.48	0.80	12.1	27.20	2.022
716	Adolfo Alsina	4002	2	80.80	0.14	0.64	0.52	1.60	11.2	29.80	1.796
717	Adolfo Alsina	3990	2	79.70	0.00	0.36	0.92	1.10	11.3	30.10	1.723
718	Adolfo Alsina	1447	2	80.60	0.00	0.76	0.84	2.60	11.5	33.70	1.847
719	Bahía Blanca	3507	2	82.85	0.32	0.52	0.68	2.20	10.8	32.20	1.751
720	Coronel Dorrego	4000	3	83.50	0.12	1.48	0.84	0.20	12.1	30.40	1.830
721	Coronel Dorrego	3970	3	83.70	0.12	0.96	0.36	2.40	12.1	29.00	1.845
724	Coronel Pringles	4001	3	80.35	0.00	0.60	1.28	0.40	10.1	33.00	1.867
725	Coronel Pringles	4000	2	82.85	0.00	0.50	0.88	2.80	10.4	31.90	1.839
726	Coronel Pringles	4002	2	82.15	0.00	0.50	0.48	0.20	10.7	33.10	1.780
727	Coronel Rosales	1848	2	86.20	0.00	0.24	0.20	19.20	8.8	35.30	1.785
728	Coronel Suárez	4679	2	83.95	0.00	0.38	0.90	0.20	10.6	35.00	1.756
729	Coronel Suárez	4230	3	82.60	0.00	0.98	0.80	3.80	10.7	33.80	1.731
730	Coronel Suárez	2121	2	81.25	0.24	0.36	1.10	1.20	11.5	34.30	1.895
731	Coronel Suárez	4078	2	84.85	0.00	0.26	1.08	1.80	10.1	34.30	1.862
732	Coronel Suárez	4103	2	84.40	0.10	0.52	0.46	0.60	10.2	36.50	1.808
733	Coronel Suárez	4001	2	81.70	0.00	0.72	0.36	2.40	10.6	34.70	1.783
734	Coronel Suárez	4009	2	83.05	0.06	0.68	0.84	4.40	10.4	34.90	1.786
735	Coronel Suárez	4000	2	82.85	0.20	0.30	0.20	6.80	10.3	34.20	1.790
736	Guaminí	3982	2	82.60	0.00	0.76	0.78	2.80	10.9	31.70	1.833
737	Guaminí	4000	2	81.25	0.00	0.52	0.48	3.20	11.0	36.30	1.647
738	Guaminí	4000	2	82.60	0.12	0.56	0.32	3.20	10.9	33.40	1.704
739	Guaminí	1703	2	81.95	0.24	0.40	0.36	0.80	11.0	36.10	1.675
740	Patagones	2691	3	81.70	0.00	0.94	1.10	2.60	10.9	33.20	1.878
744	Pellegrini - Salliqueló - Tres Lomas	4046	2	81.50	0.04	0.42	0.68	0.60	11.4	32.10	1.803
745	Puán	7811	3	81.70	0.00	0.64	1.60	1.80	11.8	29.70	2.006
746	Puán	8130	3	80.35	0.00	1.22	1.20	3.40	10.7	29.30	1.937
747	Puán	5500	2	82.60	0.12	0.80	1.04	5.20	9.9	32.60	1.847
748	Puán	4001	3	81.25	0.00	0.52	1.60	0.90	12.4	27.00	1.910
749	Saavedra	4600	3	81.95	0.12	0.36	1.38	0.50	10.3	33.10	1.804
750	Saavedra	6000	O/G	79.00	0.00	2.02	0.56	0.30	11.3	31.20	1.890
751	Saavedra	9800	2	80.35	0.06	0.36	0.92	0.20	11.2	30.50	1.877
752	Saavedra	4080	3	82.15	0.00	1.04	1.46	0.80	11.2	29.80	1.889
753	Saavedra	6600	2	80.60	0.40	0.44	0.32	4.20	10.5	33.20	1.740
754	Tornquist	4001	2	81.25	0.04	0.46	0.70	2.20	10.6	29.90	1.954
755	Tornquist	3384	2	81.95	0.16	0.48	0.48	2.80	11.5	28.70	1.885
758	Villarino	4070	3	79.90	0.20	0.42	1.54	7.20	11.1	31.20	1.951
759	Villarino	3149	2	83.50	0.00	0.32	0.66	1.00	11.2	35.20	1.847
760	Gral. Roca (Córboba)	4200	2	78.15	0.62	0.46	0.78	0.20	14.0	30.40	1.942
761	Gral. Roca (Córboba)	3600	2	79.00	0.56	0.26	0.58	2.20	13.0	36.20	1.903
762	Gral. Roca (Córboba)	1200	2	79.00	0.22	0.26	0.50	0.50	12.7	32.40	1.897

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
700	Atreucó	26.6	9.3	400	70.6	57.9	6.5	12.9	45	98	89	316	1.10	0.671
701	Atreucó	29.6	10.6	431	70.9	59.6	6.4	9.4	63	95	93	310	1.02	0.755
702	Conhelo	31.1	11.0	444	71.2	60.5	8.2	12.9	42	94	101	331	0.93	0.751
703	Guatraché	29.0	10.0	440	69.7	59.0	8.7	15.5	30	103	70	282	1.47	0.606
704	Hucal	31.9	11.2	466	67.6	59.0	8.5	15.9	37	88	110	331	0.80	0.678
705	Maracó	26.7	9.3	425	69.2	57.7	8.6	18.9	26	108	65	279	1.66	0.627
706	Quemú - Quemú	28.1	9.7	401	67.8	58.7	8.3	15.4	40	98	93	323	1.05	0.692
707	Rancul	35.2	12.4	420	67.0	61.8	7.2	14.4	31	100	112	388	0.89	0.664
708	Realicó	36.9	12.9	426	67.9	60.4	8.4	20.9	21	86	125	377	0.69	0.634
709	Realicó	36.4	12.8	470	65.7	61.5	9.8	17.1	30	99	114	404	0.87	0.655
710	Trenel	31.5	10.9	399	68.9	60.2	15.2	31.4	10	110	102	395	1.08	0.613
712	Adolfo Alsina	27.3	9.8	471	67.3	59.1	3.3	14.2	32	112	96	402	1.17	0.739
713	Adolfo Alsina	26.1	9.3	440	64.8	58.5	2.7	14.1	28	111	71	316	1.56	0.686
714	Adolfo Alsina	26.5	9.4	409	69.9	59.0	6.3	11.1	56	97	96	331	1.01	0.843
715	Adolfo Alsina	29.1	10.5	394	70.2	59.4	6.2	11.4	53	90	110	348	0.82	0.763
716	Adolfo Alsina	25.5	8.9	399	70.7	57.6	5.0	8.7	64	85	92	271	0.92	0.710
717	Adolfo Alsina	25.9	9.1	395	72.5	57.6	8.5	16.3	38	96	89	310	1.08	0.590
718	Adolfo Alsina	26.4	9.3	420	68.1	57.9	7.2	13.8	41	95	90	317	1.06	0.696
719	Bahía Blanca	24.3	8.7	391	72.6	57.9	6.2	11.9	50	100	71	269	1.41	0.625
720	Coronel Dorrego	30.0	10.6	393	71.1	59.0	6.5	21.4	26	102	109	396	0.94	0.630
721	Coronel Dorrego	29.4	10.7	409	71.5	59.4	6.5	17.1	32	105	103	394	1.02	0.655
724	Coronel Pringles	23.4	8.1	452	70.1	57.2	6.0	10.6	50	91	80	259	1.14	0.708
725	Coronel Pringles	24.8	8.7	446	70.8	58.5	6.9	9.5	62	99	68	248	1.46	0.696
726	Coronel Pringles	25.1	8.9	463	70.6	58.0	6.9	14.9	38	102	87	319	1.17	0.641
727	Coronel Rosales	18.9	6.7	395	70.8	56.3	5.4	10.4	51	93	55	198	1.69	0.670
728	Coronel Suárez	24.5	8.7	407	70.0	59.1	2.4	42.4	30	116	61	288	1.90	0.570
729	Coronel Suárez	23.9	8.6	419	64.5	56.8	9.7	42.7	12	117	76	346	1.54	0.583
730	Coronel Suárez	26.8	9.4	402	69.7	61.8	9.2	30.4	15	130	66	327	1.97	0.596
731	Coronel Suárez	22.0	7.9	432	61.9	58.3	9.0	17.5	28	119	57	272	2.09	0.596
732	Coronel Suárez	23.0	8.1	446	69.6	60.8	9.1	17.5	31	120	57	267	2.11	0.629
733	Coronel Suárez	24.8	8.6	431	71.5	58.3	5.8	10.9	46	101	65	245	1.55	0.681
734	Coronel Suárez	23.1	8.3	416	70.7	57.9	7.3	15.3	37	107	73	288	1.47	0.658
735	Coronel Suárez	23.7	8.4	440	71.6	58.7	6.0	12.1	43	114	65	278	1.75	0.710
736	Guaminí	25.0	8.7	422	68.4	55.3	8.6	19.2	28	92	86	288	1.07	0.676
737	Guaminí	26.0	9.0	397	73.3	58.1	4.5	9.9	51	94	75	254	1.25	0.670
738	Guaminí	26.3	9.2	394	71.4	55.3	8.6	19.2	28	81	100	289	0.81	0.577
739	Guaminí	27.2	9.5	416	69.0	59.2	8.3	17.0	29	108	74	296	1.46	0.593
740	Patagones	25.3	8.9	407	66.4	58.4	7.8	11.2	56	94	92	302	1.02	0.663
744	Pellegrini - Salliqueló - Tres Lomas	24.8	8.9	406	71.1	56.4	2.2	18.4	31	91	84	288	1.08	0.520
745	Puán	26.1	9.4	455	61.9	58.5	8.4	18.6	28	103	91	353	1.13	0.700
746	Puán	24.3	8.5	414	67.6	59.1	8.1	16.0	37	122	58	288	2.10	0.716
747	Puán	22.6	8.1	389	64.7	56.5	8.2	16.6	32	98	71	269	1.38	0.693
748	Puán	30.1	10.4	431	67.7	59.9	7.2	11.5	50	95	96	319	0.99	0.806
749	Saavedra	22.4	7.8	435	70.9	61.0	1.9	4.5	45	134	58	317	2.31	0.643
750	Saavedra	24.1	8.3	461	61.6	60.2	9.5	32.9	25	125	59	293	2.12	0.682
751	Saavedra	23.3	8.4	426	68.3	59.7	11.3	39.1	20	135	69	370	1.96	0.707
752	Saavedra	26.3	9.2	391	71.6	58.1	8.3	16.3	33	102	74	285	1.38	0.650
753	Saavedra	25.1	8.7	367	72.2	57.3	6.2	8.2	71	77	112	275	0.69	0.691
754	Tornquist	25.8	9.0	401	70.0	57.5	5.7	11.5	47	93	79	262	1.18	0.636
755	Tornquist	28.4	9.9	383	70.2	58.8	5.8	8.1	66	86	107	303	0.80	0.725
758	Villarino	24.9	8.7	411	71.3	59.6	5.8	11.3	49	106	81	309	1.31	0.777
759	Villarino	29.0	10.2	388	72.0	56.9	5.5	8.1	61	95	90	292	1.06	0.674
760	Gral. Roca (Córboba)	35.3	12.4	383	68.1	59.6	7.7	10.1	51	68	144	299	0.47	0.749
761	Gral. Roca (Córboba)	32.2	11.3	380	71.7	58.6	7.8	12.1	49	84	108	321	0.78	0.632
762	Gral. Roca (Córboba)	31.1	10.9	385	71.1	59.1	9.4	15.9	39	89	103	318	0.86	0.675

Nortwest of the Country (NOA)
Background for the crop

Wheat Campaign 2013/14 was the worst regarding productivity in the last 30 years or more, as a consequence of a very strong drought during January, February and March 2013, which caused significant losses in soy, maize, bean, chia and peanut.

This resulted in a scarce water supply in the soil profiles intended for sowing wheat, resulting in a significant decrease in crop area. Only those plots with possibility of watering either by flooding or sprinkling could be sown. Wheat area reached 13,995 ha in Salta and Jujuy provinces and 12,870 in Tucumán province.

Wheat crop cycles were shortened during June due to the high temperatures registered. Then, there were some losses due to low temperatures and frosts for several days in July and August, and the low accumulation of water in the soil profile. Low temperatures registered were among -6 ºC and -8 ºC.

An estimated 19,500 ha were harvested, with yields between 1000 and 2400 kg/ha, but some lots reached 2600-2800 kg/ha.

Northeast of the Country (NEA)
Background for the crop

Wheat campaign started by the end of April, but it was generalized by mid-June when some rains were registered, and it extended until the end of July with the sowing of short-cycle varieties.

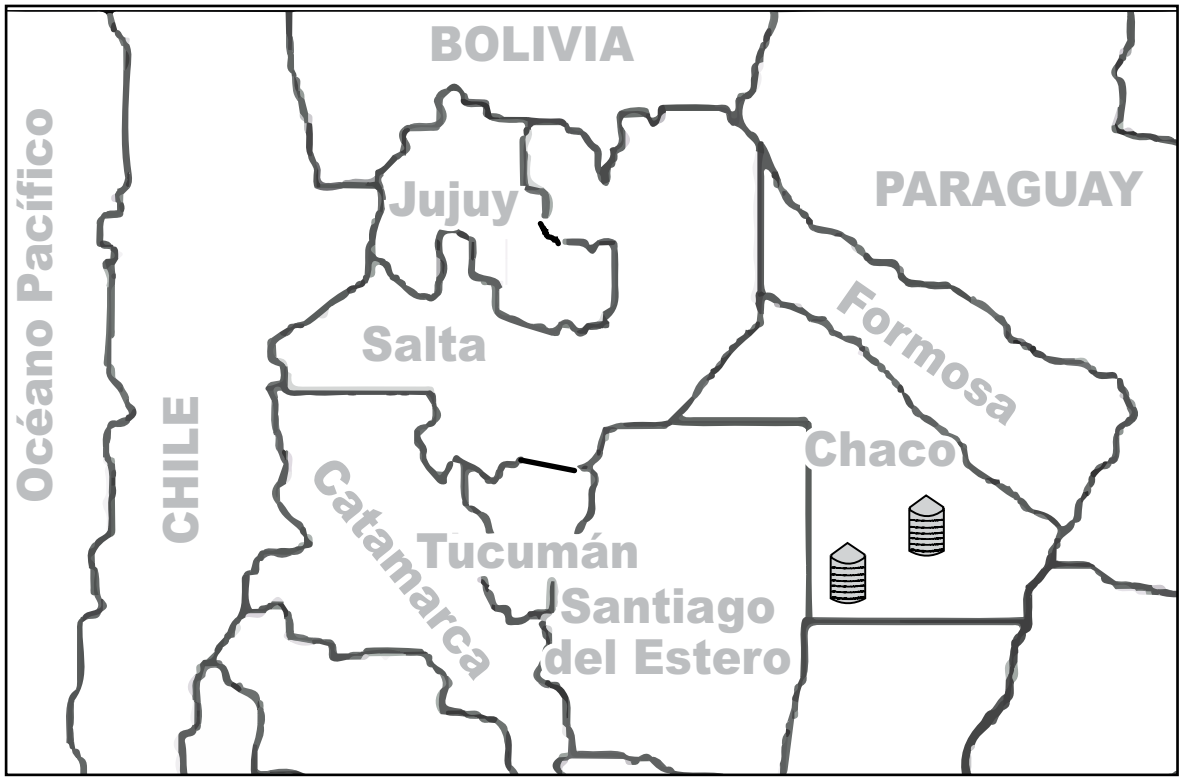
Tillering developed under good water conditions with rains that allowed maintaining the development of the crop, but later, stem elongation was affected by drought, some late frosts by the end of August and some daytime temperatures of over 30 ºC. Frosts affected mainly long-cycle crops, and a great part of them was not harvested, while drought was the factor of higher incidence in short-cycle crops, which also at the stage of grain filling they were under the influence of high temperatures.

Regarding health, incidence of aphids and trips, in some cases severe, was reported. There was no record of leaf diseases with significant damages.

Harvest started by the end of October with some long-cycle lots that started booting, interrupted by some rains. Although yields were low, many lots were harvested due to the good price of grain. Harvest was extended until mid-November, when there were also damages due to hailstorms.

Of a sown land area of 91,670, only 51,130 ha were harvested, with a production of 30,790 tons and an average yield of 602 kg/ha, with extremes of 200 to 1400 kg/ha. Yields evidence that the campaign was very poor, with losses due mainly to drought and frosts, but an insignificant fraction affected by hailstorms.

North of the Country



Each reference represents near 4,000 tns sampled.

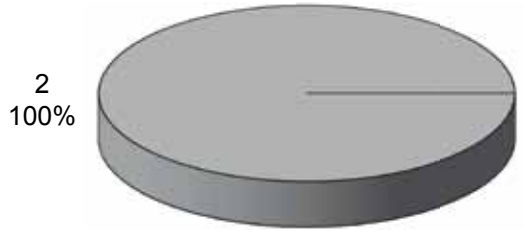
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	77.25	80.35	78.76	1.40	0.02
Total Damaged Kernels (%)	0.22	0.84	0.57	0.30	0.53
Foreign Material (%)	0.34	0.66	0.48	0.13	0.28
Shrunken and Broken Kernels (%)	0.32	0.86	0.48	0.24	0.50
Yellow Berry Kernels (%)	0.16	3.40	1.17	1.42	1.22
Protein (13,5% Moisture) (%)	11.9	13.3	12.5	0.6	0.05
Weight of 1000 Kernels (gr.)	29.80	35.11	32.36	2.41	0.07
Ash (% dry basis)	1.770	1.926	1.880	0.069	0.04

Total damaged kernels includes 0.06% burnt kernels, 0.1% green kernels, 0.46% sprouted kernels and 0.04% insect chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	28.3	35.5	31.4	3.0	0.10
	Dry Gluten (%)	9.9	13.2	11.4	1.4	0.12
	Falling Number (sec.)	375	435	397	25	0.06
	Flour Yield (%)	69.7	71.9	70.7	1.1	0.02
	Ash (dry basis) (%)	0.67	1.1	0.813	0.186	0.23
FARINOGRAM	Water Absorption (14% H°) (%)	57.6	62.0	59.9	1.7	0.03
	Development Time (min.)	5.3	10.3	7.6	2.1	0.28
	Stability (min.)	8.4	17.4	11.9	3.7	0.31
	Degree of Softening (12 min.)	46	71	60	10	0.16
ALVEOGRAM	P (mm)	84	102	96	8	0.08
	L (mm)	71	87	79	6	0.08
	W Joules x 10^{-4}	263	289	276	11	0.04
	P / L	0.97	1.41	1.23	0.17	0.14

These results were elaborated with 5 composite samples prepared proportionally from 31 primary samples (farmer deliveries)

Sub region Data

In this subregion the wheat production was 63,560 tons., the 0.7% of the national total. Were sampled 8,000 tons., the 12.59 % of the subregion production.

Appendix of Locality Composite Samples.

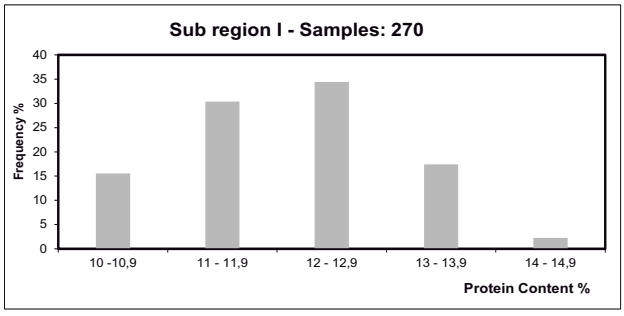
SAMPLE IDENTIFICATION			WHEAT ANALYSIS									
Sample Number	Locality, district or department	Tonnage	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Material (%)	Shrunken and Broken Kernels (%)	Yellow Berry Kernels (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
1	Saenz Peña	3000	2	77,25	0,84	0,66	0,86	0,44	12,7	29,80	1,770
2	Charata	3000	2	77,90	0,82	0,50	0,34	3,40	13,3	30,80	1,920
3	Anta - Tucumán - Metán	2000	2	80,35	0,22	0,34	0,32	0,16	11,9	35,11	1,926

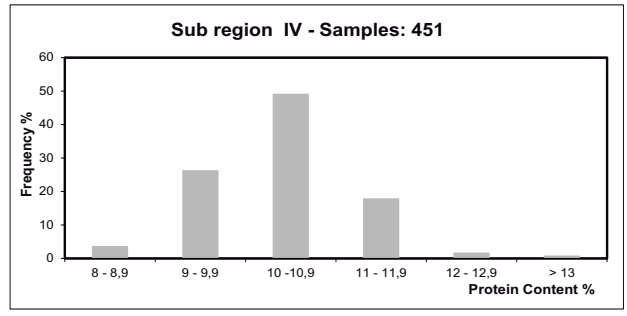
SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
1	Saenz Peña	32,0	11,8	392	69,8	57,6	10,3	17,4	46	84	87	271	0,97	0,735
2	Charata	35,5	13,2	435	69,7	62,0	8,2	11,6	71	100	71	263	1,41	1,104
3	Anta - Tucumán - Metán	28,3	9,9	375	71,9	60,1	5,3	8,4	61	102	79	289	1,29	0,671

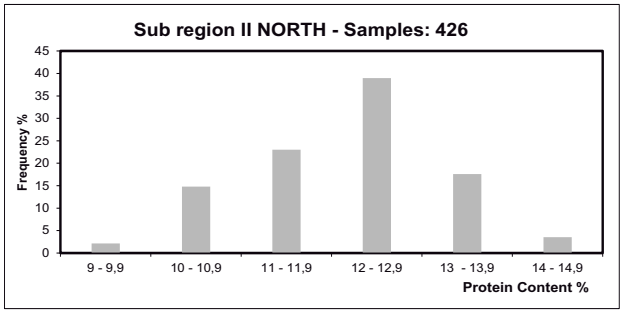
Protein Content Wheat

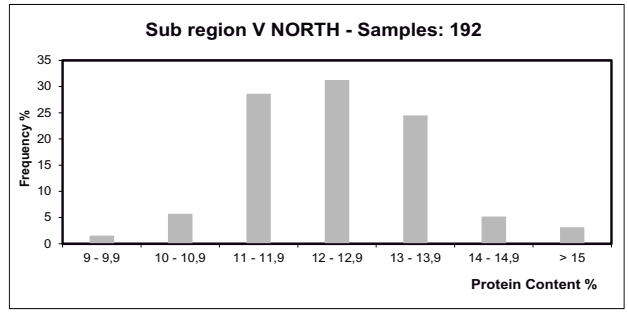
Protein Content

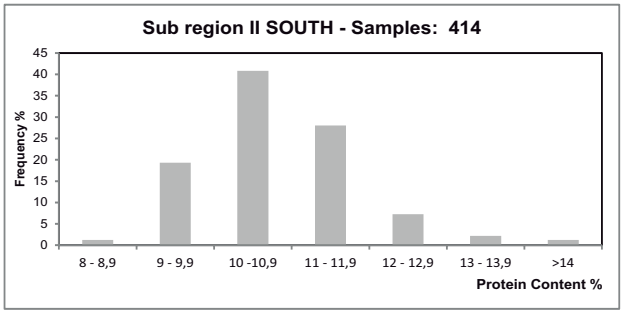
Distribution by ranges
Results obtained on 3,121 Primary Samples

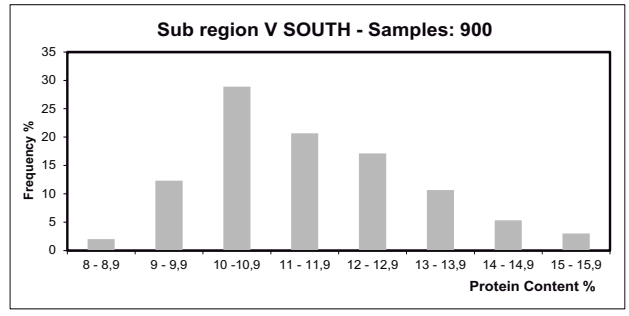


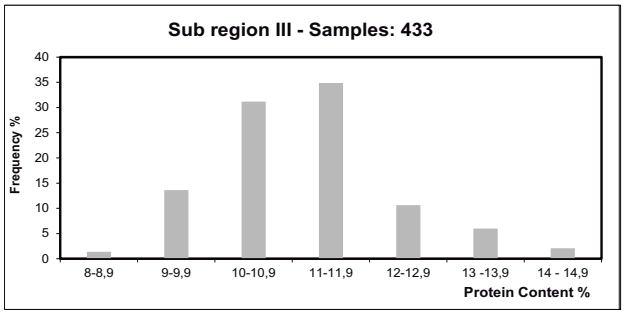


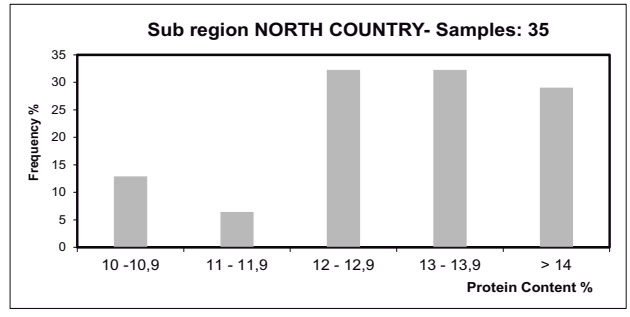


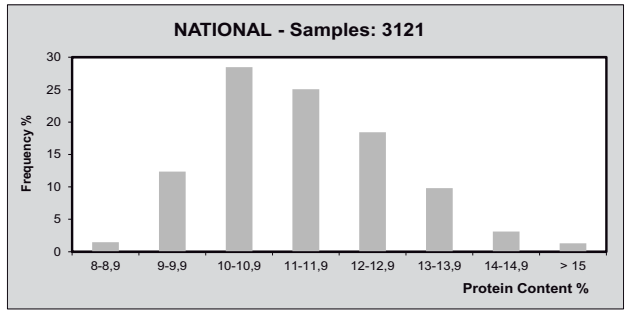












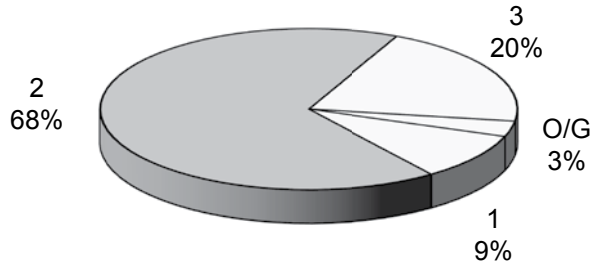
Wheat National Averages

Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	72.75	86.20	80.18	2.41	0.03
Total Damaged Kernels (%)	0.00	5.43	0.50	0.66	1.33
Foreign Material (%)	0.02	2.02	0.43	0.35	0.82
Shrunken and Broken Kernels (%)	0.07	2.30	0.72	0.43	0.60
Yellow Berry Kernels (%)	0.00	19.20	1.82	2.07	1.14
Protein (13.5% Moisture) (%)	8.8	14.6	11.4	1.0	0.09
Weight of 1000 Kernels (gr.)	25.11	42.27	32.78	3.33	0.10
Ash (% dry basis)	1.510	2.410	1.820	0.146	0.08

Grade Distribution



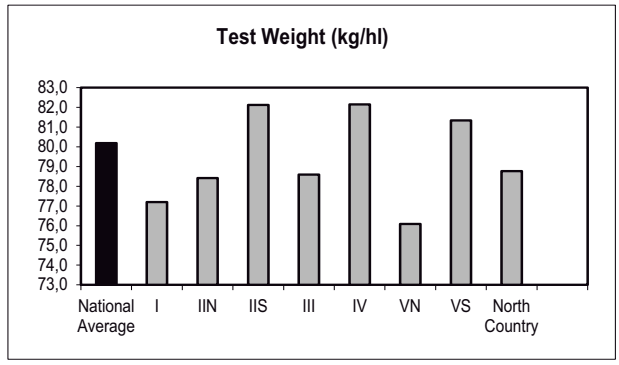
O/G: Out of Grade

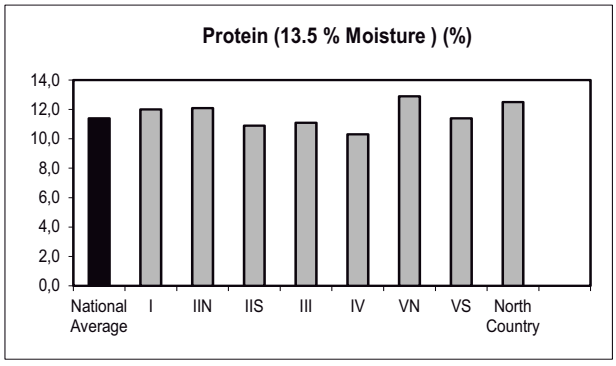
Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	18.9	40.3	26.9	3.8	0.14
	Dry Gluten (%)	6.6	13.7	9.4	1.2	0.13
	Falling Number (sec.)	184	475	402	40	0.10
	Flour Yield (%)	61.6	74.8	70.6	2.3	0.03
	Ash (dry basis) (%)	0.472	1.104	0.656	0.078	0.12
FARINOGRAM	Water Absorption (14% H°) (%)	53.7	62.0	57.9	1.5	0.03
	Development Time (min.)	1.4	20.5	6.9	3.0	0.43
	Stability (min.)	1.5	42.7	15.8	7.6	0.48
	Degree of Softening (12 min.)	10	109	40	17	0.41
ALVEOGRAM	P (mm)	66	136	97	14	0.15
	L (mm)	37	150	84	24	0.29
	W Joules x 10^{-4}	168	404	281	45	0.16
	P / L	0.45	3.42	1.15	0.60	0.46

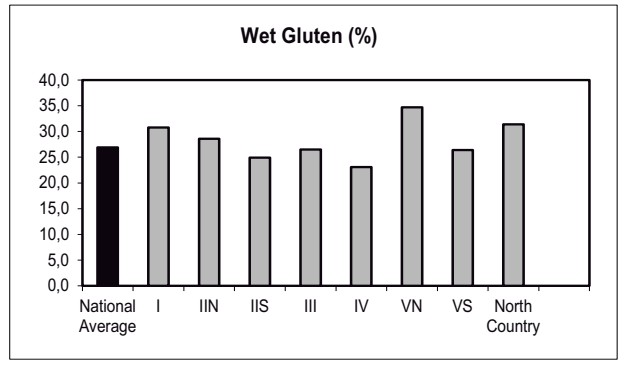
Wheat National and Sub regions Averages

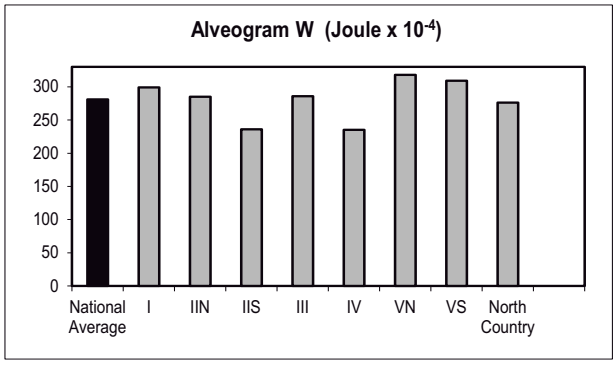
Comparative Graphics

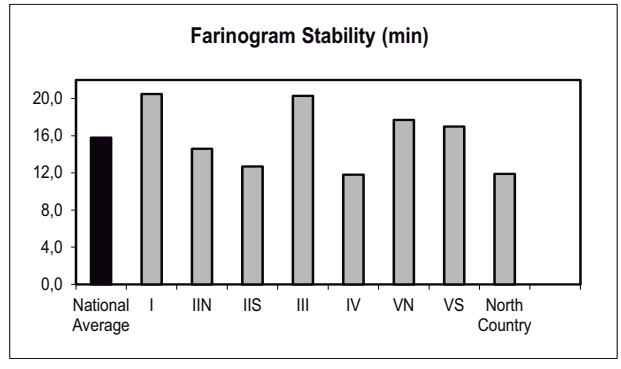
Composite Samples by Locality. Averages were weighted by Tonnage.











By Agr. Eng. (Ms.Sci.) Nelly Salomón, Agronomy Department, Universidad Nacional del Sur

Mean Comparison among Sub regions:

An analysis of the variation of the measured data was carried out (ANAVA) among the wheat sub regions. Taking into account that the amount of points of sampling was different in each sub region (unbalanced), a comparison test of means was applied that permits to compare them although they are based on different number of data.

The obtained results are reliable because we could demonstrate if there were differences among the sub regions with a very small experimental error. This was due to the fact that the averages were calculated with a high sampling intensity.

The interpretation of the results should be carried out observing the letters that figure to the right of each value in the variables. Those sub regions named with the same letter did not show any significant difference.

All the opposing difference have a probable error of 5 %. All the likeness was accepted with a level of confidence close to 50 %.

Sub region	N° Samples	Test Weight	Sub region	Total Damaged Kernels	Sub region	Foreign Material	Sub region	Shrunken And Broken Kernels
IV	28	82,25 a	IV	0,08 a	I	0,19 a	II South	0,36 a
II South	29	82,12 a	V South	0,09 a	III	0,28 ab	IV	0,48 ab
V South	55	81,33 a	II South	0,26 ab	II North	0,30 ab	North Country	0,48 ab
North Country	3	78,76 b	I	0,54 abc	V North	0,30 ab	I	0,63 ab
III	21	78,59 b	North Country	0,57 bc	II South	0,36 ab	II North	0,64 ab
II North	31	78,41 bc	II North	0,97 c	IV	0,37 ab	III	0,71 abc
I	13	77,20 bc	III	1,03 c	North Country	0,48 ab	V South	0,99 bc
V North	8	76,09 c	V North	1,79 d	V South	0,68 b	V North	1,22 c

Sub region	Yellow Berry Kernels	Sub region	Protein	Sub region	Weight 1000 Kernels	Sub region	Ash
I	0,00	V North	12,9 a	II South	36,42 a	II South	1,693 a
V North	0,31 a	North Country	12,5 a	IV	36,24 ab	IV	1,714 ab
II North	0,60 a	II North	12,1 ab	III	33,35 bc	III	1,718 ab
North Country	1,17 ab	I	12,0 ab	North Country	32,36 cd	II North	1,858 bc
II South	1,97 ab	V South	11,4 bc	V South	31,63 cd	V South	1,878 bc
IV	2,09 ab	III	11,1 bc	II North	31,18 de	North Country	1,879 c
V South	2,13 ab	II South	10,9 c	I	29,19 de	I	1,932 c
III	4,08 b	IV	10,3 c	V North	28,02 e	V North	2,097 d

Sub region	Wet Gluten	Sub region	Dry Gluten	Sub region	Falling Number	Sub region	Flour Yield
V North	34,7 a	V North	11,7 a	III	355 a	II South	71,9 a
North Country	31,4 b	North Country	11,4 ab	V North	357 a	IV	71,6 a
I	30,8 bc	I	10,5 bc	I	372 ab	III	71,4 a
II North	28,6 cd	II North	9,8 cd	II North	393 abc	II North	71,3 a
III	26,5 de	V South	9,3 cde	North Country	397 bc	North Country	70,7 a
V South	26,4 de	II South	9,2 cde	V South	418 c	I	70,6 a
II South	24,9 de	III	9,0 de	II South	419 c	V North	70,4 a
IV	23,3 e	IV	8,3 e	IV	428 c	V South	69,0 a

Statistical Analysis Wheat

Sub region	Water Absorption (%)		Sub region	D.T. (min.)		Sub region	Stability (min.)		Sub region	Degree Softening	
III	55,8	a	II South	5,1	a	I	20,5	a	III	29	a
I	56,0	ab	IV	5,8	ab	III	20,3	a	I	29	a
II South	57,7	bc	V North	6,6	ab	V North	17,7	ab	V North	32	a
V North	58,0	c	V South	7,2	ab	V South	17,0	ab	V South	39	ab
II North	58,1	c	II North	7,3	ab	II North	14,6	ab	II North	41	ab
V South	58,6	cd	North Country	7,6	ab	II South	12,7	ab	II South	46	ab
IV	58,8	cd	III	8,4	ab	North Country	11,9	b	IV	50	ab
North Country	59,9	d	I	9,1	b	IV	11,8	b	North Country	60	b

Sub region	P		Sub region	L		Sub region	W		Sub region	P/L	
IV	109	a	V North	121	a	V North	318	a	V North	0,73	a
V South	103	ab	I	109	ab	V South	309	ab	I	0,77	a
II South	97	abc	III	98	abc	I	299	ab	III	0,93	a
North Country	96	abc	II North	93	bc	III	286	ab	II North	1,04	ab
II North	91	bc	V South	84	cd	II North	285	ab	North Country	1,23	ab
III	88	bc	North Country	79	cde	North Country	276	bc	V South	1,32	ab
V North	84	c	II South	64	de	II South	236	c	II South	1,60	bc
I	82	c	IV	57	e	IV	235	c	IV	2,06	c

Sub region	Flour Ash	
III	0,618	a
II South	0,618	a
IV	0,632	a
II North	0,644	a
V South	0,674	ab
I	0,686	ab
V North	0,763	ab
North Country	0,813	b

Analysis of Variables by Ranges

The charts show the summary of an analysis carried out to four variables: protein in grain, wet gluten, strength measured by Alvegraph and Farinograph stability.

Each variable was divided in ranges (first column), they were calculated the averages of each range corresponding to each one of the remaining variables (central column), the percentages are also shown from each range to national level.

PROTEIN RANGE	Average Gluten W Stability	% Country
9 - 9,9	21,5 216 9,1	6,81
10 - 10,9	**24,5 257 15,1**	**32,46**
11,0 - 11,9	26,7 283 16,8	31,94
12 - 12,9	30,5 305 16,0	19,90
13- 13,9	34,4 341 16,9	8,90

PROTEIN RANGE	Average Gluten W Stability	% Country
18 - 20,9	10,1 202 8,6	2,99
21 - 24,9	10,4 252 13,9	26,37
25 - 27,9	**11,2 278 16,4**	**31,34**
28 - 31,9	12,1 305 16,8	22,39
32 - 34,9	13,2 321 16,5	11,44
> 35	13,7 340 16,1	5,47

Alveograph W Range	Average Gluten Protein Stability	% Country
190 - 249	23,7 10,5 10,7	25,65
250 - 299	**27,0 11,3 16,5**	**41,88**
300 - 349	29,3 12,0 17,8	25,65
350 - 400	31,3 12,8 20,1	6,81

Farinograph Stability Range	Average Gluten Protein Stability	% Country
1 - 9,9	24,7 10,8 246	17,80
10 - 14,9	**25,8 11,1 267**	**32,98**
15 - 19,9	30,9 12,6 307	26,70
20 - 29,9	28,3 11,6 300	18,85
30 - 30,9	25,7 11,3 329	3,66

Sub region Composite Samples Wheat

Composite Sample of each Sub region

Results of the Analyses

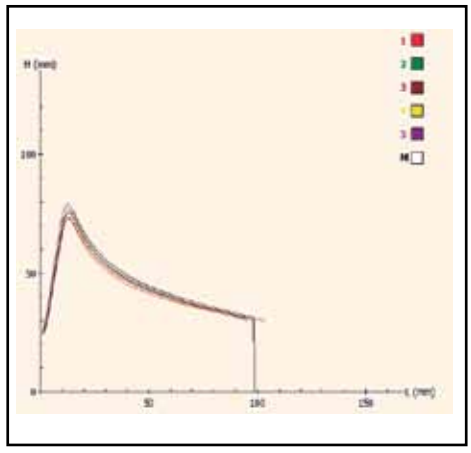
Along with the analisis of samples corresponding to different localities, a further evaluation was performed in order to analyze Composite Samples of each Sub region directly, which were made proportionally from the composite samples corresponding to each locality, such as it is detailed in Organization and Methodology.

		Sub regions									**Pondered Average	Average last Quinquenio	Average Decade
		I	II N	II S	III	IV	V N	V S	Northeast	Northwest			
WHEAT	Test Weight (kg/hl)	77,20	78,60	82,60	79,40	82,15	76,35	81,25	77,60	80,35	80,37	79,78	80,14
	Weight of 1000 Kernels (gr.)	29,74	30,90	36,37	32,30	39,30	27,30	31,40	29,69	35,11	32,93	33,29	33,74
	Ash (dry basis) (%)	1,970	1,825	1,674	1,720	1,682	2,080	1,821	1,833	1,926	1,791	1,771	1,777
	Protein (13.5% Moisture) (%)	12,4	12,3	10,8	11,1	10,4	13,2	11,5	12,9	11,9	11,5	11,5	11,6
MILLING	Flour Yield (%)	71,39	73,53	71,32	70,45	71,20	69,50	70,53	69,95	71,88	71,25	69,2	69,8
	Ash (dry basis) (%)	0,612	0,603	0,617	0,568	0,627	0,718	0,647	0,726	0,671	0,626	0,609	0,595
	Color												
	L	87,78	88,37	87,59	89,06	88,44	87,41	88,69	87,63	87,25	88,35	84,84	85,36
	a	-1,46	-1,52	-1,55	-1,67	-1,69	-1,43	-1,64	-1,27	-1,54	-1,59	-1,34	-1,31
	b	8,01	8,56	9,26	8,59	9,39	8,26	9,08	7,84	8,90	8,88	8,53	8,55
FLOUR	Moisture (%)	12,36	13,61	13,63	13,15	13,82	12,46	12,64	12,53	12,96	13,15	13,49	13,46
	Proteins (%)	11,7	11,0	10,2	10,0	9,6	12,5	10,7	12,6	11,1	10,6	10,6	10,5
	Wet Gluten (%)	30,2	27,9	26,4	25,4	23,2	32,5	26,2	31,2	28,3	26,6	26,5	26,5
	Dry Gluten (%)	10,5	9,9	9,3	9,2	8,5	11,4	9,6	11,0	9,9	9,6	9,0	9,2
	Index Gluten (%)	92	97	99	98	99	94	99	92	95	98	97	97
	Falling Number (sec.)	398	392	412	385	446	362	428	436	375	412	447	411
	Zeleny Test (cc)	38	45	37	38	38	53	40	42	38	41	38	38
	FARINOGRAM												
	Water Absorption (%)	57,6	56,8	56,6	55,9	59,1	57,4	59,3	59,2	60,1	57,9	58,3	58,7
	Development Time (min.)	7,1	6,8	6,5	6,8	7,8	7,5	8,3	8,0	5,3	7,4	9,2	8,8
	Stability (min.)	15,7	15,2	12,2	14,7	11,9	17,4	16,5	12,2	8,4	14,7	19,2	17,9
	Degree of Softening	27	27	37	46	42	24	29	46	61	33	34	34
	Quality Number	198	208	148	155	126	226	156	146	105	166	181	167
	MIXOGRAM												
	Development Time (min.)	5,23	5,35	5,05	5,72	4,58	4,47	4,98	5,43	4,60	5,08	5,84	5,41
	ALVEOGRAM												
	P (mm)	83	90	87	83	103	86	92	94	102	91	92	96
	L (mm)	98	94	82	89	65	108	79	94	79	84	71	78
	G	22	22	20	21	18	23	20	22	20	20	37	29
	W (Joules x 10^{-4})	289	305	266	256	249	324	270	321	289	276	278	288
	P/L	0,85	0,96	1,06	0,93	1,58	0,80	1,16	1,00	1,29	1,11	1,14	1,19
	Ie %	62,6	62,4	62,7	58,3	56,2	63,4	60,2	64,0	59,3	60,5	58,3	59,0
	W (40) (Joules x 10-4)	147	159	153	143	175	153	161	168	177	158	159	159,4
	CONSISTOGRAM												
	WA 1700 (%) (Base 15%)	56,7	56,7	59,5	56,3	56,4	57,3	56,5	57,8	56,7	57,0	56,5	56,5
	HYD2200 (%) (Base 15%)	54,2	54,2	57,0	53,8	53,9	54,8	54,0	55,3	54,2	54,5	55,1	55,1
	PrMax (mb)	2.224	2.244	2.432	2.291	2.330	2.105	2.307	2.388	2.271	2.301	2.248	2.248
	PrMax Time (Sec)	131	146	108	125	89	124	156	100	110	131	148	148
	Tolerance (Sec)	264	255	231	260	221	254	279	214	203	255	258	258
	Weakening 250 (mb)	195	198	390	261	447	238	171	457	464	265	226	226
	Weakening 450 (mb)	800	844	1030	826	979	751	671	1087	1000	831	823	823
	RVA												
	Maxim Viscosity (RVU)	184,33	162,58	206,33	182,25	201,75	160,08	195,08	182,67	138,75	187,89	191,08	191,08
	Minimum Viscosity (RVU)	99,00	80,25	124,75	97,25	109,08	75,50	129,50	107,83	72,25	108,74	121,36	121,36
	Final Viscosity (RVU)	200,67	171,00	237,25	193,00	199,25	167,75	230,25	211,42	157,25	207,01	265,82	265,82
	BAKING												
	Absorption (%)	62,0	62,0	62,0	62,0	61,0	62,5	62,0	62,5	62,5	61,9	61,8	62,1
	Development Time (min.)	3:30	3:30	3:30	3:30	3:00	4:00	3:30	4:00	4:00	3:30	3:35	3:30
	Fermentation Time (min.)	160	160	160	160	160	160	160	160	160	160	160	160
	Loaf Volume (cc)	620	630	595	630	530	650	550	650	635	587	626	650
	Specific Volume	4,4	4,6	4,4	4,7	3,6	4,8	4,0	4,8	4.6	4,3	4,6	4,8

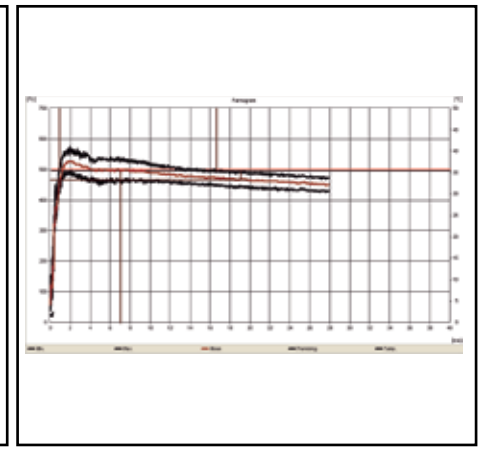
(*) Weighting bassis: Tonnage of the production sampled by Sub region, according to chart data on page 7.

Results of the Analyses
Subregion I

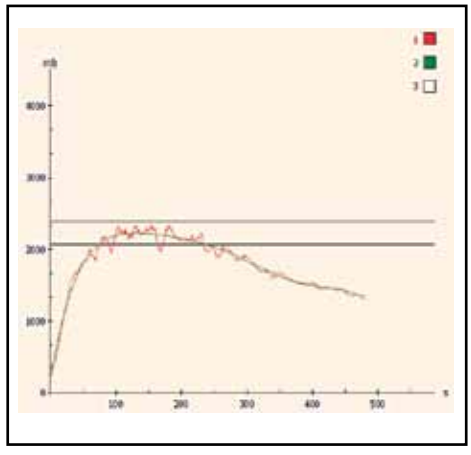
Alveogram



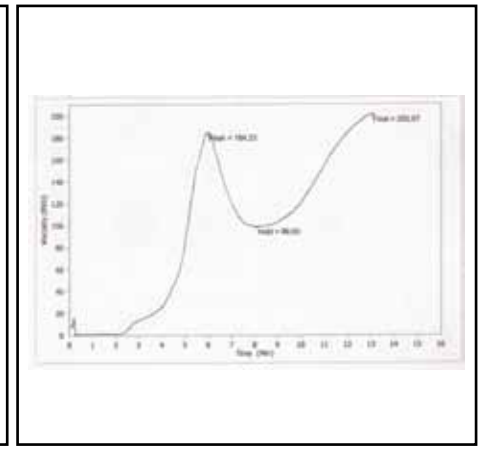
Farinogram



Consistogram



RVA



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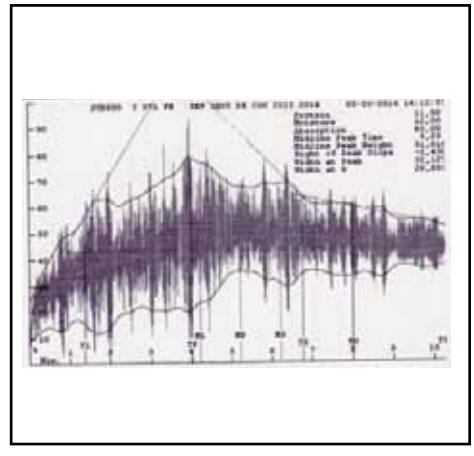
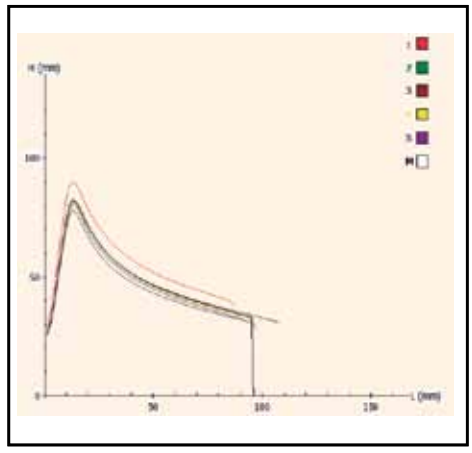
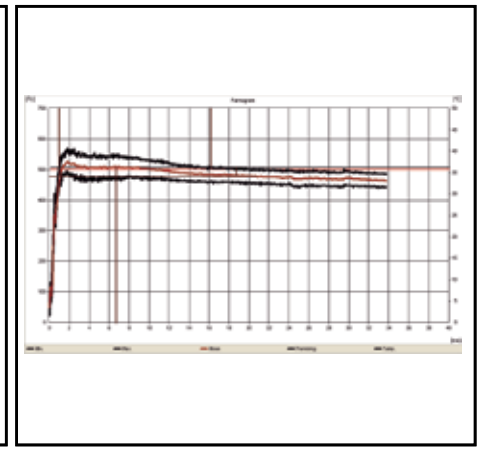


Results of the Analyses
Subregion II North

Alveogram



Farinogram



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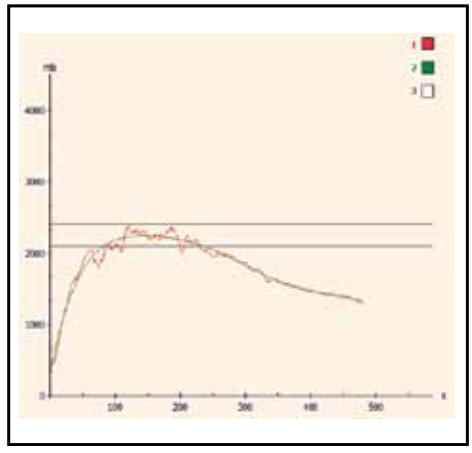

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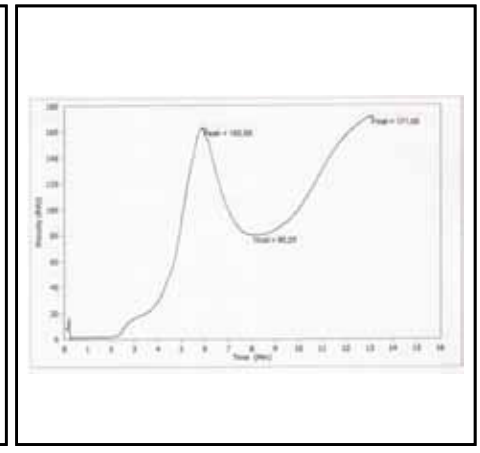

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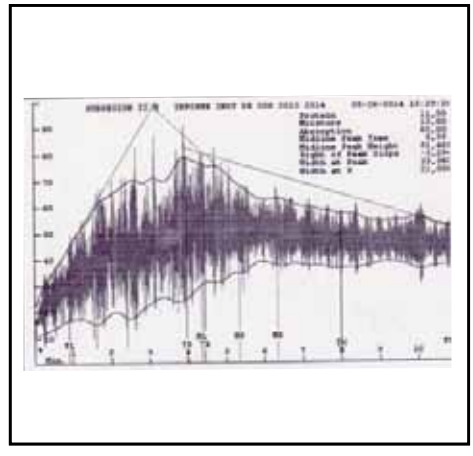
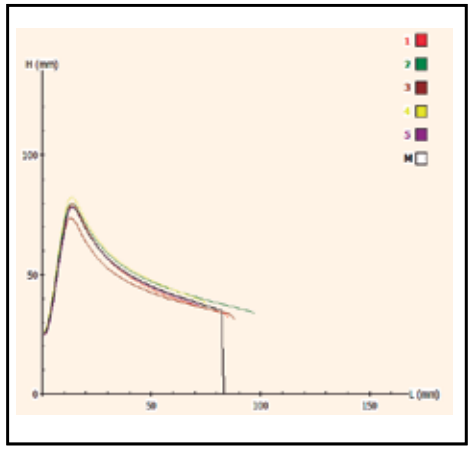


Results of the Analyses
Subregion II South

Alveogram



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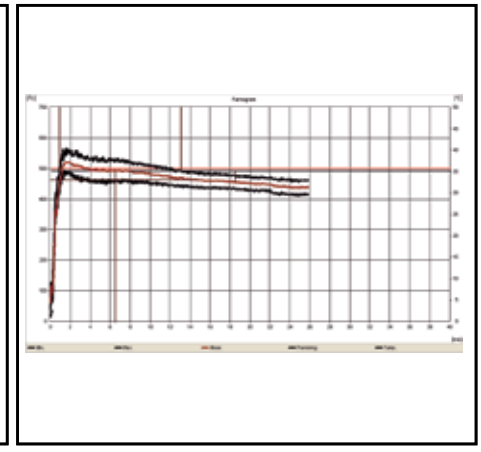

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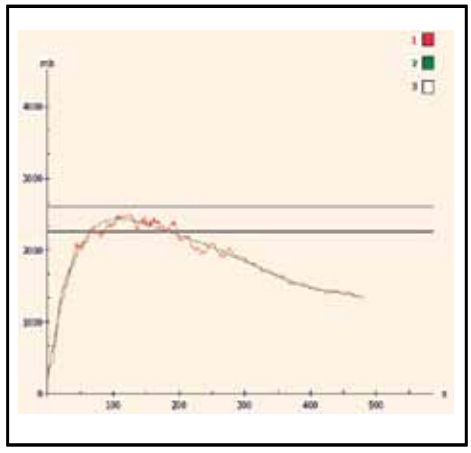

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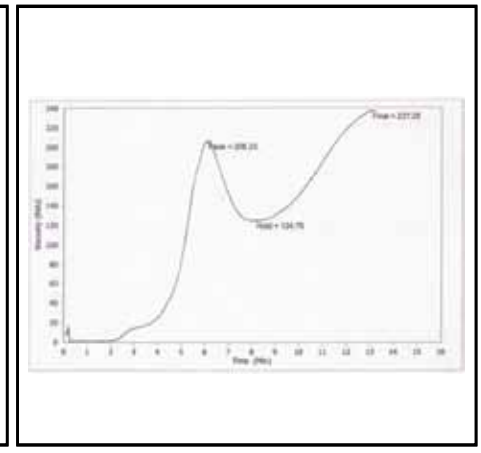

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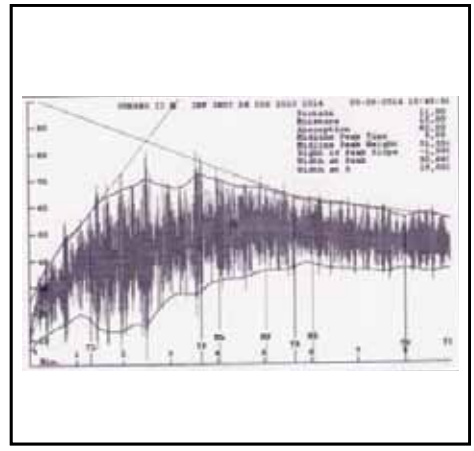
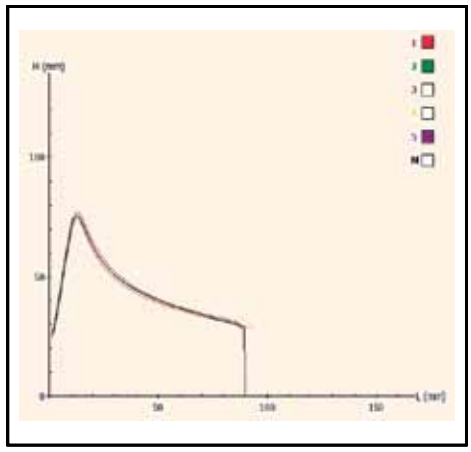


Results of the Analyses
Subregion III

Alveogram



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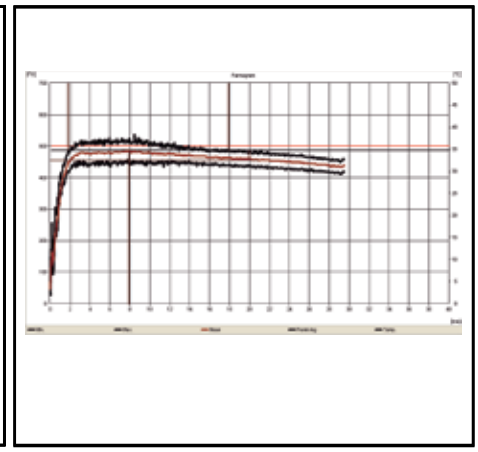

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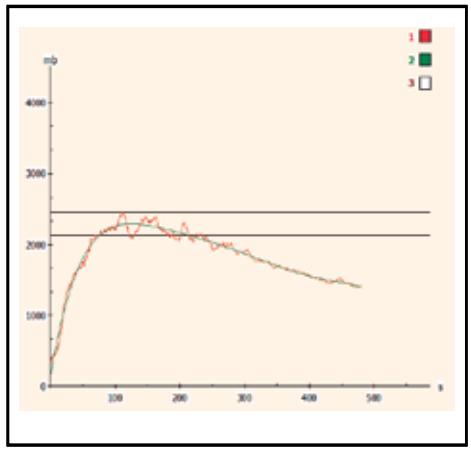

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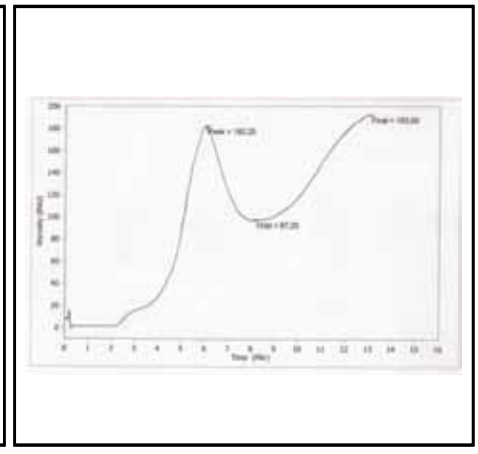

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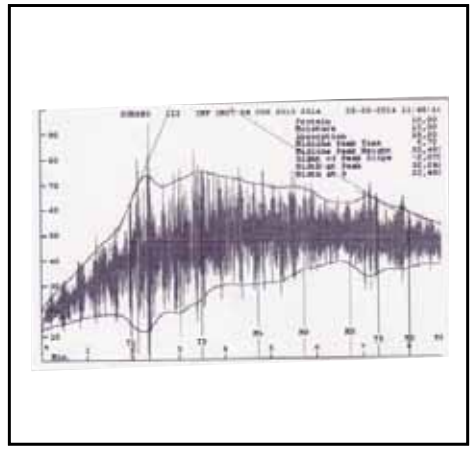
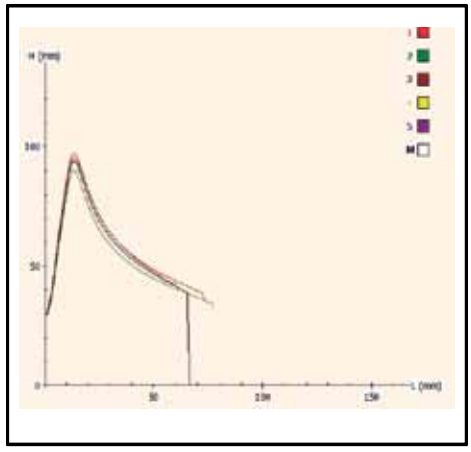
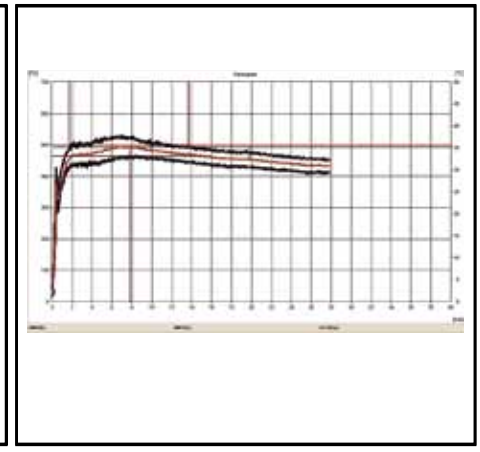


Results of the Analyses
Subregion IV

Alveogram



Farinogram



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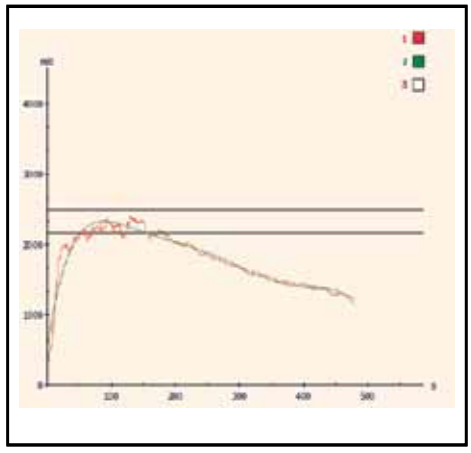

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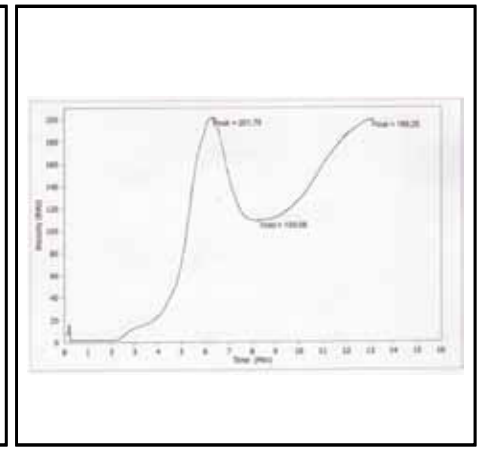

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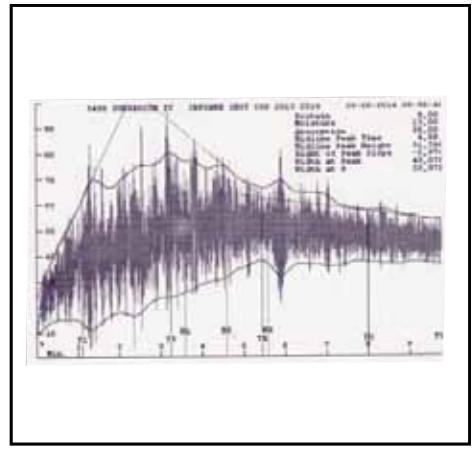
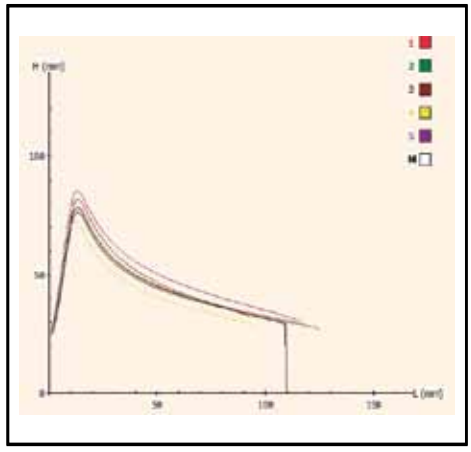


Results of the Analyses
Subregion V North

Alveogram



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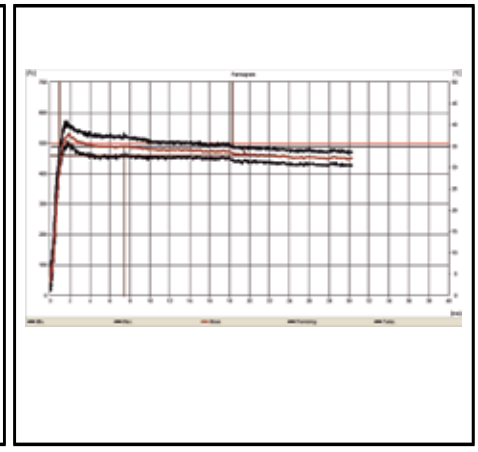

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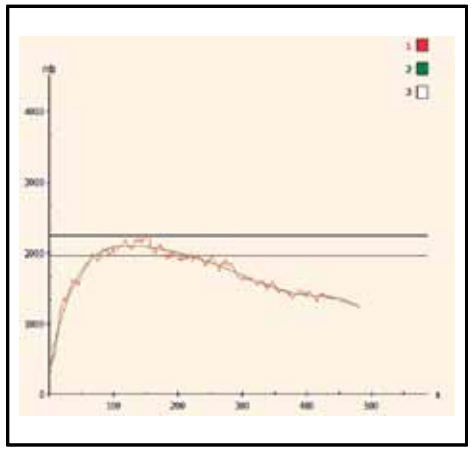

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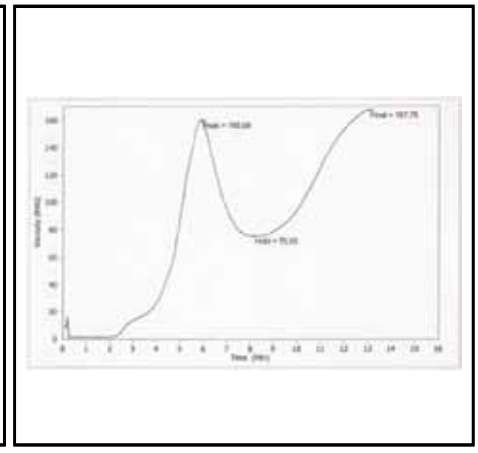

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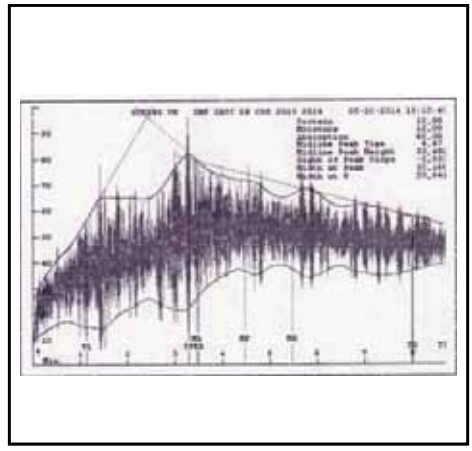
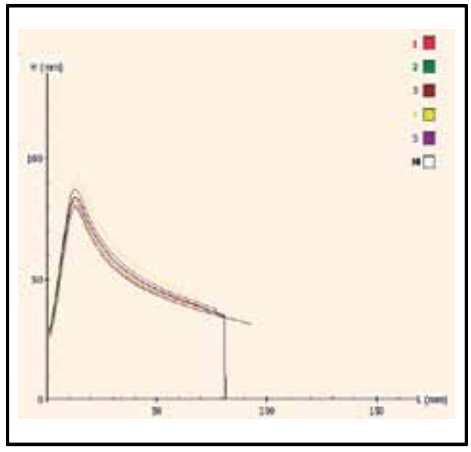


Results of the Analyses
Subregion V South

Alveogram



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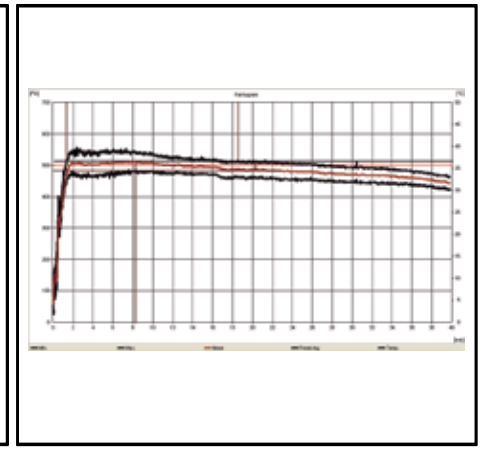

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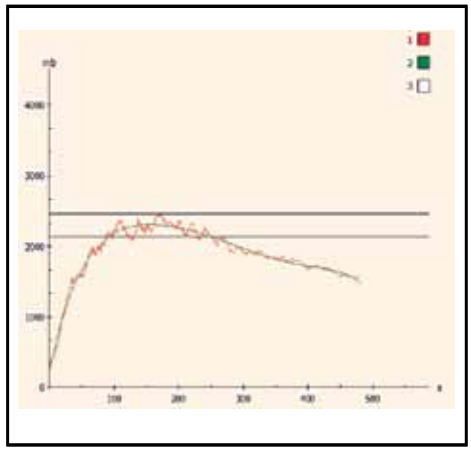
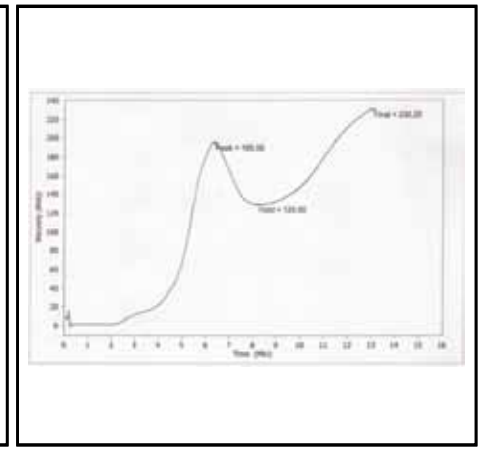


RVA



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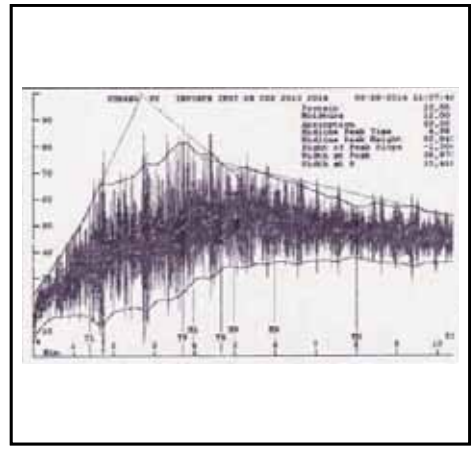
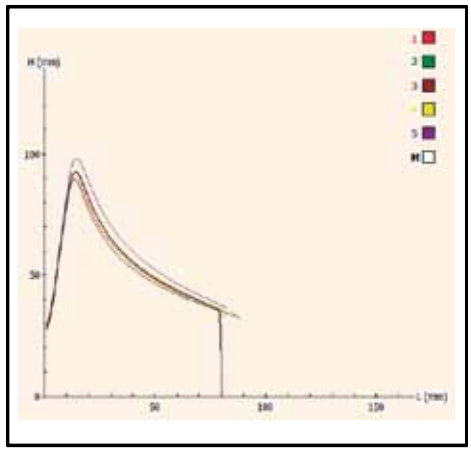


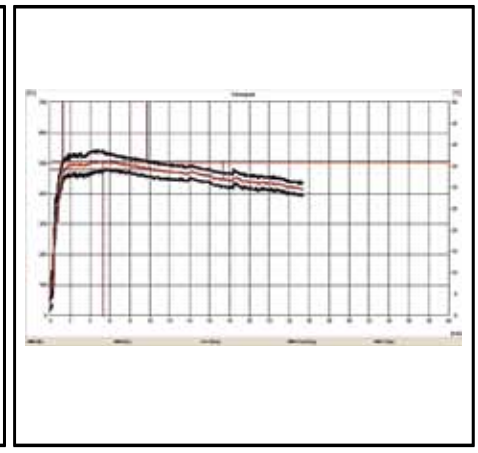
Results of the Analyses

Northwest

Alveogram



Farinogram



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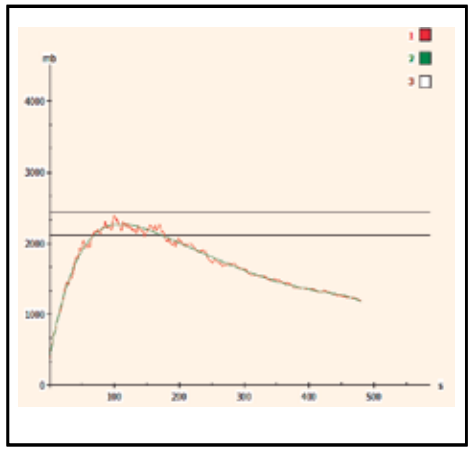

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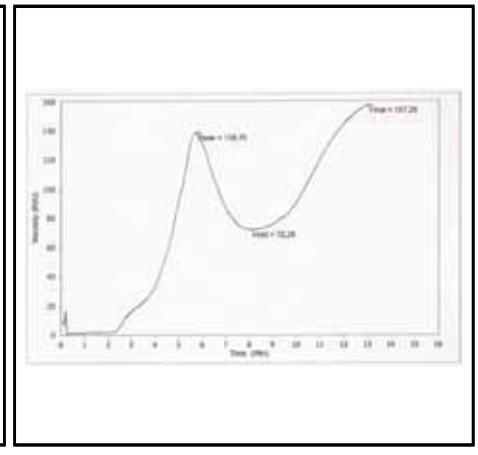
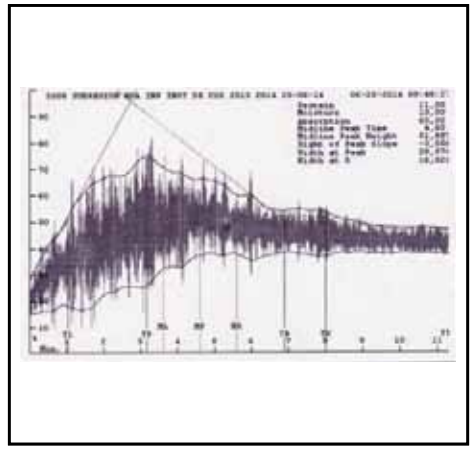


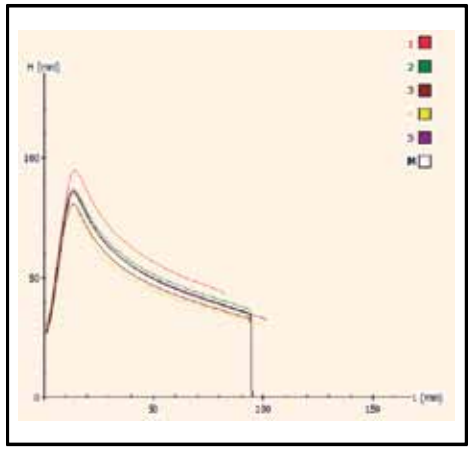
Mixogram



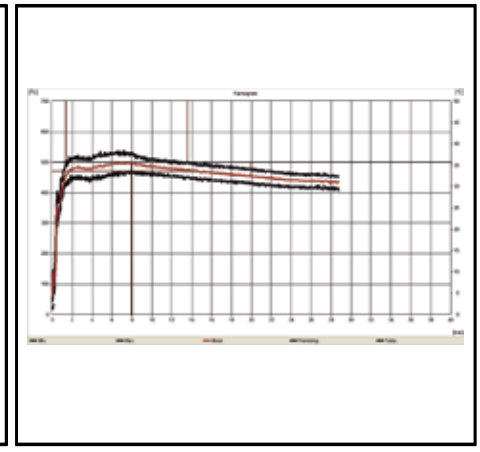
Results of the Analyses

Northeast

Alveogram



Farinogram



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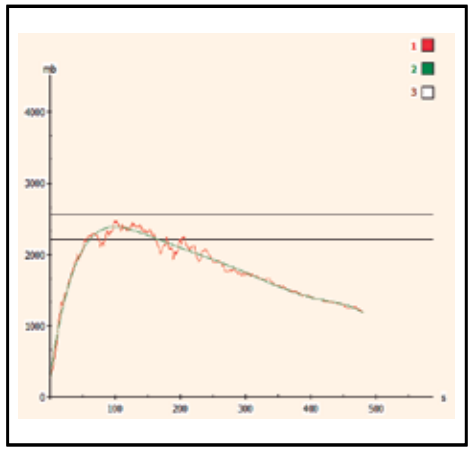
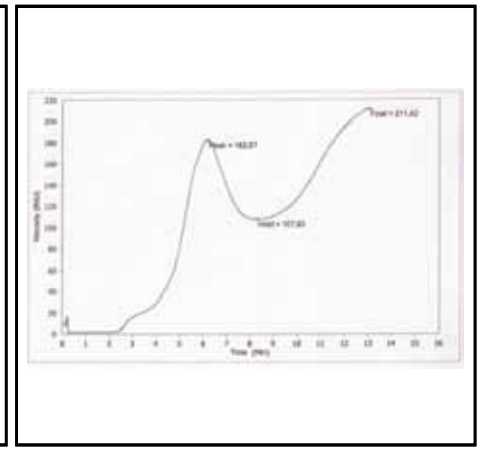
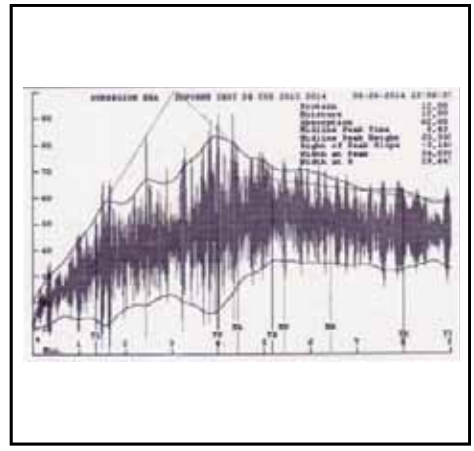
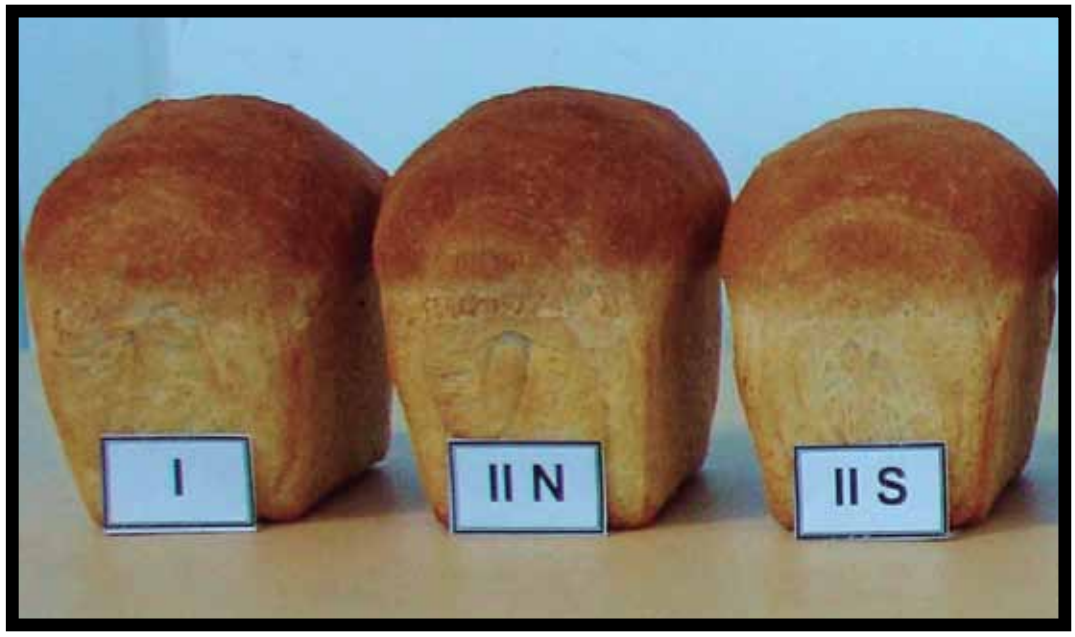


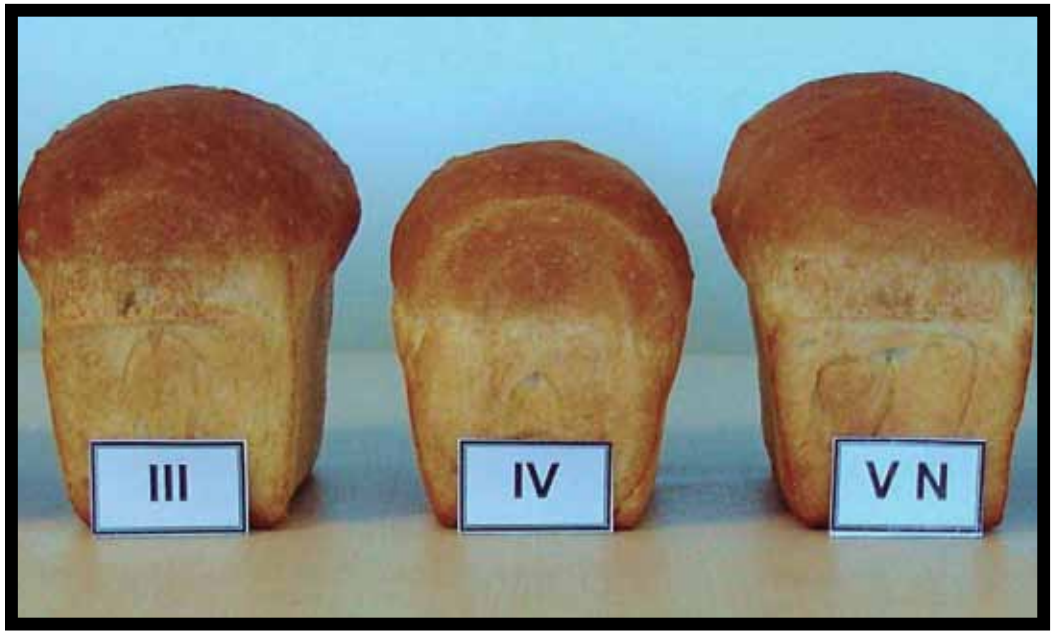
RVA

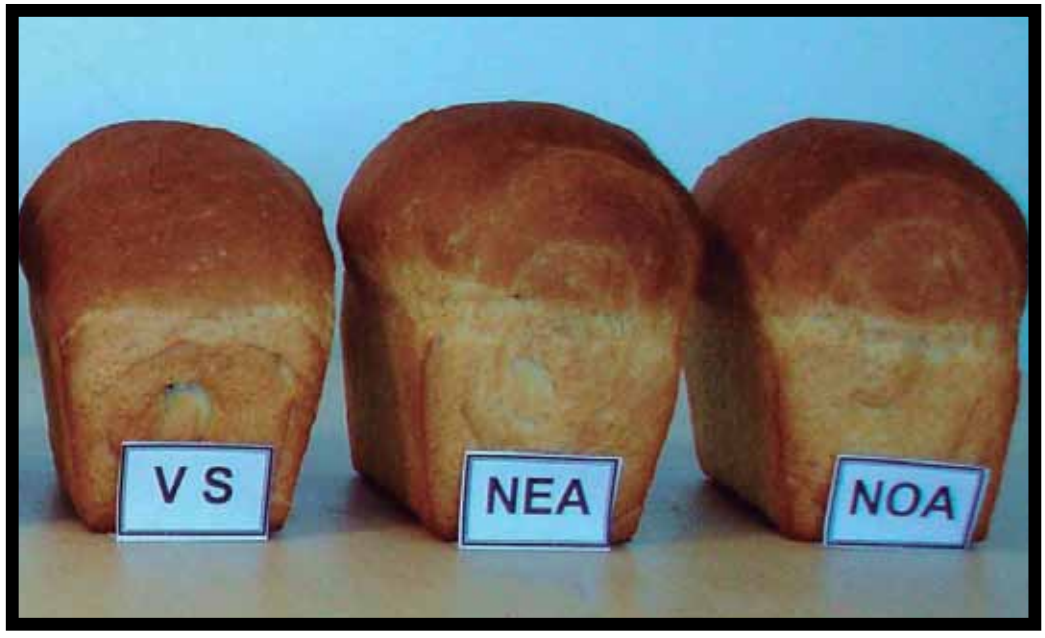


Mixogram




I
II N
II S


III
IV
V N


V S
NEA
NOA

DURUM WHEAT

Triticum turgidum vd. Durum L.

Organization and Methodology

Although durum wheat production is minor compared with wheat (Triticum aestivum), and its area is very localized (the traditional region extending from the SE to the SW of the province of Buenos Aires), representing an attractive option for producers.

2013/2014 Crop

Sown Area (ha)	41,850
Harvested Area (ha)	40,950
Average Yield (Kg/ha)	3,094
Production (tn)	126,710

Source: MAGyP

Sampling Structure

Because of the specific conditions under which most durum wheat is produced, where farmers and industries agree on a contract, the samples were requested from the industries receivals, obtaining 33 composite samples.

They were organized according to theirs origin region, mainly in the Sub regions V, V South y NOA.

Procedure

Composite samples were sent to Bahía Blanca and Buenos Aires Arbitration Chamber Laboratories, where the commercial analysis (grade), ash and weight per 1000 kernels were performed.

Afterward, composite samples were referred to Grain Quality Laboratory of Chacra Experimental Integrada Barrow to carry out grinding in a Buhler 202 D mill. In the semolina obtained, Falling Number, Gluten, Color and Farinogram were analyzed.

Methodology

The evaluation of the industrial quality of durum wheat is based on grain characteristics, milling,behavior in milling, gluten quality, semolina color and rheological properties of dough.

Some traits like protein content and vitreous kernels percentage are affected by agricultural and weather conditions. Percentage of hard vitreous kernels is an important grading factor in durum wheat. Industry prefers vitreous kernels because of theirs high correlation with protein content, semolina yield and cooking quality.

On the other hand, gluten quality (measured as Gluten Index), semolina color and rheological characteristics, are strongly influenced by genotype.

The reasons why durum wheat produces good quality pasta are the following:
- Its yellow pigment content doubles the wheat (Triticum aestivum).
- Durum gluten is stronger and more cohesive than wheat (Triticum aestivum).
- Due to its kernel hardness,semolina yield is superior to other wheats. Durum semolina has many advantages with regard to wheat flour in the manufacturing of pasta: it requires less water to form a dough; consequently, drying cycle is cheaper.
- The main difference between durum and wheat (Triticum aestivum) is that pasta elaborated with durum semolina has more stability when cooked, doesn't disintegrate when boiling and stands overcooking.

Methodology for durum wheat includes some of the tests regularly used for wheat (Resolution SAGPyA 557/97) plus the following specific ones:

GRAIN

Vitreous Kernels Percentage (Resolution N° 1075/94 – Standard XXI - Ex. SAGyP)
Percent in weight of vitreous kernels present in the sample, being vitreous the ones that are completely translucid, without points, opaque stains or bleached grains.

MILLING (Experimental Milling Buhler 202-D)

Grain is dampered to 15.8 % humidity and tempered during 20 hours. Semolina yield (Particle size between 125- 355 microns) is reported.

SEMOLINA

Color (Minolta Chromameter CR-310, Manufacturer's Method)
Spaghetti color is due to a balance between pigment content (carotenes and xanthophylls) and lipoxigenasic activity which destroys color.
Lightness (L), redness (a) and yellowness (b) of Hunter data are determined using the tristimulus method, with Minolta CR-310 reflectance colorimeter.

Gluten Index (Glutomatic Perten 2200). Manufacturer's Registry.
Once the wet gluten test is done, the centrifuge forces the gluten to pass through a sieve that has been specially designed. The amount of gluten that goes through the sieve is a measure of gluten characteristics. This method is done as follows: both fractions, the one that passes through the sieve, and the one which is retained in it, are gathered and weighed, obtaining, thus, a percentage.

FARINOGRAM (Brabender's Farinograph)

The method in use is described by Irvine, Bradley and Martin's technique (Cereal Chemistry, Vol 38, Nº 2, 1961), using fixed water absortion (45 %), fixed time of kneeding (8 min) and small stainless steel bowl (50 g). The following data are reported:

Dough development time (min)
Energy Level= Max Height (UF) / 20+ Area (cm2)
Tolerance Index (%)= Max Height - Final Height / Max Height.

Argentine Standard for Durum Wheat

(Resolution Nº1075/94 - Standard XXI. Ex Secretariat of Agriculture, Livestock and Fishery)

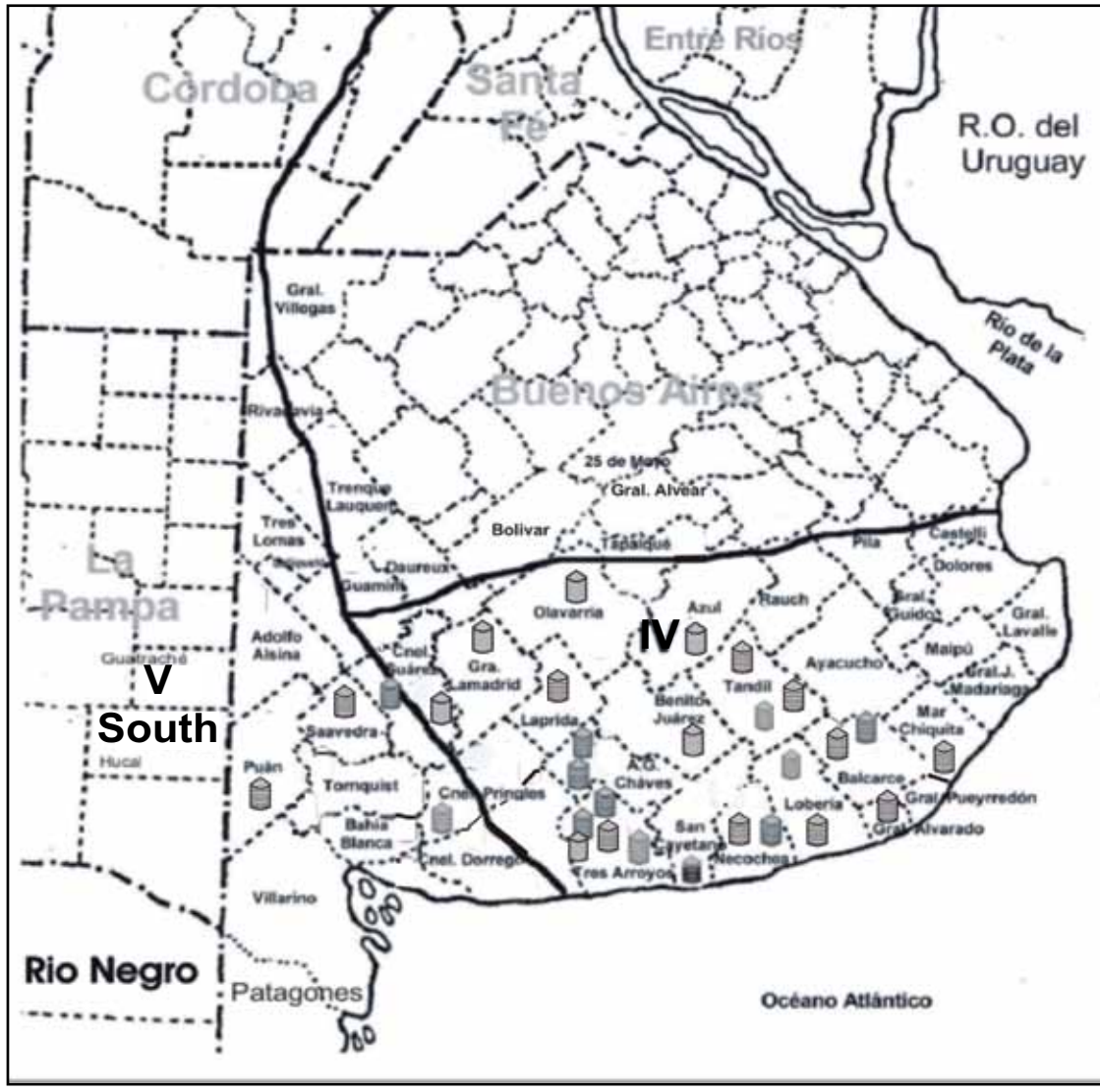
GRADE	Test Weight Min. (Kg/hl)	PERCENT MAXIMUM LIMITS OF				Insect Bored Kernels Max. (%)	Sweet Clover Seeds Melilotus spp Seeds/ 100 g. Max.	MOISTURE Max. (%)	Wheat (Triticum aestivum) Max. (%)	Vitreous Kernels Min (%)	VITREOUS KERNELS
		Foreign Material (%)	Damaged Kernels		Shrunken and Broken Kernels (1) (%)						
			Heat Damaged Kernels (%)	Total (%)							
1	78	0.75	0.50	1.00	1.50	0.10	0.50	8	14.0	3.00	40	Bonifications Discounts 51 a 55% 0,5 % 46 a 49% 1,0% 56 a 60% 1,0% 41 a 45% 3,0% 61 a 65% 1,5% 36 a 40% 5,0% 66 a 70% 2,0% 31 a 35% 7,0% 71 a 75% 3,0% 26 a 30% 9,0% 76 a 80% 4,0% 21 a 25% 11,0% 81 a 85% 5,0% 16 a 20% 13,0% 86 a 90% 6,0% 11 a 15% 15,0% 91 a 95% 7,0% 6 a 10% 17,0% 96 a 100% 8,0% 0 a 5% 19,0% PROTEIN More than 11% (moisture basis 13.5 %) there will be bonifications of 2 % for each % or fraction Less than 10% (moisture basis 13.5 %) there will be discounts of 2 % for each % or fraction
2	76	1.50	1.00	2.00	3.00	0.20						
3	72	3.00	1.50	3.00	5.00	0,30						

LIVING INSECTS AND ARACHNIDS: FREE

(1) All Durum Wheat kernels or pieces of them that pass through a sieve with 1,6 mm wide and 9,5 mm long holes, excluding damaged kernels.

Durum Wheat


BOLIVIA
Océano Pacífico
Jujuy
PARAGUAY
Salta
Formosa
CHILE
Catamarca
Tucumán
Chaco
Santiago del Estero

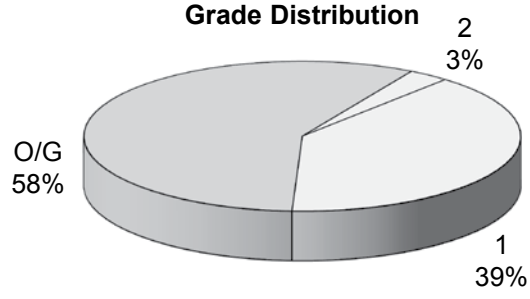

Córdoba
Santa Fé
Entre Ríos
R.O. del Uruguay
Gral. Villegas
Río de la Plata
Buenos Aires
25 de Mayo
Y Gral. Alvear
Trenque Lauquen
Tres Lomas
Bolivar
Tapalqué
Pila
Castelli
Dolores
La Pampa
Daireaux
Guaminí
Olavarría
Azul
Rauch
Gral. Guido
Gral. Lavalle
IV
Adolfo Alsina
Cnel. Suárez
Gra. Lamadrid
Maipú
Ayacucho
Gral. J. Madariaga
Guatraché
V
South
Tandil
Benito Juárez
Mar Chiquita
Saavedra
Laprida
A.G. Chaves
Balcarce
Hucal
Puán
Tornquist
Cnel. Pringles
Loberia
Gral. Pueyrredón
Bahía Blanca
San Cayetano
Necochea
Gral. Alvarado
Cnel. Dorrego
Tres Arroyos
Villarino
Rio Negro
Patagones
Océano Atlántico

Durum Wheat Averages

Results of the Analysis

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	77.25	85.75	81.35	1.88	0.02
Total Damaged Kernels (%)	0.00	1.18	0.25	0.29	1.15
Foreign Material (%)	0.16	1.04	0.41	0.19	0.47
Shrunken and Broken Kernels (%)	0.1	2.04	0.59	0.38	0.65
Vitreous Kernels (%)	21	96	55	19	0.34
Wheat (Triticum aestivum) (%)	0.96	6.04	2.90	1.41	0.49
Proteins (13,5% Moisture) (%)	10.1	12.3	11.3	0.5	0.04
Weight of 1000 Kernels (gr.)	36.00	50.10	43.19	2.94	0.07
Ash (% dry basis)	1.616	2.037	1.836	0.099	0.05

Total damaged kernels includes 0.01% green kernels, 0.02% sprouted kernels, 0.17% germ-chewed kernels, 0.03% calcinated kernels and 0.01% insect chewed kernels.



O/G: Out of Grade

Semolin Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Falling Number (sec.)	425	648	511	43	0
	Color (b)	19.9	26.1	22.3	1.3	0.06
	Wet Gluten (%)	24.8	30.3	27.6	1.5	0.05
	Gluten Index (%)	30	89	62	14	0.23
FARINOGRAM	Energy Level	26.1	36.0	29.4	2.4	0.08
	Degree Softening (%)	21	33	29	3	0.10

These results were elaborated with 33 composite samples.

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		WHEAT ANALYSIS									
Sample Number	Locality, district or department	Grade	Test Weight (Kg/hl)	Total Damaged Kernels (%)	Foreign Materials Kernels (%)	Shrunken and Broken Kernels (%)	Vitreous Kernels (%)	Wheat (Triticum aestivum) (%)	Protein (13.5 % Moisture) (%)	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
1	Huanguelen	O/G 2	77.25	0.00	1.04	1.02	21	0.96	10.1	40.90	1.616
2	Laprida	O/G 1	78.15	0.06	0.50	0.24	29	1.26	11.2	42.60	1.684
3	Azul	O/G 1	81.70	0.18	0.58	0.64	68	4.64	10.4	42.50	1.868
4	Olavarría	1	81.50	0.14	0.42	0.50	60	2.48	11.0	42.20	1.843
5	General Lamadrid	O/G 1	79.25	0.06	0.26	0.60	25	1.04	11.5	40.90	1.634
6	Gonzáles Cháves	O/G 1	82.60	0.08	0.24	0.92	76	3.10	11.8	40.20	1.747
7	Balcarce	O/G 1	84.85	0.00	0.16	0.58	83	5.68	11.8	45.80	1.864
8	Cobo	1	84.40	0.00	0.30	0.10	96	2.48	11.9	50.10	1.717
9	Coronel Pringles	O/G 2	77.25	1.18	0.60	1.10	27	1.60	11.4	36.60	2.002
10	La Dulce - Necochea	1	81.25	0.00	0.32	0.32	57	1.96	11.5	44.60	1.722
11	Lobería	O/G 1	82.60	0.32	0.34	0.70	37	2.68	11.0	45.40	1.757
12	Napaleufú	1	85.75	0.56	0.20	0.32	56	2.54	10.5	49.40	1.830
13	Quequén	1	82.15	0.46	0.26	0.68	58	1.36	10.6	44.10	1.753
14	San Cayetano	O/G 1	82.15	0.00	0.40	0.30	62	3.84	11.1	45.50	1.744
15	Tandil	O/G 1	82.15	0.30	0.70	0.48	96	4.54	12.3	43.30	1.906
16	Tres Arroyos	1	81.05	0.46	0.24	0.50	50	1.82	11.3	42.00	1.789
17	Tucumán	O/G 1	81.70	0.32	0.66	0.72	42	6.04	11.8	44.20	1.899
18	Tucumán	O/G 1	81.70	0.24	0.28	0.40	43	5.66	11.9	43.80	1.893
19	Balcarce	O/G 1	81.25	0.14	0.46	0.36	55	4.96	11.1	45.00	1.890
20	Benito Juárez	2	79.00	0.10	0.46	2.04	60	2.96	11.8	40.40	1.901
21	Coronel Pringles	O/G 1	81.25	0.56	0.30	0.64	51	3.20	11.1	45.70	1.915
22	Coronel Suárez	O/G 1	80.60	0.16	0.28	0.50	36	2.80	10.9	42.50	1.920
23	Gonzáles Cháves	O/G 1	80.60	0.84	0.62	0.50	46	3.60	11.3	43.00	1.842
24	General Alvarado	1	83.50	0.16	0.52	0.48	56	2.40	11.2	47.40	1.830
25	Lobería	O/G 1	81.50	0.56	0.70	0.28	39	2.62	10.4	45.00	1.807
26	Necochea	1	81.25	0.08	0.22	0.60	46	1.10	11.0	43.80	1.807
27	Puán	1	80.15	0.18	0.36	0.12	88	1.36	11.1	40.60	2.037
28	Saavedra	1	79.90	0.00	0.52	0.12	72	1.84	11.7	36.00	1.949
29	Tandil	1	81.50	0.76	0.26	0.96	53	1.86	11.6	41.90	1.892
30	Tres Arroyos	O/G 1	81.25	0.00	0.50	1.12	63	3.84	11.7	42.10	1.916
31	Tres Arroyos	1	83.05	0.06	0.20	0.30	56	2.36	11.3	43.50	1.888
32	Tres Arroyos	1	81.70	0.00	0.26	0.84	52	3.00	11.7	42.70	1.804
33	Tres Arroyos	O/G 1	80.60	0.20	0.32	0.36	58	4.08	11.5	41.70	1.935

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION		SEMOLIN ANALYSIS					
Sample Number	Locality, district or department	Falling Number (sec.)	Color (b)	Wet Gluten (%)	Gluten Index (%)	Farinogram Energy Level	Farinogram Degree of Softening (12 min.)
1	Huanguelen	---	---	---	---	---	---
2	Laprida	---	---	---	---	---	---
3	Azul	520	21.8	25.8	41	29.1	30
4	Olavarría	479	22.0	27.9	48	28.1	27
5	General Lamadrid	522	23.5	28.7	75	29.3	25
6	Gonzáles Cháves	549	21.0	29.6	34	28.2	27
7	Balcarce	498	20.8	29.2	70	36.0	30
8	Cobo	483	19.9	28.0	87	35.3	28
9	Coronel Pringles	497	24.7	25.8	89	30.1	29
10	La Dulce - Necochea	516	22.0	28.2	54	28.7	27
11	Lobería	475	22.6	28.1	75	30.5	33
12	Napaleufú	447	21.0	25.6	30	26.1	26
13	Quequén	473	22.1	24.8	66	27.5	21
14	San Cayetano	475	22.7	27.6	61	28.3	32
15	Tandil	522	21.8	27.8	74	30.9	29
16	Tres Arroyos	648	22.3	26.7	66	29.1	30
17	Tucumán	492	20.5	29.5	56	29.8	32
18	Tucumán	469	19.9	29.3	46	28.6	30
19	Balcarce	528	22.0	27.2	55	29.9	29
20	Benito Juárez	564	22.7	27.6	61	31.6	28
21	Coronel Pringles	514	21.5	26.4	58	28.6	27
22	Coronel Suárez	473	22.5	25.1	67	26.7	26
23	Gonzáles Cháves	505	23.3	27.8	58	29.6	32
24	General Alvarado	504	20.8	29.1	49	35.8	27
25	Lobería	425	22.1	26.6	68	27.8	29
26	Necochea	520	22.7	26.6	77	28.7	31
27	Puán	541	26.1	28.2	76	29.0	30
28	Saavedra	542	24.8	30.3	61	27.7	25
29	Tandil	491	23.2	29.0	53	26.1	25
30	Tres Arroyos	509	22.3	29.3	54	28.1	30
31	Tres Arroyos	578	22.9	26.9	77	28.9	33
32	Tres Arroyos	522	22.4	27.0	69	28.6	31
33	Tres Arroyos	570	22.8	25.4	73	28.4	27

Country elevators, Cooperatives and Mills that contributed in the sampling

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Adolfo Alsina	Agropecuaria Millagro S.A.
Adolfo Alsina	Ganadera Salliqueló S.A.
Adolfo Alsina	Unigran S.A.
Adolfo Alsina	Cooperativa Agrícola Ganadera Ltda. San Miguel
Adolfo Alsina	Cooperativa Agrícola Ganadera de Maza
Adolfo Alsina	Trabajadores Unidos de Rivera Cooperativa de Trabajo Ltda.
Alberti	Eduardo Beraza S.A.
Alberti	Cerealber S.R.L.
Alberti	Lelfün S.A.
Alberti	Molinos de Alberti S.A.
Ascensión	Coop. Agricola Ganadera Ltda. de Ascensión
Bajo Hondo	Harinas Bajo Hondo S.A.C.I
Benito Juárez	Campoamor Hnos. S.A.
Bolívar	Coop. Agropecuaria de Bolivar Ltda.
Bolívar	Oscar Gallo y Cia. S.R.L.
Bordeu	Acopio A.C.A.
Bragado	ACA - CDC Bragado
Bragado	Aibal Servicios Agropecuarios S.A.
Bragado	Eduardo Beraza S.A.
Bragado	La Bragadense S.A.
Cabildo	Acopio Jose Luis Allende
Cabildo	Cooperativa Agrícola Ganadera e Industrial Sombra de Toro Ltda.
Cabildo	ACA Criadero Cabildo
Cañuelas	Molino Cañuelas S.A.
Carhué	Agopecuaria Millagro S.A.
Carhué	Cooperativa Agrícola Ganadera Ltda. de Adolfo Alsina
Carmen de Areco	Coop. Agropecuaria Ltda. de Carmen de Areco
Chacabuco	Coop. Agropecuaria Granjeros Unidos de Chacabuco Ltda.
Chacabuco	Rodolfo Ferraris é hijo S.A
Chivilcoy	Alagna Cereales S.A.
Chivilcoy	Huergo Cereales S.R.L.
Chivilcoy	Rolandelli Cereales S.A.
Chivilcoy / Bragado	Compania Argentina de Granos S.A.
Colón	Granjeros y Elevadores Argentinos de Colón Ltda.
Coronel Dorrego	Alea y Cía.
Coronel Dorrego	Arribas e Hijos
Coronel Dorrego	Casa Balda S.A.
Coronel Dorrego	Castell Hnos. S.A.
Coronel Dorrego	Cerealera Tres Arroyos S.A.
Coronel Dorrego	Pérez Raúl Horacio - Agronomía
Coronel Dorrego	Sucesión Antonio Moreno S.A.C.I.F.I
Coronel Dorrego	Syngenta Agro S.A.
Coronel Dorrego	Acopio A.C.A.
Coronel Pringles	Aduriz y Asociados
Coronel Pringles	Castell Hnos. S.A.
Coronel Pringles	López y Ramos S.C.
Coronel Pringles	Los Grobo Agropecuaria S.A.
Coronel Pringles	Pucará S.A.
Coronel Pringles	Matzkin Semillas S.R.L.
Coronel Pringles	Cooperativa Agricola Ganadera de Lartigau Ltda.

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Coronel Pringles	Acopio A.C.A.
Coronel Rosales	Lartirigoyen y Cía S.R.L
Coronel Suárez	Agro Coronel Suárez S.A.C.I.F.I.
Coronel Suárez	Agro El Renacer S.A. de Kopelson
Coronel Suárez	Bertolami Cereales S.A.
Coronel Suárez	Cereales Pasman S.A.
Coronel Suárez	Ducós Juan Enrique
Coronel Suárez	Cooperativa Agropecuaria General San Martín de Coronel Suárez Ltda.
Daireaux	Camafer S.A.
Daireaux	Aripar Cereales S.A.
Daireaux	Camafer S.A.
Daireaux	Monasterio Tattersall S.A.
Darregueira	Torre Teodoro S.A.
Darregueira	Torre Hnos. S.A.
Darregueira	La Emancipación Sociedad Cooperativa Mixta de Consumo Ltda.
Darregueira	Cooperativa Agropecuaria Darregueira Ltda.
Dudignac	Coop. Agricola Ganadera Ltda. de Dudignac Ltda.
General Alvarado	Rural Ceres S.A.
General Belgrano	Transagro S.A.
General Lamadrid	Productores General Lamadrid S.A.
General Madariaga	Granel Sur S.A.
Gonzáles Cháves	Compañía Argentina de Granos S.A.
Guaminí	Ganadera Salliqueló S.A.
Guaminí	Lartirigoyen y Cía S.R.L.
Guaminí	Los Grobo Agropecuaria S.A.
Guaminí	Cooperativa Agrícola Ganadera Guaminí Ltda.
Guaminí	Cooperativa Agrícola Ganadera de Garré Ltda.
Henderson	Coop. Agrop. El Progreso Ltda.
Huanguelén	Acopio A.C.A.
Junín	Junarsa S.A.
Junín	Liga Agrícola Ganadera Ltda. de Junin
Lartigau	Cooperativa Agrícola Ganadera de Lartigau Ltda.
Las Armas	Cielos Cereales S.A.
Maipú	Coop. Agrícola Ganadera de Rauch Ltda.
Mar Chiquita	Granel Sur S.A.
Micaela Cascallares	Cooperativa Agrícola Ltda. de Micaela Cascallares
Navarro	Molino Harinero Santa Margarita S.A.
Necochea	Alea & Cia. S.A.
Necochea	Coop. Agropecuaria General Necochea Ltda.
Necochea	Dos Campos S.A.
Nueve de Julio	Aibal Servicios Agropecuarios S.A.
Nueve de Julio	ACA - CDC Naón
Olavarría	ACA Olavarría
Patagones	Fibiger S.R.L. Benito
Patagones	Novick y Cía. S.R.L.
Patagones	Cooperativa Agrícola Ganadera e Industrial de Patagones y Viedma Ltda.
Pellegrini	Ganadera Salliqueló S.A.
Pigüé	La Alianza Cooperativa Agrícola Ganadera Ltda.
Puan	Torre Hnos. S.A.
Puan	Cooperativa Agrícola Ganadera Ltda. de Puan
Rauch	Coop. Agrícola Ganadera de Rauch Ltda.

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Rivera	Ganadera Salliqueló S.A.
Rojas	Agric.Fed.Argentinos S.C.L
Saavedra	Los Grobo Agropecuaria S.A.
Saavedra	Molino Cañuelas S.A.
Saavedra	Cooperativa Agrícola Ganadera Ltda. de Espartillar
Saavedra	Cooperativa La Alianza Agrícola Ganadera Ltda.
Saladillo	Cargill S.A.
Salliqueló	Ganadera Salliqueló S.A.
Salliqueló	Morero Semillas y Cereales S.A.
Salliqueló	Vázquez Roberto J.
San Andrés de Giles	Cosechas Argentinas S.A.
Stroeder	Cooperativa Agrícola Ganadera e Industrial de Patagones y Viedma (Deleg.Stroeder)Ltda.
Suipacha / Mercedes	Coincer S.A.
Tandil	Usandizaga, Perrone y Juliarena
Tandil	Cooperativa Agropecuaria de Tandil Ltda.
Tandil	Cooperativa Agrícola Ganadera de Tandil y Vela Ltda.
Tornquist	Los Vascos Cereales S.A.
Tres Arroyos	Agarraberes Oscar Pedro
Tres Arroyos	Agro Cereales de Tres Arroyos
Tres Arroyos	Agro El Carretero S.A.
Tres Arroyos	Agro Roca S.R.L.
Tres Arroyos	Agrocereales Del Puerto S.A.
Tres Arroyos	Agrooriente S.A.
Tres Arroyos	Agronomía Raúl Horacio Pérez S.A.
Tres Arroyos	Alea y Cía.
Tres Arroyos	Bellingieri e Hijos S.A
Tres Arroyos	Bioterra S.A.
Tres Arroyos	Cerealera Tres Arroyos S.A.
Tres Arroyos	Ciancaglini Germán
Tres Arroyos	Compañía Argentina de Granos
Tres Arroyos	Goñi, Jesús Héctor Cereales y Semillas
Tres Arroyos	Luis Blanco S.A.
Tres Arroyos	Maciel César Leonardo
Tres Arroyos	Molina, Lucas
Tres Arroyos	Molinos Tres Arroyos S.A.
Tres Arroyos	Ostdijk Oscar Fabián
Tres Arroyos	Pecker, Pedro Eduardo
Tres Arroyos	Sucesión Antonio Moreno S.A.C.I.F.I
Tres Arroyos	Sucesión de Menna José Ángel
Tres Arroyos	Sur Agropecuaria S.A.
Tres Arroyos	Taraborelli Mario Jesús
Tres Arroyos	Cooperativa Agraria Tres Arroyos Ltda.
Tres Arroyos	Cooperativa Rural Alfa Ltda.
Tres Lomas	Ganadera Salliqueló S.A.
Tres Lomas	Morero Semillas y Cereales S.A.
Villarino	Criadero ACA Cabildo
Villarino	Novick y Cía. S.R.L.
Villarino	Barraca Mitre S.R.L.
Villarino	ACA Criadero Cabildo
	Centro de Acopiadores de Cereales
	Centro de Acopiadores de la Zona Oeste de la Pcia. de Bs.As.
	Centro de Acopiadores de Daireaux
	Sociedad de Acopiadores del Norte de la Pcia. de Bs.As.
	Centro de Acopiadores de Cereales Zona Puerto Quequén
	Sociedad de Acopiadores de Cereales Zona Bahía Blanca
	Centro de Acopiadores de Cereales de Tres Arroyos

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Arias	Cereales Centenario S.R.L.
Arias	Graneros y Elevadores de Arias Coop. Agrop. Ltda.
Arroyo Cabral	Coop. Arroyo Cabral Ltda.
Arroyo Cabral	Lorenzatti y Ruech S.A
Bouchardo	Agroveterinaria Sur
Canals	CDC Canals
Carrilobo	Logrando Amigos S.A
El Tío	AFA S.C.L
Etruria	Etruria Cereales S.A.
Gral Levalle	Manuel Gimenez Suc.
Hernando	Coop. La Vencedora Ltda. de Hernando
Idiazabal	Ortega Hnos. SA
Justiniano Posse	Coop. Agrop. Unión de Justiniano Posse Ltda.
La Laguna	Dosagro S.R.L.
Laboulaye	Ambito Das S.A.
Laboulaye	Molino Marichelar S.A.
Laboulaye	Molinos Florencia S.A.
Las Junturas	Molino Las Junturas S.A
Las Junturas	Cereales Las Junturas S.A
Leones	Coop. Unión Agric. de Leones Soc. Coop. Ltda.
Luque	Coop. Agr. Gan. de Luque Ltda.
Marcos Juárez	Coop. Agrop. General Paz Ltda.
Marcos Juárez	AFA Marcos Juárez
Matorrales	Agromatorrales S.A.
Monte Buey	Coop. Agric. Gan. de Monte Buey Ltda.
Monte Maíz	Coop. Agrícola de Monte Maíz Ltda.
Morteros	Coop. Agric.Gan. de Morteros Ltda.
Noetinger	Cooperativa Agropecuaria General Belgrano Ltda.
Oliva	Coop. La Federación de Oliva Ltda.
Oliva	ACA Oliva
Pozo del Molle	Coop. Agrop. Pozo del Molle Ltda.
Riobamba	M. Berra Cereales
Silvio Pellico	Soc. Coop. Union Popular Ltda.
Tio Pujio	ACA Tío Pujío
Villa del Rosario	Teumaco Cereales S.A.
Villa del Rosario	Molino Viada S.A.
	Integral Agropecuaria S.C.C.
	Caligran S.A.
	Compañía Argentina de Granos
	Sociedad de Acopiadores de Granos de la Pcia. de Córdoba
CHACO PROVINCE	
Avia Terai	Compañía Argentina de Granos S.A.
Barranqueras / Las Breñas	Colono S.A.
Charata	El Embrion S.R.L.
Gancedo	Compañía Argentina de Granos S.A.
Pampa del Infierno	Alfredo Brugnoli Cereales S.R.L.
Presid. Roque Sáenz Peña	Derka y Vargas Motors S.A.

LOCALITY	DENOMINATION
ENTRE RÍOS PROVINCE	
Aldea Maria Luisa	Héctor Bolzan y Cía
Basavilbaso	Coop. Agric. Lucienville Ltda.
Bovril	Gotte S.A.
Crespo	La Agrícola Regional Coop. Ltda.
Crespo	Agricultores Federados S.C.L.
Diamante	Agromoya S.R.L.
Diamante	Agrotecnica Litoral S.A.
Diamante	Agrotecnica Comercial S.R.L
Galarza	Cereales del Cle S.A.
Galarza	Coop. Agrop. La Protectora Ltda.
Gobernador Sola	Coop. Agrop. Leon Sola Ltda.
Gualeguay	Asoc. de Coop. Argentina S.C.L.
Gualeguay	Gualeguay Cereales S.R.L.
Gualeguaychu	Coop. Arroceros Gualeguaychu Ltda.
Gualeguaychu	Unión Cerealera S.R.L.
Hasenkamp	El Choli S.A.
Hasenkamp	Agrocereales S.R.L.
Hasenkamp	León Rabey e Hijos S.R.L.
Hernandarias	Hercos S.A.
La Paz	Coop. Agrop. La Paz Ltda.
Larroque	Tierra Greda S.A.
Lucas Gonzalez	Coop. Agrop. El Progreso Ltda.
Mansilla	Agrotamia S.A.
San Salvador	Coop. Arroceros de San Salvador Ltda.
Sauce Pintos	Dellizzotti Hnos S.R.L
Segui	Coop. Serv. Pub. S. Martin Ltda.
Urdinarrain	Coop. Fed. Ag. Gan. de Urdinarrain Ltda.
Viale	Eduardo Stertz E Hijos S.R.L.
Viale	Santiago D. Trocello S.A.
Victoria	Maicco Cereales S.A.
Victoria	Granero S.R.L.
Victoria	Nidera S.A.
Victoria	Agrosur S.A.
Villa Fontana	Cereales Bolzan S.R.L.
Villaguay	Arroceros de Villaguay S.C.L.
	Centro de Acopiadores de Granos de Entre Ríos
LA PAMPA PROVINCE	
Anguil	Trabajadores Unidos Cooperativa Mixta Ltda.
Atreucó	Atreucó Cooperativa Agropecuaria Ltda.
Atreucó	Casa Alarcia S.A.
Atreucó	Trimag S.A.
Catrilo	Productor
Cereales	Productor
Conhelo / Hucal / Maracó	Firmas varias
General San Martín	Sociedad Cooperativa Agrícola Ganadera Ltda. de General San Martín
Guatraché	Torre S.A
Hucal	Sociedad Cooperativa Agrícola Ganadera Ltda. de General San Martín
Miguel Riglos	Trimag S.A.
Quemú-Quemú / Trenel	Firmas varias
Rancul / Realicó	Firmas varias
Santa Rosa	Pelayo Agronomía S.A.
Santa Rosa	Casa Alarcia S.A.
	Centro de Acopiadores de Cereales de La Pampa y Limítrofes

LOCALITY	DENOMINATION
SALTA PROVINCE	
Molino Panamericano S.A. y Molinos Cañuelas S.A.C.I.F.I.A.	
SANTA FE PROVINCE	
Alcorta	Jakas, Kokic, Ivancich y Cía. Ltda. S.A.
Alvarez	Moscoloni Hnos S.R.L.
Arroyo Ceibal	Quatrin S.A.
Avellaneda	Unión Agric. de Avellaneda Coop. Ltda.
Barrancas	Coop. Agr. Ganad. La Unión Ltda. de Barrancas
Bigand	AFA Bigand
Bombal	Molino Bombal S.R.L.
Bombal	AFA Bombal
Bouquet	Coop. Agr. Ganad. de Bouquet Ltda.
Cañada del Ucle	Coop. Agric. Gan. Ltda. de Cañada del Ucle
Cañada Rica	AFA Cañada Rica
Cañada Rosquín	AFA Cañada Rosquin
Capitán Bermúdez	Rocca Cereales S.R.L.
Carlos Pellegrini	Coop. Agricola Ganadera Ltda. Carlos Pellegrini
Carmen del Sauce	AFA Carmen del Sauce
Carreras	Coop. Agric. Gan. Carreras Ltda.
Casilda	AFA Casilda
Centeno	Coop. de Tamberos y Agr. Ganad de Centeno Ltda.
Colonia Belgrano	AFA Colonia Belgrano
Correa	Sociedad Agropecuaria de Correa Coop. Ltda.
El Trébol	Coop. Agr. Ganad. de El Trébol Ltda.
Elortondo	Coop. Agrop. Unif. Ltda. de Elortondo
Elortondo	Coop. Agropecuaria Unificada Ltda.
Emilia	Coop. Agrop. Santa Lucía Ltda.
Firmat	AFA Firmat
Franck	Manantiales Agropecuaria S.A.
Fuentes	Fuentes Agrícola S.R.L.
Gobernador Crespo	Coop. Agr. Gan. de Gob. Crespo Ltda.
Hughes	ACA CDC Hughes
Humberto Primo	Humberto Primo Cereales S.R.L.
Humboldt	A.F.A. Agencia Humboldt
Humboldt	Agroservicios Humboldt S.A.
Irigoyen	Coop. Agrop. Mixta Ltda. de Irigoyen
J.B. MOLINA	A.F.A
La Chispa	C.D.C. ACA La Chispa
Las Rosas	AFA Las Rosas
Llambi Campbell	Coop. Agr. Gan. 26 de Agosto Ltda.
López	Coop. Agrop. de López Ltda.
López	Fuentes Agrícola S.R.L.
Los Cardos	AFA Los Cardos
Maciel	AFA Maciel
Malabrigo	Coop. Agrop. Malabrigo Ltda.
Margarita	Coop. Agric. Mixta de Margarita Ltda.
María Juana	A.F.A. Agencia Ma. Juana
María Susana	Coop. Fed. Agr. Ganad. de María Susana Ltda.
Máximo Paz	Coop. Agrop. Ltda. de Máximo Paz
Miguel Torres	Coop. Agrop. M. Torres Ltda.
Molina	AFA J.B.Molina
Monje	AFA Monje
Monje	Coop. Agric. Gan. Tamb. Ltda. de Monje
Montes de Oca	AFA Montes de Oca
Murphy	Agr. Gan. de Cons.Gral. San Martín
Pellegrini	Coop. Agric. Gan. Carlos Pellegrini Ltda.
Pilar	Coop.Agr.Gan.Ltda. Guillermo Lehmann
Pueblo Muñoz	J.A. Agrícola S.R.L.
Ramona	Cereales Ramona S.R.L.
Reconquista	Industrias Molineras y Afines de Norte (Molino IMAN)

LOCALITY	DENOMINATION
SANTA FE PROVINCE	
Recreo y Santo Domingo	Cía. de Cereales S.R.L.
Roldán	Roberto Amsler S.A.C.
Salto Grande	AFA Salto Grande
San Eugenio	Coop. Agrícola de San Eugenio Ltda.
San Genaro	CDC ACA San Genaro
San Jerónimo Norte	Agrocereales Las Colonias S.A.
San Jerónimo Sud	Coop. Agr. Ganad. Ltda de San Jerónimo Sud
San José de la Esquina	AFA San José de la Esquina
San José de la Esquina	ACA CDC San José de la Esquina
San Justo	Coop. Federal Agrícola Gan. de San Justo Ltda.
San Martín de las Escobas	AFA San Martin de las Escobas
San Vicente	A.F.A. Agencia San Martín de las Escobas - Of. San Vicente
Sancti Spiritu	Coop. Agric. Gan Sancti Spiritu Ltda.
Santa Clara de Buena Vista	Coop.Agr.Gan. La Unión Ltda.
Santa Isabel	Coop. Agraria Unión y Fuerza de Sta Isabel y Teodelina Ltda.
Santa Teresa	AFA Sta Teresa
Sastre	AFA Sastre
Sunchales	Coop. Ltda. Agr. Gan. de Sunchales
Tortugas	AFA Tortugas
Totoras	AFA Totoras
Venado Tuerto	C.D.C. ACA Venado Tuerto
Videla	Coop. Agr. Gan. de Videla Ltda.
Villa Cañas	Agrícola Ganadera Fed. de Villa Cañás Ltda.
Villa Cañas	Cereales Centenario S.A.
Villa Cañas	MSU S.A.
Villa Eloisa	AFA Villa Eloisa
Villada	Cooperativa Agropecuaria de Bombal - Sucursal Villada
Wheelwright	ACA CDC Wheelwright
Zavalla	ACA Zavalla
	Centro de Acopiadores de Cereales y Oleaginosas de Santa Fe
	Sociedad Gremial de Acopiadores de Granos - Rosario

LOCALITY	DENOMINATION
TUCUMAN PROVINCE	
Banda Río Salí	Complejo Alimenticio San Salvador S.A.
	Centro de Acopiadores de Granos del NOA
Banda Río Salí	
DURUM WHEAT	
Bahía Blanca	Compañía Molinera del Sur S.A.
	Molinos Río de la Plata S.A. Planta Bahía Blanca
	Molinos Río de la Plata S.A.(Acopios Olavarría y Tres Arroyos)
Balcarce	Scorciello y Galella S.A.
Tres Arroyos	Mondelez S.A. - Kraft Foods Argentina
	Molino Tres Arroyos S.A.
Pcia. Tucumán	Complejo Alimenticio San Salvador S.A.

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Ministry of Agricultural and Fishery - M.A.G.y P. Delegations: Bahía Blanca, General Madariaga, Bolívar, Bragado, Junín, Lincoln, Pehuajó, Pergamino, Pigüé, Salliquelló, Tres Arroyos, Tandil, 25 de Mayo, Laboulaye, Marcos Juárez, Río Cuarto, San Francisco, Villa María, Paraná, Rosario del Tala, General Pico, Santa Rosa, Avellaneda, Cañada de Gómez, Casilda, Rafaela, Venado Tuerto, Roque Saenz Peña-Chaco, Salta, Santiago del Estero, Quimilí, Catamarca, La Rioja and Tucumán.

Acknowledgments

We thank the information provided by the following technicians, for the elaboration of the commentaries about crop development and environmental conditions of each sub region.

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