2008/2009 Crop

ARGENTINE WHEAT

Institutional Quality Report

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Elaborated by:

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- **Bolsa de Cereales de Bahía Blanca.**
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- **Bolsa de Cereales de Buenos Aires.**
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- **Bolsa de Comercio de Rosario.**
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- **Cámara Arbitral de Cereales de Bahía Blanca.**
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- **Cámara Arbitral de Cereales de Entre Ríos.**
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- **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.

- **Secretaría de Agricultura, Ganadería, Pesca y Alimentos (SAGPyA).**
  Secretariat of Agriculture, Livestock, Fishery and Food.
- **Instituto Nacional de Tecnología Agropecuaria (INTA).**
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- **Chacra Experimental Integrada Barrow (Convenio INTA – MAA, Bs. As.)**
  Barrow Experimental Station.

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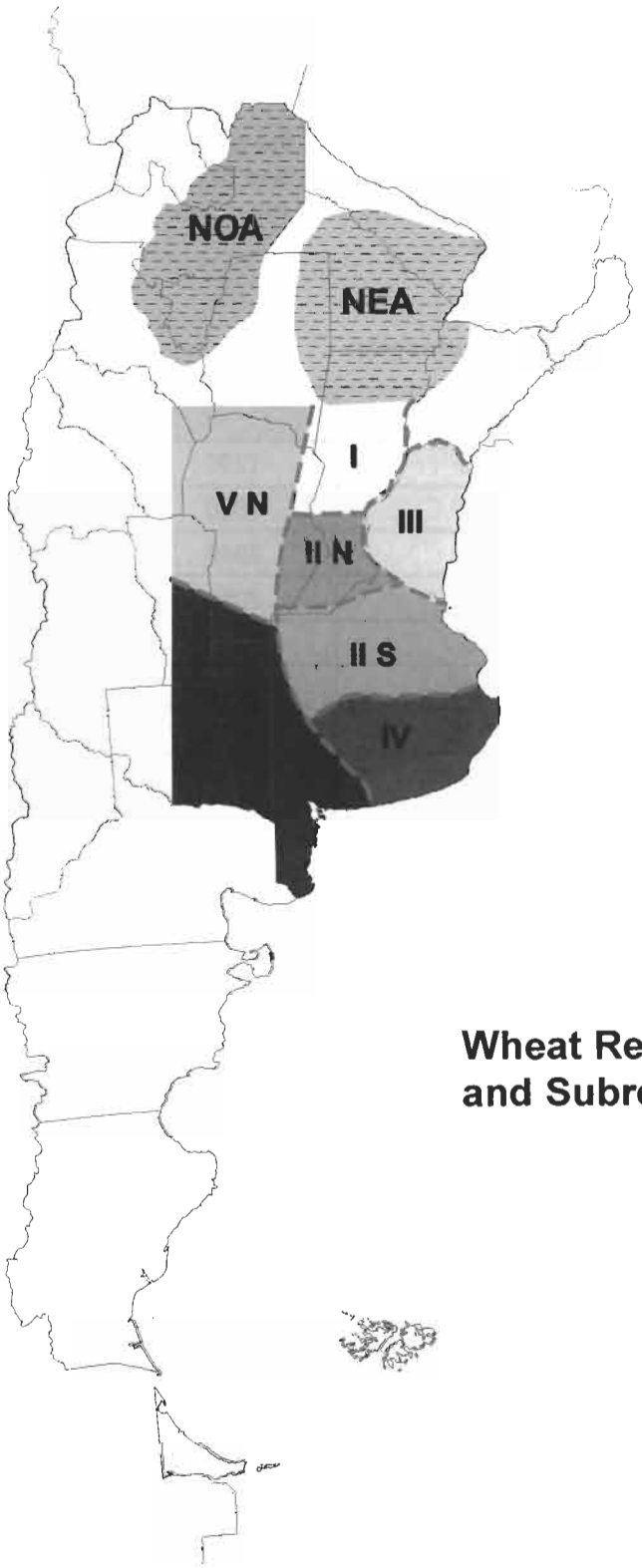


Wheat Region and Subregions

BREAD WHEAT

Triticum aestivum

Introduction

The 2008/09 wheat campaign was characterized by a reduction in the planted area of 20,4% which was the lowest one in the last 30 years, a fall in the yields of 30,6% and of the national production of 48,3%. Moreover, there was a strong drought that affected most of the wheat argentine area during the crop cycle, resulting in many non harvested plots.

Sowed, harvested area, yields and production per sub-region

Subregion	Sowed Area (ha)	Harvested area (ha)	Yield (Kg/ha)	Production (tn)
I	196,600	165,000	1290	212,080
II North	382,130	352,280	1860	654,365
II South	651,350	645,850	2940	1,896,510
III	247,600	225,750	2056	464,125
IV	906,430	901,965	2680	2,418,037
V North	445,330	419,530	1730	725,520
V South	1,405,525	1,140,095	1320	1,500,015
North of the country	469,730	418,980	1174	492,080
National	**4,704,695**	**4,269,450**	**1959**	**8,362,732**

Based on data from the Secretariat of Agriculture, Liverstock, Fishery and Food. 2008

Scarce rainfalls were atypical and did not present such records during the historical period of 1951–2007. Total rainfall from June to December was 50% lower than normal and 60 % lower in October-December period.

Apart from drought, there were late frosts and caloric stress in grain filling which affected the grain size in relation to other campaigns. In November, the mean temperature was almost 4°C over the average in the last 10 years with 14 days over 30°C, which caused the increase in the development of the crop and a reduction of up to 6 days in the filling period, quickly generating the end of the cycle and harvest. High temperatures, the highest as well as the lowest, together with a strong hydric deficit during grain filling determined the decrease of the two most important yield components, number of grains per square meter and weight of thousand grains which resulted in low yields and the drop in hectolitric weight and commercial quality as a consequence of the short filling period.

There was scarce to none foliar and ear disease incidence due to low environment humidity.

The use of fertilizers was considerable reduced due to their high cost, applying the minimum recommended doses of nitrogen and phosphorus.

In this harvest, production was low but with good industrial quality due to the high protein values.

Organization and Methodology:

Sampling structure

It was agreed to obtain samples which represent about 4,000 tons each, reaching a total of 230 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 Secretariat of Agriculture, Livestock, Fishery and Food 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.

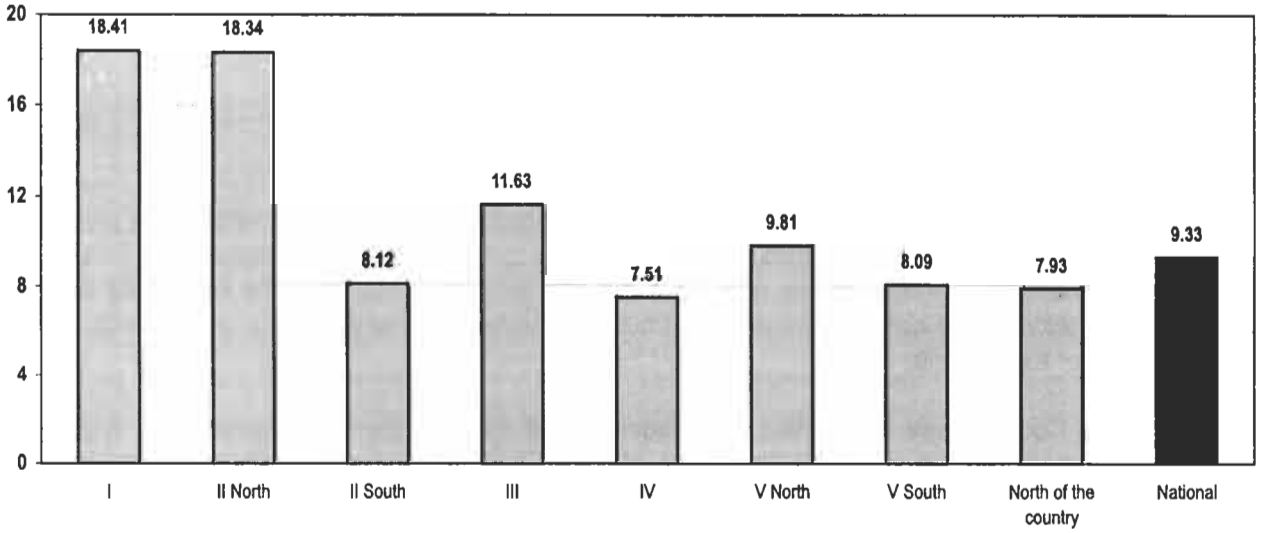
Likewise the Coordination of Offices in the interior of the country of SAGPyA bring the support in the sampling.

Subregion	Locality Composite	Sampling (tons)	Production (tons)	Production Sampled (%)
I	11	39,040	212,080	18.41
II North	30	120,000	654,365	18.34
II South	40	154,000	1,896,510	8.12
III	17	54,000	464,125	11.63
IV	68	181,493	2,418,037	7.51
V North	14	71,200	725,520	9.81
V South	40	121,325	1,500,015	8.09
North of the Country	10	39,000	492,080	7.93
TOTALS	**230**	**780,058**	**8,362,732**	**9.33**

Based on data from the Secretariat of Agriculture, Liverstock, Fishery and Food. 2008

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 3,356 samples used for this sampling program, in such a way a sampled tonnage of 9.33% of the national wheat production, which amounted to 8,362,732 tons, was reached.

% **Porcentage of the Production Represented in Sampling Program (%) per subregion**



Procedure

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

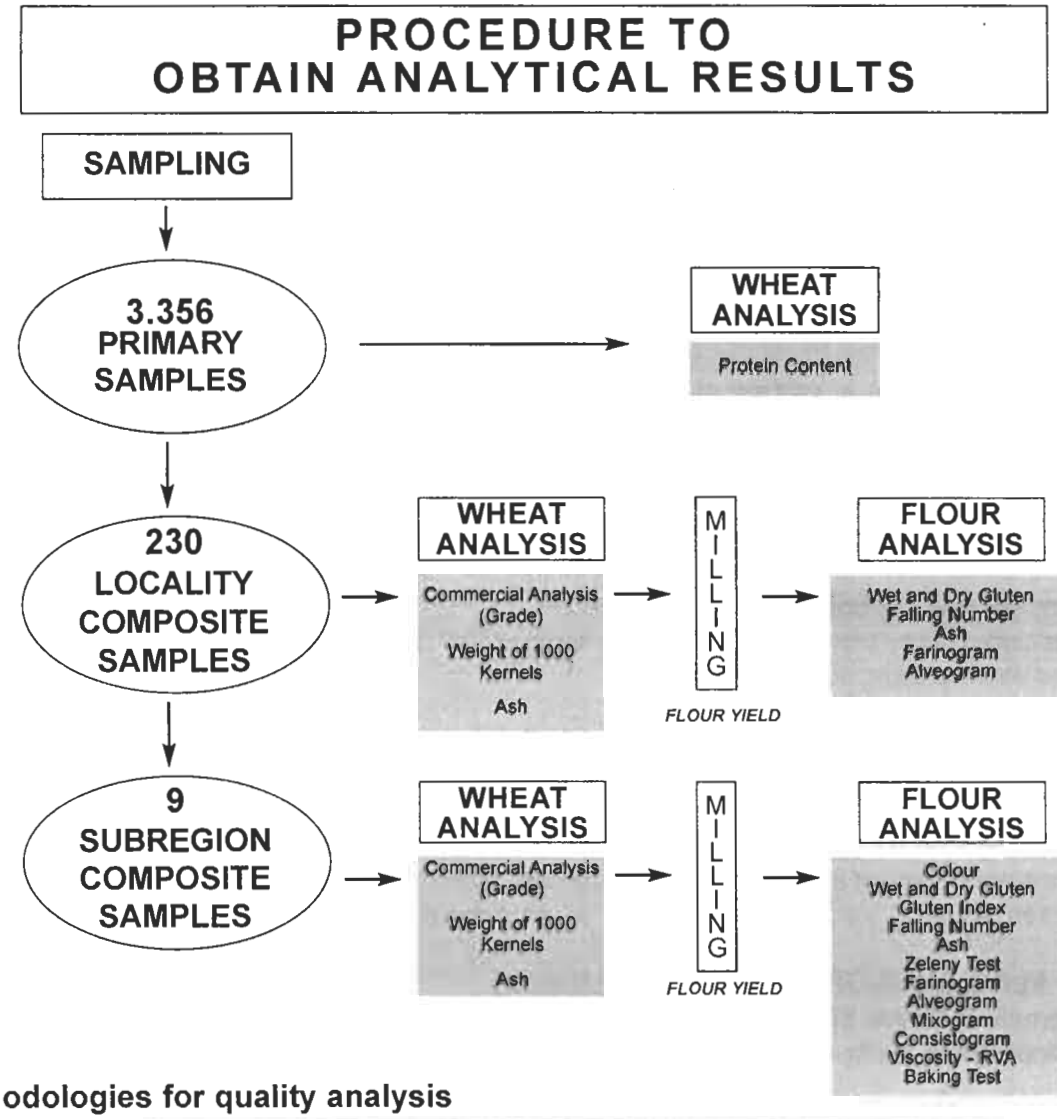
The composite samples were sent to the SENASA Laboratory to carry out the Bühler grinding, reserving a part in order to prepare the Subregion Composite Samples. It was decided to use only one mill for all the composite samples by locality, so as to minimize differences in the flour features due to the 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 Subregion**, 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 557/97 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 130° C +/- 3° C under normal pressure in an oven with forced air circulation, during an hour.

Foreign material (SAGPyA 557/97 Resolution)
All kernels or pieces of kernels, other than wheat, and any other inert material.

Total damaged kernels (SAGPyA 557/97 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 557/97 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 557/97 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 557/97 Resolution)
Kernels with starchy endosperm in more than a half of their structure, showing a yellowish appearance.

Protein Content - 13.5% moisture basis (SAGPyA 557/97 Resolution - Chemist Method from ICC N° 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 N° 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 900° C +/- 25° 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 130° C +/- 3° 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 N° 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 N° 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).

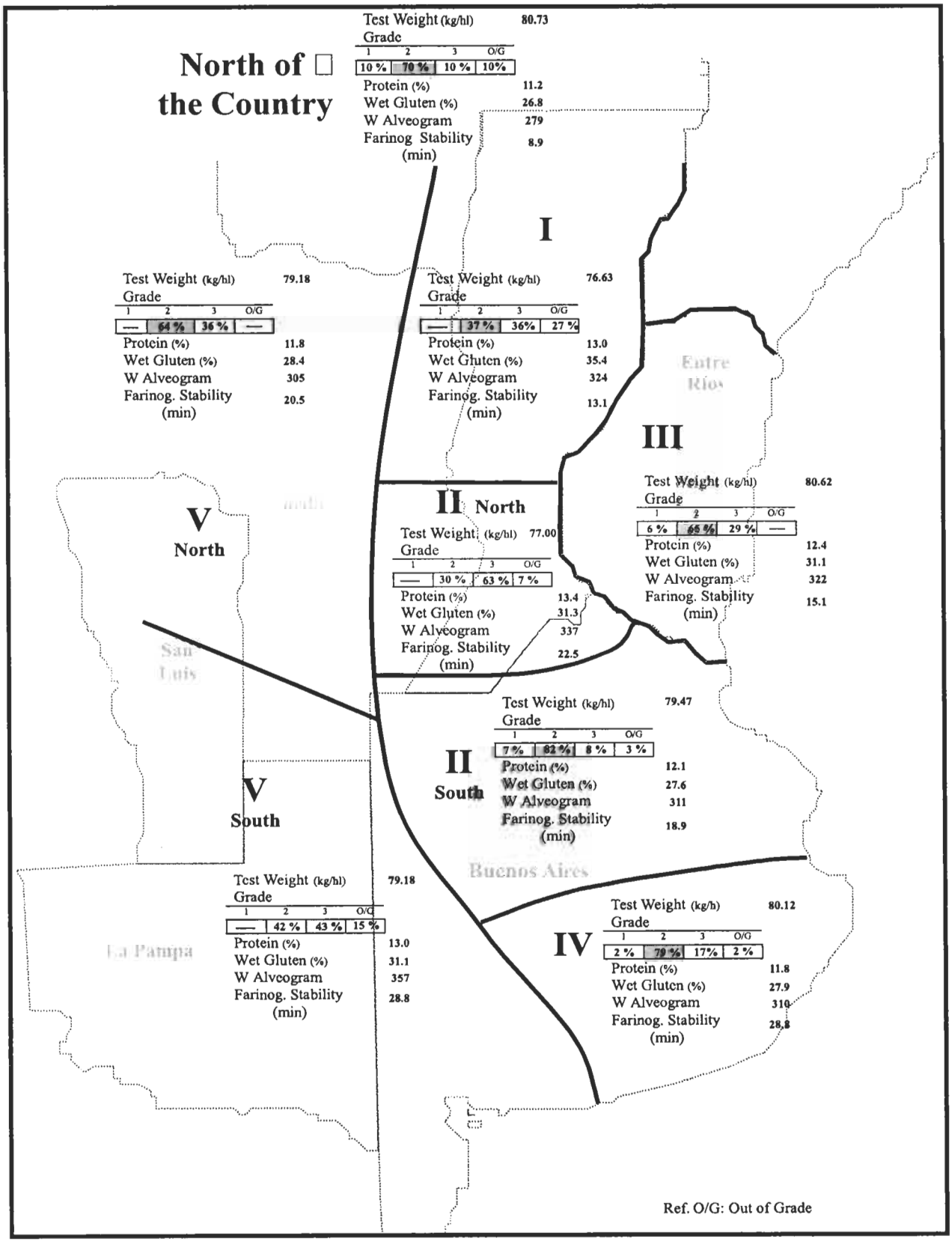
SAGPyA N° 1262 / 04
ARGENTINE STANDARD FOR WHEAT

GRADE	Bonus and Discounts per Grade %	Minimum Test Weight per hectolitre Kg/hl	PERCENTS MAXIMUM LIMITS OF: Foreign Material %	PERCENTS MAXIMUM LIMITS OF: Damaged Kernels: Heat Damaged Kernels %	PERCENTS MAXIMUM LIMITS OF: Damaged Kernels: Total %	PERCENTS MAXIMUM LIMITS OF: Smutty Kernels %	PERCENTS MAXIMUM LIMITS OF: Yellow Berry Kernels %	PERCENTS MAXIMUM LIMITS OF: 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



Subregion I
Background for the crop

Long cycle wheat was sown in May with the exact moisture on the soil profile. In the case of short cycle wheat, moisture was poor and was only sown in plots with good coverage (following wheat-soy) and low moisture.

Temperatures were low for a good tillering, but the low edaphic moisture due to absence of rainfalls resulted in scarce growth and delay in this period for wheat. Temperatures throughout the cycle were lower than historical averages with frequent frosts.

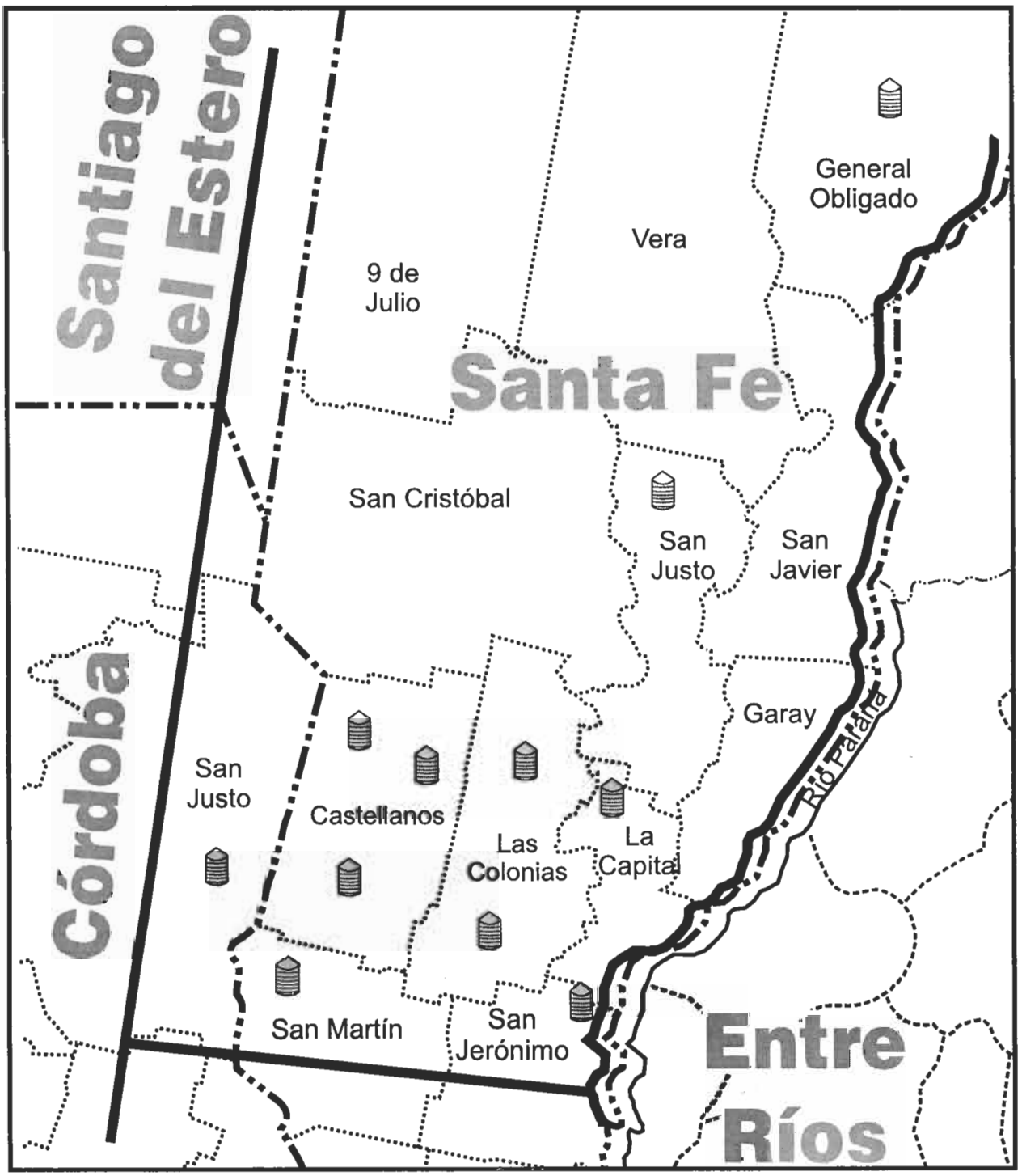
90% of fertilization was carried out at sowing and 10% at tillering, with lower doses than the previous campaign due to drought and high cost of fertilizers.

There were practically no rains until mid October. Many plots were given to grazing in full flowering period due to scarce growth. As a result of hydric stress, only the main ear was formed almost without tillers in general.

There was low presence of disease. Towards the end of the grain-filling period, some rainfalls began which allowed that the few grain/ear could be filled on average, however there was much abortion of newly formed spikelets and grains.

The harvest was brought forward due to the drought, it was normal and the lack of rain did not cause quality problems.

The average yields were 1600 kg/ha, maximum of 2600 kg/ha and minimum of 500 kg/ha.



Each reference represents near 4,000 tns sampled.

Subregion I Wheat

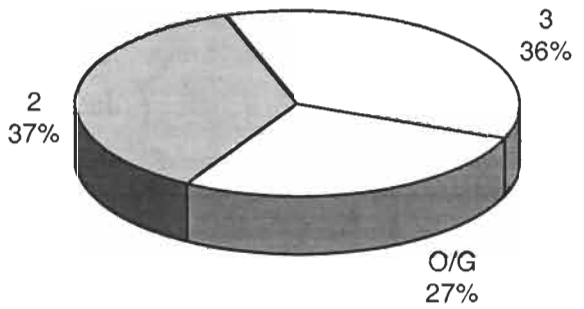
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	71.70	80.40	76.63	2.26	0.03
Total Damaged Kernels (%)	0.48	1.48	0.94	0.28	0.30
Foreign Material (%)	0.12	0.82	0.43	0.20	0.47
Shrunken and Broken Kernels (%)	0.72	2.38	1.59	0.56	0.35
Yellow Berry Kernels (%)	0.00	2.00	0.37	0.62	1.68
Protein (13,5% Moisture) (%)	11.4	14.1	13.0	0.9	0.07
Weight of 1000 Kernels (gr.)	22.30	40.25	32.05	6.06	0.19
Ash (% dry basis)	1.770	2.260	2.151	0.141	0.07

Total damaged kernels includes 0.4% green kernels, 0.22% sprouted kernels, 0.16% insect chewed kernels, 0.08% germ-chewed kernels and 0.08% calcinated kernels

Grade Distribution



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	28.5	39.6	35.4	3.4	0.10
	Dry Gluten (%)	9.9	13.6	12.5	1.0	0.08
	Falling Number (sec.)	320	466	411	43	0.11
	Flour Yield (%)	64.2	68.8	67.2	1.4	0.02
	Ash (dry basis) (%)	0.640	0.960	0.782	0.083	0.11
FARINOGRAM	Water Absorption (14 % H°) (%)	59.4	62.1	60.5	1.0	0.02
	Development Time (min.)	6.6	13.2	9.1	1.9	0.21
	Stability (min.)	6.0	21.7	13.1	4.3	0.33
	Degree of Softening (12 min.)	29	68	43	10	0.24
ALVEOGRAM	P (mm)	76	112	93	11	0.12
	L (mm)	47	126	95	19	0.20
	W Joules x 10^{-4}	190	409	324	62	0.19
	P / L	0.69	2.19	0.98	0.36	0.35

These results were elaborated with 11 composite samples prepared proportionally from 110 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 212,080 tons., the 2.5% of the national total. Were sampled 39,040 tons., the 18.41% 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	San Justo (Córdoba)	2010	2	80.40	0.70	0.12	0.80	0.40	12.0	37.7	2.020
2	Gral. Obligado	3980	2	80.10	0.48	0.32	0.84	1.62	11.9	40.3	1.770
3	Castellanos	4000	2	76.90	0.84	0.44	1.08	0.00	12.6	25.9	2.240
4	Castellanos	4030	3	74.00	0.84	0.52	1.82	0.00	14.0	25.4	2.220
5	Castellanos	4000	3	75.30	0.96	0.34	1.86	0.00	12.7	26.1	2.140
6	Las Colonias	4050	O/G	76.60	0.92	0.76	2.12	0.00	14.0	33.0	2.190
7	Las Colonias	3880	3	77.10	1.40	0.36	1.54	0.00	13.7	37.8	2.220
8	San Justo	3770	3	77.70	0.88	0.22	1.30	0.52	12.3	37.5	2.250
9	San Martín	3970	O/G	77.00	1.02	0.24	2.30	0.00	12.8	36.6	2.260
10	La Capital	2100	2	77.80	0.66	0.46	0.72	2.00	11.4	31.3	2.100
11	San Jerónimo	3250	O/G	71.70	1.48	0.82	2.38	0.34	14.1	22.3	2.170

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	San Justo (Córdoba)	28.5	9.9	417	68.8	59.8	13.2	21.7	29	112	89	384	1.26	0.640
2	Gral. Obligado	31.7	s/d	339	-----	sd	sd	sd	sd	sd	sd	sd	sd	0.730
3	Castellanos	36.9	12.4	432	64.2	59.4	6.9	9.2	52	80	91	266	0.88	0.775
4	Castellanos	38.2	12.8	437	67.8	59.7	11.0	18.0	34	94	81	301	1.16	0.890
5	Castellanos	36.2	12.7	410	66.1	59.5	7.5	10.8	46	76	109	270	0.70	0.790
6	Las Colonias	39.6	13.3	454	68.1	60.5	10.2	13.3	41	94	97	347	0.97	0.705
7	Las Colonias	38.4	13.0	466	68.5	62.1	9.6	13.6	41	101	110	409	0.92	0.735
8	San Justo	33.1	11.0	429	67.6	61.9	7.2	8.8	52	107	87	336	1.23	0.725
9	San Martín	31.4	s/d	400	-----	sd	sd	sd	sd	sd	sd	sd	sd	0.960
10	La Capital	31.7	13.6	401	68.2	61.6	6.6	6.0	68	103	47	190	2.19	0.780
11	San Jerónimo	38.8	12.9	320	66.5	59.9	10.4	17.7	30	87	126	393	0.69	0.805

Subregion II North
Background for the crop

In the central area of the country there was a reduction in planted area of about 45% in relation to the previous campaign. The average yields were between 15 to 20 qq/ha, with a maximum yield of 28 qq/ha and a minimum of 5 qq/ha. The main reason for this drop in production was, in the first place, the reduction of planted area which was the lowest in the last 30 years and then, the severe drought that affected the crop cycle in most parts of the Argentine wheat area, resulting in many unharvested plots. Low rainfalls were atypical, not recorded before during the historical period 1951–2007. This was the main limiting yield condition since water content of the soil was close to the point of wilting in the greatest part of the cycle and below the limit of hydric stress during development and growth.

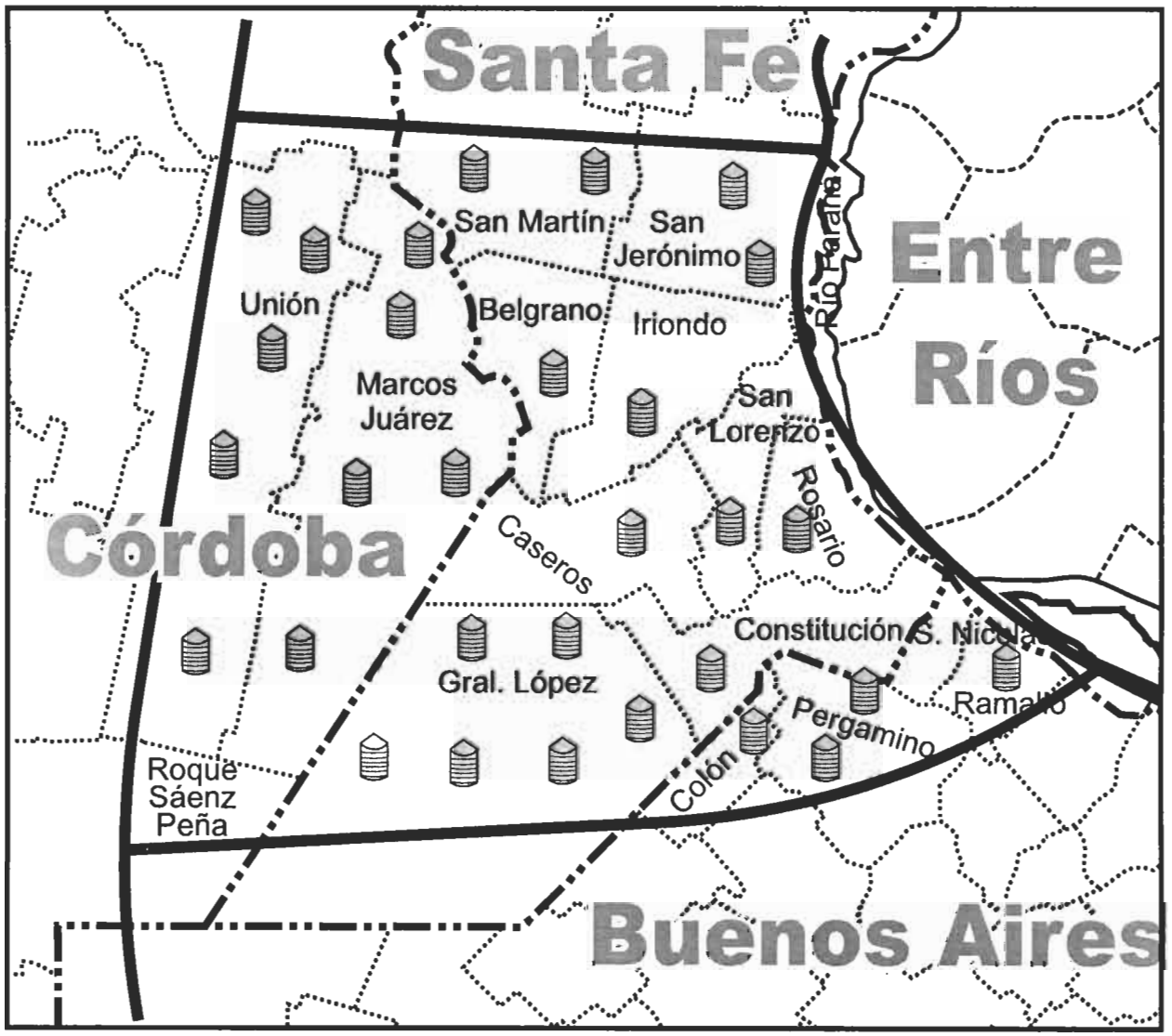
There was a considerable reduction of fertilizers use due to their high cost, applying minimum recommended doses of nitrogen and phosphorus.

There was scarce to non existent incidence of foliar and ear diseases due to low moisture environment.

In addition to drought, late frosts and caloric stress in grain-filling affected their size compared to other campaigns. Dry and hot weather accelerated grain-filling, quickly resulting in the end of the cycle and harvest. High temperatures, highest as well as lowest ones, together with a severe hydric stress during grain-filling determined the reduction of the two most important yield components, number of grains per square meter and thousand grain weight, with a significant drop in electrolytic weight.

Yield versus quality ratio is inversely proportional, and it can be observed that when the producer obtains high yields the industrial quality of flour is poor since the grain has low protein. The contrary happened in this harvest: there was little production and the industrial quality of flour was very good.

Subregion II North Wheat



Each reference represents near 4,000 tns sampled.

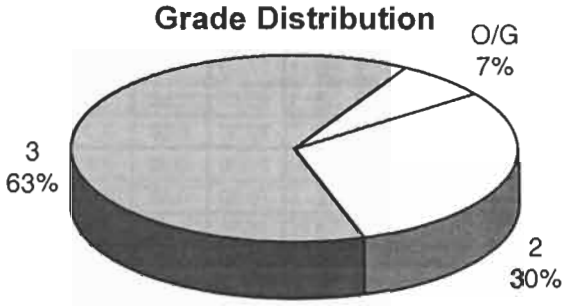
Subregion II North Wheat

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)	73.60	79.20	77.00	1.38	0.02
Total Damaged Kernels (%)	0.10	1.70	0.77	0.39	0.50
Foreign Material (%)	0.10	1.20	0.43	0.21	0.49
Shrunken and Broken Kernels (%)	0.70	2.50	1.43	0.43	0.30
Yellow Berry Kernels (%)	0.00	0.90	0.03	0.16	5.39
Protein (13,5% Moisture) (%)	11.5	14.9	13.4	0.7	0.05
Weight of 1000 Kernels (gr.)	25.66	30.67	28.13	1.40	0.05
Ash (% dry basis)	1.730	2.055	1.904	0.087	0.05

Total damaged kernels includes 0.01% green kernels, 0.48% sprouted kernels and 0.25% insect chewed kernels.



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	26	36.6	31.3	2.3	0.07
	Dry Gluten (%)	8.9	12.9	10.9	0.8	0.07
	Falling Number (sec.)	387	559	462	37	0.08
	Flour Yield (%)	61.2	73.3	68.1	2.5	0.04
	Ash (dry basis) (%)	0.600	0.84	0.700	0.053	0.08
FARINOGRAM	Water Absorption (14 % H°) (%)	55.8	60.9	58.6	1.2	0.02
	Development Time (min.)	7.6	14.9	11.0	1.7	0.16
	Stability (min.)	12.7	42.6	22.5	6.0	0.26
	Degree of Softening (12 min.)	12	46	27	7	0.27
ALVEOGRAM	P (mm)	76	123	96	11	0.11
	L (mm)	59	128	100	16	0.16
	W Joules x 10^{-4}	259	404	337	31	0.09
	P / L	0.61	2.08	0.95	0.30	0.30

These results were elaborated with 30 composite samples prepared proportionally from 345 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 654,365 tons., the 7.8% of the national total. Were sampled 120,000 tons., the 18.34% of the subregion production.

Subregion 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	3	79.20	0.30	0.30	1.30	0.00	12.9	29.69	1.965
102	San Martín	4000	2	78.90	0.60	0.60	0.70	0.00	13.3	29.56	1.915
103	San Jerónimo	4000	3	75.70	1.70	0.70	1.70	0.00	14.9	26.32	2.025
104	San Jerónimo	4000	3	77.20	0.60	0.20	1.80	0.00	14.2	25.66	1.845
105	Caseros	4000	3	76.80	1.60	0.30	1.40	0.00	12.8	29.61	1.990
106	Belgrano	4000	2	79.00	0.90	0.20	1.00	0.00	13.0	30.05	1.995
107	Iriondo	4000	O/G	77.70	0.20	0.40	2.50	0.00	14.7	26.25	2.055
108	San Lorenzo	4000	2	78.80	0.60	0.40	0.90	0.00	11.5	30.49	1.895
109	Rosario	4000	3	75.20	1.40	0.30	1.90	0.00	14.6	26.50	1.980
110	Constitución	4000	3	76.50	0.80	0.30	1.30	0.00	13.8	27.34	1.995
111	General López	4000	3	76.90	0.20	0.20	1.60	0.00	13.5	26.41	1.750
112	General López	4000	3	75.90	0.50	0.30	1.00	0.00	12.5	29.96	1.805
113	General López	4000	3	73.60	0.30	0.70	0.90	0.00	13.7	27.28	1.820
114	General López	4000	2	76.10	1.20	0.10	1.10	0.00	13.3	27.94	1.805
115	General López	4000	3	75.50	1.10	0.40	1.90	0.00	13.6	27.28	1.880
116	General López	4000	2	78.80	1.10	0.50	0.90	0.00	12.3	30.67	1.825
117	Marcos Juárez	4000	2	76.80	0.80	0.30	1.10	0.00	13.5	28.03	1.870
118	Marcos Juárez	4000	3	78.50	0.50	0.40	1.40	0.00	13.5	28.23	1.850
119	Marcos Juárez	4000	3	75.60	0.60	1.20	1.40	0.00	13.6	27.80	2.040
120	Marcos Juárez	4000	3	75.50	0.70	0.40	1.30	0.00	13.7	28.54	1.925
121	Marcos Juárez	4000	3	76.10	1.20	0.50	1.90	0.00	13.4	28.17	1.930
122	Unión	4000	3	77.90	0.70	0.30	1.90	0.00	13.5	27.23	1.985
123	Unión	4000	3	75.70	0.70	0.50	1.80	0.00	14.0	28.47	1.895
124	Unión	4000	O/G	76.10	1.00	0.40	2.20	0.00	13.8	27.65	2.005
125	Unión	4000	3	77.50	0.90	0.70	1.60	0.90	12.9	27.88	1.910
126	Unión	4000	2	77.90	0.80	0.30	1.20	0.00	12.7	29.33	1.945
127	Pergamino	4000	3	76.80	0.80	0.40	1.60	0.00	13.3	26.26	1.805
128	Pergamino	4000	3	76.70	0.70	0.50	1.60	0.00	13.8	26.50	1.865
129	Ramallo	4000	2	79.00	0.60	0.40	1.00	0.00	12.2	29.84	1.730
130	Colón	4000	2	78.00	0.10	0.60	1.10	0.00	13.0	28.90	1.835

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	32.0	10.8	481	68.4	56.8	9.2	16.8	34	80	113	308	0.71	0.660
102	San Martín	32.0	10.8	479	72.3	60.9	11.5	19.7	26	111	88	343	1.27	0.810
103	San Jerónimo	30.9	11.0	477	65.3	60.5	12.0	22.0	24	91	128	404	0.71	0.740
104	San Jerónimo	33.2	11.5	499	61.2	60.9	11.7	23.3	21	107	91	363	1.17	0.840
105	Caseros	30.3	10.2	461	73.3	58.1	10.5	18.3	31	84	97	297	0.87	0.675
106	Belgrano	32.5	11.1	454	65.9	60.0	10.4	17.3	30	95	112	362	0.85	0.705
107	Iriondo	36.6	12.9	509	67.4	58.1	13.4	25.5	23	76	124	354	0.61	0.730
108	San Lorenzo	26.7	8.9	397	70.7	57.8	7.6	12.7	46	97	75	259	1.29	0.690
109	Rosario	35.0	11.9	426	68.7	59.6	10.9	21.6	26	98	112	387	0.87	0.730
110	Constitución	33.9	11.6	476	65.6	58.5	10.0	17.4	34	84	119	347	0.70	0.700
111	General López	31.5	11.3	446	66.4	58.8	12.9	25.7	29	103	87	340	1.18	0.675
112	General López	29.3	10.7	458	68.2	55.8	14.3	42.6	14	89	111	347	0.80	0.600
113	General López	32.0	11.3	483	71.8	59.8	10.2	27.9	17	99	104	356	0.95	0.665
114	General López	30.4	10.9	491	67.2	56.7	10.6	21.7	29	76	117	314	0.64	0.625
115	General López	29.6	10.2	407	67.5	59.2	8.2	16.0	33	98	82	300	1.20	0.705
116	General López	30.2	10.9	472	68.8	59.3	8.6	20.0	28	97	106	362	0.92	0.695
117	Marcos Juárez	28.3	10.6	387	69.4	59.6	10.1	18.6	34	113	75	315	1.51	0.725
118	Marcos Juárez	32.0	11.4	491	66.7	58.9	13.8	25.8	21	106	90	344	1.18	0.735
119	Marcos Juárez	32.9	11.4	452	64.1	59.1	9.9	19.4	30	96	101	335	0.95	0.730
120	Marcos Juárez	32.2	11.2	424	64.9	58.7	10.8	23.8	19	97	104	356	0.93	0.760
121	Marcos Juárez	30.8	10.9	446	65.8	60.1	11.0	18.3	35	96	102	338	0.94	0.705
122	Unión	33.2	11.6	464	68.7	57.3	12.5	28.6	23	82	117	334	0.70	0.630
123	Unión	33.2	11.5	503	69.5	58.1	11.8	28.9	18	92	113	375	0.81	0.695
124	Unión	33.6	11.6	477	69.3	58.4	10.3	24.0	27	88	116	357	0.76	0.765
125	Unión	30.9	10.5	431	69.8	57.8	9.8	19.2	32	93	86	288	1.08	0.735
126	Unión	31.3	10.7	416	69.3	58.3	8.8	16.3	35	93	103	319	0.90	0.665
127	Pergamino	29.7	10.4	559	68.7	57.1	12.0	28.7	21	97	97	345	1.00	0.660
128	Pergamino	29.2	10.1	500	67.9	57.7	10.9	23.1	26	95	99	339	0.96	0.675
129	Ramallo	26.0	9.3	421	69.6	58.7	11.0	18.7	34	123	59	282	2.08	0.610
130	Colón	29.0	9.9	463	70.0	58.5	14.9	33.3	12	115	82	353	1.40	0.650

Subregion II South
Background for the crop

Wheat sown area during 2008/2009 campaigns had a decrease of about 20 %, this reduction was due to drought at the moment of planting, high price of inputs and the conflict with the government which started in March.

In the Southern II Subregion (north centre of the province of Buenos Aires) the decrease of sown surface was accompanied by low yields compared to the ones obtained in 2007, with plots of 700 kg/ha up to some plots, considered exceptional, of 5000 kg/ha.

Sowing was carried out in a low percentage at the beginning of June while most of the sowing was done in mid July and concentrated in few days due to the rains at that moment.

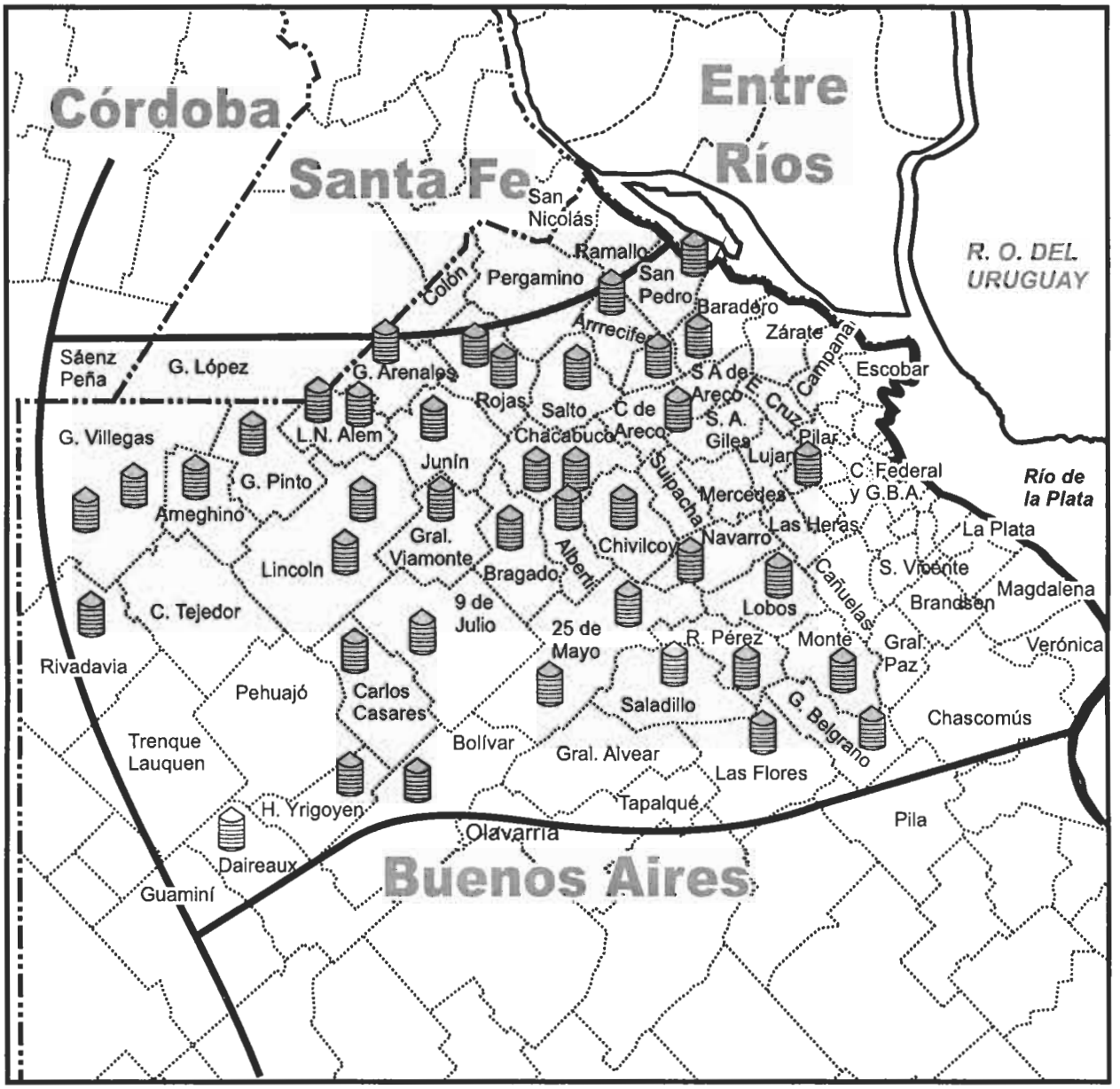
In many cases the sowing dates were not adjusted to the crop cycle due to the fact that the long cycle varieties have an optimal sowing date in June and were sown in July alter the rainfalls. These varieties were the most affected by late frosts with minimum temperatures of -3ºC which took place mainly in the south of the Subregion while the crop was in the flowering period or the grain was watery. Another adverse climatic factor that damaged wheat was the maximum peaks of temperature (37,1ºC) in mid November when the wheat was in the milk and dough stage. There was also a hydric deficit throughout the crop cycle, with values recorded in the northern part of the Subregion of 415 mm less than in 2007/08 campaigns and 355 mm less than the historical average (1910-2008).

Due to the high costs of fertilizers, half of the recommended doses were used in the case of nitrogen and phosphorus and there were cases in which no fertilization was carried out because of low soil moisture.

There was low disease incidence. Regarding "Wheat scab", in general, its presence was not recorded.

The harvest was carried out around eight days before due to frosts and high temperatures withstood by the crop, with a drop in hectrolytric weight and thousand seed weight. There were plots that did not meet the minimum trade requirements.

Subregion II South Wheat



Each reference represents near 4,000 tns sampled.

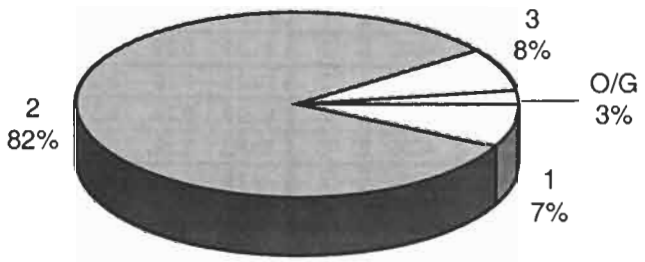
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	74.1	83.50	79.47	2.19	0.03
Total Damaged Kernels (%)	0.05	1.34	0.30	0.26	0.88
Foreign Material (%)	0.04	0.54	0.28	0.13	0.46
Shrunken and Broken Kernels (%)	0.3	2.12	0.87	0.34	0.39
Yellow Berry Kernels (%)	0.00	5.50	2.28	1.56	0.69
Protein (13,5% Moisture) (%)	10.3	15.0	12.1	1.1	0.09
Weight of 1000 Kernels (gr.)	24.66	34.58	30.13	2.09	0.07
Ash (% dry basis)	1.517	1.902	1.751	0.087	0.05

Total damaged kernels includes 0.03% green kernels, 0.05% frosty kernels, 0.05% sprouted kernels, 0.02% calcinated kernels, 0.11% insect chewed kernels and 0.04% germ-chewed kernels

Grade Distribution



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	20.0	34.6	27.6	3.2	0.12
	Dry Gluten (%)	7.4	12.8	10.2	1.2	0.12
	Falling Number (sec.)	261	418	345	33	0.09
	Flour Yield (%)	65.9	74.66	69.6	1.9	0.03
	Ash (dry basis) (%)	0.5	0.759	0.638	0.061	0.09
FARINOGRAM	Water Absorption (14 % H°) (%)	50.1	61.5	57.6	2.2	0.04
	Development Time (min.)	2.9	27.0	9.2	5.1	0.55
	Stability (min.)	3.8	47.3	18.9	8.7	0.46
	Degree of Softening (12 min.)	9	90	33	15	0.46
ALVEOGRAM	P (mm)	56	132	96	13	0.14
	L (mm)	43	138	96	22	0.23
	W Joules x 10^{-4}	164	397	311	48	0.16
	P / L	0.41	2.08	1.00	0.40	0.37

These results were elaborated with 40 composite samples prepared proportionally from 871 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 1,896,510 tons., the 22.7% of the national total. Were sampled 154,000 tons., the 8.12% of the subregion production.

Subregion 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	Bragado	4000	2	80.35	0.30	0.44	0.74	3.0	11.4	31.33	1.755
201	Chivilcoy	4000	2	79.25	0.24	0.26	1.08	1.0	12.4	31.13	1.902
202	9 de Julio	4000	2	81.50	0.08	0.25	0.72	3.9	10.9	30.81	1.733
203	Alberti	4000	2	78.60	0.88	0.52	0.38	2.0	11.3	31.55	1.902
204	Gral. Viamonte	4000	2	80.35	0.13	0.30	1.10	2.2	11.3	32.68	1.678
205	Lobos	4000	1	81.25	0.05	0.10	0.30	1.4	11.2	31.15	1.517
206	Chacabuco	4000	2	79.25	0.16	0.24	0.78	2.1	12.3	30.92	1.710
207	Chacabuco	2000	2	80.15	0.20	0.30	0.64	1.4	12.1	29.78	1.792
208	Junín	4000	2	80.80	0.20	0.16	0.52	5.4	11.0	34.58	1.736
209	Gral. Arenales	4000	2	79.25	0.82	0.54	0.84	0.8	11.5	29.09	1.723
210	Rojas	4000	2	77.45	0.18	0.46	1.06	0.7	13.7	27.91	1.875
211	Rojas	4000	2	76.55	0.52	0.16	1.18	0.0	13.9	27.99	1.879
212	San Andrés de Giles	2000	2	76.10	0.27	0.30	0.88	1.2	13.8	27.68	1.890
213	Gral. Villegas	4000	2	77.00	0.17	0.32	0.86	1.8	12.8	27.39	1.834
214	Gral. Villegas	4000	2	77.00	0.08	0.22	0.72	2.1	12.9	27.51	1.779
215	Rivadavia	4000	2	78.15	0.20	0.30	0.88	3.5	12.8	30.41	1.727
216	Ameghino	4000	2	77.70	0.14	0.10	0.88	3.1	10.3	30.09	1.787
217	Gral. Pinto	4000	1	79.25	0.56	0.16	0.48	5.5	12.2	31.01	1.678
218	Hipólito Yrigoyen	4000	2	81.05	0.16	0.52	0.76	1.3	11.1	31.02	1.697
219	Lincoln	4000	2	78.60	0.14	0.22	1.08	1.8	12.0	30.63	1.753

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) (%)
220	Lincoln	4000	2	78.80	0.42	0.38	0.58	3.7	11.7	30.67	1.674
221	L.N. Alem	4000	2	79.25	0.30	0.24	0.76	0.5	12.1	29.96	1.738
222	L.N. Alem	4000	2	80.80	0.06	0.18	0.70	2.8	12.3	31.10	1.712
223	Daireaux	4000	1	80.35	0.16	0.18	0.36	4.8	10.3	32.55	1.763
224	Bolivar	4000	2	83.05	0.22	0.22	0.54	2.5	10.7	32.80	1.702
225	Baradero	4000	3	75.00	0.68	0.16	1.04	0.8	14.1	25.73	1.846
226	San Antonio de Areco	4000	2	75.65	1.34	0.30	0.94	1.5	13.5	26.18	1.812
227	Arrecifes	4000	2	82.40	0.18	0.04	0.68	0.0	13.0	28.89	1.822
228	Saladillo	4000	2	81.05	0.13	0.52	0.62	4.4	10.9	30.49	1.602
229	Las Flores	2000	2	83.50	0.15	0.40	1.12	2.1	11.3	30.27	1.694
230	Salto	4000	2	81.25	0.16	0.06	0.72	1.4	12.8	29.68	1.802
231	25 de Mayo	4000	2	80.35	0.52	0.26	0.82	4.4	11.1	32.99	1.768
232	25 de Mayo	4000	2	81.70	0.36	0.36	0.94	4.5	11.0	32.70	1.824
233	Roque Perez	4000	2	80.80	0.32	0.40	1.18	3.1	11.0	31.50	1.648
234	Navarro	4000	2	79.25	0.14	0.18	0.86	0.0	12.6	29.60	1.730
235	Monte	4000	2	81.70	0.14	0.24	0.92	3.6	11.4	30.40	1.635
236	General Belgrano	4000	3	82.40	0.20	0.28	1.46	2.70	12.1	30.28	1.646
237	San Pedro	4000	O/G	74.10	0.36	0.20	2.12	0.00	15.0	24.66	1.826
238	Capitán Sarmiento	4000	2	76.80	0.20	0.28	1.14	0.00	13.5	27.57	1.857
239	Carlos Casares	4000	3	81.50	0.20	0.34	1.50	2.86	11.3	31.32	1.661

Subregion II South 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) (%)
200	Bragado	25.1	9.3	327	69.9	60.0	5.0	18.2	22	120	63	291	1.90	0.674
201	Chivilcoy	26.7	9.9	297	67.7	61.4	10.3	17.5	33	132	67	329	1.97	0.750
202	9 de Julio	25.4	9.4	377	71.7	59.2	5.2	17.7	27	125	60	297	2.08	0.581
203	Alberti	25.6	9.5	261	65.9	57.5	9.4	14.1	52	93	81	259	1.15	0.671
204	Gral. Viamonte	24.9	9.2	401	71.3	56.3	19.3	35.2	12	117	79	359	1.48	0.568
205	Lobos	24.9	9.2	403	72.6	55.5	17.1	30.6	16	98	72	272	1.36	0.500
206	Chacabuco	26.0	9.6	340	67.0	60.5	5.6	7.7	90	86	94	241	0.91	0.696
207	Chacabuco	27.6	10.2	350	69.4	58.2	9.9	17.7	31	87	106	301	0.82	0.643
208	Junín	29.7	11.0	352	69.2	57.7	9.5	18.8	29	102	82	293	1.24	0.697
209	Gral. Arenales	24.5	9.1	335	71.0	59.5	4.2	10.8	45	104	67	242	1.55	0.711
210	Rojas	25.3	9.4	352	69.0	56.0	5.3	27.0	9	100	91	335	1.10	0.632
211	Rojas	29.4	10.9	301	68.5	59.9	9.0	15.0	34	105	101	362	1.04	0.736
212	San Andrés de Giles	28.2	10.4	310	68.3	59.9	10.8	14.4	41	95	113	346	0.84	0.759
213	Gral. Villegas	31.4	11.6	368	68.9	59.5	9.0	18.6	22	95	96	328	0.99	0.665
214	Gral. Villegas	31.9	11.8	340	68.5	57.5	11.0	18.7	29	88	125	347	0.70	0.735
215	Rivadavia	31.2	11.6	345	68.3	59.5	8.5	13.9	43	98	115	370	0.85	0.688
216	Ameghino	20.0	7.4	324	69.8	50.1	6.5	47.3	24	86	43	164	2.00	0.532
217	Gral. Pinto	28.4	10.5	340	70.9	57.0	10.3	19.6	28	85	110	333	0.77	0.648
218	Hipólito Yrigoyen	27.7	10.3	350	72.0	55.4	17.4	32.3	14	91	106	346	0.86	0.627
219	Lincoln	28.4	10.5	382	72.1	55.8	13.7	29.4	13	101	84	316	1.20	0.594

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) (%)
220	Lincoln	26.2	9.7	360	71.5	57.7	4.0	11.7	39	88	94	273	0.94	0.587
221	L.N. Alem	26.3	9.7	364	70.5	55.9	5.2	26.1	10	89	98	322	0.91	0.604
222	L.N. Alem	32.2	11.9	316	72.7	55.5	13.4	22.4	29	82	123	351	0.67	0.642
223	Daireaux	28.6	10.6	300	71.7	56.3	6.5	18.3	24	81	119	325	0.68	0.649
224	Bolivar	24.0	8.9	418	74.7	52.6	2.9	8.1	50	56	138	220	0.41	0.623
225	Baradero	34.6	12.8	369	67.4	59.5	9.3	14.1	34	81	137	331	0.59	0.622
226	San Antonio de Areco	30.4	11.3	319	70.3	59.2	9.5	18.2	27	87	114	319	0.76	0.689
227	Arrecifes	32.0	12.1	325	68.1	61.5	8.8	12.0	44	113	93	347	1.22	0.687
228	Saladillo	23.2	8.6	323	68.5	58.6	3.0	3.8	56	104	74	290	1.41	0.634
229	Las Flores	25.8	9.6	402	68.6	58.1	4.9	16.8	25	107	76	294	1.41	0.613
230	Salto	29.3	10.9	381	66.7	58.4	10.4	16.1	34	89	125	362	0.71	0.635
231	25 de Mayo	24.4	9.0	339	68.2	57.7	4.7	13.1	32	102	76	271	1.34	0.615
232	25 de Mayo	24.5	9.1	391	68.9	56.6	5.2	13.9	33	90	83	262	1.08	0.555
233	Roque Perez	24.3	9.0	354	68.2	55.4	4.8	13.5	32	96	86	297	1.12	0.577
234	Navarro	29.2	10.8	345	68.3	57.4	11.6	22.7	21	97	125	397	0.78	0.616
235	Monte	26.6	9.9	351	72.0	55.5	4.3	10.5	47	84	95	270	0.88	0.602
236	General Belgrano	27.1	10.0	325	71.0	57.8	5.9	11.0	46	95	95	297	1.00	0.590
237	San Pedro	34.1	12.6	318	66.9	58.1	27.0	34.1	37	95	111	396	0.86	0.629
238	Capitán Sarmiento	32.6	12.1	315	68.8	59.4	10.3	15.4	46	95	115	360	0.83	0.747
239	Carlos Casares	27.6	10.2	325	69.5	57.0	17.3	24.4	35	97	99	341	0.98	0.556

Subregion III
Background for the crop

The general conditions in 2008 in Subregion III, like in the greatest part of the pampeana region were characterized by a low level of rainfall, not only in winter months but also in autumn where the soil profile is usually recharged and these rains are essential to ensure the wheat yields. Those crops which were under appropriate rotation system and direct drilling showed better results due to the capacity of moisture retention in the soil.

The average temperature in the months corresponding to the crop cycle was higher than the average as well as the radiation received.

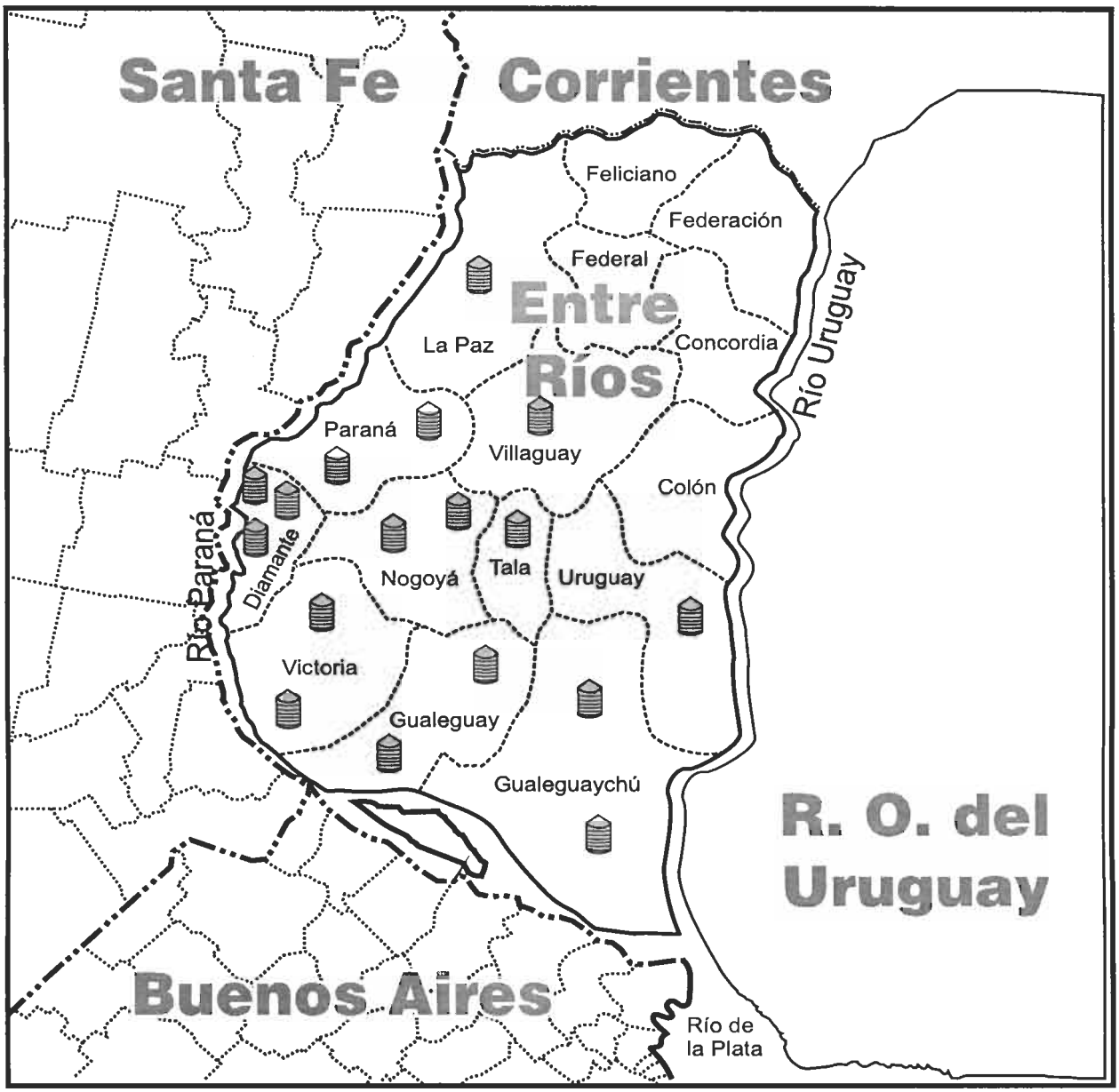
With reference to the sanitary condition of the crop, no important diseases were present due mainly to the low environmental humidity and the scarcity of rainfalls throughout most part of the cycle.

The use of inputs was reduced because of a strong increase in the price of agrochemicals, in particular fertilizers. The conflict with the agricultural sector and the lack of grain futures quotes had also impacted negatively.

The doses of fertilizers used at sowing was on an average of 50-70 kg/ha and the fertilizer mostly used was diammonium phosphate. The doses used during tillering were variable but in general the use was considerably reduced compared to previous years.

The most sown cultivars were those of short cycle, mainly because the decision to sow was taken later than in previous years, and mainly motivated by the lack of moisture and the conflict above mentioned.

The average crop yield was lower than previous years due to scarce rainfalls and the reduced use of inputs, mainly fertilizers.



Each reference represents near 4,000 tns sampled.

Subregion III Wheat

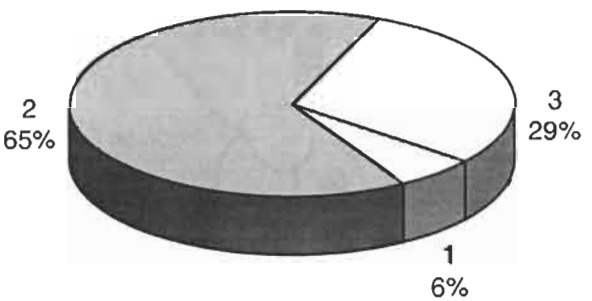
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	78.10	83.80	80.62	1.47	0.02
Total Damaged Kernels (%)	0.20	2.19	1.26	0.51	0.41
Foreign Material (%)	0.04	0.80	0.29	0.18	0.64
Shrunken and Broken Kernels (%)	0.42	1.60	1.01	0.33	0.33
Yellow Berry Kernels (%)	0.36	4.90	1.73	1.38	0.80
Protein (13,5% Moisture) (%)	9.9	13.8	12.4	0.9	0.07
Weight of 1000 Kernels (gr.)	28.60	34.60	31.59	1.22	0.04
Ash (% dry basis)	1.560	1.840	1.698	0.082	0.05

Total damaged kernels includes 0.82% green kernels, 0.08% sprouted kernels, 0.09% insect chewed kernels, 0.21% germ-chewed kernels and 0.06% calcinated kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	23.9	41.4	31.1	4.2	0.13
	Dry Gluten (%)	8.3	14.7	10.9	1.5	0.14
	Falling Number (sec.)	415	550	486	38	0.08
	Flour Yield (%)	65.1	71.9	68.9	2.0	0.03
	Ash (dry basis) (%)	0.575	0.805	0.679	0.068	0.10
FARINOGRAM	Water Absorption (14 % H°) (%)	59.3	64.5	61.9	1.4	0.02
	Development Time (min.)	5	14.0	8.7	2.0	0.24
	Stability (min.)	8.6	26.4	15.1	4.6	0.30
	Degree of Softening (12 min.)	23	58	38	10	0.26
ALVEOGRAM	P (mm)	95	152	117	16	0.14
	L (mm)	34	105	80	16	0.19
	W Joules x 10^{-4}	223	408	322	50	0.16
	P / L	1.01	4.47	1.46	0.67	0.43

These results were elaborated with 17 composite samples prepared proportionally from 365 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 464,125 tons., the 5.5% of the national total. Were sampled 54,000 tons., the 11.63% 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	4000	2	78.10	2.19	0.80	0.96	1.60	12.6	31.20	1.750
301	Paraná	4000	2	80.90	1.32	0.32	1.04	1.52	11.9	30.80	1.760
302	Rosario del Tala	2000	2	81.50	1.08	0.40	1.20	0.48	12.0	32.20	1.660
303	Villaguay	2000	2	82.40	0.44	0.08	1.12	4.20	9.9	34.60	1.680
304	Diamante	4000	3	81.40	1.72	0.48	1.40	3.32	11.8	32.40	1.730
305	Diamante	4000	2	80.30	1.56	0.32	0.76	0.48	12.8	30.60	1.730
306	Diamante	2000	2	79.60	1.96	0.20	1.08	1.70	12.8	28.60	1.840
307	La Paz	4000	2	81.60	1.48	0.28	0.72	2.56	12.0	33.40	1.560
308	Gualeguay	4000	2	80.30	1.08	0.20	0.42	1.68	13.1	31.60	1.580
309	Gualeguay	2000	2	78.10	0.52	0.32	1.08	1.90	13.8	31.00	1.730
310	Gualeuaychú	4000	3	79.80	0.60	0.16	1.32	0.50	13.5	30.04	1.650
311	Gualeguaychú	2000	2	80.50	1.04	0.12	1.04	0.50	12.9	31.60	1.680
312	Nogoyá	4000	2	81.30	1.24	0.24	0.92	0.45	12.5	31.00	1.770
313	Nogoyá	2000	3	82.10	0.20	0.20	1.60	0.40	12.2	31.80	1.730
314	Concepción del Uruguay	4000	1	83.80	0.80	0.04	0.48	4.90	10.8	33.00	1.560
315	Victoria	4000	3	79.30	1.68	0.20	1.24	0.36	12.6	31.40	1.780
316	Victoria	2000	3	79.00	1.40	0.36	1.60	2.68	12.9	32.20	1.790

Subregion 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	31.3	10.9	485	67.3	60.8	9.5	15.1	42	109	95	352	1.15	0.735
301	Paraná	28.5	9.7	415	65.2	63.0	8.5	15.2	36	137	64	326	2.14	0.715
302	Rosario del Tala	29.6	10.0	489	70.8	63.0	8.7	14.2	39	127	68	307	1.87	0.705
303	Villaguay	23.9	8.6	454	71.8	62.8	6.5	11.5	41	152	34	223	4.47	0.690
304	Diamante	27.9	10.1	528	70.3	60.6	8.0	17.7	26	117	71	303	1.65	0.715
305	Diamante	32.3	11.3	473	70.6	63.6	7.8	17.1	29	135	82	384	1.65	0.805
306	Diamante	32.5	11.6	517	71.9	61.0	12.0	22.6	24	119	95	408	1.25	0.735
307	La Paz	26.9	9.6	430	65.1	61.2	14.0	26.4	23	145	73	407	1.99	0.655
308	Gualeguay	33.6	11.5	535	68.6	61.7	9.3	14.9	39	105	102	350	1.03	0.640
309	Gualeguay	34.0	12.1	480	68.8	63.1	10.4	18.7	30	106	105	380	1.01	0.770
310	Gualeuaychú	37.6	13.2	550	68.9	63.5	6.3	8.6	50	101	98	297	1.03	0.615
311	Gualeguaychú	35.0	12.1	483	69.5	64.5	7.7	10.6	49	114	82	305	1.39	0.605
312	Nogoyá	31.8	10.9	491	70.3	61.6	7.2	10.1	58	103	82	286	1.26	0.580
313	Nogoyá	29.8	10.5	526	70.5	61.7	8.3	15.3	40	95	91	306	1.04	0.605
314	Concepción del Uruguay	24.0	8.3	455	69.0	59.3	9.1	15.5	33	116	65	273	1.78	0.575
315	Victoria	33.2	12.2	490	69.8	60.6	7.9	12.5	47	108	79	287	1.37	0.730
316	Victoria	41.4	14.7	473	66.0	62.9	5.0	8.8	50	97	73	228	1.33	0.690

Subregion IV
Background for the crop

In this production cycle, the drought period which has been taking place since the last two years (2006 and 2007), was increased. Late frosts did not occur as in the cycle 2007/08, but the absence of rainfalls in the critical moment of the crop was a decisive yield factor in most part of the subregion.

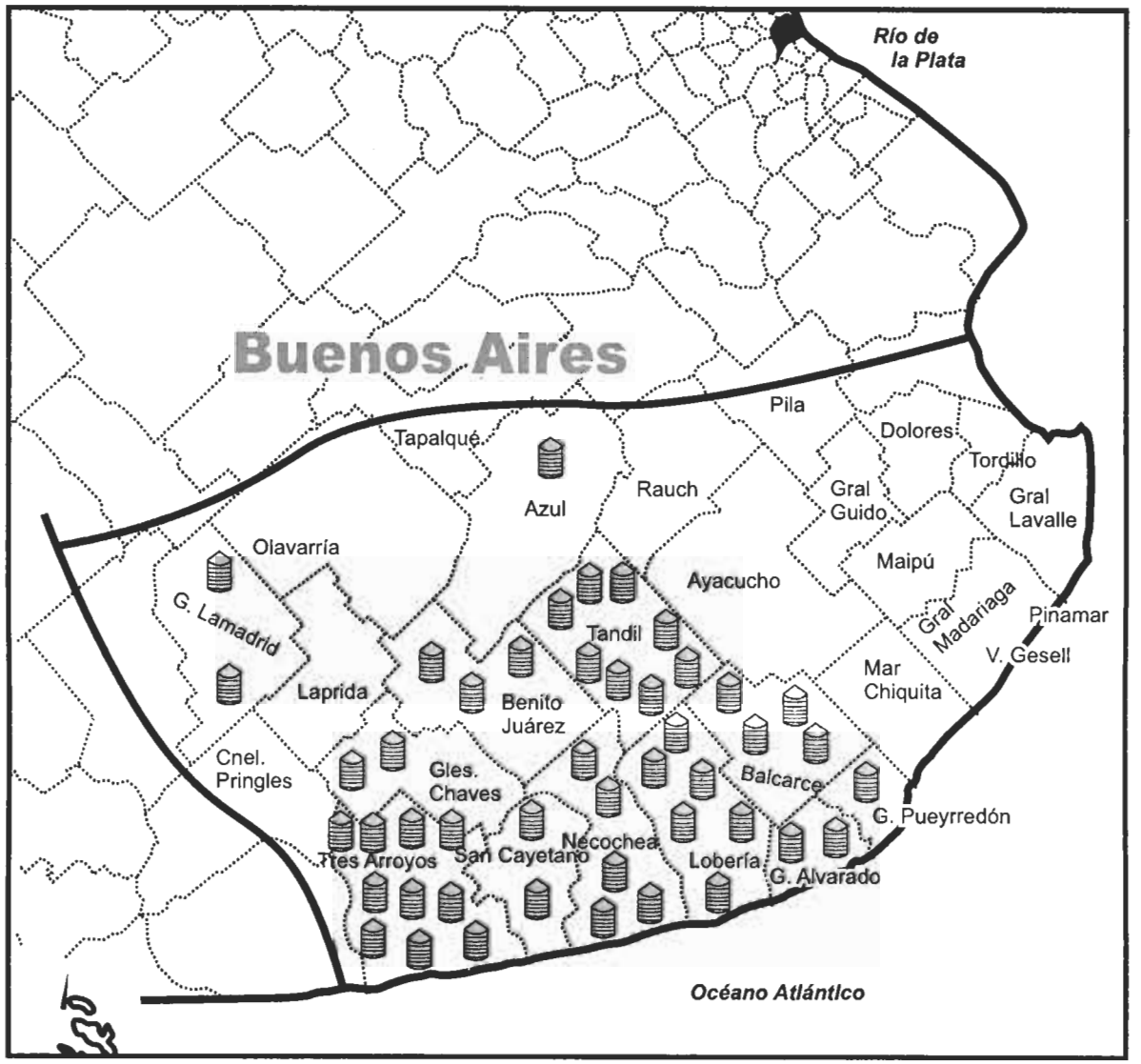
In the period from sowing to tillering, rainfalls were reduced but well distributed which contributed to the birth of even crops and with a good development in general, with mean temperatures above normal. Moreover, the number of frosts was neither important nor intense as in cycle 2007.

From October, rainfalls were scarce or none together with high temperatures and drying wind which resulted in the acceleration of the crop reproductive cycle and a decrease of the yields, mainly in late sowings.

Total rainfalls from June to December were 50% higher than normal and 60% lower than in the period October-December. In November the average temperature was almost 4ºC higher than average in the last 10 years with 14 days with more than 30ºC, which resulted in an increase in the crop development and a reduction of up to 6 days in the grain-filling period. This caused an important drop in 1000 grain weight and in hectolitric weight which impacted on the low yields and the drop of commercial quality as a result of the short grain-filling period. Foliar diseases were not important.

Due to high temperatures and the lack of moisture there was a shortening of the reproductive cycle between 10 and 15 days. Yields were in general low and varied according to the areas and rains. In general in the eastern part of the subregion, yields were good and decreasing towards the west, with average yields between 2000 and 2400 kg/ha.

Subregion IV Wheat



Each reference represents near 4,000 tns sampled

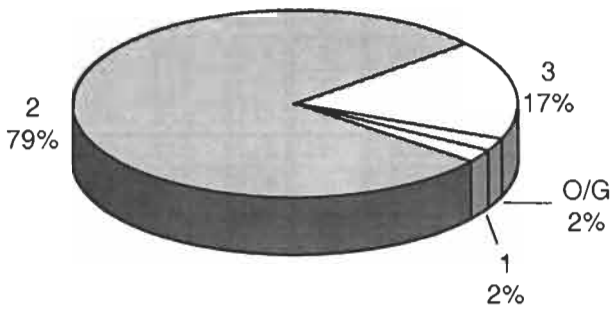
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	77.00	83.05	80.12	1.31	0.02
Total Damaged Kernels (%)	0.00	0.71	0.12	0.12	1.01
Foreign Material (%)	0.10	1.38	0.35	0.23	0.65
Shrunken and Broken Kernels (%)	0.3	2.02	0.94	0.33	0.36
Yellow Berry Kernels (%)	0.18	7.20	1.85	1.62	0.87
Protein (13,5% Moisture) (%)	10.4	13.6	11.8	0.7	0.06
Weight of 1000 Kernels (gr.)	25.6	34.47	31.05	2.59	0.08
Ash (% dry basis)	1.548	1.872	1.686	0.068	0.04

Total damaged kernels includes 0.01% frosty kernels, 0.01% sprouted kernels, 0.03% calcinated kernels, 0.05% 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 (%)	24.4	32.9	27.9	2.0	0.07
	Dry Gluten (%)	8.7	11.1	10.0	0.5	0.05
	Falling Number (sec.)	309	476	395	50	0.13
	Flour Yield (%)	66.8	74.0	70.9	1.6	0.02
	Ash (dry basis) (%)	0.486	0.663	0.579	0.032	0.06
FARINOGRAM	Water Absorption (14 % H°) (%)	54.4	60.7	56.9	1.4	0.02
	Development Time (min.)	3.7	39.4	11.4	6.8	0.60
	Stability (min.)	11.9	52.1	28.8	11.4	0.40
	Degree of Softening (12 min.)	0	41	20	9	0.48
ALVEOGRAM	P (mm)	78	126	95	11	0.11
	L (mm)	57	114	90	13	0.14
	W Joules x 10^{-4}	237	412	310	43	0.14
	P / L	0.79	1.89	1.06	0.26	0.24

These results were elaborated with 46 composite samples prepared proportionally from 759 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 2,418,037 tons., the 28.9% of the national total. Were sampled 181,493 tons., the 7.51% of the subregion production.

Subregion 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	Balcarce	4000	2	80.80	0.21	0.34	0.54	1.32	11.6	31.19	1.683
401	Lobería	4008	2	80.35	0.09	0.21	1.03	1.08	11.7	34.44	1.667
402	Lobería	4008	2	81.25	0.18	0.58	0.94	0.60	11.7	33.26	1.669
403	Balcarce	4000	2	81.70	0.08	0.30	1.17	0.78	12.0	32.57	1.673
404	Tandil	4000	2	79.45	0.15	0.47	0.84	0.99	10.7	30.96	1.738
405	Tandil	4000	2	79.45	0.00	0.22	0.76	2.77	10.9	32.41	1.701
406	Tandil	4000	2	79.45	0.06	0.32	0.64	1.08	10.9	32.40	1.684
407	Gral. Alvarado	4000	2	80.80	0.03	0.32	0.52	5.47	10.4	34.47	1.663
408	Gral. Alvarado	4000	2	81.70	0.08	0.35	0.30	1.83	11.1	33.94	1.672
409	Balcarce	4000	1	81.70	0.07	0.15	0.47	4.07	11.1	33.01	1.663
410	Lobería	4034	2	80.80	0.02	0.15	0.94	0.21	11.7	31.35	1.674
411	Balcarce	4011	2	83.05	0.14	0.30	0.61	2.73	11.0	33.44	1.659
412	Lobería	4000	2	77.00	0.06	0.45	1.06	1.06	12.1	32.50	1.610
413	Azul	4000	2	78.35	0.06	0.30	0.71	2.10	12.0	30.71	1.626
414	Tres Arroyos	4000	2	81.70	0.06	0.15	0.82	1.30	11.9	33.33	1.652
415	Tres Arroyos	4000	2	81.70	0.29	0.16	0.71	4.50	11.9	34.30	1.548
416	Tandil	4000	2	81.25	0.04	0.28	0.67	0.18	11.8	32.31	1.603
417	Tandil	4000	2	81.25	0.18	0.25	0.65	0.62	11.4	32.28	1.611
418	Necochea	4000	2	80.35	0.12	0.27	0.52	1.15	11.2	34.30	1.569
419	Necochea	4000	2	81.95	0.07	0.23	0.43	0.27	11.1	34.38	1.593
420	Necochea	4000	2	80.80	0.11	0.22	0.96	2.43	11.2	33.78	1.658
421	Gral. Pueyrredón	4000	2	80.35	0.02	0.27	1.05	0.65	10.4	33.82	1.680
422	Lobería	4000	2	79.25	0.71	0.13	0.75	1.23	11.6	32.36	1.646

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) (%)
423	Lobería	4000	2	80.80	0.00	0.14	1.10	0.44	12.1	32.57	1.763
500	Benito Juárez	4003	2	80.80	0.00	0.64	0.68	0.80	12.2	30.50	1.734
501	Benito Juárez	4060	2	79.70	0.00	0.34	0.80	0.50	11.8	32.60	1.700
502	Benito Juárez	2161	2	79.70	0.12	0.66	1.12	4.60	12.1	30.60	1.729
503	General Lamadrid	4006	3	78.15	0.10	0.30	1.78	0.20	13.3	26.30	1.787
504	General Lamadrid	4004	2	79.00	0.30	0.38	0.94	7.20	11.2	29.40	1.681
505	Gonzales Chaves	4000	2	79.00	0.10	0.36	0.96	0.40	13.6	25.60	1.872
506	Gonzales Chaves	4000	3	79.25	0.12	0.16	1.30	0.40	13.0	25.80	1.798
507	Necochea	3087	3	78.35	0.24	0.38	1.22	2.40	11.8	30.30	1.563
508	Necochea	5000	2	79.90	0.06	0.28	0.92	0.80	11.6	33.00	1.593
509	San Cayetano	4000	2	77.00	0.10	0.16	0.90	1.10	12.0	27.60	1.715
510	San Cayetano	3500	2	80.80	0.08	0.10	0.96	1.20	12.0	26.30	1.707
511	Tandil	5000	3	77.90	0.12	1.38	1.58	2.20	12.5	28.40	1.691
512	Tandil	5000	2	79.90	0.14	0.68	0.92	0.60	12.0	29.10	1.676
513	Tandil	5000	2	81.50	0.22	0.52	0.90	0.90	11.7	31.30	1.677
514	Tres Arroyos	4027	3	79.25	0.12	0.56	1.42	5.20	12.2	26.40	1.831
515	Tres Arroyos	4037	3	80.80	0.18	0.30	1.46	4.20	12.6	29.90	1.713
516	Tres Arroyos	2164	O/G	79.00	0.20	0.26	2.02	2.20	13.3	26.60	1.780
517	Tres Arroyos	3990	3	80.35	0.06	0.42	1.38	2.60	12.5	30.00	1.743
518	Tres Arroyos	3987	3	79.70	0.00	0.36	1.28	1.60	12.2	29.70	1.730
519	Tres Arroyos	2406	2	80.15	0.06	0.52	1.18	2.80	12.8	28.40	1.736
520	Tres Arroyos	4000	2	79.70	0.20	0.14	0.82	3.60	12.3	29.50	1.707
521	Tres Arroyos	4000	2	79.45	0.00	0.50	0.92	3.50	12.0	27.60	1.787

Subregion IV 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) (%)
400	Balcarce	27.5	10.2	351	71.5	56.0	6.0	22.5	11	100	96	330	1.04	0.576
401	Lobería	27.6	10.2	361	71.4	59.1	17.8	29.1	24	118	86	377	1.37	0.635
402	Lobería	27.6	10.2	353	70.9	58.0	19.7	30.1	24	96	110	370	0.87	0.604
403	Balcarce	28.5	10.6	476	72.3	58.3	15.3	27.7	23	103	74	295	1.39	0.599
404	Tandil	25.7	9.5	463	72.1	54.9	4.1	21.0	18	93	78	255	1.19	0.597
405	Tandil	25.2	9.3	370	72.6	56.4	4.3	16.5	29	108	57	237	1.89	0.609
406	Tandil	25.5	9.5	367	72.5	54.4	5.0	15.7	32	87	80	250	1.09	0.592
407	Gral. Alvarado	24.5	9.1	351	74.0	55.3	3.9	11.9	41	97	71	248	1.37	0.582
408	Gral. Alvarado	26.7	9.9	370	73.1	55.2	5.6	18.1	23	82	93	266	0.88	0.571
409	Balcarce	26.4	9.8	309	73.1	58.3	4.2	16.5	29	103	78	287	1.32	0.558
410	Lobería	27.6	10.2	349	72.5	56.6	4.8	20.5	15	90	95	306	0.95	0.607
411	Balcarce	25.5	9.4	335	73.4	59.8	4.6	18.8	22	126	78	341	1.62	0.574
412	Lobería	27.6	10.2	340	72.9	55.1	15.7	29.5	22	92	98	331	0.94	0.539
413	Azul	26.7	9.9	327	71.5	56.2	15.1	30.4	17	110	73	313	1.51	0.591
414	Tres Arroyos	27.7	10.3	360	72.4	55.9	16.4	42.8	14	99	93	343	1.06	0.567
415	Tres Arroyos	27.1	10.0	347	70.5	57.0	7.4	35.1	11	110	88	327	1.25	0.564
416	Tandil	27.9	10.3	351	71.7	57.1	5.9	24.7	9	98	88	313	1.11	0.582
417	Tandil	26.1	9.7	341	69.2	58.0	16.7	30.9	12	113	107	395	1.06	0.590
418	Necochea	27.1	10.0	352	72.3	55.9	6.5	21.5	25	90	83	266	1.08	0.570
419	Necochea	26.3	9.7	319	70.1	56.4	5.2	20.9	15	99	111	342	0.89	0.562
420	Necochea	27.0	10.0	346	72.5	55.6	4.6	20.0	18	86	89	268	0.97	0.580
421	Gral. Pueyrredón	24.4	9.0	342	71.6	55.8	3.7	16.3	29	98	80	269	1.23	0.544
422	Lobería	27.4	10.2	361	72.4	56.9	5.9	17.5	28	91	114	323	0.80	0.614

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) (%)
423	Lobería	27.8	10.3	328	69.2	56.9	12.3	27.9	17	94	100	346	0.94	0.663
500	Benito Juárez	28.5	9.7	416	68.7	57.1	7.8	17.9	31	85	94	276	0.90	0.575
501	Benito Juárez	29.6	10.1	450	70.3	59.8	10.7	21.2	27	84	101	313	0.83	0.562
502	Benito Juárez	29.3	10.1	444	70.8	56.2	15.3	47.3	13	90	95	324	0.95	0.563
503	General Lamadrid	30.8	10.8	432	69.5	59.2	17.8	35.1	7	96	113	405	0.85	0.549
504	General Lamadrid	25.3	8.7	430	68.1	58.8	9.9	16.4	36	114	62	275	1.84	0.593
505	Gonzales Chaves	30.8	10.8	436	70.2	60.7	11.0	27.5	17	111	98	412	1.13	0.607
506	Gonzales Chaves	30.1	10.5	437	69.3	58.5	39.4	40.5	40	99	104	400	0.95	0.544
507	Necochea	28.9	10.1	425	71.0	55.3	19.2	38.5	10	78	98	283	0.80	0.486
508	Necochea	27.2	9.4	403	71.1	55.8	16.2	45.7	10	96	71	275	1.35	0.500
509	San Cayetano	27.3	9.6	437	70.1	55.7	12.1	22.5	27	80	91	275	0.88	0.543
510	San Cayetano	27.2	9.5	441	71.5	56.8	11.9	41.0	17	95	91	338	1.04	0.584
511	Tandil	32.9	11.1	437	66.8	56.8	8.6	20.5	21	84	92	279	0.91	0.609
512	Tandil	29.3	10.1	449	70.7	56.9	9.7	38.5	20	86	82	274	1.05	0.591
513	Tandil	27.2	9.4	454	70.8	56.9	25.2	52.1	0	91	81	297	1.12	0.603
514	Tres Arroyos	29.9	10.2	441	68.7	55.5	15.7	44.5	10	86	83	278	1.04	0.551
515	Tres Arroyos	30.9	10.7	430	69.1	56.3	10.6	50.6	8	88	99	329	0.89	0.536
516	Tres Arroyos	32.5	11.0	439	67.7	56.4	11.9	23.4	21	82	101	310	0.81	0.563
517	Tres Arroyos	30.5	10.6	473	69.3	56.1	16.3	49.3	1	86	96	318	0.90	0.585
518	Tres Arroyos	29.9	10.2	453	69.8	56.0	15.9	45.9	16	85	90	300	0.94	0.580
519	Tres Arroyos	31.0	10.8	466	70.3	55.7	10.5	48.3	12	82	97	311	0.85	0.601
520	Tres Arroyos	27.2	9.5	434	70.6	56.9	7.8	20.5	23	84	106	322	0.79	0.582
521	Tres Arroyos	27.1	9.3	429	70.8	58.2	10.6	19.6	33	98	86	321	1.14	0.639

Climatology 2008/2009

Climate and Wheat crop 2008 – 2009 in Argentina

Juan A. Forte Lay – José L. Aiello.

Climate behavior is described during the wheat campaign 2008-2009 resorting, once again, to the utilization of a method to calculate the water reserves in the soil and its abnormalities. The latter ones called "Classification of soil moisture" were calculated as a monthly average during the whole wheat cycle, although they come from a daily analysis and express the degree of deviation from the habitual conditions in each region and season. Moisture classification is an adequate climatic indicator since it summarizes the behavior of most relevant climatic variables, such as spatial and temporal distribution of precipitation and its interaction with evapotranspiration which at the same time depends on room temperature, solar radiation, wind and atmospheric humidity.

The maps, which are used in an operational way and for any period of time, are in this case monthly and contain a political subdivision by departments which can be associated to the known wheat zones of the country representing only the pampeanas provinces. The reader can have a clear idea of the climatic evolution of the wheat campaign through the sequence of maps of soil moisture classification and the description of its behavior, since the agronomic considerations are described in another section of this publication. It is important to highlight that not always the habitual or normal conditions are the most adequate for the crop in all the regions and seasons; therefore in winter and early spring, normal conditions could result in hydric deficit in regions located towards the west or northwest of the area like the North V wheat region, while the same conditions could represent water excess in the soil towards the central east and west of the wheat region.

MAY 2008

At the beginning of the wheat campaign, a deficit panorama is observed regarding the edaphic humidity resulted from the lack of precipitation in April and May. Only one marginal sector to the center-west of Cordoba province and the north of San Luis province showed normal conditions where the first early sowings could begin. The situation is extremely serious in the east of the province of La Pampa and far from normal in the west of Buenos Aires and north of Santa Fe and Entre Rios provinces.

JUNE 2008

Conditions mildly improved in the center- east and center-west of Buenos Aires where superficial humidity allowed sowing short cycles, moreover mild temperatures were favorable towards the end of the month. It also improved in the southeast of La Pampa but the situation is highly unfavorable in the north of this province and northwest of Buenos Aires. The situation remained critical in the north and center of Santa Fe, in the wheat area of Entre Rios and northeast of Buenos Aires which made sowing difficult. Though the dry abnormality seems to soften in Cordoba, mainly to the west it must be taken into account that the normal values are deficient so the situation is not much better.

JULY 2008

The general context of edaphic humidity deficit continues, except in the middle and lower Salado basin up to 9 de Julio zone and southeast of Buenos Aires province where conditions of edaphic humidity improved considerably. In addition to the improvement in Buenos Aires there was modest rainfall in La Pampa which allowed sowing thanks to accumulated superficial humidity, although the deep humidity remained scarce. In the northern wheat core, the situation remained on being critical in Santa Fe, Cordoba and southwest of Entre Rios where crops were highly affected. The thermal conditions were mild for a usually cold month.

AUGUST 2008

There was good to very good profile humidity in the center and southwest of Buenos Aires so that the sowing could be finished without problems. The situation was difficult in La Pampa province. Most affected wheat field were seen in Cordoba and Santa Fe, although there were also wheat fields affected by the drought in the west of Entre Rios. Many crops showed a critical situation with a tendency to low development in stalk formation and yellowish basal leaves which, in many cases were dedicated to pastures.

SEPTEMBER 2008

Although precipitations were higher in September than the previous months in the drought zones, they could not stop the generalized water deficit. Situation tended to normal towards the southwest of Buenos Aires province. There were general precipitations towards the end of the month of rains in almost the entire chaco-pampeana region which meant a relief to the serious situation though in most of the cases they arrived late to modify the affected wheat panorama but in some cases they helped to stop deterioration. The worst situation was observed in the north wheat core and in the north of La Pampa province.

OCTOBER 2008

October began with plenty precipitations for vast sectors of the core zone which remained during the first fortnight. From then on the main precipitation systems remained towards the center and center west of Buenos Aires, passing over other sectors of the pampeana region. Most part of the southern wheat zone showed negative abnormalities in soil humidity. Early cultivated wheat suffered most deficits. South of Santa Fe and northeast of Buenos Aires had the worst condition. Another negative factor was evapotranspiration which highly increased in the second fortnight of the month.

NOVEMBER 2008

During the last week of November, best accumulation of precipitations took place in the core zone. This improvement occurred after weeks of no rain or modest rain, therefore the average edaphic humidity of the month did not significantly change from the previous month. In general, rainfalls arrived late for wheat as well as in Cordoba region where they were even. The best prospect can be seen in the center-west of Buenos Aires. Again, strong deficit is observed in the southeast of Buenos Aires, a key month for wheat in the region. Temperatures were high.

DECEMBER 2008

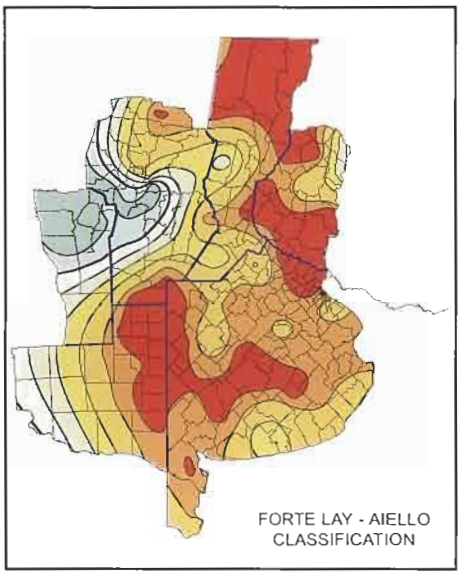
Due to the fact that this is a harvest month in the center and north of the region, positive abnormalities in soil humidity are not always favorable, this is why harvesting was carried out to a smaller scale in the center-west of Cordoba and center-west of Buenos Aires and it was more important only in non wheat zones such as north of San Luis. Harvesting, in general as it was expected, had poor results. In the southeast of Buenos Aires drought was again incremented which could have negatively affected the last filling grain stage.

JANUARY 2009

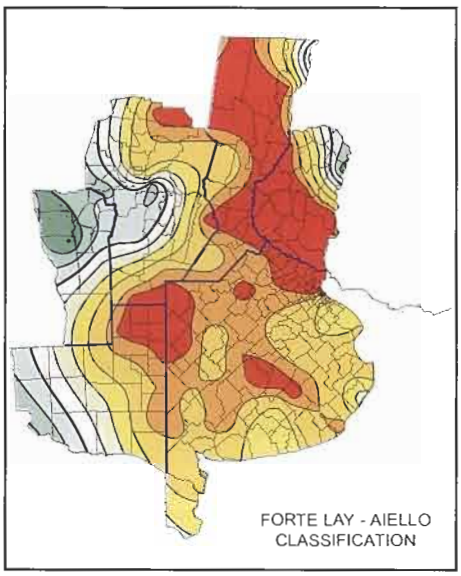
The average hydric situation of the month is added to the map since it is still a harvesting period in the southeast extreme of the wheat area. There, as in many other zones of the area, extremely dry conditions (more than habitual to the season) can be observed, reason why the harvesting activities were affected in the last wheat plots. Yields in the southeast were variable but in general lower than expected after sowing.

SOIL HUMIDITY CLASSIFICATIO

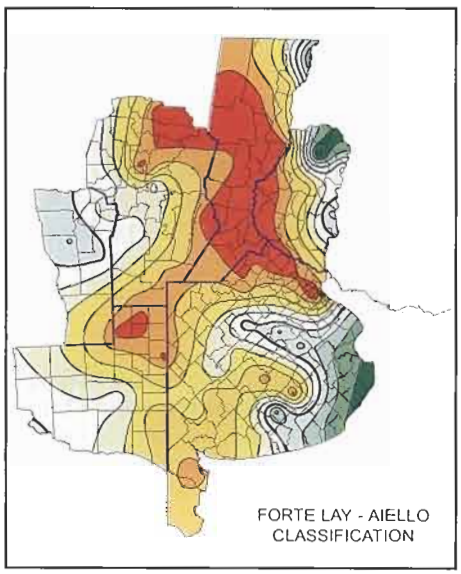
MAY 2008



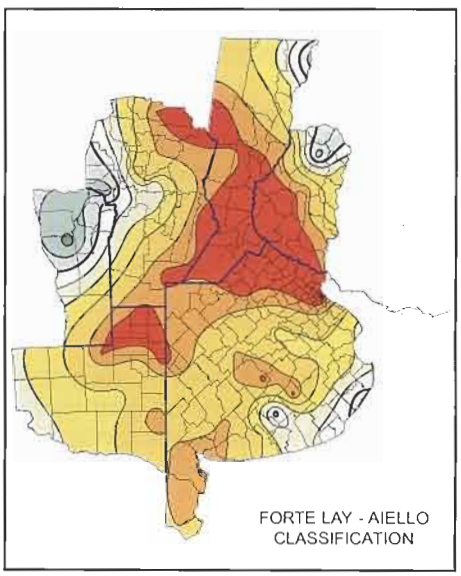
JUNE 2008



AUGUST 2008



SEPTEMBER 2008



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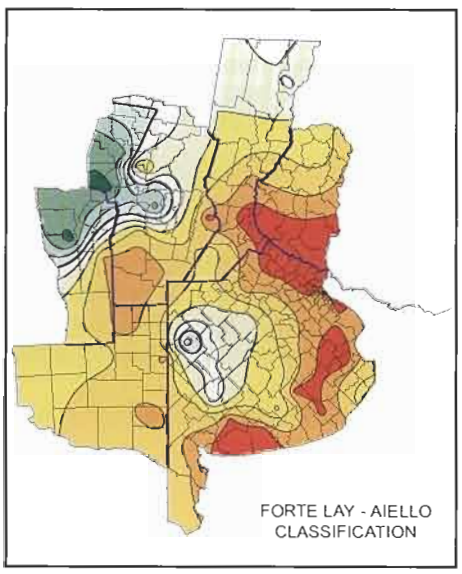
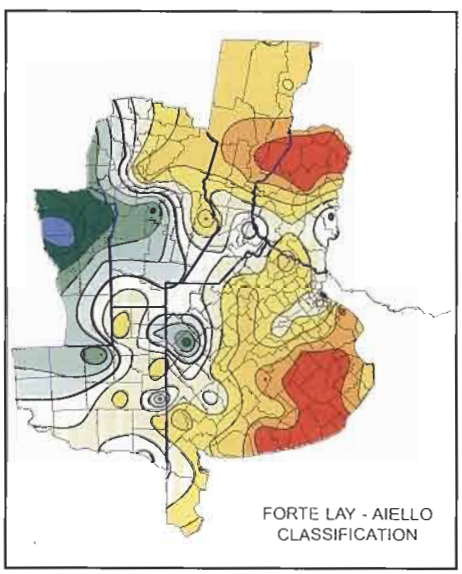
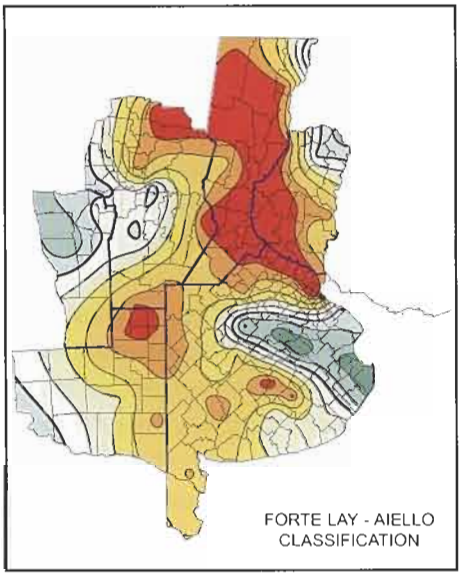


DECEMBER 2008

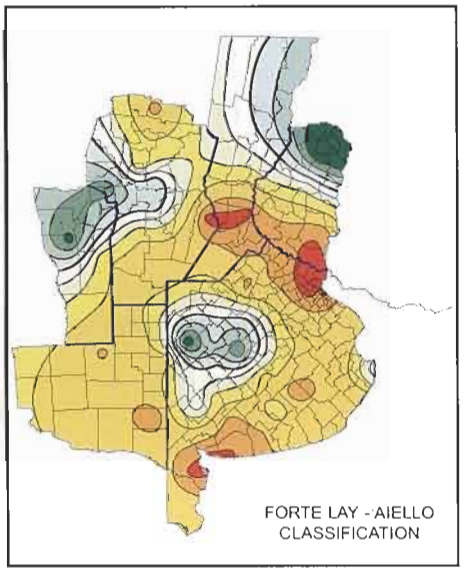


2008/2009 WHEAT CROP

JULY 2008

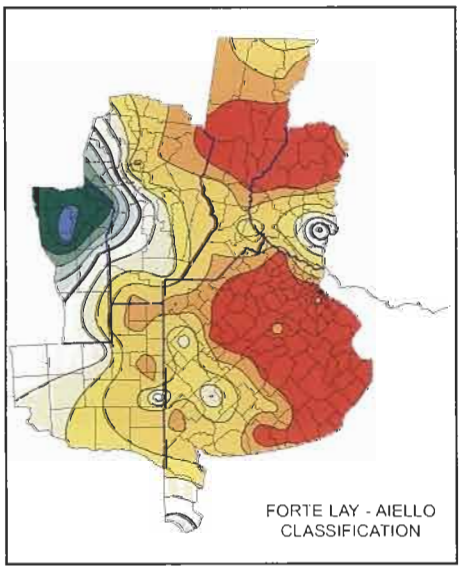


OCTOBER 2008



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.

JANUARY 2009



Subregion V North
Background for the crop

The 2008 wheat campaign was characterized by three main factors which explain the low levels of yield achieved throughout the area. The first and main factor was the scarce quantity of water accumulated in the soil profile at the moment of sowing, as it is known, in this region the accumulation of water on the soil at the moment of sowing results in 70 % of yield variability. The second factor was the low water use efficiency achieved (grain kg/mm); which was associated to the temperature, mainly in yield definition stages (earing and grain-filling), which remained slightly above the average records, this resulted in higher consumption and lower efficiency. According to data collected in the producers plots, water efficiency reached numbers lower than 10 kg/mm. It is important to highlight in the third place, the producers low motivation to incorporate technology due to the crisis "farm-government" and the increase in production costs. This discouraged the intention of planting wheat and placed it below historical values and it also made most plots be planted with low levels of inputs (genetics, seed treatments, fertilizers, etc.).

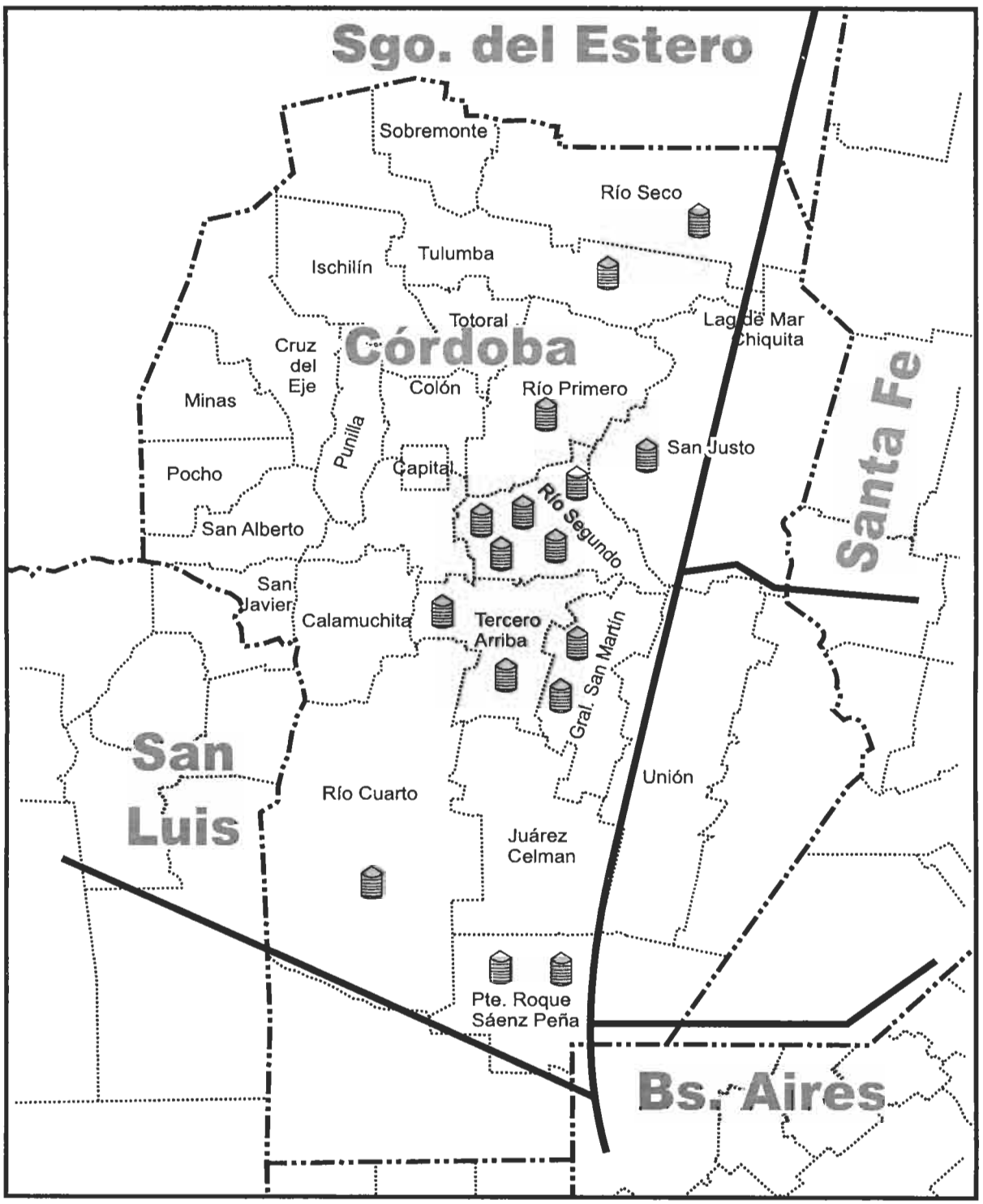
As a consequence, low yields were obtained, which varied between 8 and 18 qq/ha. Plots under supplementary irrigation or with the presence of un-derwater, good fertilization and appropriate choice of variety reached yields between 35 and 55 qq/ha.

Sowing was mostly carried out in May, though towards the northern part of the region, there were some anticipated plantings in April (long cycles).

On the other hand, the pressure of foliar diseases (Leaf Rust and Yellow Spot) was non existent and in general no controls with fungicides were carried out.

As a conclusion, the combination of scarce availability of water on the soil profile at the moment of sowing, temperatures slightly higher than normal and the low technological level used, determined the expression of high yields.

Subregion V North Wheat



Each reference represents near 4,000 tns sampled

Subregion V North Wheat

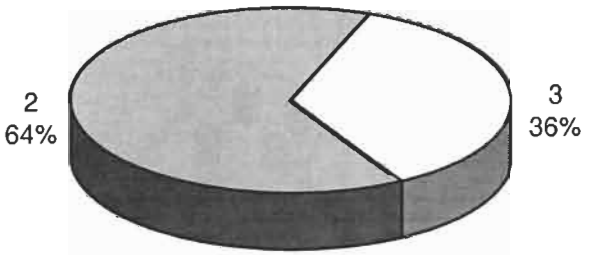
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	75.45	82.85	79.18	2.48	0.03
Total Damaged Kernels (%)	0.39	3.20	1.23	0.62	0.50
Foreign Material (%)	0.16	0.43	0.27	0.08	0.30
Shrunken and Broken Kernels (%)	0.37	1.79	0.84	0.38	0.46
Yellow Berry Kernels (%)	0.00	0.38	0.06	0.13	2.25
Protein (13,5% Moisture) (%)	10.7	13.4	11.8	0.8	0.07
Weight of 1000 Kernels (gr.)	28.17	34.79	31.70	2.32	0.07
Ash (% dry basis)	1.625	2.128	1.883	0.194	0.10

Total damaged kernels includes 0.16% green kernels, 0.03% frosty kernels, 0.69% sprouted kernels, 0.04% calcinated kernels, 0.1% insect chewed kernels and 0.18% germ-chewed kernels.

Grade Distribution



Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	24.2	33.4	28.4	2.5	0.09
	Dry Gluten (%)	8.2	12.0	9.9	1.0	0.10
	Falling Number (sec.)	397	494	441	25	0.06
	Flour Yield (%)	63.2	72.2	67.4	2.4	0.04
	Ash (dry basis) (%)	0.595	0.735	0.663	0.034	0.05
FARINOGRAM	Water Absorption (14 % H°) (%)	56.7	62.9	60.1	2.2	0.04
	Development Time (min.)	6.5	14.6	10.1	2.5	0.25
	Stability (min.)	11.5	40.4	20.5	8.0	0.39
	Degree of Softening (12 min.)	8	48	29	14	0.46
ALVEOGRAM	P (mm)	91	138	110	11	0.10
	L (mm)	58	101	77	10	0.13
	W Joules x 10^{-4}	264	366	305	24	0.08
	P / L	0.96	2.05	1.43	0.29	0.20

These results were elaborated with 14 composite samples prepared proportionally from 219 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 725,520 tons., the 8.7% of the national total. Were sampled 71,200 tons., the 9.81% 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	San Justo	4000	3	77.00	3.20	0.36	0.76	0.00	12.9	29.70	2.112
601	Pte. R. Saenz Peña	4000	2	77.70	0.39	0.16	0.95	0.38	11.8	29.06	1.691
602	Pte. R. Saenz Peña	4000	3	78.15	0.71	0.20	1.79	0.36	13.2	28.17	1.810
603	Río Primero	3200	2	78.60	0.39	0.36	0.76	0.00	10.7	31.03	1.811
604	Gral. San Martín	4000	3	77.00	1.21	0.25	1.41	0.00	13.4	29.35	1.977
605	Río II	4000	2	77.70	1.79	0.28	0.80	0.00	11.5	30.69	2.034
606	Rio II	4000	2	79.00	1.06	0.19	0.75	0.00	11.4	31.25	2.030
607	Río II	4000	2	79.45	1.02	0.40	1.09	0.27	11.9	33.37	2.054
608	Río II	4000	2	79.00	1.58	0.33	0.87	0.00	11.1	29.21	2.128
609	Río II	4000	2	77.90	1.34	0.40	0.89	0.00	10.8	31.64	2.066
610	Gral. San Martín	4000	3	76.10	1.20	0.30	1.25	0.00	12.8	28.92	1.976
611	Tercero Arriba	4000	2	77.90	1.80	0.24	0.88	0.00	12.0	32.39	1.984
612	Tercero Arriba	4000	3	75.45	1.58	0.43	0.99	0.00	12.5	31.69	2.087
613	Río Cuarto	20000	2	82.85	0.95	0.21	0.37	0.00	11.3	34.79	1.625

Subregion V North 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) (%)
600	San Justo	30.9	11.0	397	69.3	61.7	10.0	20.9	26	138	70	366	1.97	0.730
601	Pte. R. Saenz Peña	29.4	9.8	456	70.7	56.7	10.9	22.8	23	91	95	319	0.96	0.615
602	Pte. R. Saenz Peña	31.7	11.4	494	68.9	57.9	10.4	19.7	28	96	83	290	1.16	0.670
603	Río Primero	24.2	8.2	421	72.2	59.0	11.4	20.5	27	119	58	264	2.05	0.650
604	Gral. San Martín	33.4	11.8	448	70.0	59.8	11.5	19.1	32	102	101	357	1.01	0.680
605	Río II	27.2	9.9	418	65.9	58.5	10.9	26.4	13	108	75	299	1.44	0.685
606	Rio II	27.7	9.6	443	65.1	58.1	11.4	26.6	14	102	78	293	1.31	0.630
607	Río II	26.4	9.4	423	67.1	58.4	13.1	25.5	18	118	68	308	1.74	0.640
608	Río II	25.8	9.1	442	63.2	57.9	12.9	34.9	10	101	77	290	1.31	0.595
609	Río II	24.6	8.7	426	65.9	57.4	14.6	40.4	8	106	72	292	1.47	0.690
610	Gral. San Martín	33.3	12.0	438	69.4	60.7	11.2	19.2	30	104	83	317	1.25	0.660
611	Tercero Arriba	27.6	9.5	416	68.3	58.9	9.4	18.5	26	102	86	316	1.19	0.655
612	Tercero Arriba	30.0	10.4	399	70.2	62.0	11.2	17.5	35	109	79	302	1.38	0.735
613	Río Cuarto	27.5	9.3	462	65.5	62.9	6.5	11.5	48	116	70	292	1.66	0.660

Subregion V South
Background for the crop

Campaign 2008/09 was, for this Subregion, one of the worst in the last years.

We need to go back to 1962 to find a camping as negative as this for the regional agriculture. Although some harvests (1974,1995, and 2003) were originated with similar or lower total precipitations, in 2008 the distribution in the subregion V south was drastic since it started from early sowings with scarce moisture accumulated on the soil, and it never recovered satisfactorily (from April to November it rained only 145 mm), affecting the sowing intention with an important reduction in the sown area and affecting the sowing production with a great amount of plots lost, others given to cattle grazing and few of them yielding below the historical averages in the most favoured areas.

Winter was not so severe and in general frosts were not detected to affect plots from October to November.

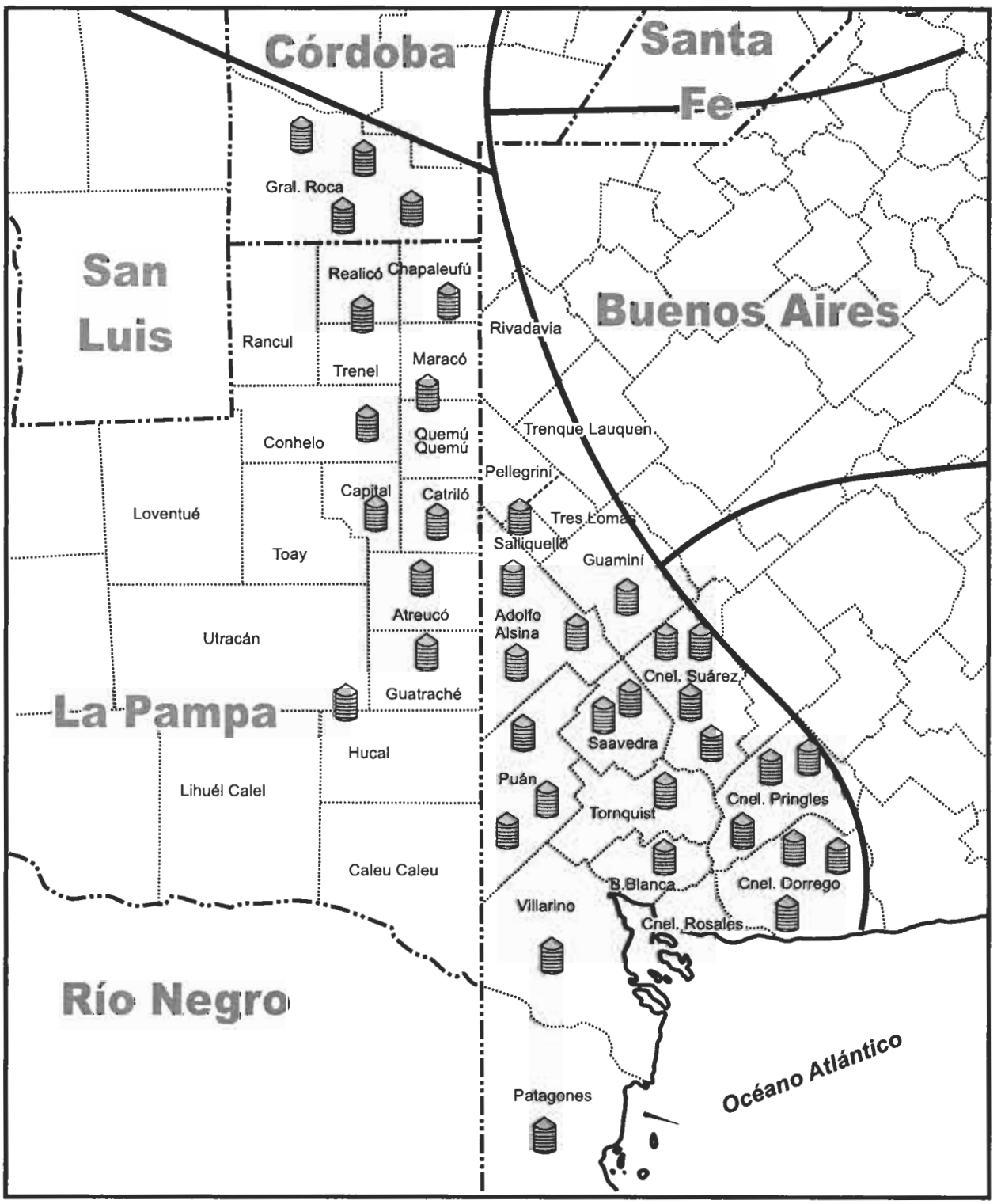
The technology applied on crops, such as fertilization and weed control was again generalized in plots under direct drilling, as it has been taking place in the last years.

Outside this technology, we can speak of fertilization only in the areas close to the mountains.

The grain-filling period was short in crops which survived up to this stage.

It is difficult to speak about yields, in the south of the subregion (Villarino and Patagones districts) in the west (Puan) and in the centre – north of the province of La Pampa (from Guatraché to General Roca) were the most affected districts with most of the planted area lost and very low yields.

Subregion V South Wheat



Each reference represents near 4,000 tns sampled.

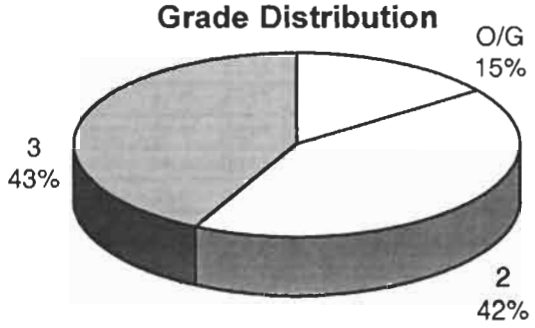
Subregion V South Wheat

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)	74.30	82.15	79.18	1.59	0.02
Total Damaged Kernels (%)	0.00	1.00	0.23	0.18	0.82
Foreign Material (%)	0.16	2.10	0.53	0.34	0.63
Shrunken and Broken Kernels (%)	0.26	2.54	1.15	0.49	0.43
Yellow Berry Kernels (%)	0.00	12.60	2.07	2.76	1.34
Protein (13,5% Moisture) (%)	11.0	15.3	13.0	0.8	0.07
Weight of 1000 Kernels (gr.)	22.70	32.50	28.78	2.26	0.08
Ash (% dry basis)	1.659	2.145	1.874	0.102	0.05

Total damaged kernels includes 0.02% green kernels, 0.01% frosty kernels, 0.06% sprouted kernels, 0.05% insect chewed kernels and 0.09% germ-chewed kernels.



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	25.7	38.7	31.1	2.5	0.08
	Dry Gluten (%)	9.0	13.5	10.8	0.9	0.08
	Falling Number (sec.)	376	488	440	24	0.05
	Flour Yield (%)	66.3	72.5	69.2	1.4	0.02
	Ash (dry basis) (%)	0.559	0.808	0.675	0.065	0.10
FARINOGRAM	Water Absorption (14 % H°) (%)	54.7	63.4	59.0	2.0	0.03
	Development Time (min.)	5.7	47.0	17.4	11.5	0.66
	Stability (min.)	8.5	50.2	28.8	10.7	0.37
	Degree of Softening (12 min.)	6	63	25	11	0.45
ALVEOGRAM	P (mm)	71	114	95	11	0.11
	L (mm)	71	131	102	13	0.13
	W Joules x 10^{-4}	233	488	357	55	0.15
	P / L	0.65	1.48	0.92	0.19	0.20

These results were elaborated with 40 composite samples prepared proportionally from 640 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 1,500,015 tons., the 17.9% of the national total. Were sampled 121,325 tons., the 8.09% of the subregion production.

Subregion 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	4026	3	79.90	0.16	0.34	1.52	12.60	12.0	28.40	1.842
701	Capital (Sta. Rosa)	2955	2	79.45	0.00	0.80	1.12	1.20	12.5	29.60	1.926
703	Catriló	2005	O/G	79.00	1.00	0.76	2.04	3.60	12.3	27.40	1.922
704	Chapaleufú	2000	2	76.35	0.28	0.54	1.12	0.40	12.9	28.60	1.904
705	Conhelo	2442	3	76.55	0.50	1.28	1.60	1.40	13.3	25.50	2.061
707	Guatraché	4000	3	79.25	0.48	0.62	1.52	0.30	13.5	25.90	1.866
708	Hucal	326	O/G	77.45	0.14	0.32	2.54	1.20	15.3	25.10	1.859
709	Maracó	1620	O/G	76.55	0.40	0.56	2.20	0.20	13.1	26.60	1.911
710	Quemú-Quemú	1357	2	79.00	0.40	0.16	0.72	2.20	12.7	26.50	1.818
711	Realicó	3297	2	77.45	0.22	0.68	0.66	0.40	14.0	30.60	2.107
712	Trenel	1596	O/G	74.30	0.44	2.10	2.14	0.60	14.5	25.30	2.145
713	Utracán	84	3	77.70	0.28	1.46	0.26	0.90	13.0	27.00	1.708
714	Adolfo Alsina	2147	3	81.25	0.20	0.36	1.74	0.20	13.2	27.70	1.987
715	Adolfo Alsina	4014	2	81.70	0.00	0.46	0.88	6.30	11.9	30.20	1.666
716	Adolfo Alsina	3605	3	77.70	0.28	0.28	1.70	2.20	12.7	28.10	1.938
717	Bahía Blanca	4000	2	77.90	0.18	0.54	1.16	4.60	12.1	30.80	1.808
718	Coronel Dorrego	3639	2	82.15	0.20	0.34	0.34	1.70	12.3	32.00	1.818
719	Coronel Dorrego	3851	3	79.00	0.14	0.48	1.24	0.60	13.6	27.80	1.806
720	Coronel Dorrego	791	2	79.25	0.18	0.38	1.00	0.60	12.7	29.20	1.659
721	Coronel Pringles	4012	3	79.00	0.24	0.62	1.50	0.90	14.1	28.00	1.866

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) (%)
722	Coronel Pringles	4000	3	79.70	0.42	0.42	1.22	0.30	13.7	30.90	1.816
723	Coronel Pringles	4000	3	79.45	0.20	0.86	0.86	0.20	13.9	30.00	1.789
724	Coronel Suárez	4000	3	79.00	0.06	0.50	1.26	0.20	13.3	29.30	1.924
725	Coronel Suárez	4001	2	80.35	0.20	0.26	0.60	2.00	12.3	30.50	1.763
726	Coronel Suárez	4002	2	81.95	0.00	0.24	0.62	1.40	12.7	30.90	1.909
727	Coronel Suárez	4000	3	79.90	0.12	0.34	1.22	0.30	13.5	28.20	1.883
728	Guaminí	4985	2	79.70	0.08	0.46	0.78	4.40	11.8	31.10	1.847
729	Patagones	1477	2	79.90	0.40	0.64	1.20	6.80	11.1	32.50	1.701
730	Puán	4000	3	79.70	0.24	1.46	1.36	0.20	13.4	24.30	1.878
731	Puán	4002	O/G	76.10	0.00	0.80	2.10	0.20	14.6	23.60	2.012
732	Puán	2000	O/G	75.20	0.14	0.46	2.02	0.00	15.1	22.70	1.921
733	Saavedra	4000	2	79.70	0.00	0.46	0.72	0.60	12.5	29.60	2.036
734	Saavedra	4008	3	79.25	0.18	0.28	1.32	0.20	12.7	28.10	1.910
735	Salliqueló	2166	2	78.15	0.42	0.72	0.30	9.40	11.0	32.00	1.938
736	Tornquist	3456	3	80.35	0.30	0.40	1.42	0.00	13.3	27.40	1.906
737	Villarino	958	3	79.00	0.32	1.08	1.12	0.80	13.2	30.40	1.845
738	General Roca (Córdoba)	4000	2	79.00	0.48	0.28	0.34	2.20	12.8	29.50	1.768
739	General Roca (Córdoba)	4000	2	79.45	0.18	0.16	1.00	2.60	13.3	29.50	1.944
740	General Roca (Córdoba)	4003	2	80.35	0.12	0.22	0.48	3.20	12.3	31.20	1.710
741	General Roca (Córdoba)	2500	3	78.15	0.62	0.36	1.22	2.20	12.6	29.00	1.767

Subregion V South 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) (%)
700	Atreucó	27.6	9.2	412	68.9	56.7	10.0	20.3	25	87	88	292	0.99	0.764
701	Capital (Sta. Rosa)	28.3	9.9	411	69.1	60.1	9.9	21.3	25	114	85	368	1.34	0.751
703	Catriló	26.8	9.4	376	69.3	57.7	8.6	30.2	15	98	92	348	1.07	0.631
704	Chapaleufú	29.9	10.6	420	70.1	58.0	13.2	25.4	19	94	104	355	0.90	0.673
705	Conhelo	30.4	10.6	432	67.8	58.1	12.5	26.4	23	86	116	361	0.74	0.728
707	Guatraché	31.4	11.1	441	69.8	60.4	9.4	23.9	20	97	121	420	0.80	0.678
708	Hucal	----	----	----	----	----	----	----	----	----	----	----	----	----
709	Maracó	30.6	10.6	464	67.9	56.3	13.4	27.2	20	88	98	329	0.90	0.591
710	Quemú-Quemú	29.3	10.3	468	69.6	54.7	17.5	44.5	6	86	97	333	0.89	0.646
711	Realicó	32.7	11.5	470	69.2	59.8	19.0	31.9	18	101	95	384	1.06	0.789
712	Trenel	34.8	12.2	405	68.9	59.5	24.7	33.2	22	92	110	393	0.84	0.738
713	Utracán	----	----	----	----	----	----	----	----	----	----	----	----	----
714	Adolfo Alsina	32.9	11.5	488	67.7	58.4	11.7	21.1	23	82	115	343	0.71	0.796
715	Adolfo Alsina	29.3	9.9	417	67.7	57.9	5.7	8.5	63	71	110	233	0.65	0.648
716	Adolfo Alsina	30.4	10.5	446	66.7	57.8	7.9	15.3	34	83	112	322	0.74	0.700
717	Bahía Blanca	28.5	9.9	424	71.6	55.8	13.6	26.5	22	83	90	275	0.92	0.586
718	Coronel Dorrego	29.3	10.3	473	67.8	58.6	9.4	44.5	9	102	104	395	0.98	0.654
719	Coronel Dorrego	33.3	11.6	475	69.2	58.3	15.9	35.4	16	92	119	406	0.77	0.637
720	Coronel Dorrego	31.2	10.8	478	70.4	57.9	6.9	23.7	23	93	82	294	1.13	0.655
721	Coronel Pringles	34.0	12.0	422	67.7	60.9	8.7	28.4	14	96	125	435	0.77	0.726

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) (%)
722	Coronel Pringles	34.3	11.9	444	70.0	63.3	7.4	15.9	25	110	95	376	1.16	0.686
723	Coronel Pringles	34.9	12.1	472	70.8	59.5	26.5	34.4	23	88	128	418	0.69	0.671
724	Coronel Suárez	32.3	11.2	442	68.7	59.6	35.2	30.2	20	96	107	391	0.90	0.600
725	Coronel Suárez	30.3	10.5	447	70.3	59.2	39.0	40.6	35	99	98	367	1.01	0.604
726	Coronel Suárez	31.0	10.8	451	70.7	59.5	34.7	42.6	23	98	101	374	0.97	0.643
727	Coronel Suárez	33.8	11.8	447	70.2	61.3	35.7	37.5	28	99	104	394	0.95	0.630
728	Guaminí	27.7	9.7	434	70.6	56.8	14.9	46.0	13	92	85	302	1.08	0.623
729	Patagones	25.7	9.0	422	71.1	56.1	11.7	22.9	22	81	105	282	0.77	0.562
730	Puán	33.1	11.9	442	69.2	62.8	8.8	20.6	25	113	104	437	1.09	0.808
731	Puán	32.4	11.5	411	66.6	60.4	10.7	22.1	22	103	102	384	1.01	0.681
732	Puán	38.7	13.5	384	66.7	63.4	17.8	30.0	8	104	131	488	0.79	0.778
733	Saavedra	28.2	9.8	444	68.5	58.5	47.0	50.2	29	105	71	313	1.48	0.662
734	Saavedra	31.1	10.7	428	68.9	60.3	34.5	39.1	32	112	88	376	1.27	0.656
735	Salliqueló	25.8	9.0	419	70.8	54.9	6.7	18.1	26	78	95	257	0.82	0.559
736	Tornquist	33.0	11.5	477	69.1	60.7	30.5	38.5	23	105	101	403	1.04	0.678
737	Villarino	33.3	11.5	446	70.0	59.8	11.7	26.3	15	91	120	377	0.76	0.632
738	General Roca (Córdoba)	31.8	11.0	463	72.5	59.6	10.3	16.3	34	95	101	344	0.94	0.739
739	General Roca (Córdoba)	31.9	11.2	448	68.9	57.9	10.5	29.1	13	86	108	330	0.80	0.775
740	General Roca (Córdoba)	30.5	10.6	444	69.0	58.3	7.5	12.9	50	85	94	295	0.90	0.598
741	General Roca (Córdoba)	30.6	10.6	406	66.3	56.6	8.9	15.9	40	74	111	284	0.67	0.610

Nortwest of the Country (NOA)
Background for the crop

The main characteristics of 2008 campaign were the adverse climatic conditions throughout the crop cycle, absence of hydric contribution throughout the crop development, high temperatures during the tillering and frosts during sensitive phenological phases of the crop.

The campaign in 2008 in the province of Tucuman had 214.200 has, sowing began towards the last days of April and extended towards late May, the initial hydric content was highly variable among regions.

These adverse initial conditions resulted in bad implanting of the crop and poor tillering, mainly in the sowing dates after May 10th. At the same time, high temperatures shortened the duration of vegetative phases of the crop which at the moment of frosts was at a high stage of sensitivity. Longer cycle crops were the cultivars with least damage which escaped from frosts but completed the grain-filling period with less water availability, seriously affecting the yields obtained. Frosts took place within the occurrence period with a probability of 10%, and were present throughout the wheat area of the province, with enough intensity and duration to damage newly formed flowers and grain.

With reference to foliar diseases, yellow spot was observed and regarding pests, aphid and mite attacks were present which were controlled in most of the plots.

With reference to yields, they were variable without exceeding 1.500 kg/ha in the least damaged areas, with an average in the province of 700 kg/ha, however, the total loss in many plots was observed, mainly in marginal areas on the east of the province.

Northeast of the Country (NEA)
Background for the crop

The NEA subregion was characterized, in general terms, by an extreme hydric deficit from March to September.

The early sowings (May) of long cycle wheat started with relatively good moisture on the soil, mainly in plots under direct drilling due to the rains in January and February which exceeded the average value in 80 years and gave way to a good emergence of the crop.

Later, from March to September, there was a strong increase in the hydric deficit with rainfalls lower than 311 mm compared to the historic average in 80 years. This prevented the sowing of intermediate and short cycle sowings except in the southeast of the province of Chaco where some important rainfalls took place in May and June.

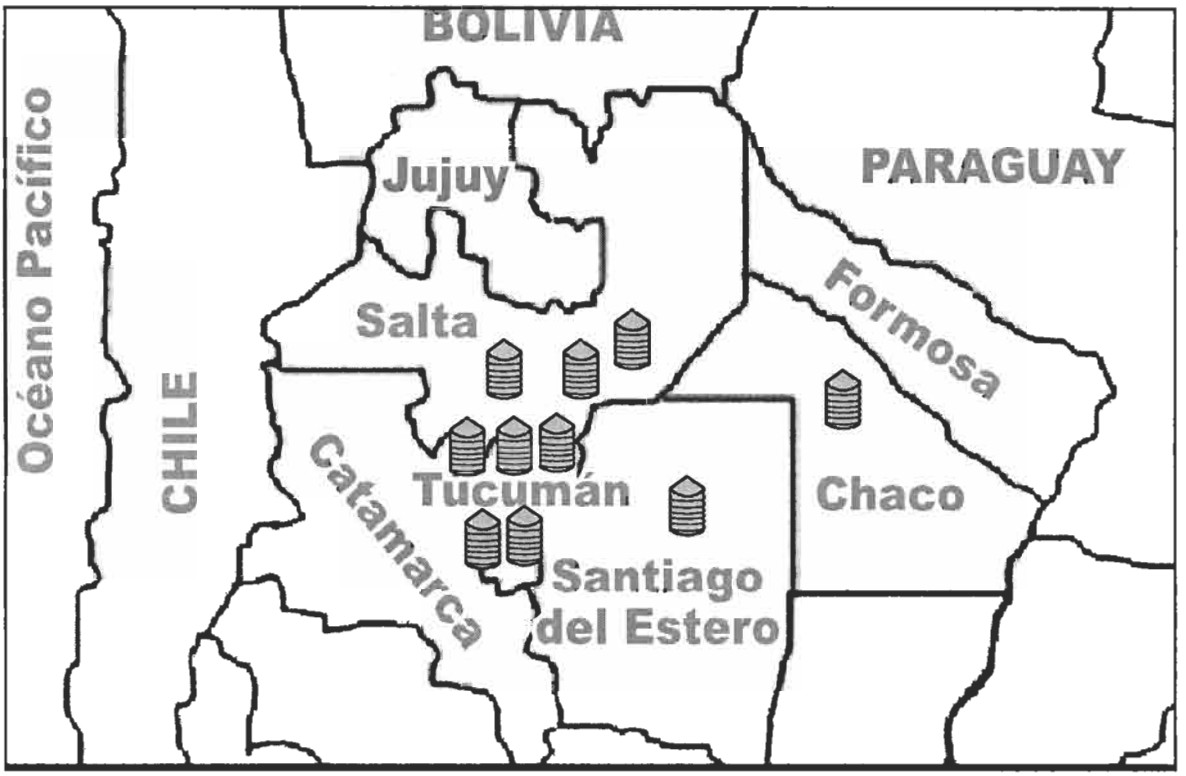
Scarce precipitations affected negatively the period of earring which together with the frosts in such period and in the grain-filling stage (8 frosts in August and 7 in September with a historic average of 3,8 and 1,7 respectively), produced losses in the production. In addition, there was caloric stress with temperatures between 35 and 40 °C recorded in August and October affecting the size of the grain and accelerating their filling.

With reference to foliar and ear diseases, the incidence was scarce or none due to the climatic conditions.

In the province of Chaco, the planted surface was around 20.000 ha, yields were low, the lowest of 500 kg/ha and average yields of 1300 kg/ha. However, in some plots under high technology, yields reached 3000 kg/ha.

NOA
NEA
Wheat

North of the Country



Each reference represents near 4,000 tns sampled.

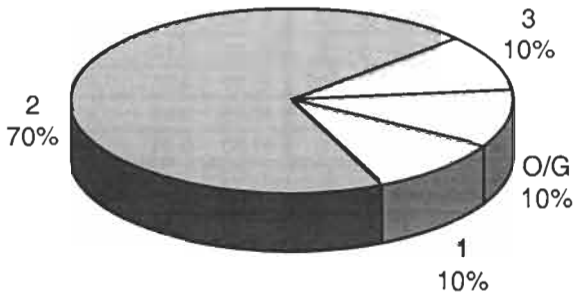
Results of the Analyses

Composite Samples by Locality. Averages were weighted by Tonnage.

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	79.25	81.50	80.73	0.60	0.01
Total Damaged Kernels (%)	0.12	3.27	1.35	0.92	0.68
Foreign Material (%)	0.14	0.88	0.45	0.26	0.58
Shrunken and Broken Kernels (%)	0.12	0.68	0.48	0.15	0.30
Yellow Berry Kernels (%)	0.00	3.50	1.82	1.00	0.55
Protein (13,5% Moisture) (%)	10.5	12.2	11.2	0.6	0.05
Weight of 1000 Kernels (gr.)	32.08	39.40	33.56	1.48	0.04
Ash (% dry basis)	1.71	2.085	1.909	0.122	0.06

Total damaged kernels includes 0.03% green kernels, 0.04% frosty kernels, 0.98% sprouted kernels, 0.03% insect chewed kernels and 0.27% germ-chewed kernels.

Grade Distribution



O/G: Out of Grade

Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	22.1	31.0	26.8	2.4	0.09
	Dry Gluten (%)	9.0	11.5	10.0	0.8	0.08
	Falling Number (sec.)	154	378	280	67	0.24
	Flour Yield (%)	64.88	69.3	67.5	1.3	0.02
	Ash (dry basis) (%)	0.618	0.751	0.695	0.044	0.06
FARINOGRAM	Water Absorption (14 % H°) (%)	61.4	65.1	63.6	0.9	0.01
	Development Time (min.)	4.1	9.0	6.9	1.6	0.24
	Stability (min.)	3.9	11.3	8.9	1.9	0.21
	Degree of Softening (12 min.)	7.6	121	76	22	0.29
ALVEOGRAM	P (mm)	105	155	124	14	0.11
	L (mm)	44	99	66	14	0.21
	W Joules x 10^{-4}	165	337	279	43	0.15
	P / L	1.06	2.65	1.90	0.47	0.24

These results were elaborated with 10 composite samples prepared proportionally from 47 primary samples (farmer deliveries)

Subregion Data

In this subregion the wheat production was 492,080 tons., the 5.9% of the national total. Were sampled 39,000 tons., the 7.93% 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	Anta	4000	2	81.50	0.12	0.30	0.32	2.60	10.6	33.7	1.817
2	Anta	4000	2	80.60	0.31	0.70	0.48	1.94	10.9	32.1	1.863
3	Burruyacu	4000	2	80.50	1.70	0.44	0.54	1.24	10.9	34.2	2.085
4	Burruyacu	4000	2	80.60	1.78	0.34	0.68	1.22	11.3	32.2	1.972
5	Metan /Rosario de la Frontera	4000	3	79.25	1.95	0.88	0.56	2.58	10.5	33.1	1.783
6	La Cocha	4000	2	81.05	1.64	0.24	0.40	3.42	11.4	34.2	1.710
7	Cruz Alta	4000	2	81.25	0.85	0.18	0.64	1.56	11.8	33.1	1.854
8	Leales / Graneros	4000	O/G	80.80	3.27	0.83	0.58	1.18	12.2	32.5	1.985
9	Santiago del Estero	4000	2	80.80	0.84	0.22	0.30	0.00	11.7	34.7	2.063
10	Chaco	1500	1	81.30	0.44	0.14	0.12	3.50	10.5	39.4	2.040

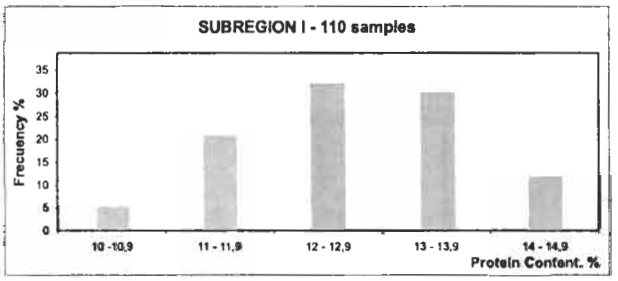
Appendix of Locality Composite Samples.

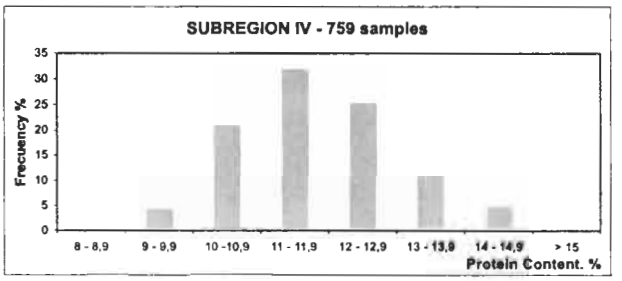
SAMPLE IDENTIFICATION		FLOUR ANALYSIS												
						FARINOGRAM				ALVEOGRAM				
Sample Number	Locality, district or department	Wet Gluten (%)	Dry Gluten (%)	Falling Number (sec.)	Flour Yield (%)	% WA (14 % H°)	D. T. (min.)	Stability (min.)	Degree Softening (12 min.)	P	L	W	P/L	Ash (dry basis) (%)
1	Anta	24.5	9.1	376	66.6	63.4	7.6	9.6	59	116	65	261	1.78	0.751
2	Anta	24.2	9.0	337	67.4	63.5	7.7	10.0	66	124	58	256	2.14	0.720
3	Burruyacu	26.0	9.6	246	64.9	61.4	8.3	9.8	87	112	70	266	1.60	0.618
4	Burruyacu	27.4	10.1	248	66.7	63.7	7.5	9.9	76	155	59	326	2.63	0.649
5	Metan /Rosario de la Frontera	24.8	9.2	236	69.0	63.7	4.1	7.5	86	122	46	215	2.65	0.723
6	La Cocha	28.2	10.4	154	68.9	63.5	4.3	5.5	121	130	69	283	1.88	0.702
7	Cruz Alta	28.2	10.4	246	68	65.1	7.0	9.7	73	132	61	297	2.16	0.709
8	Leales / Graneros	31.0	11.5	286	68.3	63.4	7.2	9.1	71	105	99	316	1.06	0.662
9	Santiago del Estero	29.1	10.8	350	66.8	64.6	9.0	11.3	73	131	71	337	1.85	0.745
10	Chaco	22.1	10.2	378	69.3	64.0	4.3	3.9	8	106	44	165	2.41	0.630

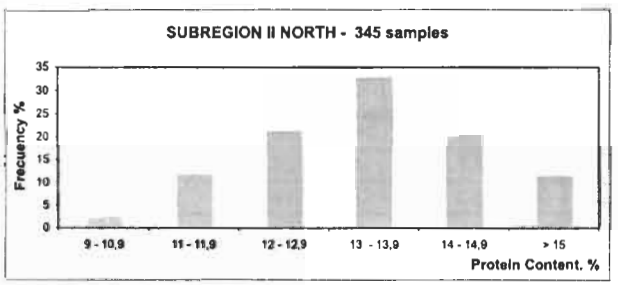
Protein Content Wheat

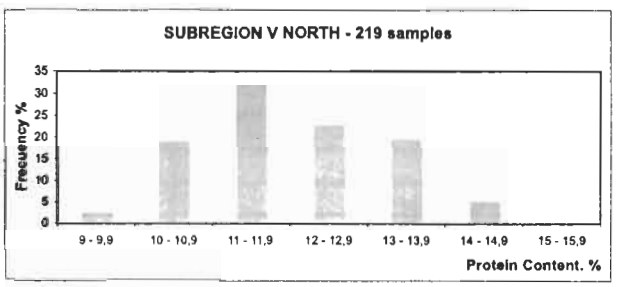
Protein Content

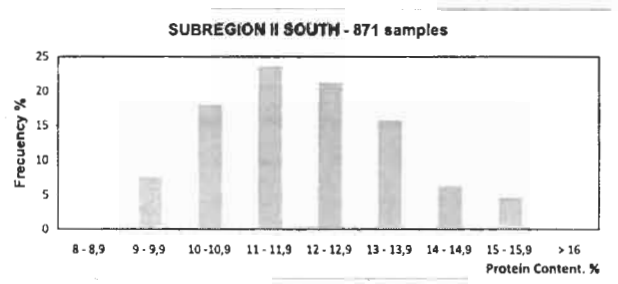
Distribution by ranges
Results obtained on 3,356 Primary Samples

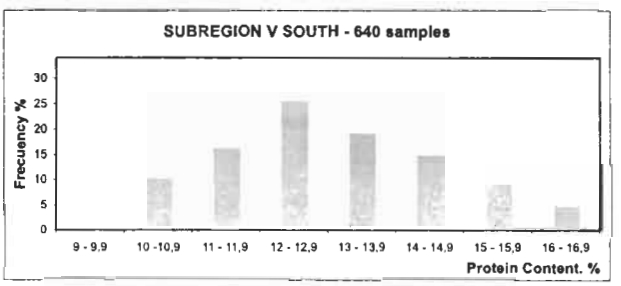


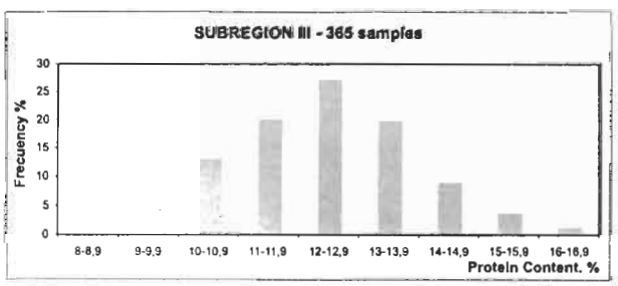


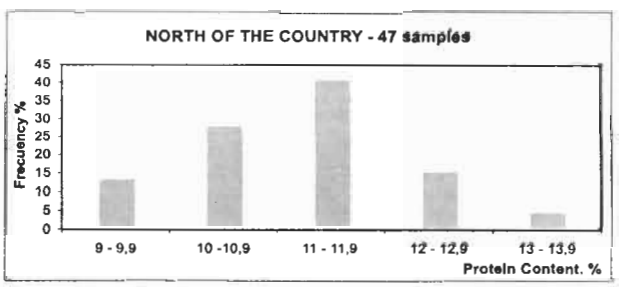


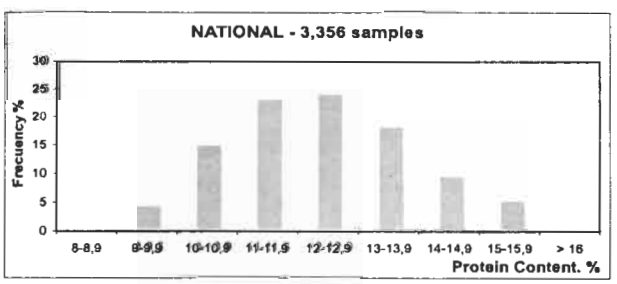












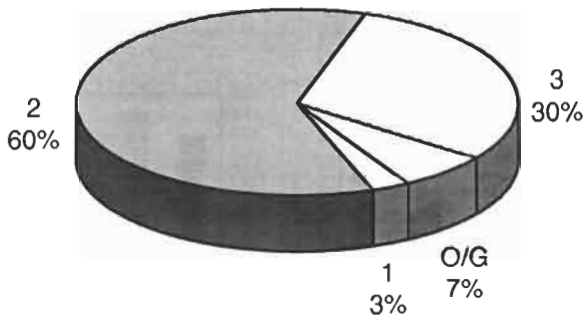
Wheat National Averages

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)	71.70	83.80	79.16	2.14	0.03
Total Damaged Kernels (%)	0.00	3.27	0.55	0.58	1.05
Foreign Material (%)	0.04	2.10	0.37	0.24	0.63
Shrunken and Broken Kernels (%)	0.12	2.54	1.04	0.47	0.45
Yellow Berry Kernels (%)	0.00	12.60	1.44	1.81	1.26
Protein (13,5% Moisture) (%)	9.9	15.3	12.3	1.1	0.09
Weight of 1000 Kernels (gr.)	22.30	40.25	30.33	2.87	0.09
Ash (% dry basis)	1.517	2.260	1.822	0.156	0.09

Grade Distribution



O/G: Out of Grade

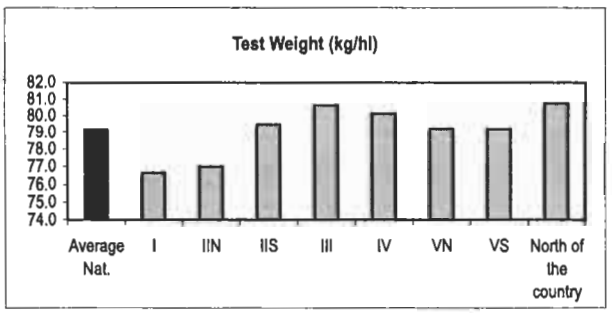
Flour Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Wet Gluten (%)	20.0	41.4	29.5	3.5	0.12
	Dry Gluten (%)	7.4	14.7	10.5	1.1	0.11
	Falling Number (sec.)	154	559	408	66	0.16
	Flour Yield (%)	61.2	74.7	69.2	2.3	0.03
	Ash (dry basis) (%)	0.486	0.960	0.655	0.075	0.11
FARINOGRAM	Water Absorption (14 % H°) (%)	50.1	65.1	58.7	2.5	0.04
	Development Time (min.)	2.9	47.0	11.2	6.9	0.61
	Stability (min.)	3.8	52.1	22.5	10.6	0.47
	Degree of Softening (12 min.)	0	121	30	17	0.57
ALVEOGRAM	P (mm)	56	155	100	15	0.15
	L (mm)	34	138	92	19	0.21
	W Joules x 10^{-4}	164	488	321	49	0.15
	P / L	0.41	4.47	1.08	0.44	0.59

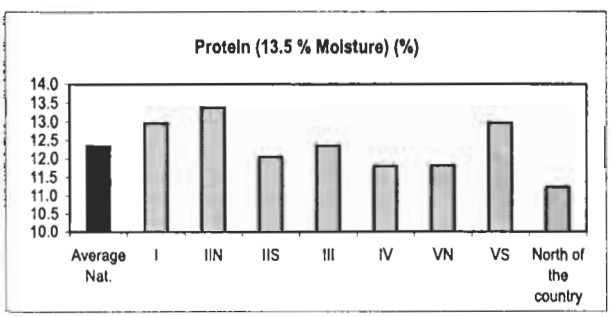
National Averages Wheat

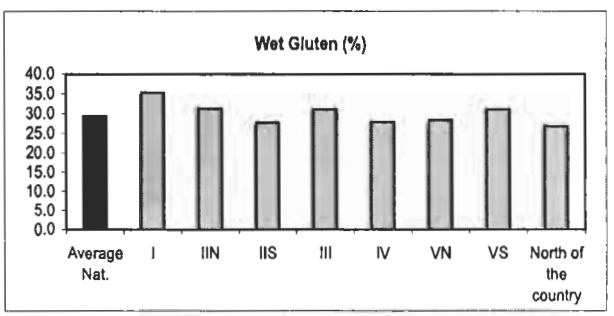
Wheat National and Subregions Averages

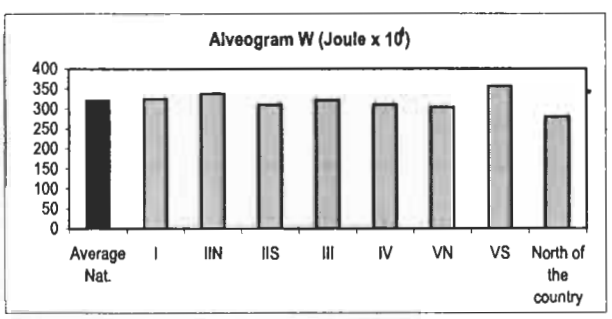
Comparative Graphics

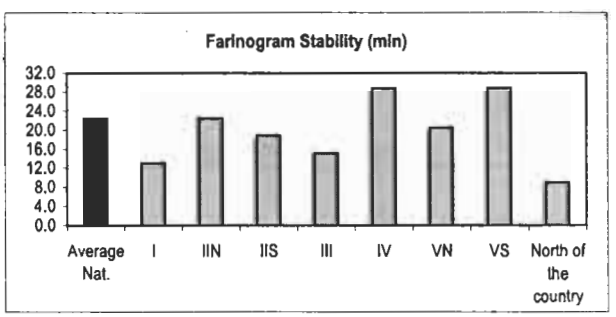
Composite Samples by Locality. Averages were weighted by Tonnage.











Statistical Analysis. 2008/2009 Crop

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

Mean Comparison among Subregions:

An analysis of the variation of the measured data was carried out (ANOVA) among the wheat subregions. Taking into account that the amount of points of sampling was different in each subregion (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 subregions 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 subregions 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 %.

Subreg.	N° Samples	Test Weight		Subreg.	Total Damaged Kernels		Subreg.	Foreign Material		Subreg.	Shrunken and Broken Kernels	
North count.	10	80.77	a	IV	0.12	a	II South	0.28	a	North count.	0.46	a
III	17	80.59	ab	V South	0.26	a	III	0.28	a	II South	0.87	ab
IV	46	80.10	ab	II South	0.29	a	V North	0.29	a	IV	0.95	b
II South	40	79.48	abc	II North	0.77	b	IV	0.35	ab	V North	0.97	b
V South	40	78.88	bc	I	0.93	bc	I	0.42	ab	III	1.06	bc
V North	14	78.13	cd	III	1.19	c	II North	0.43	ab	V South	1.20	bcd
II North	30	77.00	d	North count.	1.29	c	North count.	0.43	ab	II North	1.43	cd
I	11	76.78	d	V North	1.30	c	V South	0.59	c	I	1.52	d

Subreg.	Yellow Berry Kernels		Subreg.	Protein		Subreg.	Weight 1000 Kernels		Subreg.	Ash	
II North	0.03	a	II North	13.4	a	North count.	33.93	a	IV	1.688	a
V North	0.07	a	V South	13.0	ab	I	32.16	ab	III	1.705	a
I	0.44	ab	I	12.9	abc	III	31.61	ab	II South	1.753	a
III	1.72	abc	III	12.4	bcd	IV	30.98	bc	V South	1.872	b
IV	1.91	bc	II South	12.1	cde	V North	30.80	bc	II North	1.904	b
North count.	1.92	bc	V North	12.0	cde	II South	30.10	bcd	North count.	1.917	b
V South	1.98	bc	IV	11.8	de	V South	28.53	cd	V North	1.956	b
II South	2.24	c	North count.	11.2	e	II North	28.13	d	I	2.144	c

Subreg.	Wet Gluten		Subreg.	Dry Gluten		Subreg.	Falling Number		Subreg.	Flour Yield	
I	35.0	a	I	12.4	a	North count.	286	a	IV	70.87	a
III	31.4	b	III	11.0	b	II South	345	b	II South	69.61	ab
II North	31.3	b	II North	10.9	b	IV	396	c	V South	69.15	abc
V South	31.1	b	V South	10.8	b	I	410	cd	III	69.08	abc
V North	28.6	bc	II South	10.2	b	V North	435	cde	II North	68.08	bc
IV	27.9	c	North count.	10.0	b	V South	439	de	V North	67.99	bc
II South	27.6	c	V North	10.0	b	II North	462	ef	North count.	67.60	bc
North count.	26.6	c	IV	10.0	b	III	487	f	I	67.30	c

Statistical Analysis Wheat

Subreg.	Water Absorption (%)		Subreg.	D.T. (min.)		Subreg.	Stability (min.)		Subreg.	Degree Softening	
North count.	63.6	a	V South	16.5	a	IV	29.0	a	North count.	72	a
III	62.1	ab	IV	11.4	ab	V South	28.3	a	I	44	b
I	60.5	bc	V North	11.1	ab	V North	23.1	ab	III	39	bc
V North	59.3	cd	II North	11.0	ab	II North	22.5	abc	II South	33	bcd
V South	58.8	cd	I	9.2	b	II South	18.8	bc	II North	27	cd
II North	58.6	de	II South	9.2	b	III	15.0	bcd	V North	24	d
II South	57.6	de	III	8.6	b	I	13.2	cd	V South	24	d
IV	56.8	e	North count.	6.7	b	North count.	8.6	d	IV	20	d

Subreg.	P		Subreg.	L		Subreg.	W		Subreg.	P/L	
North count.	123	a	V South	103	a	V South	355	a	V South	0.93	a
III	117	ab	II North	100	a	II North	337	a	II North	1.00	a
V North	108	bc	II South	96	ab	I	322	ab	IV	1.08	a
II South	96	cd	IV	90	ab	III	319	ab	II South	1.08	a
II North	96	cd	I	82	bc	II South	311	ab	V North	1.42	ab
I	95	d	III	80	bc	IV	311	ab	III	1.61	ab
IV	95	d	V North	78	bc	V North	308	ab	North count.	2.02	b
V South	94	d	North count.	64	c	North count.	272	b	I	2.03	b

Subreg.	Flour Ash	
IV	0.579	a
II South	0.639	b
V North	0.664	bc
V South	0.673	bc
III	0.680	bc
North count.	0.691	bc
II North	0.700	c
I	0.776	d

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
10 - 10,9	24.5 251 16.1	9.31
11 - 11,9	27.1 299 21.9	25.98
12,0 --12,9	**30.1** **322** **24.1**	**35.78**
13,0 - 13,9	33.3 388 28.9	23.04
14,0 - 14,9	35.1 382 22.8	5.89

WET GLUTEN RANGE	Average Protein W Stability	% Country
21 - 24,9	10.8 260 15.3	8.78
25 - 27,9	11.6 305 23.0	28.78
28 - 31,9	**12.6** **328** **24.7**	**37.07**
32 - 34,9	13.5 363 23.1	19.51
> 35,0	13.7 337 15.6	5.86

Alveograph W RANGE	Average Gluten Protein Stability	% Country
190 - 249	26.5 11.1 12.4	5.88
250 - 299	27.7 11.6 19.5	28.92
300 - 349	**29.8** **12.5** **24.1**	**37.25**
350 - 400	31.6 13.2 25.4	21.08
> 400	32.8 13.6 28.5	6.86

Farinograph STABILITY RANGE	Average Gluten Protein W	% Country
1 - 9,9	29.1 11.6 261	8.33
10,0 - 19,9	**29.5** **12.3** **310**	**40.20**
20 - 29,9	29.8 12.7 340	30.39
30 - 39,9	30.2 12.7 365	11.27
40 - 49,9	28.5 12.1 320	9.80

Subregion Composite Samples Wheat

Composite Sample of each Subregion

Results of the Analyses

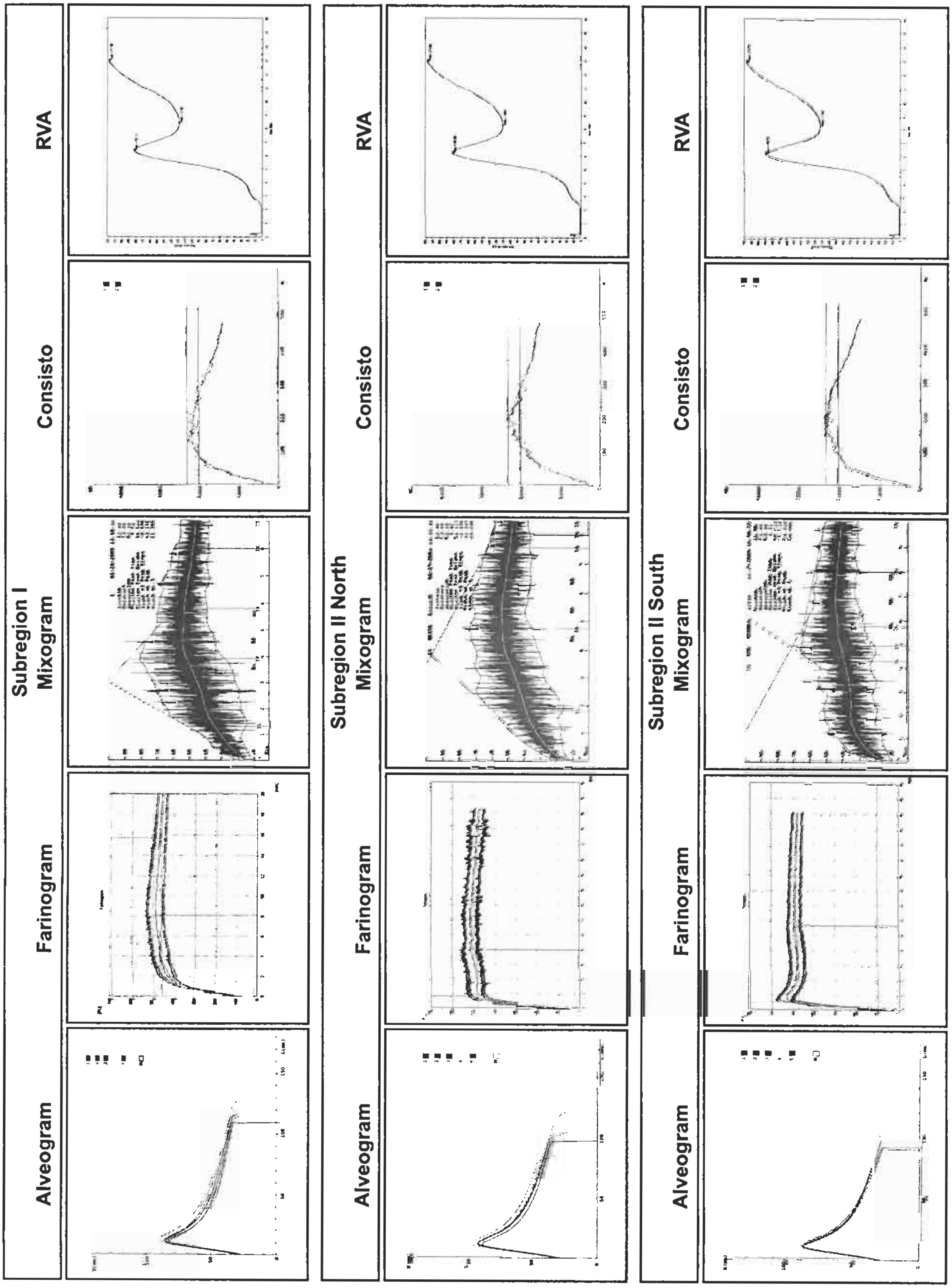
Along with the analisis of samples corresponding to different localities, a further evaluation was performed in order to analyze Composite Samples of each Subregion directly, which were made proportionally from the composite samples corresponding to each locality, such as it is detailed in Organization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

		Subregions									Annual* Pondered Average	Average last Quinquenio	Average Decade
		I	II N	II S	III	IV	V N	V S	NEA	NOA			
WHEAT	Test Weight (kg/hl)	77.70	77.70	79.90	80.50	80.72	77.90	79.25	80.30	80.60	79.43	80.18	80.19
	Weight of 1000 Kernels (gr.)	28.10	27.4	30.72	31.90	31.38	30.39	30.10	39.40	33.12	30.31	33.76	33.80
	Ash (dry basis) (%)	2.180	1.960	1.759	1.720	1.714	1.978	1.857	2.040	1.907	1.841	1.789	1.820
	Protein (13.5% Moisture) (%)	12.8	13.2	12.3	12.2	11.9	12.7	13.1	11.0	11.2	12.5	11.5	11.3
MILLING	Flour Yield (%)	68.5	69.2	71.0	69.0	70.9	70.2	71.4	69.3	67.3	70.24	70.24	68.03
	Ash (dry basis) (%)	0.697	0.674	0.638	0.586	0.578	0.613	0.699	0.692	0.596	0.634	0.579	0.573
	Colour												
	L	86.22	87.72	88.44	88.34	88.75	87.98	87.12	88.10	87.22	87.98	—	—
	a	-1.20	-1.10	-1.24	-1.32	-1.16	-1.28	-0.78	-1.35	-1.08	-1.13	—	—
	b	8.77	8.47	8.34	9.01	8.54	8.99	8.98	8.92	8.97	8.66	—	—
FLOUR	Moisture (%)	11.9	13.4	14.5	14.6	13.1	13.9	11.0	12.4	10.5	13.1	13.6	13.8
	Proteins (%)	11.9	12.4	10.9	11.2	11.3	11.4	12.6	10.0	10.5	11.6	10.4	10.4
	Wet Gluten (%)	29.3	30.8	28.8	30	27.9	28.7	31.7	25	24.8	29.3	26.6	25.7
	Dry Gluten (%)	11.4	10.1	10.3	10.7	9.6	10.3	10.4	10.2	8.2	10.1	9.5	9.3
	Index Gluten (%)	99	94	99	84	94	79	97	96	94	94	99	97
	Falling Number (seg)	402	454	424	462	420	410	489	378	310	433	378	376
	Zeleny Test (cc)	42	45	44	40	47	41	47	38	39	44	38	37
	FARINOGRAM												
	Water Absorption (%)	60.8	60.3	58.6	60.9	56.3	59.3	58.4	61.4	60.0	58.7	59.0	59.0
	Development Time (min.)	7.6	8	11.3	10.2	8	14.4	11.7	8.3	5.3	9.8	9.1	8.6
	Stability (min.)	12.5	22.8	25.3	17.1	24.6	20.7	21.1	9.8	12.9	21.9	18.9	16.5
	Degree of Softening	40	25	13	37	16	37	23	87	38	24	30	39
	Quality Number	167	214	263	208	255	250	335	120	142	249	180	154
	MIXOGRAM												
	Development Time (min.)	4.60	5.42	6.81	4.30	5.64	4.86	4.78	4.09	5.35	5.47	5.0	4.6
	ALVEOGRAM												
	P (mm)	93	101	95	106	89	94	86	112	114	95	102	100
	L (mm)	110	97	91	60	92	96	108	70	62	93	84	82
	G	23	22	21	18	21	22	23	19	18	22	21	20
	W (Joules x 10^{-4})	366	352	291	279	299	316	330	266	275	313	307	293
	P/L	0.85	1.04	1.04	1.61	0.97	0.98	0.8	1.61	1.80	1.05	1.26	1.26
	Ie %	61.90	62.6	57.1	63.3	62.1	60.5	62.9	48.6	58.3	61.0	60.4	43.1
	W (40) (Joules x 10-4)	150	178	163	188	156	164	153	180	199	165	—	—
	CONSISTOGRAM												
	WA 1700 (%) (Base 15%)	57.9	58.0	57.0	58.8	55.8	56.5	57.3	58.7	55.1	57.0	—	—
	WA 1700 (%) (Base 14%)	59.8	59.8	58.8	60.7	57.7	58.4	59.1	60.5	56.9	58.8	—	—
	HYD2200 (%) (Base 15%)	55.3	55.3	53.9	55.8	53.2	54.2	54.5	55.8	53.2	54.2	—	—
	PrMax (mb)	2227	2232	2304	2284	2227	2168	2243	2273	2060	2,236	—	—
	PrMax Time (Sec)	153	194	204	124	145	144	178	112	211	171	—	—
	Tolerance (Sec)	284	271	301	200	308	266	287	202	356	287	—	—
	Weakening 250 (mb)	139	82	42	431	103	191	129	450	18	121	—	—
	Weakening 450 (mb)	754	614	702	981	680	726	616	1046	458	883	—	—
	RVA												
	Maxim Viscosity (RVU	182.33	181.58	190.00	217.25	208.33	185.92	177.42	215.92	195.33	192.44	—	—
	Minimum Viscosity (RVU	117.83	110.67	112.67	139.75	132.25	112.33	112.33	139.00	121.58	119.44	—	—
	Final Viscosity (RVU)	217.58	216.92	216.75	249.25	246.75	211.17	215.08	247.83	215.00	225.27	—	—
	BAKING												
	Absorption (%)	62.5	62.5	62	62.0	62.0	62.5	62.5	62.0	62.0	62.2	62.5	62.2
	Development Time (min.)	3' 30	3'30	3' 30	2' 30	3'00	3' 00	3' 00	3'30	3' 30	3 '28	3 '08	3 '15
	Fermentation Time (min.)	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160	160 '
	Loaf Volume (cc)	625	845	645	650	660	675	630	600	605	846	680	683
	Specific Volume	4.6	4.6	4.8	4.8	4.7	5.0	4.6	4.3	4.4	4.7	5.0	5.1

NEA : Northeast of the Country
NOA : Northwest of the Country

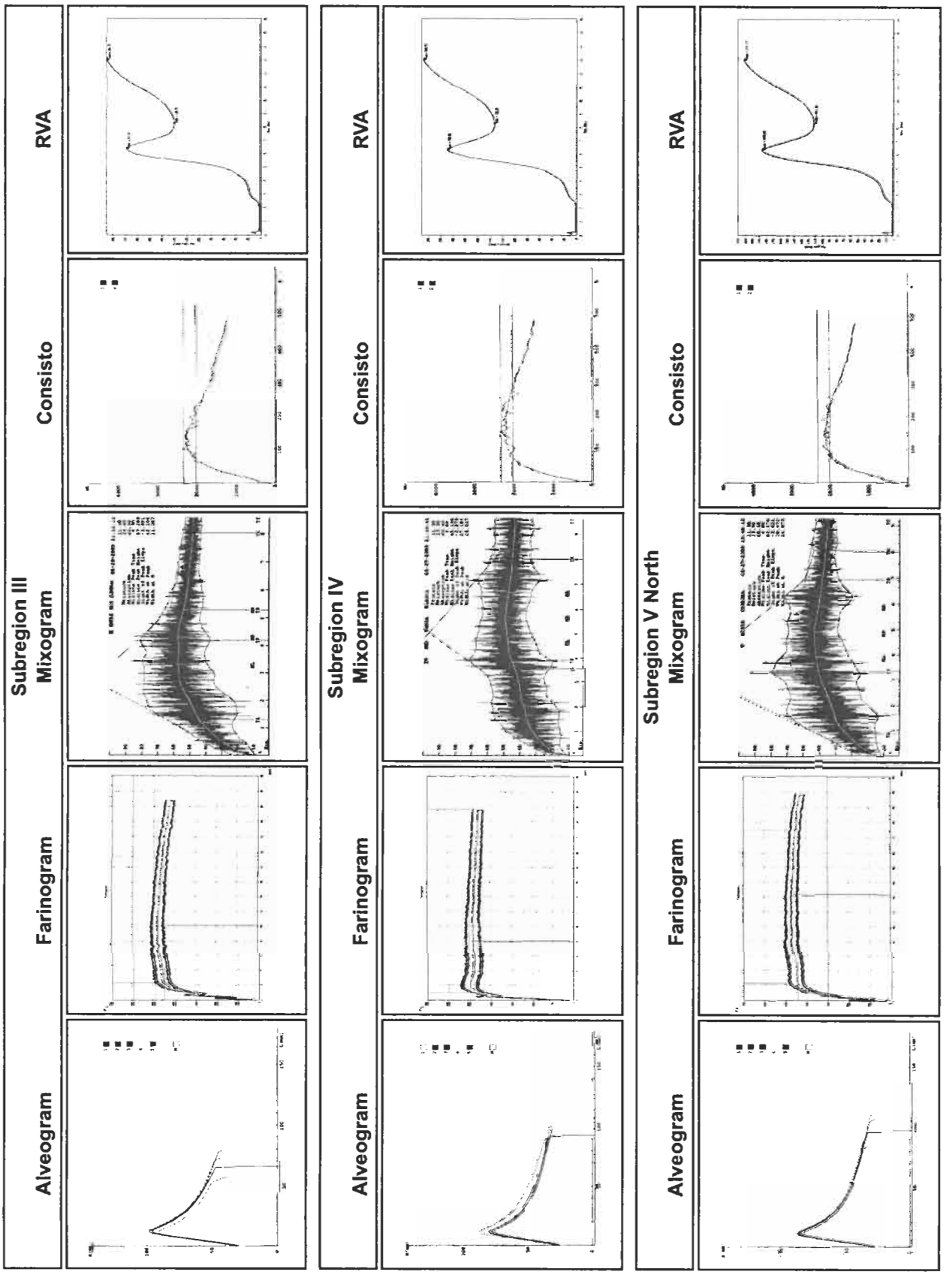
* Weighting bassis: Tonnage of the production sampled by Subregion, according to chart data on page 7.

Results of the Analyses

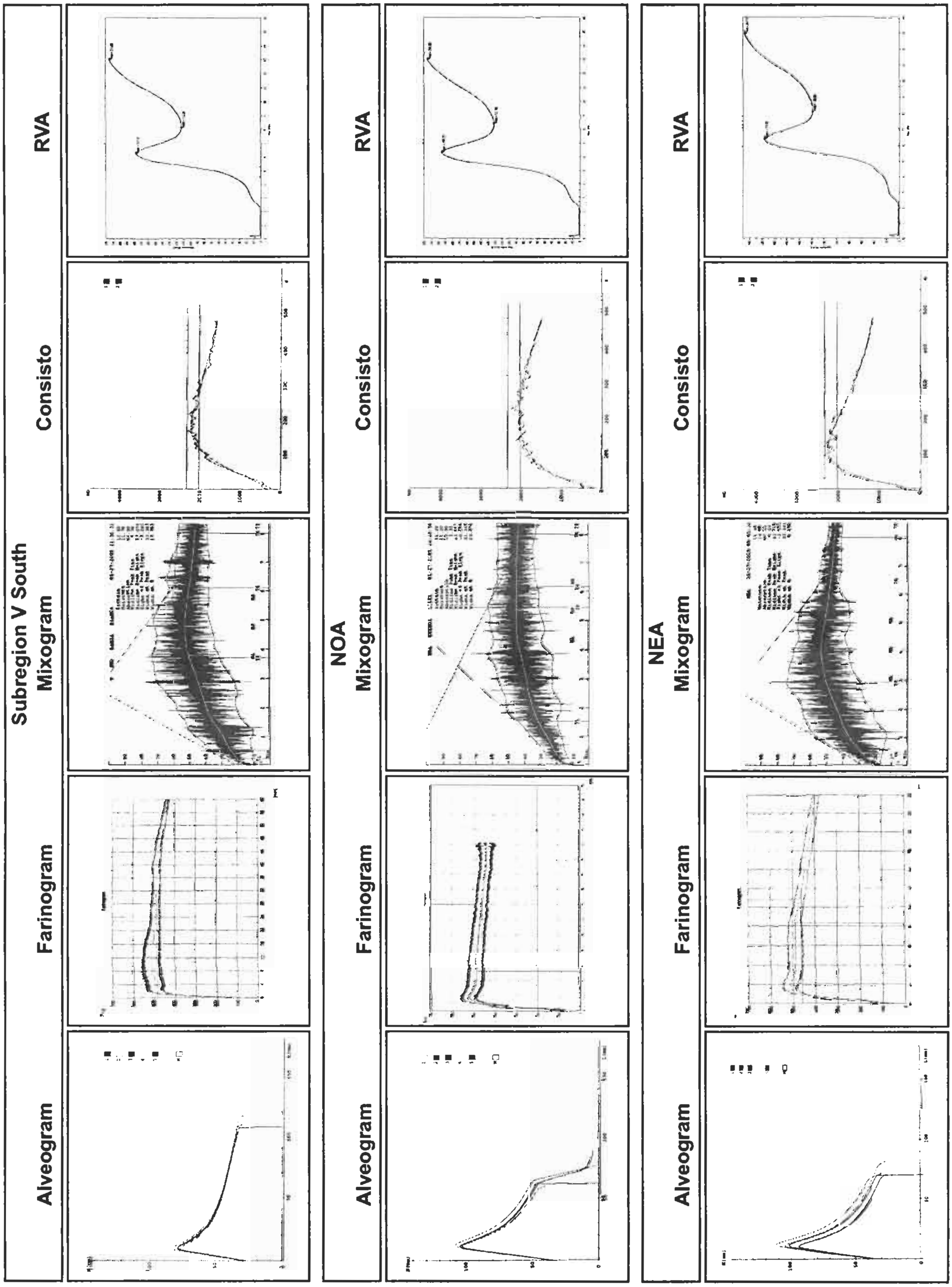


Subregion Composite Samples Wheat

Results of the Analyses



Results of the Analyses



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 (from SE to SW of Buenos Aires Province and the east part of La Pampa Province , it is still a traditional alternative for an interesting number of farmers.

08/09 Crop

Sown Area (ha)	78,155
Harvested Area (ha)	74,540
Average Yield (Kg/ha)	1,890
Production (tn)	135,564

Source: SAGPyA

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 46 composite samples.

They were organized according to theirs origin region, mainly in the Subregions II South, IV and V South.

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, N° 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 N°1075/94 - 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 (%)
		Foreign Material (%)	Damaged Kernels		Shrunken and Broken Kernels (1) (%)	Smutty Kernels (%)					
			Heat Damaged Kernels (%)	Total (%)							
1	78	0.75	0.50	1.00	1.50	0.10					
2	76	1.50	1.00	2.00	3.00	0.20	0.50	8	14.0	3.00	40
3	72	3.00	1.50	3.00	5.00	0,30					

VITREOUS KERNELS

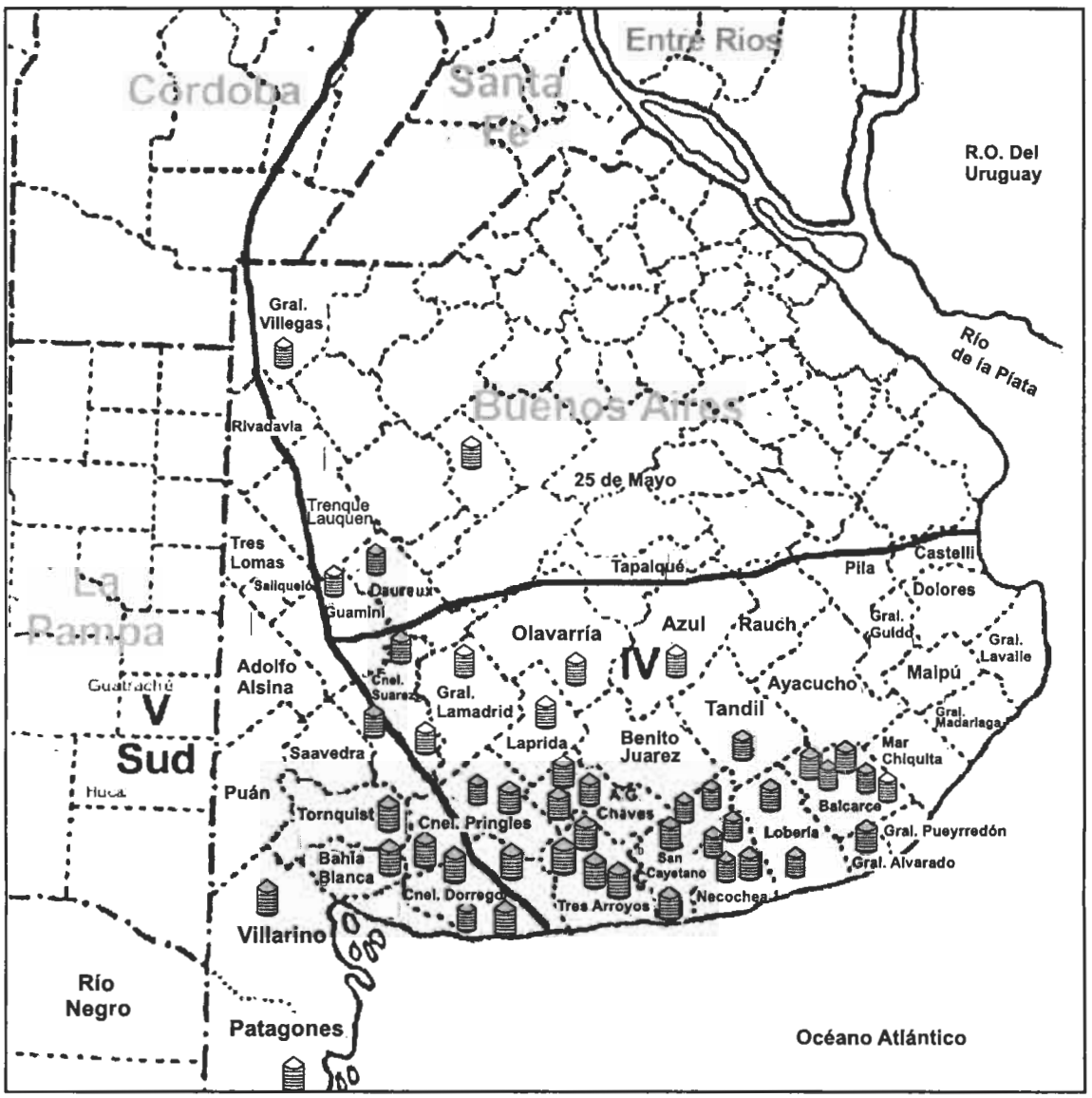
Bonifications	Discounts
51 a 55% 0,5 %	46 a 49% 1,0%
56 a 60% 1,0%	41 a 45% 3,0%
61 a 65% 1,5%	36 a 40% 5,0%
66 a 70% 2,0%	31 a 35% 7,0%
71 a 75% 3,0%	26 a 30% 9,0%
76 a 80% 4,0%	21 a 25% 11,0%
81 a 85% 5,0%	16 a 20% 13,0%
86 a 90% 6,0%	11 a 15% 15,0%
91 a 95% 7,0%	6 a 10% 17,0%
96 a 100% 8,0%	0 a 5% 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

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.


Córdoba
Santa Fé
Entre Ríos
R.O. Del Uruguay
Río de la Plata
Buenos Aires
La Pampa
Río Negro
Gral. Villegas
Rivadavia
25 de Mayo
Trenque Lauquen
Tres Lomas
Salliqueló
Daireaux
Guaminí
Tapalqué
Olavarría
Azul
Rauch
Pila
Castelli
Dolores
Gral. Guido
Gral. Lavalle
Malpú
Gral. Madariaga
Mar Chiquita
Ayacucho
Tandil
Benito Juarez
Laprida
Gral. Lamadrid
Cnel. Suarez
Adolfo Alsina
Guatraché
V
Sud
Saavedra
Puán
Huca
Tornquist
Cnel. Pringles
Chaves
A. G.
Balcarce
Lobería
Gral. Pueyrredón
Gral. Alvarado
Bahía Blanca
Cnel. Dorrego
Tres Arroyos
San Cayetano
Necochea
Villarino
Patagones
Océano Atlántico
IV

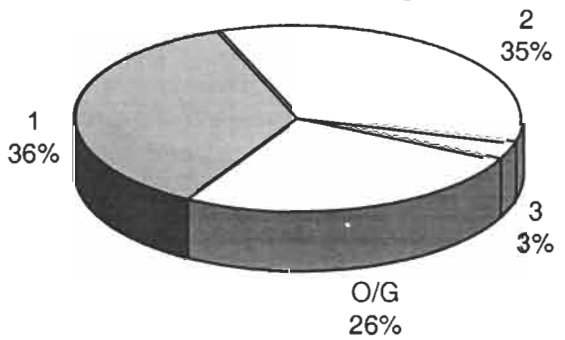
Results of the Analyses

Composite Samples by Locality

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	72.10	83.25	78.37	2.65	0.03
Total Damaged Kernels (%)	0.00	0.74	0.24	0.20	0.84
Foreign Material (%)	0.08	0.86	0.43	0.20	0.47
Shrunken and Broken Kernels (%)	0.24	2.60	1.22	0.65	0.53
Vitreous Kernels (%)	5	96	58	23	0.40
Wheat (Triticum aestivum) (%)	0.44	3.88	1.79	0.84	0.47
Proteins (13,5% Moisture) (%)	11.9	17.1	13.9	1.1	0.08
Weight of 1000 Kernels (gr.)	29.70	45.70	38.04	4.31	0.11
Ash (% dry basis)	1.548	2.018	1.740	0.122	0.07

Total damaged kernels includes 0.09% sprouted kerneles, 0.05% insect chewed kernels, 0.09% germ-chewed kernels and 0.01% calcinated kernels.

Grade Distribution



O/G: Out of Grade

Semolin Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Falling Number (sec.)	469	638	563	48	0.08
	Color (b)	19.4	23.4	21.3	1.0	0.04
	Wet Gluten (%)	30.5	43.2	35.3	2.7	0.08
	Gluten Index (%)	3	88	61	16	0.26
FARINOGRAM	Energy Level	29.9	46.2	35.7	3.8	0.11
	Degree Softening (%)	25	37	31	3	0.10

These results were elaborated with 34 composite sample.

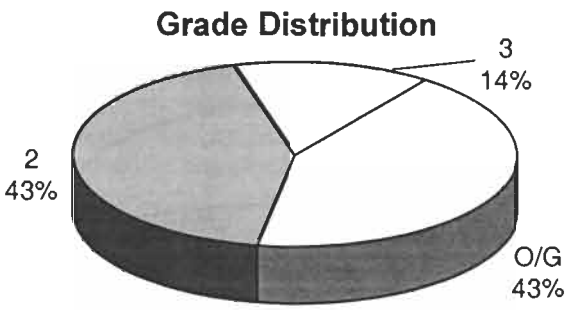
Subregion V South Durum Wheat

Results of the Analyses

Composite Samples by Locality

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	74.30	79.00	76.22	1.62	0.02
Total Damaged Kernels (%)	0.00	2.24	0.80	0.94	1.18
Foreign Material (%)	0.32	1.42	0.87	0.50	0.57
Shrunken and Broken Kernels (%)	0.54	1.84	1.27	0.49	0.38
Vitreous Kernels (%)	38	92	74	24	0.33
Wheat (Triticum aestivum) (%)	0.50	3.82	1.93	1.26	0.66
Proteins (13,5% Moisture) (%)	11.7	15.5	14.0	1.7	0.12
Weight of 1000 Kernels (gr.)	27.50	45.30	35.58	7.55	0.21
Ash (% dry basis)	1.74	1.898	1.820	0.057	0.03

Total damaged kernels includes 0.54% sprouted kerneles, 0.12% insect chewed kernels and 0.14% germ-chewed kernels.



O/G: Out of Grade

Semolin Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Falling Number (sec.)	479	939	670	160	0.24
	Color (b)	20.1	23.8	21.9	1.4	0.06
	Wet Gluten (%)	28.4	39.0	34.9	4.7	0.14
	Gluten Index (%)	63	98	79	12	0.15
FARINOGRAM	Energy Level	32.0	38.7	36.0	3.0	0.08
	Degree Softening (%)	25	32	29	2	0.08

These results were elaborated with 7 composite sample.

Appendix of Locality Composite Samples.

SAMPLE IDENTIFICATION			WHEAT ANALYSIS									
Sample Number	Subregion	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 % Molsture) (%)%	Weight of 1000 Kernels (gr.)	Ash (dry basis) (%)
1	IIS	Alvear	3	73.65	0.00	0.60	0.72	86	0.64	14.2	30.90	1.832
2	IIS	Azul	1	78.15	0.30	0.74	0.40	60	0.12	11.3	43.70	1.763
3	IIS	Carlos Casares	2	78.15	0.36	0.64	1.62	66	0.76	13.7	37.20	1.747
4	IIS	Daireaux	O/G	78.15	0.12	0.26	0.98	28	2.58	13.3	39.60	1.782
5	IIS	General Villegas	O/G	77.25	1.00	0.20	1.50	17	4.34	13.8	38.50	1.971
6	IV	Balcarce	2	83.25	0.28	0.68	2.02	82	1.32	13.3	45.10	1.622
7	IV	Balcarce	1	80.35	0.24	0.30	0.58	69	0.76	12.8	43.40	1.695
8	IV	Balcarce	O/G	81.25	0.20	0.24	0.36	87	3.28	13.9	39.80	1.628
9	IV	Balcarce	1	78.15	0.00	0.72	0.32	57	2.88	14.6	39.10	1.595
10	IV	Balcarce	2	80.35	0.32	0.26	2.18	82	2.08	13.1	43.70	1.749
11	IV	Coronel Pringles	2	76.80	0.68	0.62	1.34	73	1.46	14.0	33.70	1.582
12	IV	Coronel Pringles	2	76.80	0.00	0.64	1.36	52	1.54	15.4	31.20	1.887
13	IV	Coronel Pringles	O/G	72.75	0.00	0.52	2.60	22	1.10	14.5	34.00	1.674
14	IV	Coronel Suárez	O/G	75.00	0.56	0.36	1.58	36	1.16	14.5	34.50	1.791
15	IV	Coronel Suárez	1	78.15	0.00	0.32	0.82	79	2.70	15.5	35.90	1.886
16	IV	General Alvarado	1	81.25	0.20	0.34	0.28	50	1.48	12.8	45.10	1.548
17	IV	General Lamadrid	1	79.00	0.10	0.54	0.82	91	1.90	15.2	42.00	1.844
18	IV	Gonzáles Cháves	2	76.35	0.08	0.58	1.06	67	1.22	14.3	34.20	1.871
19	IV	Gonzáles Cháves	O/G	78.15	0.14	0.26	1.14	29	2.02	14.3	37.40	1.878
20	IV	Gonzáles Cháves	2	78.15	0.20	0.38	1.64	47	2.10	14.7	34.00	1.879
21	IV	Guaminí	3	73.65	0.20	0.36	2.44	82	0.44	16.1	30.30	2.018
22	IV	Laprida	O/G	79.25	0.06	0.38	0.56	96	3.36	17.1	31.50	1.874
23	IV	Lobería	1	80.80	0.30	0.22	0.60	51	1.16	13.2	40.10	1.658
24	IV	Lobería	O/G	77.25	0.56	0.08	2.00	5	2.04	12.8	38.10	1.704
25	IV	Necochea	1	81.05	0.74	0.62	0.96	69	2.64	12.5	40.90	1.656
26	IV	Necochea	1	82.40	0.12	0.24	0.84	55	1.36	12.3	45.70	1.595
27	IV	Necochea	2	76.55	0.38	0.58	1.38	54	1.66	12.5	41.20	1.659
28	IV	Necochea	1	80.60	0.54	0.16	0.92	62	1.72	12.5	41.40	1.553
29	IV	Ochandío	2	81.50	0.18	0.14	1.66	77	1.68	13.6	37.50	1.737
30	IV	Olavarría	O/G	79.90	0.14	0.56	1.08	60	3.88	14.3	39.40	1.772
31	IV	San Cayetano	1	78.15	0.42	0.56	0.82	68	1.56	11.9	40.30	1.733
32	IV	San Cayetano	2	76.10	0.36	0.26	1.22	60	1.04	13.8	34.50	1.565
33	IV	San Cayetano	O/G	76.10	0.00	0.86	1.82	23	3.00	12.9	38.50	1.757
34	IV	San Eloy	O/G	72.10	0.00	0.66	2.10	22	0.72	15.1	29.70	1.983
35	IV	Tandil	1	80.35	0.20	0.34	0.30	51	0.58	14.6	42.80	1.756
36	IV	Tres Arroyos	1	78.15	0.10	0.58	0.84	68	2.66	13.6	35.20	1.720
37	IV	Tres Arroyos	2	79.00	0.22	0.22	1.74	74	1.92	13.9	38.20	1.709
38	IV	Tres Arroyos	2	78.80	0.32	0.74	1.66	48	1.94	13.8	37.50	1.816
39	IV	Tres Arroyos	2	77.00	0.12	0.60	1.32	82	1.40	14.0	36.00	1.794
40	IV	Sierra De La Ventana	—	—	0.34	0.16	0.24	10	0.84	13.9	39.50	1.704
41	VS	Bahía Blanca	2	79.00	0.32	0.48	1.84	92	1.92	14.5	32.00	1.898
42	VS	Coronel Dorrego	2	76.55	0.08	1.34	1.32	91	2.44	15.2	31.30	1.809
43	VS	Coronel Dorrego	O/G	75.00	0.44	0.32	1.54	87	3.82	15.5	27.50	1.799
44	VS	Coronel Dorrego	2	76.35	0.00	1.42	0.84	86	2.34	14.9	32.60	1.873
45	VS	Patagones	3	74.30	2.24	1.20	0.54	48	0.50	12.0	44.80	1.740
46	VS	Villarino	O/G	78.10	1.72	0.48	1.54	38	0.54	11.7	45.30	1.801

Appendix of Locality Composite Samples.

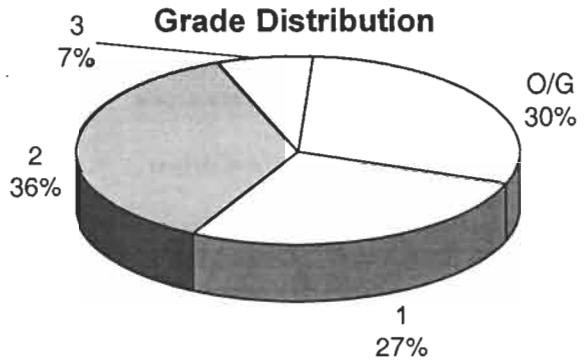
SAMPLE IDENTIFICATION			SEMOLIN ANALYSIS					
Sample Number	Suregion	Locality, district or department	Falling Number (sec.)	Color (b)	Wet Gluten (%)	Gluten Index (%)	Farinogram Energy Level	Farinogram Degree of Softening (12 min.)
1	IIS	Alvear	559	24.1	34.0	79	34.4	29
3	IIS	Carlos Casares	608	21.1	32.4	83	38.0	32
4	IIS	Daireaux	512	21.3	34.4	69	31.8	32
5	IIS	General Villegas	504	20.5	32.4	82	37.0	34
6	IV	Balcarce	513	19.5	36.7	39	33.5	33
7	IV	Balcarce	521	21.8	35.0	50	31.9	34
8	IV	Balcarce	625	21.8	35.8	76	39.4	31
9	IV	Balcarce	595	19.4	34.5	88	40.7	30
10	IV	Balcarce	541	19.6	35.3	37	36.2	37
11	IV	Coronel Pringles	576	22.3	34.4	77	33.0	28
12	IV	Coronel Pringles	543	22.0	36.7	61	36.0	33
13	IV	Coronel Pringles	600	21.3	35.8	80	36.4	31
14	IV	Coronel Suárez	595	22.1	34.8	74	30.5	27
15	IV	Coronel Suárez	617	21.2	40.6	43	34.1	32
16	IV	General Alvarado	502	21.9	33.8	64	33.8	28
17	IV	General Lamadrid	532	21.1	39.0	3	29.9	34
18	IV	Gonzáles Cháves	561	22.3	34.8	66	37.3	29
19	IV	Gonzáles Cháves	540	20.9	37.0	63	35.2	31
20	IV	Gonzáles Cháves	570	21.0	36.2	69	38.7	32
21	IV	Guaminí	632	23.4	38.6	66	35.5	26
22	IV	Laprida	604	21.8	43.2	52	39.5	35
23	IV	Lobería	531	22.4	33.5	72	32.6	25
24	IV	Lobería	559	22.2	31.5	75	33.9	30
25	IV	Necochea	469	20.6	32.2	44	31.5	34
26	IV	Necochea	500	21.0	33.3	67	43.8	32
27	IV	Necochea	488	21.2	31.6	74	36.2	34
28	IV	Necochea	497	22.2	32.7	67	30.5	27
29	IV	Ochandío	531	21.5	35.3	64	42.2	36
30	IV	Olavarría	504	20.0	37.9	44	33.1	35
31	IV	San Cayetano	633	21.1	30.5	79	33.4	31
32	IV	San Cayetano	544	23.0	32.2	67	31.2	27
33	IV	San Cayetano	589	20.8	33.3	58	36.0	33
34	IV	San Eloy	634	20.5	37.8	58	38.6	34
35	IV	Tandil	567	20.9	37.4	63	34.8	29
36	IV	Tres Arroyos	600	21.0	34.1	70	46.2	26
37	IV	Tres Arroyos	586	19.9	35.2	49	36.0	33
38	IV	Tres Arroyos	590	21.8	34.3	61	34.9	29
39	IV	Tres Arroyos	638	21.8	36.0	58	37.0	31
41	VS	Bahía Blanca	675	20.7	37.4	63	37.6	30
42	VS	Coronel Dorrego	707	22.5	37.6	81	37.9	28
43	VS	Coronel Dorrego	939	22.5	39.0	85	38.7	25
44	VS	Coronel Dorrego	686	23.8	37.8	71	37.2	29
45	VS	Patagones	536	21.5	29.3	98	32.0	30
46	VS	Villarino	479	20.1	28.4	77	32.3	32

Durum Wheat Averages

Results of the Analysis

Wheat Analysis	Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
Test Weight (kg/hl)	72.10	83.25	77.94	2.55	0.03
Total Damaged Kernels (%)	0.00	2.24	0.32	0.42	1.30
Foreign Material (%)	0.08	1.42	0.49	0.29	0.59
Shrunken and Broken Kernels (%)	0.24	2.60	1.21	0.61	0.50
Vitreous Kernels (%)	5	96	60	24	0.40
Wheat (Triticum aestivum) (%)	0.12	4.34	1.80	0.99	0.55
Proteins (13,5% Moisture) (%)	11.3	17.1	13.9	1.2	0.09
Weight of 1000 Kernels (gr.)	27.50	45.70	37.71	4.80	0.13
Ash (% dry basis)	1.548	2.018	1.759	0.116	0.07

Total damaged kernels includes 0,16% sprouted kernels, 0,06% insect chewed kernels and 0,10% germ-chewed kernels.



O/G: Out of Grade

Semolin Analysis		Minimum	Maximum	Average	Standard Deviation	Variation Coefficient
MILLING	Falling Number (sec.)	469	939	576	79.7	0.14
	Color (b)	19.4	24.1	21.4	1.1	0.05
	Wet Gluten (%)	28.4	43.2	35.1	2.9	0.08
	Gluten Index (%)	3	98	65	17	0.25
FARINOGRAM	Energy Level	29.9	46.2	35.7	3.6	0.10
	Degree Softening (%)	25	37	31	3	0.10

These results were elaborated with 46 composite sample.

Country elevators, Cooperatives and Mills that contributed in the sampling

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Adolfo Alsina	Guillermo A. Lema
Adolfo Alsina	Productores Agropecuarios del Oeste S.A.
Adolfo Alsina	Unigran S.A.
Adolfo Alsina	Roberto J. Vazquez
Alberti	Rivara S.A.
Ameghino	Rucamalen S.A.
Arrecifes	Agricultores Federados Argentinos S.C.L.
Arrecifes	Francisco Sellart S.A.
Arrecifes	Francisco Sellart S.A.
Ascensión	Coop. Agr. Gan. Limtada de Ascensión
Ayacucho	Ayagranos SA.
Azul	H. J. Navas y Cía. S.A.
Azul	Cerealera Azul S.A.
Balcarce	Acopio Balcarce S.A.
Balcarce	P.A.I.S. S.A.
Balcarce	Scorziello y Galella S.C.
Balcarce	Siagro S.R.L.
Balcarce	Tolvas S. A.
Balcarce	Coop. Agricola Gral. Necochea Ltda.
Baradero	Luis A. Ducret y Cía. S.A.
Benito Juárez	Campoamor Hnos. S. A.
Benito Juárez	Coop. Agrop. de Tandil Ltda.
Bolivar	Oscar A. Gallo y Cía. S.RL.
Bolivar	Coop. Agropeuaria de Bolívar Ltda.
Bordeu	Acopio A.C.A.
Bragado	Acopio A.C.A.
Cabildo	Cooperativa Agrícola Ganadera e Industrial Sombra de Toro Limitada
Capitán Sarmiento	Coop. Agricola de Ramallo Ltda.
Carabelas	Coop. Agropecuaria Ltda. de Carabelas
Carhué	Cooperativa Agrícola Ganadera Limitada de Adolfo Alsina
Carmen de Areco	Coop. Agrop.de Carmen de Areco
Carlos Casares	Los Grobo Agropecuaria S.A.
Carlos Tejedor	Ramón Rosa y Cía S.A.
Carmen de Areco	Coop. Agrop. de Carmen de Areco Ltda.
Casbas	Ganadera Salliqueló S.A.
Chacabuco	Coop. Agrop. de Granjeros Unidos Ltda.
Chivilcoy	Coop. Agrícola Ganadera de Chivilcoy Ltda.
Colón	Graneros y Elevadores de Colón
Coronel Dorrego	Perez Raúl Horacio

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Coronel Dorrego	Casa Balda S.A.
Coronel Pringles	López y Ramos S.C.
Coronel Pringles	Pucará S.A.
Coronel Suárez	Agro El Renacer S.A. de Kopelson
Coronel Suárez	Agroservicios Ottino S.R.L.
Coronel Suárez	Bertolami Cereales S.A.
Coronel Suárez	Cooperativa Agropecuaria General San Martín Ltda .
Cte. N. Otamendi	Rural Ceres S.A.
Daireaux	Aripar Cereales
Daireaux	Camafer S.A.
Darregueira	La Emancipación Sociedad Cooperativa Mixta de Consumo Ltda.
Darregueira	Cooperativa Agropecuaria Darregueira Ltda.
Dudignac	Coop. Agr. Ganad. de Dudignac Ltda.
General Lamadrid	Productores General Lamadrid
Gral. Arenales - L. N. Alem	Coop. Agrícola Ganadera Ltda. de Ascensión
General Pinto	Rucamalen S.A.
General Pirán	Granel Sur S.A.
General Viamonte	Coop. Rural Gral.Viamonte Ltda de Los Toldos
General Villegas	Asociación de Cooperativas Argentinas
General Villegas	Bandagro S.A.
General Villegas	Sanchez y Cía. S.C.
General Villegas	Semillera Fuertes S.A.
General Villegas	Sigra Villegas S.A.
Guaminí	Cooperativa Agrícola Ganadera Guaminí Ltda.
Guaminí	Cooperativa Agrícola Ganadera de Garré Ltda.
Hipólito Irigoyen	Coop. El Progreso de Henderson Ltda.
Huanguelén	Acopio A.C.A.
Junín	Liga Agrícola Ganadera Ltda.
Junín	Junarsa S.A.C.I.F.A.
Leandro N. Alem	Cargill S.A.
Lartigau	Cooperativa Agrícola Ganadera de Lartigau Ltda.
Las Flores	Acopio A.C.A. Las Flores
Leubuco	Ganadera Salliqueló S.A.
Licenciado Matienzo	Cantabria S.A.
Lincoln	Cargill S.A.
Lincoln	Agricultores Federados Argentinos S.C.L.

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Lobería	Baron y Cía. S.A.
Lobería	Usandizaga, Perrone y Juliarena S.A.
Lobería	Forner Hnos y Cía S.A.
Lobería	Marzu S.A.
Lobos	Angel Regueira y Cia. S.A.
Lobos	Aggollia Hnos. S.R.L.
Maipú	Cielos Cereales S.A.
Mar del Plata	Hector L. Villar
Mar del Plata	Adolfo A. Quaglia
Mechongué	Cooperativa Agropecuaria General Necochea Ltda.
Médanos	Cooperativa Agropecuaria e Industrial de Médanos Ltda.
Micaela Cascallares	Cooperativa Agrícola Limitada de Micaela Cascallares
Miramar	Granel Sur S.A.
Navarro	Molino Harinero Santa Margarita S.A.
Navarro	Abel Anibal Bruno S.A.
Necochea	Fernández Candia S.A.
Necochea	Evasio Marmeto S.A.
Necochea	Cooperativa Agropecuaria General Necochea Ltda.
Necochea - Gral. Pueyrredón	Coop. Agropecuaria Gral. Necochea Ltda.
Nueve de Julio	La Bragadense S.A.
Nueve de Julio	A.C.A. C.D.C. Naon
Patagones	Benito Fibiger S.R.L.
Patagones	Novick y Cía. S.R.L.
Patagones	Cooperativa Agrícola Ganadera e Industrial de Patagones y Viedma Ltda.
Pellegrini	Morero Semillas y Cereales S.A.
Pergamino	Agric. Federados Argentinos
Pergamino	Mario Calandri e Hijos S.A.
Pigüé	La Alianza Cooperativa Agrícola Ganadera Ltda.
Puán	Bertín y Cía. S.C.A.
Puán	Torre Hnos. S.A.
Puán	Cooperativa Agrícola Ganadera Limitada de Puan
Roque Pérez - Gral. Belgrano	Molino Cañuelas S.A.
Ramallo	Coop. Agrícola de Ramallo Ltda.
Rauch	Coop. Agric. Gan. de Rauch Ltda.
Rivadavia	Prunder S.A.
Rivera	Ganadera Salliqueló S.A.
Rojas	Agricultores Federados Argentinos S.C.L.
San Miguel del Monte	Molino Cañuelas S.A.
Saavedra	Los Grobo Agropecuaria S.A.
Saavedra	Cooperativa Agrícola Ganadera de Espartillar
Saladillo	Coop. Agrícola Ganadera de Saladillo Ltda.
Salliqueló	Ganadera Salliqueló S.A.

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Salliqueló	Vázquez Roberto J.
Salto	Ferias del Norte S.A.C.I.A.
San Andrés de Giles	Cereales Puggioni S.A.
San Antonio de Areco	Coop. Agropecuaria Ltda de San A. de Areco
San Miguel Arcangel	Cooperativa Agrícola Ganadera Limitada San Miguel
San Pedro	Ramón Rosa y Cía S.A.
Stroeder	Cooperativa Agrícola Ganadera e Industrial de Patagones y Viedma (Deleg.Stroeder) Limitada
Suipacha / Mercedes	Coincer S.A.
Tandil	Ceres Tolva S.A.
Tandil	Coop. Agric. Gan. de Tandil y Vela Ltda.
Tandil	Usandizaga, Perrone y Juliarena S.A.
Tandil	Coop. de Prod., Indust. y Consumo de Tandil
Tandil / Gral. Alvarado	Rural Ceres S.A.
Tornquist	Vittori Cereales S.R.L.
Tornquist	Los Vascos Cereales S.A.
Tres Arroyos	Coop. Rural Ltda. Alfa
Tres Arroyos	Agarraberes Oscar Pedro
Tres Arroyos	Agro El Carretero S.A.
Tres Arroyos	Agro Roca S.R.L.
Tres Arroyos	Agronomía Raúl Horacio Pérez S.A.
Tres Arroyos	Agroservicios Sudeste S.A.
Tres Arroyos	Barcellandi Agropecuaria, Enrique Javier
Tres Arroyos	Bellingeri e Hijos S.A., Francisco
Tres Arroyos	Bellingeri Horacio Atilio
Tres Arroyos	Cerealera El Fortín S.A.
Tres Arroyos	Cerealera Tres Arroyos S.A.
Tres Arroyos	Ciancaglini Germán
Tres Arroyos	Goñi, Jesús Héctor Cereales y Semillas
Tres Arroyos	Maciel César Leonardo
Tres Arroyos	Menna Cereales José Angel.
Tres Arroyos	Molina, Lucas
Tres Arroyos	Oostdijk, Fabián
Tres Arroyos	Pecker, Pedro Eduardo
Tres Arroyos	Rizzi Joel, Juan C. y Mauro Juan C.
Tres Arroyos	Sucesión Antonio Moreno S.A.C.A.I.F.I.
Tres Arroyos	Sur Agropecuaria S.A.
Tres Arroyos	Taraborelli, Mario Jesús
Tres Arroyos	Yraola Soldavini y Cía. S.A.
Tres Arroyos	Cooperativa Agraria Tres Arroyos Limitada
Tres Arroyos	Cooperativa Rural Limitada Alfa
Tres Lomas	Morero Semillas y Cereales S.A.
Tres Lomas	Ganadera Salliqueló S.A.
Vedia	Cargill S.A.
Vedia	Compañía Argentina de Granos S.A.

LOCALITY	DENOMINATION
BUENOS AIRES PROVINCE	
Veinticinco de Mayo	Cereales 25 de Mayo
Villa Maza	Agrícola Ganadera de Maza S.A.
Villarino	Molino Algarrobo S.R.L.
	Centro de Acopiadores de Cereales
	Centro de Acopiadores de Daireaux
	Centro de Acopiadores de la Zona Oeste de la Pcia. de Bs. As.
	Centro de Acopiadores del Noroeste Bonaerense
	Sociedad de Cerealistas 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
CORDOBA PROVINCE	
Arroyito	Ctro. Desarrollo Coop. ACA Arroyito
Arroyo Cabral	Lorenzatti y Ruech S. A.
Arroyo Cabral	Coop. Arroyo Cabral Ltda.
Colazo	Comercial Rossi S. A.
El Tío	A.F.A. S.C.L. El Tío
Etruria	Etruria Cereales S. A.
Freyre	Coop.Agríc.Gan. y de Cons. de Freyre Ltda.
General Levalle	Manuel Gimenez
General Levalle	Mario Berra Cereales
General Levalle	Agrotecnología y Servicios.-
Hernando	Coop. La Vencedora Ltda.
Juarez Celman	Alberto Antonio Berti
La Cesira	Calo. S.A.
La Laguna	Rostagno Saretti S. R. L.
Laboulaye	Laboratorio Caligran
Laboulaye	Molinos Florencia
Las Junturas	Molino Cuassolo S. A.
Las Junturas	Cereales Las Junturas S.A.
Leones	Coop. Agr. Ganad. de Leones Ltda.
Lozada	Luis Coloutti e Hijos S. R. L.
Lozada	Repeti Ferroni y Cia. S. A.
Luque	Coop. Agr. Ganad. Luque Ltda.
Matorrales	Agro Matorrales S. A.
Melo	Banchio Hermanos
Monte Cristo	Miguel Gazzoni e Hijos S.R.L.
Oliva	Coop. La Federación de Oliva Ltda.
Oliva	Asociación de Coop. Argentinas
Porteña	Coop. Gan. Agríc. y de Cons. Porteña Ltda.
Río Cuarto	Alberto Antonio Berti
Río Segundo	Aguirre Cereales S. A.

LOCALITY	DENOMINATION
CORDOBA PROVINCE	
Serrano	Compañía Argentina de Granos
Tránsito	Zanoy Agro y Servicios S.R.L.
Tránsito	Miguel Gazzoni e Hijos S.R.L.
Tránsito	Zanoy Agro S.R.L.
Villa del Rosario	Asoc. Coop. Argentinas
Villa del Rosario	Teumaco Cereales S. A.
	Sociedad de Acopiadores de Granos de la Pcia. de Córdoba
ENTRE RIOS PROVINCE	
Crespo	La Agrícola Regional Coop. Ltda.
Diamante	Agromoya SRL
Galarza	Coop. La Protectora Ltda.
Gualeguay	Maribey SA
Gualeguaychú	Unión Cerealera SRL
Hasenkamp	Ultragrain S.A
Hasenkamp	León Rabey e Hijos S.A.
La Paz	Coop. La Paz
Larroque	Tierra Greda S.A.
Lucas González	Coop. El Progreso Ltda.
Maria Luisa	Héctor Bolzan y Cía.
Ramírez	Coop. La Ganadera Gral. Ramírez Ltda.
Sauce Pinto	Dellizzotti Hnos. SRL
Urdinarrain	Coop. Fed. Ag. Gan. de Urdinarrain
Viale	Santiago D. Trocello S.A.
Victoria	Granero SRL
Villa Fontana	Cereales Bolzan SRL
Villaguay	Semillas y Cereales SRL
	Centro de Acopiadores de Granos de Entre Ríos
LA PAMPA PROVINCE	
Alta Italia	Cooperativa Agrícola Ganadera E. Piacenza
Anguil	Establecimiento "Santa Lucía"
Anguil	Trabajadores Unidos Cooperativa Mixta Limitada
Atreucó	Casa Alarcia S.A.C.I.F.I.A.G.
Banderaló	Cereal Oeste S.A.
Castex	Acopio A.C.A.
Catriló	Lartirigoyen y Cía. S.A.
Catriló	Juan Alberto Segura S.R.L.
Chapaleufú	Cargill S.A.
Chapaleufú	Sebastián Dalmasso y Cía. S.A.
Colonia Barón	Acopio A.C.A.
Doblas	Cooperativa Agropecuaria Doblas Ltda.

LOCALITY	DENOMINATION
LA PAMPA PROVINCE	
Embajador Martini	Cooperativa Agropecuaria Embajador Martini Ltda.
General Pico	Acopagro S. A.
General Pico	Lartirigoyen y Cía. S.A.
General San Martín	Sociedad Cooperativa Agrícola Ganadera Ltda. de General San Martín
Hucal	Molisud S.A.
Hucal	Nueva Cooperativa Agropecuaria Ltda.
Ing. Luiggi	El Campo S.A.
Macachín	Atreu-có Cooperativa Agropecuaria Ltda.
Miguel Riglos	Trimag S.A.
Quemú Quemú	Cereales Quemú S.A.
Quemú Quemú	Nuevas Tierras S.R.L.
Santa Rosa	Pelayo Agronomía S.A.
Santa Rosa	Hernán Guerendiain
Santa Rosa	Martín Esther y Valentino (Est. La Herencia)
Teniente Alvear	Grainco Pampa S.A.
Trenel	Garduño Hermanos
Uriburu	Cereales del Centro S.R.L.
Uriburu	Eduardo Trigo
Winifreda	Acopio A.C.A.
	Centro de Acopiadores de Cereales de La Pampa y Limítrofes
SALTA PROVINCE	
Anta	Molino Panamericano S.A.
Anta	Molino Cañuelas S.A.C.I.F.I.A.
Metan	Molino Panamericano S.A.
Rosario de la Frontera	Molino Panamericano S.A.
Rosario de la Frontera	Molino Cañuelas S.A.C.I.F.I.A.
Salta - Capital	Molino Cañuelas S.A.C.I.F.I.A.
SANTA FE PROVINCE	
Acebal	Olega S.A.
Alcorta	Jakas, Kokic e Ivancich S.A.
Angélica	Naciente Cereales SRL
Arroyo Ceibal	Quatrin S.A.
Arteaga	Domizi y Cía. SA
Arteaga	AFA Arteaga
Avellaneda	Unión Agric. de Avellaneda Coop. Ltda.
Bernardo de Irigoyen	Adagri SA
Bernardo de Irigoyen	Coop. Agrop. Mixta de Irigoyen Ltda.
Bernardo de Irigoyen	Camil SRL
Bigand	AFA Bigand

LOCALITY	DENOMINATION
SANTA FE PROVINCE	
Bombal	Jakas, Kokic e Ivancich SA
Bouquet	Coop. Agr. Ganad. de Bouquet Ltda.
Carlos Pellegrini	Cereales Don Victorio SRL
Carlos Pellegrini	Coop. Agr. Ganad. de Carlos Pellegrini
Chabas	Jakas, Kokic e Ivancich SA
El Trébol	Coop. Agr. Ganad. de El Trébol Ltda.
Elortondo	Coop. Agropecuaria Unificada de Elortondo Ltda.
Emilia	Coop. Agrop. Santa Lucía Ltda.
Eusebia	Comercial Eusebia SRL
Freyre	Coop. Agr. Gan. y de Cons. de Freyre Ltda.
Galvez	Vuelta Hnos. Cereales SA
Gobernador Crespo	Coop. Agr. Gan. de Gob. Crespo Ltda.
Hughes	ACA Hughes
Humberto Primo	Humberto Primo Cereales SRL
Humboldt	Coop. A.F.A. Agencia Humboldt
Humboldt	Agroservicios Humboldt
Justiniano Posse	Coop. de Justiniano Posse
Las Parejas	Integral 3 SA
Llambi Campbell	Lainatti Hnos SA
Llambi Campbell	Coop. Ag. Gan. 26 de Agosto Ltda.
López	Coop. Agrop. de López Ltda.
Los Cardos	AFA Los Cardos
Los Nogales	CDC Los Nogales
Maciel	AFA Maciel
Maggiolo	AFA Maggiolo
Malabrigo	Coop. Malabrigo Ltda
Margarita	Coop. Agric. Mixta de Margarita Ltda.
Maria Juana	Bocchio y Zimermann SRL
María Juana	Coop. A.F.A. Agencia Ma. Juana
María Susana	Coop. Fed. Agr. Ganad. de María Susana
Máximo Paz	Coop. Agropecuaria Ltda. de Máximo Paz
Montes de Oca	AFA Montes de Oca
Morteros	Coop. Agric. Gan. de Morteros Ltda.
Piamonte	AFA Piamonte
Pilar	Coop. Agr. Gan. Ltda. Guillermo Lehmann
Ramona	Cereales Ramona SRL
Reconquista	Industrias Molineras y Afines del Norte (Molino IMAN)
Recreo	Cia. de Cereales La Pelada SA
Recreo	Semillería Denis Stamatti SRL
Roldán	Roberto Amsler SAC
San Genaro	ACA San Genaro
San Guillermo	Coop. Agr. Gan. Ltda Santa Rosa
San Martín de las Escobas	Coop. A.F.A. Agencia San Martín de las Escobas
San Vicente	Coop. A.F.A. Agencia San Martín de las Escobas - Of. San Vicente
Santa Clara de Buena Vista	Coop. Agr.Gan. La Unión Ltda.
Santa Clara de Saguier	Bartolo J. Pons y Cia. SCC
Sargento Cabral	CDC Sargento Cabral
Sastre	Coop. A.F.A. Agencia San Martín de las Escobas - Of. Sastre

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SANTA FE PROVINCE	
Serodino	AFA Serodino
Suardi	Coop. Agr. Gan. y de Consumo de Suardi Ltda.
Sunchales	Coop. Ltda Agr. Gan. de Sunchales
Timbúes	ACA Timbues
Tostado	Unión Agric. de Avellaneda Coop. Ltda.
Totoras	AFA Totoras
Venado Tuerto	ACA Venado Tuerto
Videla	Coop. Agr. Gan. de Videla Ltda.
Villa Cañás	Coop. Agr. Gan. de Villa Cañas
Villa Eloísa	Ventroni SA
Villa Eloísa	AFA Villa Eloisa
Villa Trinidad	Coop. Agr. Gan. La Trinidad Ltda.
Wheelwright	CDC Wheelwright
Zavalla	Coop. de Zavalla Ltda.
Zenón Pereyra	Gaviglio Comercial S.A.
	Centro de Acopiadores de Cereales y Oleaginosas de Santa Fe
	Sociedad Gremial de Acopiadores de Granos (Rosario)
TUCUMAN PROVINCE	
Banda Río Salí	Molino Emilio Luque
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	Centro de Acopiadores de Granos del NOA
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Tres Arroyos	Kraft Foods Argentina S.A.
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