

Developments of the Fluid Fertilizers in Argentina

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Fluid Fertilizer Foundation
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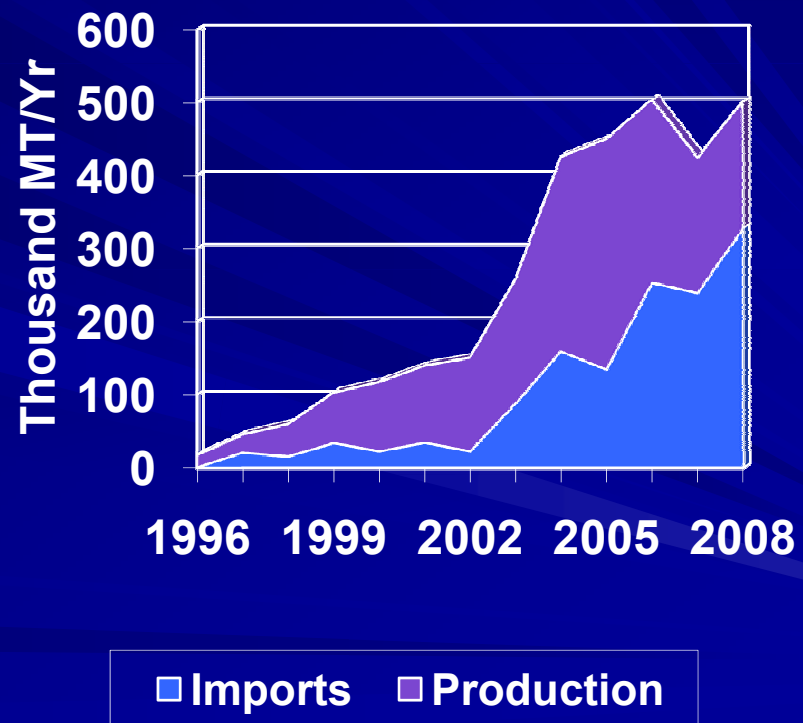
Outline

- Growth of the market
- Structure
- Trends in use of UAN and NS solutions
- Cropping systems
- Use of N and UAN in corn and cereals
- Reason of Preference of UAN
- Prospects
- Limitants & Questions
- Future

Growth of the market

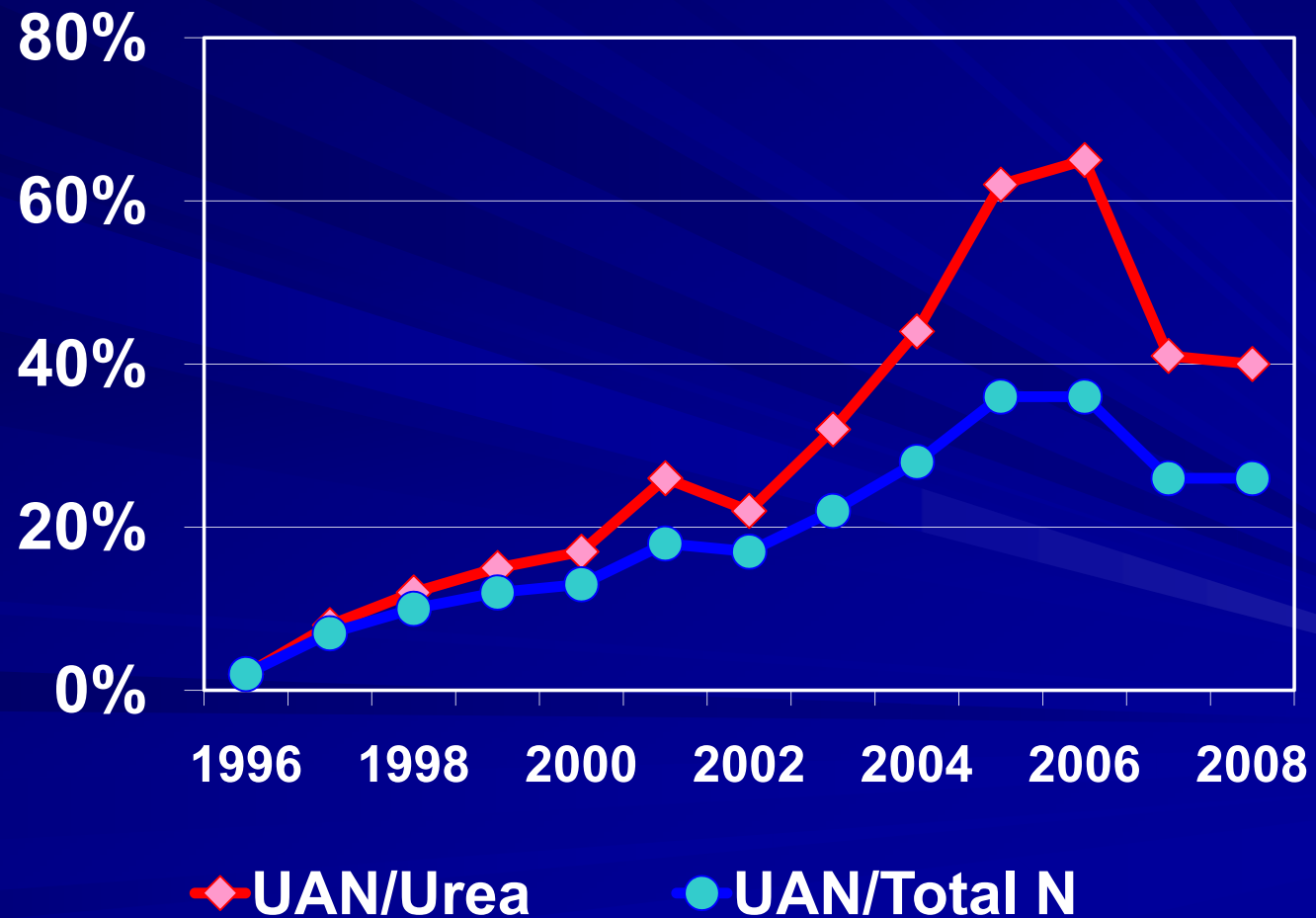
- Argentina is the third most important Latin American market and is growing at the staggering rate of 7 % annual
- But UAN and NS solutions consumption growth rate is 14 % !!

UAN Consumption

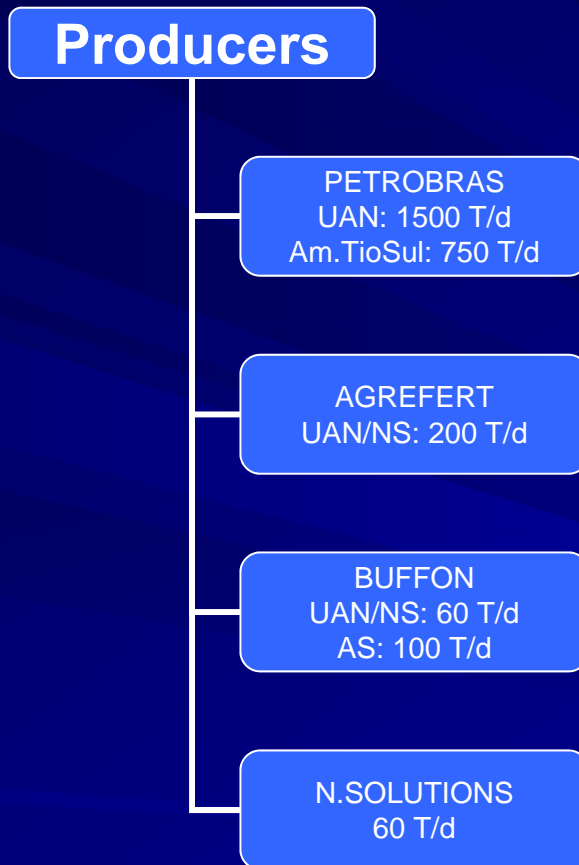


Use of N fertilizers

Growing UAN use at expenses of urea

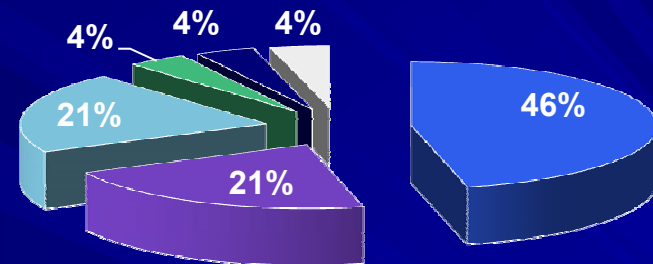


Supply of UAN



285 TMT of UAN /Yr
Imported

Avg. 2 Yr



■ Petrobras
■ Nidera
■ Mosaic
■ Profertil
■ Bunge
■ Others

Independent retail network & Own Plants

Small manufacturers make NS solutions for bigger distributors

Ammonium & Potassium Tiosulfate

- Petrobras plant: 130 tmt /yr capacity
- Availability of domestic & imported AS to make NS solutions at small scales

Phosphoric Acid

- There is no fluid P domestic supply but in small quantities (food grade)
- Few imported PA (merchant grade) used to make fluid & foliar formulations
- Petrobras projects a 60 tmt /yr of AP plant

The retail sector

- Equipment for delivering fertilizers is relatively new and must be mortgaged.
- Investment in new premises to handling other kinds should be well fund based.

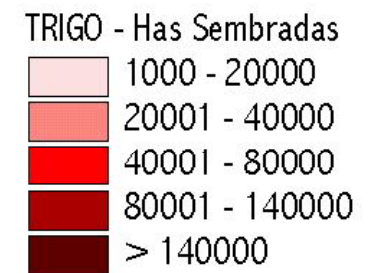
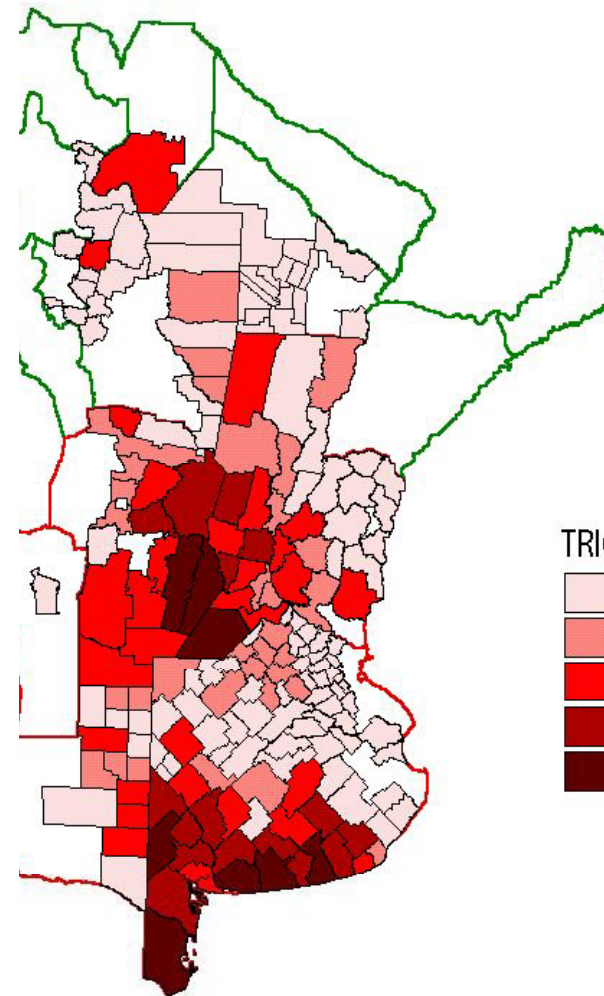
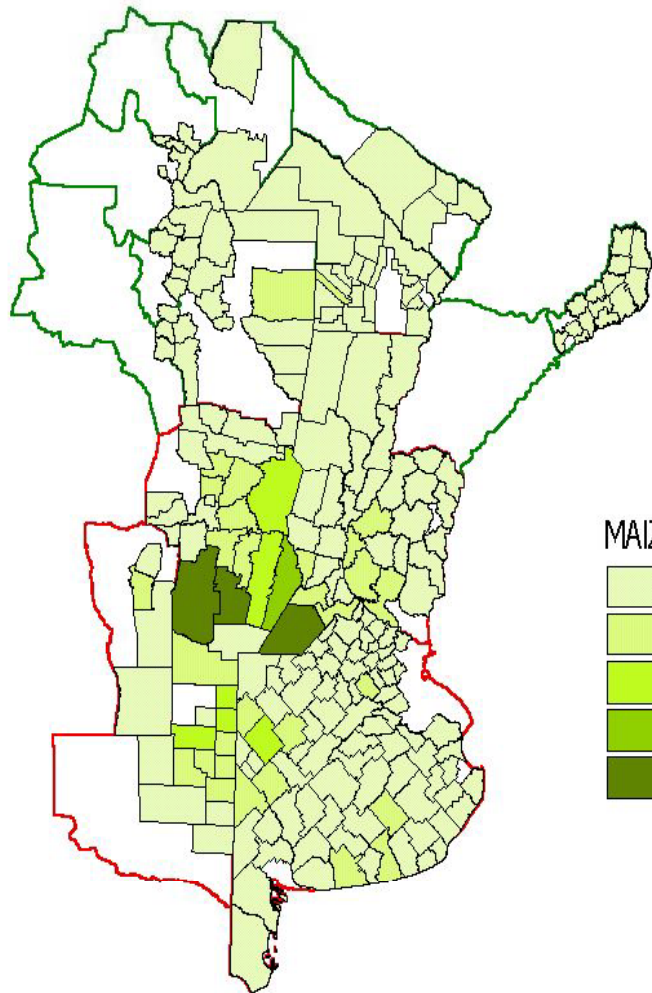


	Solid	Liquid
Sales Straights TMT ea.	2,5	1,7
Sales Blends TMT ea.	0,9	0,2
Age of equipment (Yrs.)	6 ± 4	4 ± 3,5
Plant surveyed (6 both)	12	11

Own sources, Unpublished, 2005. 40 retailers

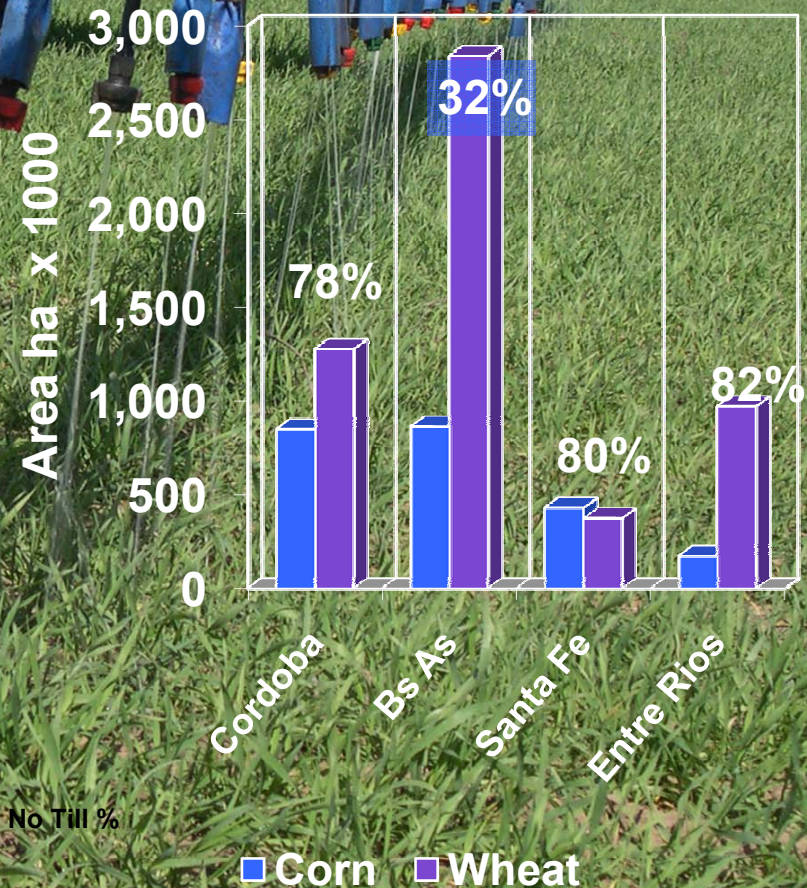
Use of UAN & NS

Corn: 65 % - Wheat 25 %



Use of N and UAN

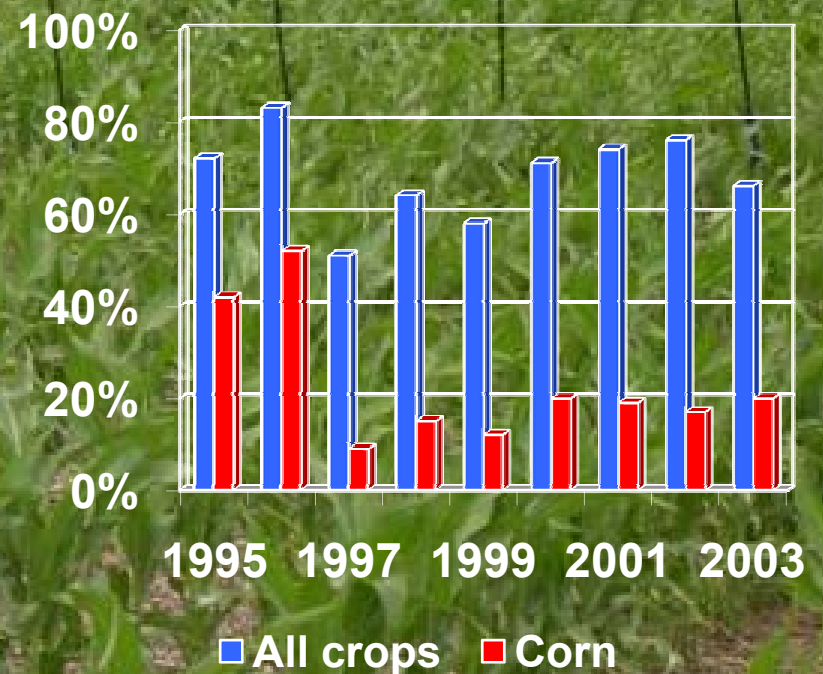
- Near 37 % of Corn planters use UAN, of which 90 % apply it as post-emergence.
- 28 % of wheat producers use UAN and 70 % as post-emergence.
- Other crops may use as much of 5 % of the UAN or NS solutions



Corn in the rotation

- About 50 % of the cropped area is on rented land, where soybean or Syb/Wht is the choice.
- The reason is the higher profit of soybean compared to corn, and the ever rising prices of rented lands
- Even in own lands, the decision to crop corn relies on the benefit of a better C balance, that results in a higher yield of the next soybean.

Proportion of corn in rented land



Survey conducted to evaluate preferences of UAN over UREA

A photograph of a large field of green crops, likely soybeans, under a clear blue sky. In the background, a group of about eight people are standing in the field, looking towards the camera. On the left side of the image, a white pickup truck is parked. The text 'Survey conducted to evaluate preferences of UAN over UREA' is overlaid in yellow at the top.

- Personal questionnaires
 - 385 farmers of three provinces of Pampean region,
 - 20 of which were very large operators
 - 30 Crop consultants
 - 30 Distributors and dealers

■ March - April 2005

ICASA, 2005

Results of the Survey

- Much more users among corn than wheat growers (37% vs. 28%).
- A higher proportion of users among medium to big farmers
- Fluids are preferred on broadcast re-fertilization than starter , more significant in corn. 90 % of the UAN used in corn is at V-6 and 70 % of the UAN consumed in wheat is at tillering

Results of the Survey

- Easiness of application is the most required attribute of a fertilizer and UAN largely accomplish this objective
- Access to equipment and infrastructure is the entry barrier to this technology, which is more evident in small farmers.
- The higher price, fitotoxicity, equipment corrosion are the relative disadvantages of UAN in relation to Urea.
- The majority of users base their favor to UAN due to three factors: “good results”, “easiness of application” and “speed of application”

Results of the Survey

- A lower volatilization is another perceived attribute by a majority, but less credited than other advantages
- Consultant and dealer are the more important sources of recommendation and influence
- More application services and storage capacity are the evident demand of farmers to dealers
- Dealers and distributors are critics to logistic problems and related delays in deliveries

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Results of the Survey

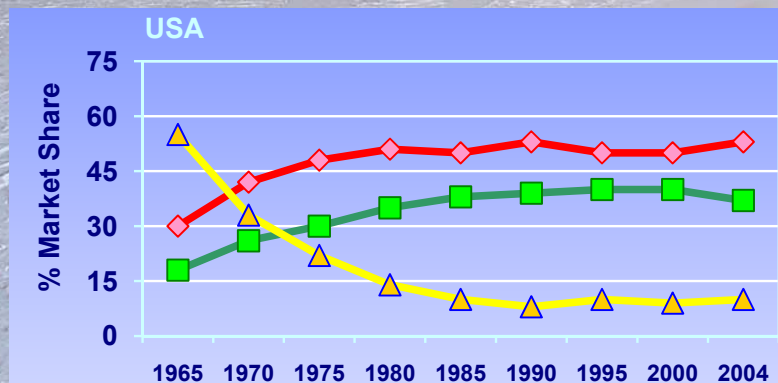
- 80% of consultants recommends frequently or occasionally the use of UAN
- They assign the product the same attributes that farmers, but credit more importance to the lower volatilization rates
- The vast majority of the interviewed actors (farmers, consultants, distributors) perceive a future increase in the use of UAN in relation to Urea.

Prospects

- On the assumption that almost only cereals: corn and wheat, use N → UAN
- Market volume derives from the variation of the area cropped, the management and fertilization rate.
- Trends in liquid fertilizers would follow US experience

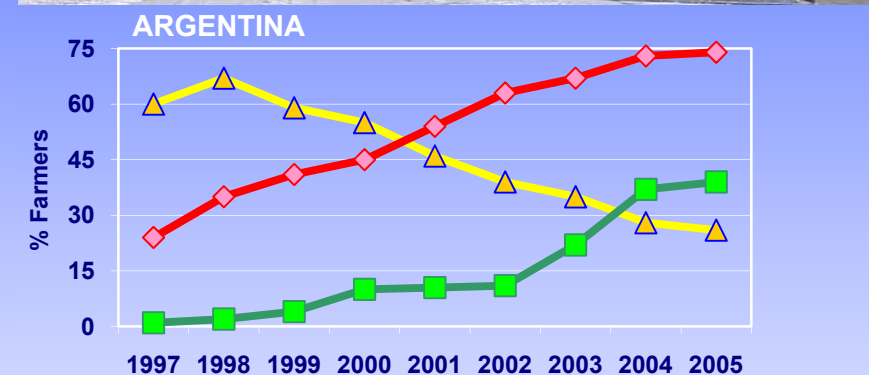
Changing patterns. Similar trends

- In the last years retailers restructured its facilities to efficiently deliver in bulk, prescription solid blends and liquids fertilizers; each way requiring specific asset investments.



Commercial Fertilizers

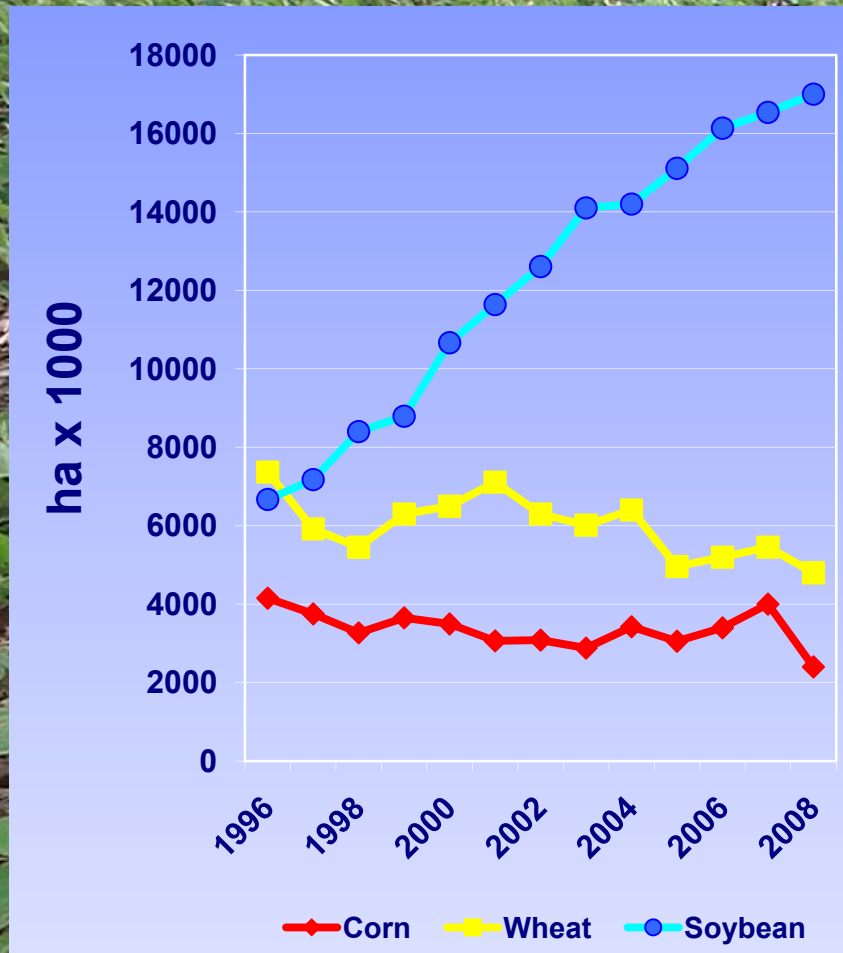
—◇— Dry Bulk —■— Fluid —△— Bagged



CASA & Fertilizar-INTA

—△— Bagged —◇— Bulk —■— Liquids

Area with cereals



- Soybean is the only crop's area growing
- About 95 or more of the area cropped to corn or wheat is already fertilized
- There is a slight trend on growing N rates on cereals (1,1 kg N/ha/yr). Actual rate is 65 kg N/ha.

Are we reached the ceiling ?

- There is a growing proportion of UAN to total N consumption, at expenses of the urea usage, but it looks to be approaching the limit.
- Large increases of area cropped to cereals seems unlikely. This is also unlikely a rapid growth of N rates used in the short term.
- There is a need of much more investments in facilities of the whole chain to boost the adoption of liquid fertilizers.

Storage Limitations in Ports

Region	Port	Terminal	TMT C	Av. 5 y
North	S.Lorenzo	ACA	30	
		Ponal*	40	
	Rosario	Guide	10	
	S.Nicolas	Profertil	40	
		Ponal	27	
	Campana	TAGSA	80	
South	Buenos Aires	TAGSA+	65	
	Necochea	Ponal	40	
		ACA+	10	
		Petrobras *	40	
	B.Blanca	Oiltanking	18	
TOTAL (Actual)			245	22

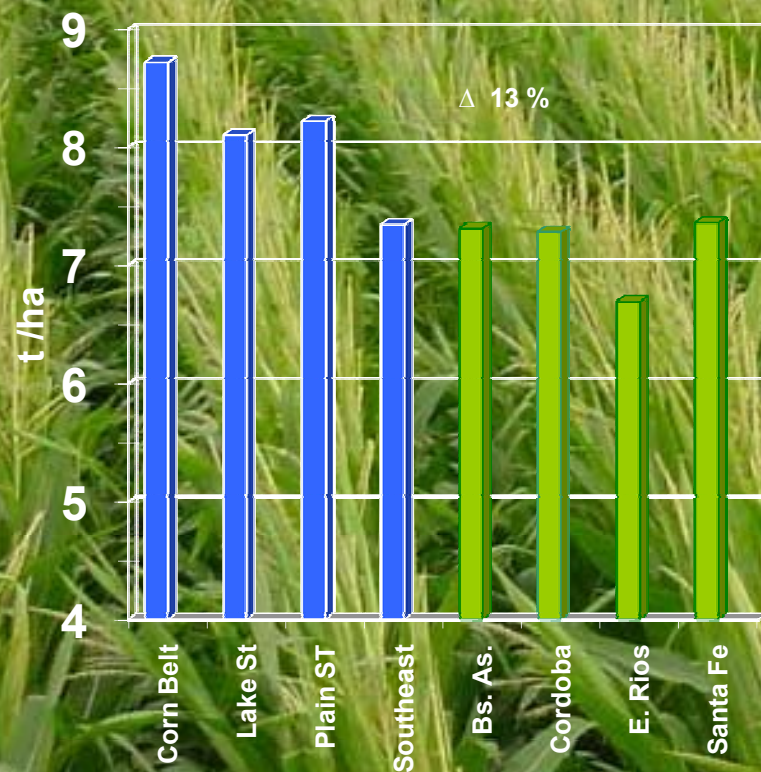
+ Not yet habilitated, ++

* Under construction

Investments on new facilities will get total capacity to 400 tmt

There is a big gap between yields,
N rates and productivities in both
countries

Corn Yields USA & Argentina



USA

Argentina

140 kg N/ha

65 kg N/ha

57 kg corn/kg N

108 kg corn/kg N

Recent Market Niche Developments

- WHEAT: Fungicides + N 20 (urea sol.)
- CORN: ATS in sprays at V/6 to supply S
- Soybean: Glyphosate + ATS (up to 25%)
- Sugarcane & Vineyards: Dosage at the furrow

Would Fluid Fertilizers/UAN use further expand ?

- The future scenario will see a greater interest in increasing nutrient efficiency (kg grain/kg nutrient)
- The expansion of the UAN/NS would depend more on the efficiency of management methods associated to its use, in order to gain productivity, rather than increasing offer of liquids.
- In this prospect we include the use of additives to increase efficiency (Urease and nitrification inhibitors, Avail®, etc).
- Other than NS solutions, the expansion on FF would rely on a domestic P source to make starters

Thank you for your attention !

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