Fluid Industry Development in Argentina

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Argentina is currently considered one of the major agricultural regions of the world, with most activity centered in the Pampa region of converted natural grasslands of Buenos Aires, Córdoba and Santa Fe provinces. This extensive region of 52 million hectares ranges in precipitation from about 600 mm (24") in the more semiarid western regions up to about 1100 mm (43") in the more humid east. Cereal grain agriculture began in the 1870s with rapid expansion until 1937, after which agriculture activity diminished. Mechanized agriculture grew in importance starting in the 1970s, but lagged behind other countries due to the access to technology and large-scale international capital.

Argentina has experienced significant development of their fluid fertilizer industry. Ten years after their introduction, and parallel to the modernization of its agriculture and increased fertilization, the use of UAN and N-S solutions has been widely adopted by the top corn and wheat growers.

Although most big players on fertilizer industry are marketing imported UAN, the development of the fluid industry has also been lead by one firm: Petrobras. Petrobras has encouraged the adoption of fluid fertilizers the general mass of farmers, but has also by developed market niches with strategic investments. A recent development is a 130 mt/y capacity plant producing ammonium/potassium thiosulfate (ATS) in 2007.

An article published in the Fluid Journal in 2005 discussed the initial developmental steps in the Argentina fluid industry a decade after first introduction. The article predicted significant development of the fluid industry, which have been met with the last two years of bullish markets in grain and fertilizers. It also predicted boosted plans for new facilities by interested firms. The annual growth rate of the fluid fertilizer has been about 14 %, double the rate of the growth of the overall fertilizer market. This is due to due to the many advantages of fluids over solid fertilizers. Its is worth mentioning that all of South American agriculture has been expanding over the last two decades in an effort to cope with the increase in demand for agricultural, food, feed and biofuel products.

	2004	2005	2006	2007	2008
			Thousand M tons		
UAN Imports	160	134	253	239	328
UAN Production	252	322	313	247	173
Total UAN	412	456	566	486	501
Urea Imp + Prod	928	721	865	1199	1256
AN	112	96	147	149	164

Unfortunately, there are some macroeconomic and infrastructure constraints at the national level, like investments in energy, ports, transport systems, etc. which are slowing down many initiatives. Profertil, another part of the Agrium group, had to put a 600 tmt/yr UAN project on hold due to lack of guaranteed natural gas for the expansion. On the other hand, there are a myriad of small farming operations investing in their own fluid storage tanks.

Investment to increase the receipt/unloading and storage capacity of UAN at ports is expensive and lacks easy financing. However, there is a projected increase in capacity of 60 % in the coming years in the major ports in the south and on the river in the northern region.

Table 1. Port deposit facilities to handle UAN in Argentina.

Region	Port	Terminal	Actual	Projected	Mean 07/08
				Thousand M tons	
North	**S. Lorenzo**	ACA	30		37.6
		Ponal		40	
	Rosario	Guide	10		36.4
	S. Nicolas	Profertil	40		94.5
		Ponal	27		
	Campana	TAGSA++	80		4.4
	Buenos Aires	TAGSA+		65	8.5
South	**Necochea**	Ponal	40		23.3
		ACA+		10	
		Petrobras		40	
	B. Blanca	Oil tanking	18		18.8
TOTAL			**245**	**155**	**223.2**

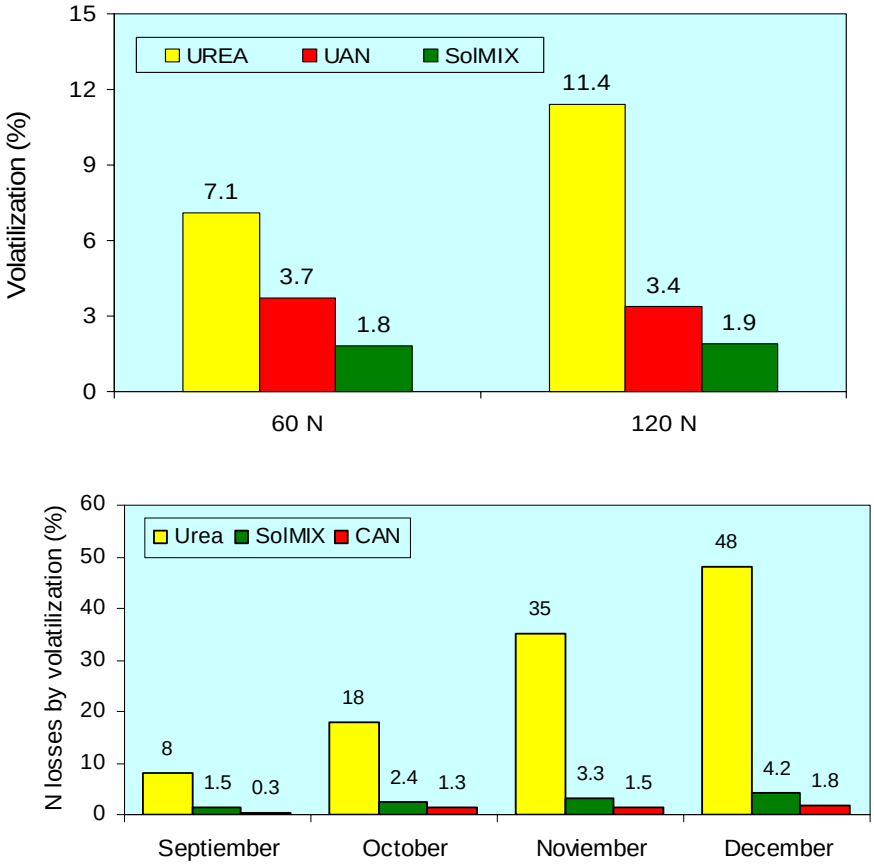
+: Not yet habilitated by RENAR
++: Partially habilitated by RENAR

There are other factors delaying the advance of fluid technology. The first is defined by the chronic lack of financing to make infrastructure investments at retail level. The second one has to do with the increasing preponderance of soybean, as opposed to cereals, and a resulting limits this places on nutrient demand, and consequently N & N-S fluids, during the last decade.

The slowdown in the growth of the market over the last year is another factor that results in questions about the future trend in the use of fluid fertilizers. For Argentina, while obviously impacted by external market factors scenario, also has it's own internal political factors. The actual populist government favors the internal consumption, in an effort to fight against inflation, very often affecting the export markets, which discourages the sowing of cereal and grasses. That represents a clear negative impact on wheat, and corn and pastures to fuel the dairy and meat industry. Since these crops compete for land with soybean, and are cheaper to produce than cereals (no N fertilizers!), the result is an unstoppable expansion of soybeans in the agriculture frontiers.

An important increase in the adoption of fluid fertilizers by grain growers was observed after the promotion of the N-S solutions, and was helped by having its own ATS plant. Normally, the firm discourage selling simply UAN, instead it is offered their UAN- ATS mixes 28-0-0-5 S (80%–20 %) or 30-0-0-2.6 (90%–10 %) marketed as SolMIX ®. Interestingly, this resulted in utilizing one of the best selling points of this mix: the concern of N losses via volatilization. There is a well established concern about broadcasting urea on established crops by consultants, dealers and farmers. By promoting the UAN-ATS mixes, and supported by many field trials around the country, farmers easily adopted this highly efficient way of applying N. In addition, there is a domestic supply of crystalline and liquor AS, which may be used by the other small manufacturers of UAN or independent retailers, that may market its NS solutions by its own channels.

Figure 1. Volatilization of N of three sources in corn under No- till in two locations of Argentina: Rafaela (Fontanetto, 2005) and Balcarce (Echeverria, 2005).



The growing global concern about ammonium nitrate has also resulted in increased demand for fluid fertilizers.. The RENAR, a government bureau regulating explosives, must approve all deposits, at the whole distributor chain (importers/producers, end-users) of AN or products that contain AN. In practice, the fertilizer warehouses must satisfy the same requirements of those for

a powder magazine. The result was the disappearance of the AN market and the partial replacement by calcium-AN (CAN) and UAN-ATS mixes.

A significant boost in the development of the fluid fertilizers in the country will likely be in the development of NP or NPS solutions which will fit as starters in the major grain crops. Today, there is not an inexpensive source of fluid P that could be used to prepare such complex grades. Petrobras has planned a project for a 60 tmt/yr plant of ammonium polyphosphate based on imported rock phosphoric, but implementation is unknown. It is interesting to mention that this firm planned to develop the use of suspension, but the project was abandoned some years ago.

Meanwhile, in the short term, some 'think tanks' of the fertilizer industry presume that Argentinean model of development will follow the same as the American markets some years ago. That is, the gradual disappearance of bagged fertilizers and switching to bulk and fluid products. An unknown is the future of the ethanol industry in the US. If last year's trends were to continue, the disruption caused by a lot of grain going to ethanol production, the gap left by the US corn in the export markets would have to be filled by the South American production. Either by exporting the corn grains, or integrating the production with the agricultural chains of poultry and swine meats, Argentina must increase significantly their corn production, a long time dream of the fertilizer industry.

Not less important is the big gap in mean N rate used in corn compared to US. The slow but sustained trend in increasing the average application of N per acre, in hand with an increase in the acreage devoted to this crop will boost fluid fertilizer consumption. But since the future scenario foresee a greater interest in increasing nutrient efficiency (kg grain/kg nutrient), the spur in demand of the UAN/NS would depend more on the efficiency of management methods associated with it's use in order to improve productivity will also be a factor. In view of this prospect we may also see increased use of fertilizer additives to increase efficiency (Urease and nitrification inhibitors, Avail®, etc.).