Market Response to Genetically Modified Cotton Seed

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In Argentina, cotton production business stands at about US$2 billion, being the average planted area of 322,000 hectares in the last season. This area historically ranged from 158,209 hectares in 2002/03 to 1,133,150 hectares in the cotton year 1997/98.

Seed production ranged from 737,639 metric tons in 1995/96 to 109,719 metric tons in 2002/03, resulting in a cotton seed volume average of 248,300 metric tons in the last 5 seasons.

As to the introduction of biotech seed in Argentina, it should be noted that Argentina established in 1991 a regulatory framework for Genetically Modified Organisms.

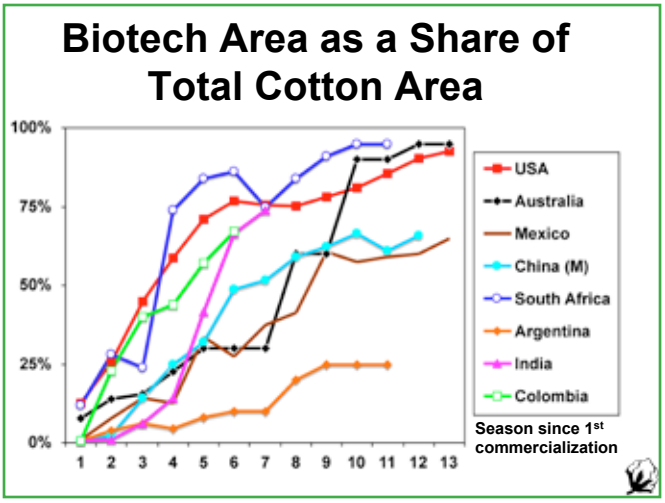
At that time, the need to regulate the activities developed by research companies and organizations determined the creation of CONABIA (National Advisory Commission on Agricultural Biotechnology), as an evaluation and advisory body within SAGPyA (Secretariat for Agriculture, Livestock, Fisheries and Food). This commission is made up of representatives of different public and private institutions.

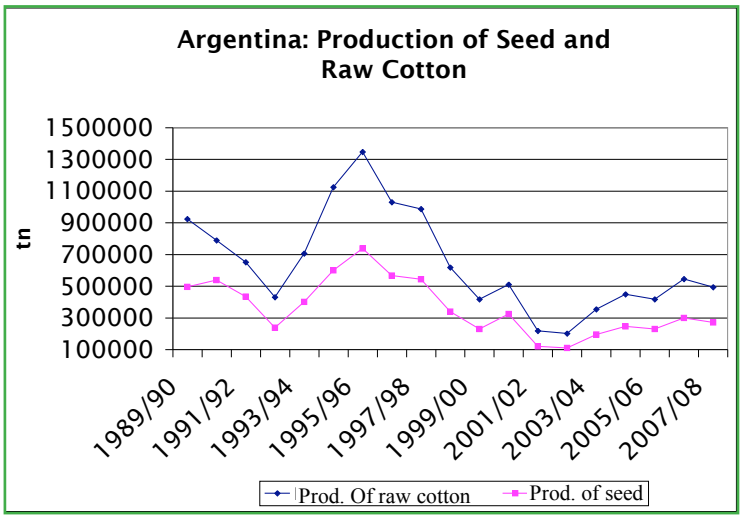
It is also worth noting that in Argentina the period from the initial assessment stage of a material until the authorization for its commercial release takes over 5-6 years.

Currently, there are 7 transgenic cotton varieties registered with INASE (Argentina's National Seeds Institute).

A cotton variety with stacked transgenic events Bollgard 1 and Round Up Ready has recently been approved. The registration with INASE is still pending.

According to INASE data, 27% of the total supervised lots in Argentina during 2007/08 were planted to transgenic varieties. However, this percentage increased to 72% during cotton year 2008/09.





This information is also shown in the ICAC statistics, as seen in the following chart, where the area planted to biotech cotton over the total cotton area in Argentina was 25% until 2007/08. It is estimated that the figures for cotton year 2008/9 will increase to 70-72%.

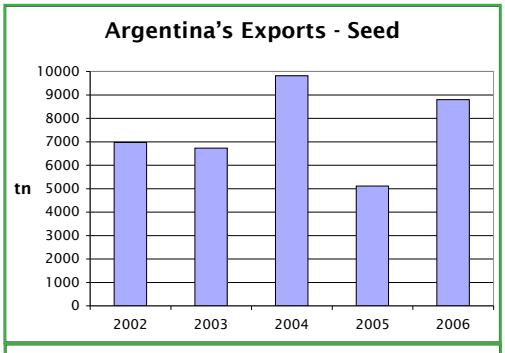
Seed production shows a marked decline in recent years as a result of a substantial contraction in the cotton area, as shown in the following chart:

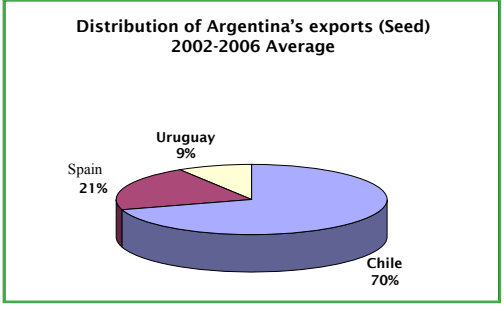
Average seed yield is 53% over raw cotton.

Cotton seed production is distributed as follows:

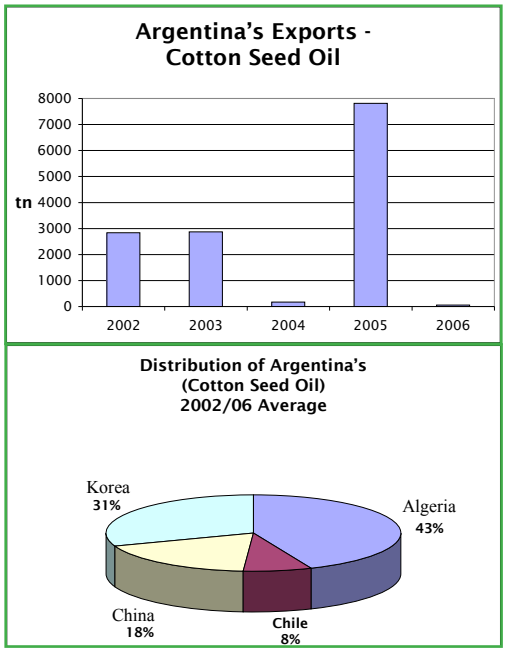
Oil 63%, Forage 28%, Exports 4.5% and Sowing 4.5%.

Seed for industrial purposes is exported to Chile (70%), Spain (21%) and Uruguay (9%) with volumes ranging from 4,500 metric tons to 10,000 metric tons annually.

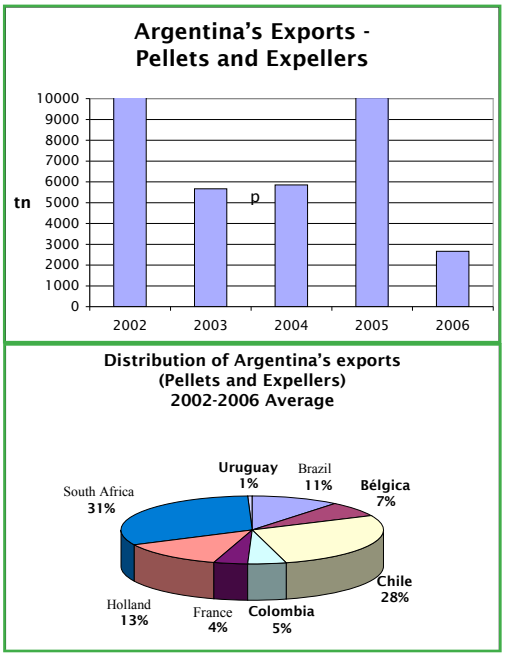




Semi-refined cotton seed oil is exported to Algeria (43%), Korea (31%), China (18%) and Chile (8%) in annual volumes between 200 metric tons and 7,900 metric tons.



The main destinations of exports of pellets and expellers are Chile, the Netherlands and Brazil, and their volumes range from 10,000 metric tons to 2,200 metric tons.



The use of seed for forage is of strategic importance as a food supplement and as a protein and energy source. It is highly appreciated by producers for its availability in great quantities, ease of use and relative low cost.

For beef cattle, it is often used alone or mixed with grains as a feed supplement for fattening heifers or calves.

As to dairy cattle, seed is mainly mixed with grains as a protein source.

INTA has carried out research work in both beef and milk. In the case of milk, there are specific studies about milk consumption, production and chemical composition that compare biotech and non-biotech materials as supplements in dairy cows. No significant differences resulted from the analyzed variables, thus indicating that cotton seeds from genetically modified varieties containing Bt and RR genes, used as dietary supplements in dairy cows, are similar to non-transgenic varieties under controlled feed conditions, in terms of milk consumption, production and chemical composition.

Marketing of cotton seed in the domestic market does not differentiate between non-biotech and biotech seeds. The difference in quotations depends on their destination: industry or forage.

They are valued at (August 2009):

For the oil Industry: US$ 120 per metric ton + VAT
For Forage: US$ 123 per metric ton + VAT

Conclusions

- Biotech cottons were introduced in Argentina 10 years ago. Bt and RR genes were introduced into domestic and foreign materials.
- Seed production volumes ranged from 737,639 metric tons to 109,719 metric tons. Average volume of cotton seed for the last season was 248,300 metric tons.
- Average seed yield over that of raw cotton is 53% (rest is lint and trash). There has been no noticeable change in seed characterisation with the introduction of biotech cotton.
- Seed use has been diversified and its use as forage is growing.
- The market (industry, forage, and exports of seeds, products and by-products) does not differentiate between seed and its derivatives from non-biotech and biotech materials.
- Seed prices in US$ are increasing and have shown noticeable growth in recent years due to industry/forage competition
- Forage target price is higher than industry target price.
- There is research work on its forage use for feeding beef and dairy cattle. No differences have been identified in milk in terms of non-transgenic materials.