



SPOTLIGHT ON SUGARCANE

Chacra Experimental is located in Salta (more specifically in the Colonia Santa Rosa) in Argentina, where 35 people work directly or indirectly to improve sugarcane varieties and meet the needs of local sugar mills.

SUGARCANE'S ORIGIN

Sugarcane is a Gramineae related to corn that originated in the warm climates of Southeast Asia. It needs long days and high temperatures to flower and produce viable pollen in order to reproduce by seed. These conditions do not exist in Argentina, so sugarcane is propagated vegetatively by using small pieces of stem (cuttings). These cuttings are called “seed cane”, which is then planted in the production fields.

SATISFYING ARGENTINA'S NEEDS FOR SEED CANE

Germán Serino, Director of Chacra Experimental, says that their work on plant breeding is done to satisfy the production needs of the sugar mills that provide economic support for all of their research and development activities. These mills produce sugar, paper and/or energy

SUGAR CANE IMPROVEMENT

There are many hands working to improve sugarcane, but they are coordinated by two people: **Silvana Mamani** and **Fernando Yáñez**. While Silvana is in charge of the difficult task of making the selected sugarcanes flower by giving them adequate light and temperature, Fernando designs and coordinates field trials in order to test the seedlings that emerge from the crosses made by Silvana in the greenhouse.



SOME FACTS...

- Chacra Experimental has a Germplasm Bank with more than 1,200 sugarcane varieties of different origins. These are used to make crosses.
- Out of 300,000 seedlings grown each season through sexual crosses (pollen and ovules to produce seeds), only two or three become commercial varieties.
- It takes between 10 and 14 years for the initial crosses in the greenhouse to result in a commercial variety.
- The most sought-after characteristics of a new variety are: higher sucrose (sugar or ethanol production) and fiber (paper production) content. Also, resistance to pests and diseases, cold temperatures, and falling over (which makes the mechanical harvest more efficient) are also important.
- According to the Argentinian Government Secretariat for Science and Technology, with respect to the analysis of investment made in research and development in 1,000 institutions, Chacra Experimental is ranked 90th.
- Chacra Experimental has 17 commercial sugarcane varieties registered at the Argentinian National Registry of Cultivars of INASE*. Four of them are subject to plant breeders' rights (they are registered at the Argentinian National Registry of Cultivar Ownership).

BIOTECHNOLOGY

Chacra Experimental has a biotechnology laboratory, where Amalia Saavedra and Cecilia Palacio carry out micropropagation to asexually multiply the most promising varieties. In this way, disease-free seedlings are obtained quickly, which is an ideal situation for planting a crop. Genetic engineering research also takes place in this laboratory, however, to date no transgenic sugarcane variety has been developed yet.

* INASE - Instituto Nacional de Semillas (Argentinian National Institute of Seeds)

