Seminar on the interaction between plant variety protection and the use of plant breeding technologies

# New breeding techniques: Public research institute perspective

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Ministerio de Economía **Argentina** 



The National Institute of Agricultural Technology (INTA), is an official decentralized Organism at the Secretary of Agriculture, Livestock and Fisheries, with operational and financial autarchy created in 1956





#### > Headquarters

- > 15 Regional Centers
- > 52 Experimental Stations
- ➢ 6 Research Centers
- > 22 Research Institutes
- > 359 Rural Agencies

#### > 2 Private Organizations









About plant varieties, since 1981, INTA registered at INASE 1025 varieties in the National List and, at the moment, INTA has 280 varieties with PBRs in force. (registered varieties from 107 species)

Legal frame: Law 20247 (Seeds and PVP) and Regulatory Decree 2183/1991; Law 24376 UPOV Convention 1978 Act. Regulatory Agricultural Biotechnology Procedures: National Biotechnology Commission





#### Breeding tools used:

- Traditional breeding
- Breeding assisted by molecular markers
- Mutagenesis
- Gene editing
- Recombinant DNA (transgenics)





*Rice (imidazolinone resistance):* 

- It is a trait developed by INTA (mutagenic)
- The trait is protected by Patent (INTA)
- 5 INTA varieties registered and protected by INTA (PBR).
- License for comercial purposes to BASF Company.





**Cotton** (herbicide and lepidoptera worm resistance):

- It is a trait developed by a Company (Monsanto)
- The trait is protected by patent (Monsanto)
- 3 INTA varieties registered and protected by INTA (PBR)
- License for seeds production and commercialization

to GENSUS Company.





**Soybean** (herbicide tolerance – RR1):

- It is a trait developed by a Company (Monsanto)
- The trait is public now
- 5 INTA varieties registered and protected by INTA (PBR)
- License for seeds production and commercialization to Companies.





# Calibrachoa (Ornamental plant)

- Varieties developed from native genetic resources.
- INTA recognize the rights of Provinces where the native resource was collected (Argentine National Constitution and legal frame)
- License to commercialization to foreign Company
- A mutant for flower color is detected by the licensee

and the INTA PBR on the initial variety is recognized by licensee.







# Technology Transfer Agreements:

- Rice (BASF Company)
- Cotton (Monsanto Co.)
- Cotton (Gensus Company)
- Soybean (Monsanto Co.)
- Calibrachoa (J&H Co.)



# Other Agreements includding new technologies:

- BASF Company: to develop rice varieties herbicide

resistant

- BASF Co. And Louisiana University: to test no-GMO

rice varieties (mutagenics)

- MTAs to test "IMI" rice varieties in Uruguay and

Brasil



# Other Agreements includding new technologies:

- CORTEVA Company: to "enter" herbicide and insects resistance trait into INTA soybean varieties.
- MONSANTO Co.: to develop cotton GMO varieties using
- Monsanto cotton lines as donors.
- MONSANTO Co.: to use trait RR1 for soybean in breeding INTA program.
- StelaGenomics Mexico: phosphorus metabolism technology

(develop in INTA germplasm and GMO regulation process)



### **Some INTA traits under evaluation (regulatory process**

at CONABIA – National Agricultural Biotechnology Commission)

- Wheat: Drought stress
- Potato: Virus resistance
- Citrus: Virus resistance
- Cotton: Coleoptera resistance
- Lucerne: herbicide tolerance; salinity resistance
- Corn: Drought stress; Virus tolerance; herbicide

tolerance





#### Some considerations:

- Public Research Institutions: new and better varieties and products available and for the benefit of the whole society,
- Regulatory steps must be complished with scientific rigor,
- There are different contractual tools to interact with Entities or Companies
- (R&D; License; MTA; Cooperation Agreement, Confidentiality Agreements, etc)
- Intellectual Property and ownership of the results: must be clearly stablished in the Agreements,
- It is important to have specific areas to manage relationships between Institution, breeders and Companies,
- It is important for the Public Research Institutions to have clear rules about technology transfer taking into account the breeders/researchers participation in the final result and future benefits.









# Thank you for your kind atention!

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