

COLLEGE OF AGRICULTURAL SCIENCES – ROSARIO NATIONAL UNIVERSITY

The Experimental Field of the **College of Agricultural Sciences** offers an area of 507 ha equipped with Research and Production Modules which are representative of the farming activities in the region (dairy farming, cattle and swine production, and agriculture).

The proximity of these facilities to the classrooms and labs supports the **teaching, research and extension** activities, giving our institution a **distinctive feature** among other universities throughout the country.

The College, which stands at the centre of a 100-ha park in the town of Zavalla, offers a peaceful and quiet setting for academic life, promoting learning and creativity.

Our Faculty is made up of specialized professionals who permanently pursue further professional development activities. Most of them work exclusively at our College, which ensures that the contents taught to students are being constantly updated.

The plans of study for the careers offered at our College have been developed with a comprehensive approach, encompassing field work and pre-professional and lab practices as mandatory curricular requirements. This means that our graduates have a thorough, first-hand knowledge of the problems they will face as professionals.



Main areas at our College:



TEACHING

Our main objective is to develop competent professionals with a deep knowledge of basic and applied areas. Our Faculty promotes the development of critical thinking and of problem-solving strategies to be applied in diverse scenarios.



RESEARCH

Aimed at building knowledge, this area enhances the professional expertise of our graduates and stimulates their capacity for designing, formulating and giving alternative solutions for national and regional development.



EXTENSION

This area is committed to making a contribution to national and regional development by promoting the application of knowledge to concrete situations and the active involvement of the community in analyzing and solving its problems.



Office of International Relations and International Cooperation

Our institution is one of the few Colleges of Agriculture in Argentina which has a special office for international relations and cooperation. It serves to institutionalize the pre-existing links with foreign institutions and to forge new bonds aimed at working jointly in academic and professional development activities.

VILLARINO EXPERIMENTAL FIELD

College of Agricultural Sciences
ROSARIO NATIONAL UNIVERSITY

Location:



**College of
Agricultural Sciences**
ROSARIO NATIONAL UNIVERSITY
ZAVALLA - SANTA FE

Mailing address:
Campo Experimental Villarino
C.C. Nº 14 (S2125ZAA)
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website: www.fcagr.unr.edu.ar



The Experimental Field of the College of Agricultural Sciences offers an area of 507 ha equipped with Modules for Research and Learning (fruit growing, horticulture, sheep production), and Production Modules which are representative of the farming activities in the region (dairy farming, cattle and swine production, and agriculture). The proximity of these facilities to the classrooms and labs supports the teaching, research and extension activities, giving our institution a distinctive feature among other universities throughout the country.



Agricultural Production Module

This area has 77.8 ha devoted to crop rotation under a continuous no-till cropping system. The crops grown are the predominant ones in the region, and the sequence is: early soybeans followed by late wheat/soybeans, and then corn. The rotation in the dairy farm module includes soybeans in four of the nine years of the rotation.



Fruit Growing Module – Fruit Orchard

This area has a great variety of pome, stone, citric and other types of fruit trees. It is used for didactic and research purposes.

Horticulture Module

Area devoted to growing different horticultural species, both in the field and in greenhouses, using different technologies. This Module serves didactic purposes, and research and technological development activities.



Sheep Module

It consists of a flock of 250 animals which are part of research projects aimed at improving the quality of lamb meat. A new genotype of lean lamb was obtained by the selection and crossing between the Ideal and Texel breeds under a CIURN project started in 1986. This genotype was registered under the trademark Magrario® - 'The lean lamb of the College of Agricultural Sciences' - in 1999.



Dairy Farm Module

The area devoted to this activity ranges between 90 and 100 ha in different years. Currently, the cattle herd is made up of 120 cows. Heifers are reared in the same field. The feeding resources include semi-permanent grasslands, green fodder, corn silo, corn and commercial feeds. The milk sold to local dairy factories gets the highest premium price.



Swine Production Module

It consists of an open-field production system with some confinement stages (reproduction, gestation and grow-finishing). The group of mothers is made up of 30 sows. The module covers the full production cycle until the barrows reach an average weight 100 kg. This weight is obtained in 163 days on average. The area devoted to this activity is 4.3 ha.



Cattle Production Module

The main activity developed in this Module is breeding of Polled Hereford cattle. The herd is made up of 63 cows and the calves are sold upon weaning. Occasionally, in order to take advantage of favourable prices, intense fattening of the calves has been carried out. This activity is developed in an area of approximately 60 ha in the north east sector of the Experimental Field.

VILLARINO EXPERIMENTAL FIELD

College of Agricultural Sciences
ROSARIO NATIONAL UNIVERSITY

Parque
Villarino

VILLARINO EXPERIMENTAL FIELD

Flora in the Villarino Park

The park is an outstanding plant and animal biodiversity sanctuary in a region. About 160 species belonging to 47 plant families are found in the park, and species from different geographical areas coexist here. Native plants such as 'tipa blanca' (tipuana tree; *Tipuana tipu*), 'lapacho' (*Tabebuia hetaphylla*), 'guarán' (*Tecoma Stans*) and 'tarco' (*Jacaranda mimosifolia*) are found growing next to exotic plants such as 'bluegum' (*Eucalyptus globules*), cedar, pine trees and London planetrees (*Platanus hispanica*) (García R., 2002). This exceptional habitat is used for recreational purposes by local people and visitors from neighbouring cities.

The flora has been thoroughly surveyed and described by teachers and researchers at the College of Agricultural Sciences. A thorough survey was carried out in 1995 by Roque García, Leonor Dip; Mabel Esponda; Martha Gattuso, PhD; Maria Lusardi; and Jorge Mc Cargo, teachers of the Systematic Botany Department. It was updated in 2006 by Roque García.

Fauna

The professional who has studied the park fauna most deeply is Carlos Périgo, who is also a teacher at our college. He has described about 55 different, both native and medium- and long-distance migratory species. The species move around the park and the surrounding area, utilizing both as feeding, reproduction, and shelter sites.

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Research Land Plots

Used for different research trials, services, and also for teaching purposes. Since 2001-2002, two crop rotations under no-till and minimum tillage systems are carried out in the teaching plots. They are used for teaching purposes, especially for the Soil Management, Cereals and Oilseeds, and Edaphology subjects.



Ecological Enclosure

Started in 1982, it is used to study the vegetation dynamics after the field is no longer disturbed for any activity. This enclosure is used for teaching and research, especially by the Ecology and Agricultural Zoology Departments. Periodical evaluations and control of the progress of native species are carried out.



The agro-meteorological station

The Zavalla Agro-meteorological Station was set up in 1973 by an agreement between the Rosario National University and the National Meteorological Service (SMN). It is managed by the faculty in charge of the Agricultural Climatology Department at our College.

It covers an area of 2,500 sq m, and is located at 33°01' South latitude and 60°53' West longitude, at an altitude of 50 m above sea level.

Since it is an agro-meteorological station, three daily observations are carried out. The variables measured are: effective heliophany (hours of sunshine) and cloudiness, air temperature (medium, maximum, and minimum in shelter, minimum temperatures in the open, soil temperature, air humidity (in shelter), wind intensity and direction, atmospheric pressure, rainfall (amount in 24 hours), depth of water table, number of hours of wet foliage, evaporation (in shelter and using evaporation tanks).

The data gathered is sent every month to the SMN along with the recording strips; the same data processed with AGROMET is sent to INTA Castelar, the institution that developed the software in 1992 and distributed it to each meteorological station.

Since 1973 the Agricultural Climatology Department publishes a monthly Meteorological Bulletin which includes all the data specified above. It is printed in paper and also stored as a spreadsheet in magnetic tape. This material can be consulted at the College library, at the Department office, or can be requested by subscription. The Department also offers a weather and climate information service.



CAREER:

AGRICULTURAL ENGINEERING

Duración: 5 años.

**Total number of
instruction hours:** 3724 hs.



If you want to know more:

Participate in the Induction Period to learn about university life and our College.

Browse our web page for further information:
www.fcagr.unr.edu.ar

Object of Study

The object of study is the regional agricultural and agri-food systems. The sound knowledge and deep understanding of such systems acquired by students throughout their career will allow them to achieve greater quality and quantity of agricultural production while taking into account its sustainable and

College Preparation Period

The curriculum meets students' needs through a preparation period which introduces them into the contents of instrumental subjects and provides general guidance to university studies. During this period, contents from subjects such as Physics, Chemistry and Maths are anticipated; it also includes an Introduction to University studies. Although these courses are mandatory, they are not qualifying.

Facilities

The College is located in the "Villarino" Experimental Field in Zavalla, which is 25 km. away from Rosario. The 507- hectare field is home to the main regional production activities. Our classrooms, laboratories and greenhouses sit a few meters away from the production lots, all of which constitute an ideal didactic scenery for the students.

The curriculum is structured in two cycles:

- Basic Cycle:

It provides the fundamental concepts, basic principles and procedures from Biology and Socioeconomics, and allows undergraduates to get an instrumental background to develop a systematic and critical approach to knowledge.

- Professional Formation Cycle:

It aims at training undergraduates in the skills to manage and administer diverse regional agricultural systems of production while preparing them to carry out advisory services, and extension and research activities.

During your undergraduate courses, you will take part in:

Integration workshops:

These workshops will help students to get a deep insight into the agronomic practice and apply the knowledge gained from all the subjects to specific situations of the agricultural ecosystems where they will work.

Electives:

This program allows undergraduates to choose electives based on their academic interests and on the professional profile they want to develop.

Study trips:

For a closer contact with the reality of each region, undergraduates participate in study trips to farms, companies and institutions.

Scholarships and internships:

The program of scholarships and internships provides undergraduates with opportunities to get on-the-job training and to get in contact with future employers.

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Working opportunities:

Agricultural Engineers may develop their careers not only in agricultural production but also in the agri-food and agribusiness sectors:

- Farms
- Farm supplies and services companies (Seed, machinery, agro-chemical companies, etc.)
- Middlemen and Farmer Cooperatives.
- Farmers' associations
- Professional organizations
- Agribusiness companies
- Laboratories
- Insurance companies, Banks, Real State agencies
- Research and Development Institutions
- Ministries, Departments, Town Councils, and other public institutions or agencies
- Tertiary Schools and Universities
- Organizations for international cooperation

FIRST YEAR



- + Introduction to Agricultural Production Systems
- + Maths
- + General and Inorganic Chemistry
- + Physics
- + Organic Chemistry
- + Biology
- + Statistics I

SECOND YEAR



- + Plant Morphology
- + Edaphology
- + Agricultural Climatology
- + Biological Chemistry
- + General Economics
- + Systematic and Agronomic Botany
- + Agricultural Microbiology
- + Animal Anatomy and Physiology
- + Agricultural Economics

THIRD YEAR



- + Plant Physiology
- + Animal Nutrition
- + Statistics II
- + Rural Sociology
- + General Zoology
- + Genetics
- + Agricultural Machinery
- + Ecology
- + Agricultural Legislation
- + English (ESP)
- + Information Technology

FOURTH YEAR



- + Extensive Cropping Systems:
Cereals and Oilseeds
- + Intensive Cropping Systems:
Horticulture and Fruit Production
- + Land management
- + Forage crops
- + Plant Pathology
- + Agricultural Zoology
- + Weeds

FIFTH YEAR



- + Animal Production Systems:
Cattle and Swine
- + Rural Administration
- + Rural Extension
- + Plant therapeutics
- + Agricultural Marketing
- + Plant Breeding and Seed Production

TALLERES DE INTEGRACIÓN



Workshop I (2nd Year):

- + Research in the Natural Sciences and the Humanities.

Workshop II (3rd Year):

- + Agricultural Ecosystems of the Pampas Region.

Workshop III (4th Year):

- + Agricultural Production.

Workshop IV (5th Year):

- + Professional Practice.

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Graduate School

College of Agricultural Sciences - UNR



The Graduate School is in charge of promoting, organizing, managing, and providing information about the graduate programs offered by the College of Agricultural Sciences

Authorities

The Graduate School is directed by a Director, a Coordinator, and an Advisory Committee accountable to the College Board, made up by all the Directors or Coordinators of the accredited graduate programs offered at the School.

DIRECTOR:

Dr. Juan Pablo ORTIZ

COORDINATOR:

Dr. Raquel BENAVIDEZ

TECHNICAL SUPPORT:

Dr. Juliana STEIN

ADVISORY COMMITTEE:

Dr. Juan Pablo Amelio ORTIZ

(Director of the PhD program in Agricultural Sciences)

Dr. Liliana Amelia PICARDI

(Coordinator of the Master's Program in Plant Genetics)

Dr. Susana Raquel FELDMAN

(Director of the Master's Program in Management and Conservation of Natural Resources)

Dr. Patricia PROPERSI

(Director of the Specialist Program in Sustainable Animal Production)

ADMINISTRATIVE SECRETARY:

Ms Micaela CABALLERO

Ms Brenda MERELES

College of Agricultural Sciences

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The **Graduate School** at the College of Agricultural Sciences, Rosario National University, was created on June 23rd, 1999. Its main objective is to promote, organize, and communicate to prospect students the graduate programs offered at our College.

All the graduate courses offered by the School are accredited by the National Commission for University Evaluation and Accreditation (CONEAU):

All courses and activities offered by the School are open to students holding a university degree in the fields of Agriculture, Biology or Environmental Sciences who meet the admission requirements.

Structure and Facilities:

The programs offered by the Graduate School are supported by the following facilities:

Teaching and Research:

The courses are taught in the classrooms of the College of Agricultural Sciences. We also have a real-time videoconferencing system, and a special Meeting Room. Students working on their postgraduate theses have access to the infrastructure and facilities of the College. Also, the thesis directors can help students advance in their programs by offering lines of research, subsidies, technological development agreements, and agreements with companies.

- + Scholars' Room
- + Computer Lab
- + Food Analysis Lab
- + Molecular biology Lab and Dark Room
- + Research Lab
- + Soils Analysis Lab
- + Three growth chambers
- + Plant ecophysiology labs
- + Herbarium

-Library:

Students of the Graduate School have access to the library of the College where they can consult the scientific publications available at the website of the National Ministry of Science, Technology and Productive Innovation. They can also benefit from the website supported by AUDEAS, the Association of Colleges of Agricultural Sciences, which provides access to different scientific journals. The classrooms of the School and all the laboratories in the College are equipped with wireless Internet connection.

-Experimental Field

The experimental field of the College, which comprises an area of 508 hectares, is used mainly for teaching, research, extension and production activities, actively supporting undergraduate and graduate learning and interactions with the community. The Experimental Field has the following facilities: four production units (agriculture, dairy production, cattle and swine production systems), one enclosure experiment, a meteorological station, and sectors used for teaching, research and extension activities, such as fruit orchards, sites for horticulture, sheep production, weeds, experimental trials, technological services, and the Production Learning Module.





Graduate School

College of Agricultural Sciences - UNR



For additional information regarding admission and entry requirements, programs of study, regulations, syllabuses and bibliography, please check the Graduate College website:
<http://www.fcagr.unr.edu.ar/escuelaposgrado/inicio.html>

You can also contact us at:

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Email address: posgrado-agr@unr.edu.ar

GRADUATE PROGRAMS:

PhD in Agricultural Sciences

(Carrera Acreditada por CONEAU Res. 718/12- Cat- B)

The main objective of this PhD program is the development of human resources specialized in the scientific and technological areas involved in agricultural production. The contributions of PhD candidates must be original and provide an innovative insight into the problem or subject of the dissertation. Candidates who fulfil all the program requirements are awarded a PhD degree in Agricultural Sciences.

Master's degree in Management and Conservation of Natural Resources

(Carrera Acreditada por CONEAU Res. 789/12 Cat. B)

The program studies the structure and dynamics of biotic communities and the functioning of the different ecosystems that make up the biosphere. Students receive advanced training aimed at understanding, evaluating, and designing methods and procedures for the utilization and conservation of natural resources. Candidates who fulfil all the program requirements will obtain a Master's degree in Management and Conservation of Natural Resources.)

Master's degree in Plant Genetics

(Accredited by CONEAU, Decision 366/99)

The objective of this program is to address the challenges associated with the need to increase and improve crop production through genetic engineering and the selection and rational use of genetic resources. Students receive sound instruction on the foundations of genetics, plant breeding, and methods for analyzing experimental data. Candidates who fulfil all the program requirements are awarded a Master's degree in Plant Genetics, focused in one of three areas: Genetic Improvement, Genetic Resources, and Genetic resistance to Plant Pathogens.

Specialization in Sustainable Livestock Production

(Accredited by CONEAU, Decision. 1013/2010)

Meeting current needs and future challenges in sustainable animal production calls for changes in the use of resources, the allocation of investments, the direction of technological innovations, and the institutional approaches. This program, offered jointly by the College of Agricultural Sciences and the College of Veterinary Medicine (UNR), is aimed at making a contribution to such process.

College of Agricultural Sciences

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INTERNATIONAL RELATIONS SECRETARY OFFICE

AUTHORITIES:

Secretary:

Dr. Hugo Permingeat

Coordinator:

Lic. Aneris Cao



INTERNATIONAL RELATIONS SECRETARY OFFICE



The main objective of the International Relations Secretary Office at the Faculty of Agricultural Sciences is to contribute to the achievement of an "international scope" of the Faculty. For this task we have tools for the dissemination of information on international opportunities for participation, and we offer personalised advice to students, teachers and researchers who wish to participate in international programs.

It should be noted our interest for international cooperation. Its function is important to institutionalize pre-existing ties with other entities outside of our country, and to encourage new linkages, which will allow our educational community to strengthen academic partnerships and professional training.

Opportunities for foreign students:

<http://estudiarenargentina.siu.edu.ar>

Websites of interest:

- + Ministerio de Educación
<http://www.me.gov.ar/>
- + Ministerio de Ciencia y Tecnología
<http://www.mincyt.gov.ar/>
- + Ministerio de Relaciones Exteriores, Comercio Internacional y Culto
<http://www.cancilleria.gov.ar/>
- + Sec. de RRII - Universidad Nacional de Rosario
<http://www.unr.edu.ar/secretaria/116/secretaria-de-relaciones-internacionales/>
- + Observatorio de Acciones Internacionales - UNR
<http://www.unr.edu.ar/direccion/429/observatorio-rii/>
- + Boletín Informativo - Asociación de Universidades Grupo Montevideo
<http://www.grupomontevideo.edu.uy/boletin/3/>
- + Argentina.ar
<http://www.argentina.ar/>
- + Programa de Promoción de la Universidad Argentina (PPUA)
http://www.me.gov.ar/spu/guia_tematica/promocion/promocion.html
- + IESALC - UNESCO
<http://www.iesalc.unesco.org.ve/>
- + Proyecto ARBOPEUE
http://www.ecwarbopeue.eu/em-ecw-lot-18-arbopeue_es.html
- + Estudiar en Argentina
http://www.me.gov.ar/spu/Servicios/Estudiar_en_Argentina/estudiar_en_argentina.html
- + Dirección Nacional de Cooperación Internacional
<http://www.me.gov.ar/dnci/>
- + Enlace Nacional de Cooperación Internacional Universitaria
<http://www.me.gov.ar/spu/enciu>
- + Mercosur Educativo
http://www.me.gov.ar/dnci/merc_index.html
- + Organización de las Naciones Unidas para el Desarrollo (PNUD)
<http://www.undp.org/>
- + Organizaciones de los Estados Americanos - OEI
<http://www.oei.es/>
- + Red Argentina para la Cooperación Internacional (RACI)
<http://www.raci.org.ar/>

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SCIENCE AND TECHNOLOGY

College of Agricultural Sciences

ROSARIO NATIONAL UNIVERSITY

ZAVALLA - SANTA FE



Research in the College

One of the commitments that reads our institutional mission is the development of scientific and technological research.

The College of Agronomy is organized in 6 disciplinary Departments: Basic and Instrumental, Biology, Plant Production, Animal Production, Sciences of the Land and Technology, and Socioeconomic. Each Department includes a variable number of research subjects and teams. Researchers have membership with the Faculty (Professor/Teacher-Researchers), the Scientific Research Career of UNR (CIUNR) and the National Research Council of Science and Technology (CONICET). Fellows, graduate and undergraduate students completed the human resources that develop the research projects. Many of the researchers from the institutions participate in the Program of Incentives from the National Education Ministry.

The execution of Interdisciplinary and interinstitutional research projects is stimulated to optimize the use of different resources. Researchers and students interchange is also promoted. Notably articulation with institution such as National Institute of Agriculture Technology (INTA), other Colleges, private companies and farmers associations, not only for developing research and technology transfer, but also for the implementation of techniques related to the services provided by the academic unit.

In addition to training human resources, growth in the research area tries to shore with the management of grants from different backgrounds (ANPCyT, CONICET, FOMEC, Municipality, Ministry of Production from Santa Fe Province, among others), assuming the Faculty the value of incremental costs when necessary.

There are two linked institutions that contribute to finance the research project in the Faculty. The "Asociación Cooperadora de la Facultad de Ciencias Agrarias" offers the land to develop all the experimental field assays. The "Fundación de Ciencias Agrarias" offers its facility to manage the projects (It is a technological link unit). The Fundación has also an annual grant to finance one or two research projects from the College.

Generally, about 80% of registered projects corresponds to applied research, 15% to basic research and 5% to technologic development.

The projects cover a wide range of topics, from the study of specific problematic situations related to agricultural issues, socio-economic studies, management of animal production systems (cattle, pigs and sheep) and vegetable (natural pastures, forages, cereals, oilseeds, fruit, vegetables, etc.), soil management and conservation, techniques for the genetic improvement of crops, studies on plant physiology, analysis of climatologically aspects that affect the production, crop health, safety and risks in rural environment, market studies and marketing. At level of native or spontaneous populations, there are survey studies and identification of species in different areas, in order to characterize plant communities, studying for some species biology and reproduction. Projects taking our educational community as an object of study, the evaluation of teaching techniques for use in the college classroom are also included.

Other institutional effort is the edition of the Revista de Investigaciones de la Facultad de Ciencias Agrarias URN, where reviews and original papers are published.

Institutional Policy

One of the key aspects for institutional development is the strengthening of research through the following science and technology policies:

Improve the infrastructure and equipment for scientific and technical developments in the College.

Create research areas to keep pace with the development of the institution.

Encourage teams to submit projects to different public agencies and programs which offer research support (such as ANPCyT, CONICET, Department for Science, Technology, and Productive Innovation of the Santa Fe Province)

Promote the submission of projects to programs launched by the University.

Promote interinstitutional agreements aimed at addressing specific needs.

Foster academic mobility, especially for younger researchers, between national and international organisms and institutions for improving human resources development and building long-lasting academic cooperation networks.

Promote the incorporation of researchers specialized in areas needed by the College.

Support the graduate studies of teachers and researchers in order to develop strong research teams in different disciplinary areas, by offering tuition fee discounts for the careers and accredited courses offered at the College.

Promote the development of research lines aimed at meeting regional needs related to the national agrifood system, and the transfer of results for addressing specific problems.

Promote the involvement of undergraduate students in the research projects being carried out in the institution.

Provide the community with all the information available about subsidies, fellowships, internships, exchange programs, and other opportunities.



SCIENCE AND TECHNOLOGY



Facilities for scientific and technological research

Our College is endowed with the necessary infrastructure and equipment to support the successful development of scientific and technological research projects.

Experimental Field

The Villarino Experimental Field, which comprises a total area of 507 ha, contains sectors used for research and practice activities (fruit, vegetable, and sheep production) as well as fields devoted to dairy production, cattle breeding, swine production, and farming, which are representative of local farm operations. The proximity of these sectors to the classrooms and laboratories facilitates the teaching, research, and extension activities. The experimental field also offers facilities for field trials and applied research on farming and animal production systems (sheep, beef cattle, dairy cattle, and swine). It is equipped with suitable infrastructure for conducting research projects, such as irrigation systems, a meteorological station, and an experimental dairy unit.

Greenhouses.

A 100m² greenhouse located near the central building, with concrete flooring and controlled environment. The Plant Physiology sector is equipped with 6 controlled-environment greenhouses with a total area of 1,300 m², two of which are covered with glass, and the other two with polyethylene. The Weeds sector has a 135m² greenhouse with polyethylene covering. The Horticulture sector is equipped with a 61 m² greenhouse covered with glass, and a 528 m² greenhouse with polyethylene cover.

Center of Territorial Studies (CTS)

The Center of Territorial Studies (CET), established in 2008, is an academic space, oriented to study different components of the rural and urban land.

It participate in instances related to the interventions that promote and facilitate the design and implementation of policies, strategies, programs and projects of public and private organizations, with emphasis on integrated development at different scales. It has strengths in research skills and tasks based on a solid group of trained researchers, fellows in training and science and technology.

The CTS is linked with other centers and institutes with similar profiles as part of an interactive network that addresses the land issue, mainly in the search for solutions to problems of high impact on the conservation of natural resources and the quality of life of society.

Laboratories:

- Disciplinary Research Laboratory (Biology, Botany, Microbiology, Plant Pathology, Genetics, Plant Breeding). The facilities of this lab are shared by disciplinary research teams for the development of their projects.

All laboratories meet the hygiene and safety standards required by current regulations.

Plant Physiology Lab

This facility, made up of three labs and greenhouses located in the Villarino Park, serves research activities in plant pathology with a special focus on the physiology of soybeans. It is also equipped with facilities for in vitro culture, especially of ornamental species.

Molecular Biology Lab

This lab is located in the Central building. It is used for studies on molecular biology and plant biotechnology, especially in the areas of genetic markers, genetic transformation, and in vitro culture.

Lab of soils and land management

This lab is located in the Central building

Plant and Microbial Biodiversity Studies Lab

Located in the central building and dedicated to study the biodiversity of plants, arthropods and agronomic interest microorganisms.

In Vitro culture chambers

Located in the central building, they are used for in Vitro culture in controlled environment.

Plant growth chamber

Built in the central building. This chamber is used to complete the life cycle of crops both within and beyond their growing season, in strict compliance with biosafety regulations.

Scientific equipment in our College

The scientific and technological equipment available in our College comes from different sources:

- Institutional projects approved by Ad Hoc funding programs.
- Research projects which obtain funding for the purchase of specific equipment needed for their execution.
- Donations

After the equipment has been purchased, it is available for all research activities in the College.

Some of the equipment available in our laboratories includes: a microparticle accelerator for genetic transformation; laminar flow cabinets; benchtop and refrigerated centrifuges; conventional, temperature gradient, and real-time PCR thermal cyclers; spectrophotometers; optical and fluorescence microscopes; HPLC-quality water purification system; HPLC chromatography system; power sources; vertical and horizontal electrophoresis systems; NIR spectrometer; NMR equipment; Soxhlet extractor; thermostatic baths; thermostatic orbital shakers; -80 and -20 freezers; scales; heaters, and liquid nitrogen tanks, among others.

Interinstitutional Cooperation in Science and Technology

Our College offers its facilities and hosts researchers and fellowship holders from CONICET and ANPCyT, fostering the development of human resources with postgraduate qualifications. The institution also works jointly with INTA in the development of numerous projects.

The College offers its facilities to undergraduate students from the College of Biochemical and Pharmaceutical Sciences (Rosario National University) who conduct the experimental work needed to complete their theses to obtain their first degree in Biotechnology. These students complete their studies in our institution.

The Faculty of Agronomic Sciences is open to initiate new academic collaborations with national and international institutions to develop research projects of agronomic interest. It promotes the human resources formation at the postgraduate level in the execution of research.

SCIENCE AND TECHNOLOGY

College of Agricultural Sciences

ROSARIO NATIONAL UNIVERSITY
ZAVALLA - SANTA FE

Outstanding Technological Developments



A genetic database to characterize the argentine soybean germplasm by means of SSR and AFLP markers

This work was the result of cooperation between the Rosario Stock Exchange (Bolsa de Comercio de Rosario) and the Faculty of Agricultural Sciences of the National University of Rosario (Facultad de Ciencias Agrarias de la Universidad Nacional de Rosario). It was aimed at developing a genetic database based on SSR (Simple Sequence Repeats, or Microsatellites) and AFLP (Amplified Fragment Length Polymorphisms) markers, to characterize the argentine soybean germplasm, allow cultivar identification and provide assistance to breeding. A subset of 20 highly-informative SSR markers was selected to achieve an effective discrimination of any databank accession by means of a simple and efficient procedure, in order to be used for rapid identification analysis and differentiation of new cultivars. This genetic database is now used by the Rosario Stock Exchange to provide a genotype classification service.

This development was carried out by doctors Olsina C, Cairo C, Pessino SC



Development of an *Ilex paraguariensis* (yerba mate) core genetic map with molecular breeding purposes

Currently, this project is in its final stage of implementation (4th stage out of 4 total stages). It was the fruit of cooperation between the Faculty of Agricultural Sciences, National University of Rosario and the Faculty of Agricultural Sciences, National North-East University-IBONE, CONICET. This collaboration was entirely granted by the National Institute of Yerba Mate (INYM). *Ilex paraguariensis* Saint Hilaire is a species originary from South America. It is widely used in the preparation of a tea-like regional infusion known as "mate" or "mate-tea". The exploitation of *Ilex paraguariensis* has economical and strategic impact for several South-american countries, like Argentina, Brasil, Paraguay and Uruguay. In the commercial plantations, individuals show low growth efficiency, being a limited hydric stress tolerance one of the main limitations for primary production. The aim of this work is the construction of an *Ilex paraguariensis* genetic map to be used in molecular breeding. Two polymorphic cultivars with contrasting hydric-stress tolerance were selected. Controlled crosses were conducted in order to establish a pseudo-testcross population including 800 F1 individuals, with potential to be extended to 2000 ones. This family can be used to produce a frame genetic map and identify water stress tolerance major genes. RAPD (Random Amplified Polymorphic DNA) and AFLP (Amplified Fragment Length Polymorphisms) markers were generated in a subset of 80 plants, to establish a core genetic map. Markers were analysed with JoinMap and Mapmaker programs to establish linkage groups. Markers evenly distributed onto the map are being selected in order to produce a set of RFLP clones, which will be available at INYM (National Institute for Mate-tea) for public use.

Researchers involved in this project are Stein Juliana, Luna Claudia, Espasandin Fabiana, Sartor María, Saucedo María Estefanía, Espinoza Francisco, Ortiz Juan Pablo, Sansberro Pedro, Pessino Silvina

Development of a plant genetic transformation platform

The Agronomic Science College has provided an infrastructure capable of carrying out projects of plant genetic engineering, for academic purposes and agricultural interest developments. This capacity includes plant tissue culture, plant molecular biology for transformation vectors construction, molecular analyses for detection and expression studies of transgenes, use of growth chambers for in vitro culture, and use of growth chamber for in vivo GMOs under biosafety conditions.

A project developed as a consequence of an agreement between the UNR and Bioceres Company SA, led to obtaining transgenic wheat events with a gene encoding a sunflower transcriptional factor that confers tolerance to abiotic stress. This gene (called Hahb-4) was isolated, studied and patented by researchers of CONICET and UNL and licensed to the company. Several transgenic events were transferred to the company for their study in field conditions. The development was carried out by the team of Dr Hugo Permingeat with the collaboration of Agr. Eng. Martín Reggiardo, María Valeria Romagnoli and Micaela Mancini.

A second project is being developed for academic purposes to elucidate the role of certain genes responsible for the phenomenon of apomixis (asexual reproduction via seeds) in *Paspalum notatum*. The group led by Drs Juan Pablo Ortiz and Silvina Pessino has worked in recent years to characterize the molecular basis of apomixis in grasses. As a result of their research, a number of candidate genes with specific expression during development in apomictic *Paspalum notatum* were identified. These researchers and their group (Hugo Permingeat, Silvina Felitti and Michelle Mancini) are interested in achieving stable transformation of this species with constructs that allow the silencing and overexpression of some selected candidate genes, to analyze how the reproductive development is affected. The genetic transformation of *Paspalum notatum* was already achieved, and transgenic plants are being analyzed at molecular level.

SCIENCE AND TECHNOLOGY



Outstanding Technological Developments

MAGRARIO: the lean lamb of the College of Agricultural Sciences

Lamb meat production in the South of the Santa Fe province is highly informal and has a marked technological gap which needs to be overcome. However, an unsatisfied consumer demand for lamb meat cuts in Rosario and other cities offers opportunities for producers. Local farmers have a tendency to manage mixed systems and, therefore, to introduce technology packages for lamb production in their operations. Lamb production is a complement to the more common farming activities in the region (soybeans-wheat-corn, dairy and cattle production). Lambs are sent to slaughter with a weight of more than 40 kg (thus, they are referred to as “heavy lamb”), which allows the carcass to be cut using the New Zealand-Australian method, adding a substantial market value to the well-differentiated, quality cuts thus obtained. In terms of production diversification, lamb meat is an alternative for small-scale farmers who want to keep their mixed farms viable or give them a boost. Since 1986, the College of Agricultural Sciences has worked on the development of a new genotype through a program for the improvement of the Ideal breed (a descendant of the Merino breed) with backcrosses to the Texel breed, which originated in the Netherlands and is used in the European Union as a terminal-sire breed for industrial crosses aimed at lowering the percentage of carcass fat. This genotype, which was registered in 1999 under the Magrario trademark, has shown in successive trials in the Villarino Park that, even under supplementary feeding, the animals deposit less fat than the meat breeds used in the area, and that this trait is dominant in crosses with other wool or meat-type breeds.

Consumer demand for alternatives to beef, such as pork and lamb, is expected to increase in the short term, since chicken meat is already clearly established and positioned in the market. This genetic improvement project, with a high impact in the region, has been made possible by the commitment of the Department of Genetics of our College to support a shift from sheep production to lamb meat production. The development of this new genotype, which allows the production of early-finishing animals with high quality meat without fat deposits, and with white wool 26 microns in fibre fineness, has positioned our College as a qualified information source and promotion agent for lamb meat production. As a result, the Sheep Module at the Villarino Experimental Field serves as the Demonstration Module for heavy lamb production for the Sheep Act Enforcement Committee at the Province of Santa Fe, since our Province has joined the sheep production recovery program under Federal Act N° 25422. The Module is used for developing protocols for heavy lamb production in confined systems for those operations in which Magrario males have been introduced for improving and/or converting sheep production.

The researcher leader of this project is Dr Liliana Picardi.

FESTUCA FLEXIBLE FCAR

Festuca artindinacea is a perennial forage grass with a Festucoid-type growth habit; it is widely grown and used due to its outstanding agronomical characteristics, adaptability, and high forage yield under a wide range of environmental and management conditions.

Its branched, extensive deep root system gives this species resistance to drought and greater soil-building efficiency.

The high genetic variability, readiness for cloning, good seed production, and longevity of this species facilitate genotype conservation and management of the breeding material.

In 1970, the Department of Forages at the College of Agricultural Sciences started a plan for the improvement of tall fescue, under the direction of the Agricultural Engineer Hugo L. Müller. The objectives of the project were to achieve higher digestibility and rate of consumption, good winter production, and late development of spikelets arranged in bunches.

In 1965, Gillet and Jadas-Hecait referred to “leaf flexibility” as an indicator of forage quality in tall fescue. They classified leaf blades from very rigid to very flexible by running their hands through the foliage. The degrees of flexibility were not closely associated to chemical quality indicators (lignin, crude fiber, ashes, silicon, calcium), but they were positively correlated with palatability.

The initial selection was carried out in July and August 1970, in pasture fields in some areas of the Province of Santa Fe (Chabás, Venado Tuerto, Santa Isabel, Murphy), and the Province of Entre Ríos (Victoria, Gualaguay, and Paraná).

The initial selection consisted of 3,600 vigorous plants (in terms of tiller density) which had been grazed (showing cattle preference), and which presented good regrowth and flexible leaves. Three clones were obtained from each of the selected plants, and they were planted in the “J. F. Villarino” Experimental Field at our College.

Qualitative observations were carried out in subsequent years, recording leaf flexibility, regrowth rate, tiller density, date and uniformity of flowering, seed production, and resistance to pests and unfavourable weather conditions.

The best 25 plants were selected and planted in a balanced 5x5 plot design in 1974-75. Later, 3 of the selected plants were discarded and the first plot of “Flexible” FCA fescue was sown with seed from the remaining 22.

Starting in 1977, the cultivar was subjected to comparative assays at different Experimental Stations (INTA Concepción del Uruguay, Rafaela, Pergamino, and Oliveros).

In 1992, it was registered at the National Registry of Cultivars Property under the name of “Flexible FCAR”.

HORTICULTURAL VARIETIES

Registered tomato cultivars

Cultivar Querubín FCA

(Expediente INASE N° S01:0165049/07)

This cultivar is small cherry type. The outstanding features of this line are its long shelf life (21 days) and good organoleptic attributes, for possessing genes from the wild.

Cultivar Gema FCA

(Expediente INASE N° S01:0165110/07)

This cultivar has a deep red color and bright because of wild genes, and a pleasant flavor balance between sugar and acidity. The outstanding features of this line are its long shelf life (23 days) and its ovoid way.

The intellectual property ownership of these varieties are from Drs Picardi, Zorzoli, Pratta and Rodríguez.

Long pumpkin hybrids (*Cucurbita pepo* L.)

“Nativo FCA”

Compact plant, with short internodes, 44 days to flowering, light-blue fruits weigh about 290 g, very productive hybrid with yields up to 32 t/ha.

“Overo FCA”

Compact plant, with short internodes, 44 days to flowering, light-blue fruits with an approximate weight of 270 g and dark ribs on their surface which confer higher resistance to handling. Very productive hybrid, with yields up to 26 t/ha.

Clonal varieties of globe artichoke [*Cynara cardunculus* L. var *scolymus* (L.) Fiori]

“Oro Verde FCA”

Globular, compact artichoke, light-green in colour with slight purple pigmentation at the base of bracts, with an approximate weight of 195 g, harvest starts on September 25th; high-yielding (13 t/ha).

“Gauchito FCA”

Globular, compact, glossy light-green head with an approximate weight of 223 g; harvest starts on September 23rd; high-yielding (17 t/ha.)

“Gurí FCA”

Globular, compact, variegated in colour (purple-green), glaucous green foliage, head weighs about 220 g; harvest starts on October 10th; high-yielding (15 t/ha).

Artichoke varieties for growing from seed [*Cynara cardunculus* L. var *scolymus* (L.) Fiori]

“Estrella del Sur”

Globular, compact, dark purple artichoke, with a weight of approximately 230 g; harvest starts on September 30th. High-yielding (11 t/ha).

Clonal asparagus hybrids (*Asparagus officinalis* L.)

“Neptuno FCA-INTA”, “Lucero FCA-INTA”, and “Pampero FCA-INTA”

High-yielding hybrids with thin diameter, average weight 27 g; production starts on September 10th.

SCIENCE AND TECHNOLOGY

College of Agricultural Sciences

ROSARIO NATIONAL UNIVERSITY
Z A V A L L A - S A N T A F E



Research lines

Soils, climate, and crop technology		
Code	Project	Director
AGR138	Objective synoptic classification of air masses and circulation fields and the risks they pose for farming in the Humid Pampas region.	Coronel , Alejandra Silvia
AGR179	Cover crops, crops sequence, and tillage systems: sustainable alternatives for improving soil quality	Ferreras, Laura
AGR199	Characterization of the physical condition of grazing lands on the basis of their cultural profile	Sosa, Oscar Armando
Plant-microorganism interactions		
Code	Project	Director
AGR4 Programa	Microbial biodiversity associated with native and cultivated plant species	Salinas, Adriana
AGR184 / SECTEI Sta Fe	Biophysiological studies of plant and microbial interactions and their application to sustainable plant production	Pioli, Rosanna Nora
AGR197	Impact of glyphosate on the structure and oxidative activity of the soil's microbial communities.	Gómez, Elena de Valle
ANPCYT	Study of the impact of glyphosate on agroecosystems of the Pampas region using new tools for the analysis of microbial communities in the soil	Gómez, Elena de Valle
Plant Production and Ecophysiology of Crops (extensive and intensive systems)		
Code	Project	Director
AGR147	Post-harvest damage and losses in vegetable retail: physical, economic, and technological assessment	Ferratto, Jorge
AGR149	Monitoring and control of the Mediterranean fruti fly , <i>Ceratitis capitata</i> (Weidemann) and its relation with damage to peach trees in the Rosario Horticultural Belt, Province of Santa Fe	Moyano, Ma. Inés
AGR161	Characterization of the transcript during development of <i>Paspalum notatum</i> seeds	Felitti, Silvina
AGR167	Physiological and environmental factors affecting the regulation of soybean development: application to the crop's improvement and management	Morandi, Eligio
AGR172	Grain fill in corn: screening for molecular markers associated to different grain growth patterns and yield stability	Borras, Lucas
AGR177 / SECTEI Sta Fe	Effects of sunflower (<i>Helianthus annuus</i> L.) defoliation on the physiological quality of achenes	Salinas, Adriana
AGR193	Pre-harvest factors determining the chemical quality of artichoke (<i>Cynara cardunculus</i> var. <i>Scolymus</i> L.) varieties	García, Stella Maris
AGR194	Evolution of the production of megatherm plants in the Central Pampas region	Sacido, Mónica
AGR208 / SECTEI Sta Fe	Assessment of seeds and fruits quality using X ray	Salinas, Adriana Rita
AGR209	Soybeans: selection of ecophysiological traits for improving efficiency in capture and use of environmental resources in sustainable intensive systems in the south of the Santa Fe Province	Martignone, Ricardo Antonio
CONICET	Development and growth of corn grains	Borrás, Lucas
CONICET	Biomass accumulation in the reproductive structure at flowering stage and its relation with number of grains in corn and sorghum	Gambín, Brenda
CONICET	Physiological and molecular aspects of the developmental regulation and plant-pathogen interaction, applied to soybean breeding.	Morandi, Eligio
CONICET	Genotypic diversity in strategies of resource capture and utilization during the critical period for seed number and seed size determination in soybean.	Rotundo, José
ANPCYT	Identification of QTLs associated to grain development and characterization of thier physiological effects.	Borrás, Lucas
ANPCYT	Strategies for accumulation and utilization of nitrogen in soybeans: impact on crop yield and implications for improvement	Borrás, Lucas
SECTEI Sta Fe	Regulation of soybean development and their applications to plant breeding and crop management	Morandi, Eligio

SCIENCE AND TECHNOLOGY



Genetic Improvement and Plant Biotechnology		
Code	Project	Director
AGR131	Conventional and non-conventional improvement of grain legumes	Cointry, Enrique
AGR133	Phylogenetic resources of <i>Cynara cardunculus</i>	Cravero, Vanina
AGR163	Quantitative, genomic and proteomic analysis of tomato fruit quality traits	Zorzoli, Roxana
AGR187	Genetics of crops of regional importance	Picardi, Liliana
AGR189	Determination of the molecular basis for apomixis in <i>Paspalum notatum</i> and development of a transformation platform for functional study of candidate genes	Ortiz, Juan Pablo Amelio
AGR195	Biotechnology and biodiversity in horticultural species	Cravero, Vanina
AGR196 / SECTEI Sta Fe	Study of the biochemical and molecular bases of glyphosate resistance in Johnson grass and other weeds of agricultural importance	Permingeat, Hugo Raúl
AGR198	Genotypic characterization of <i>Spartina spartinae</i> (= <i>Spartina argentinensis</i>)– <i>Poaceae</i> material. Genetic structure and mating system.	Bianchi, Marta Beatriz
AGR205	<i>In vitro</i> and field culture of <i>Salvia hispanica</i> L	Busilacchi, Héctor Abel
AGR213	Effects of genotype-environment interactions on yield and quality of cereal crops	González, Mirian del Pilar
AGR214	Application of biocomputing tools for identifying candidate genes implied in the flower signalling pathway in soybeans and its relationship with the juvenile gene	Cairo, Carlos Alberto
CIUNR	Development of <i>in vitro</i> cultural techniques for the improvement of agronomically important species	Severin Cecilia
CIUNR	Development of heritable variability in <i>Lycopersicon</i> and <i>Helianthus</i> using I) <i>in vitro</i> selection; II) intervarietal and interspecific hybridization	Zorzoli, Roxana
CONICET	Creation of a <i>Cynara cardunculus</i> L core collection.	Cravero, Vanina
CONICET	Molecular and functional characterization of genes involved in apomixis in <i>Paspalum notatum</i>	Felitti, Silvina
CONICET	Genetic and molecular characterization of apomixis in the genus <i>Paspalum</i>	Ortiz, Juan Pablo
CONICET	Studies on the molecular genetics of apomixis applied to plant breeding	Pessino, Silvina
CONICET	Contribution of wild tomato genotypes to extend post-harvest life of the fruit	Pratta, Guillermo
CONICET	Proteomic analysis in tomato fruit: study of ripening process	Vega, Tatiana
ANPCYT	Improvement of horticultural species	Cointry, Enrique
ANPCYT	Genetic improvement of tomato fruit assisted by molecular markers: QTL mapping for fruit quality and longer post-harvest life	Zorzoli, Roxana
SECTEI –Sta Fe	Cloning genes of basidiomycetes ligninolytic enzymes for use in the production of second generation bioethanol	Permingeat, Hugo
Plant Protection		
Code	Project	Director
AGR153	Resistance to imidazolinones in the sunflower: phenotypic, biochemical and AHAS gene expression assessment	Nestares, Graciela
AGR185	Study of genetic variability in plant-pathogen interaction and search for resistance to plant diseases	Pioli, Rosanna Nora
AGR188	Weed biology and control in agroecosystems of the main soybean producing region	Puricelli, Eduardo
AGR201	Bases for a sustainable use of herbicides in agroecosystems	Leguizamón, Eduardo Sixto
CIUNR	Effects of a wide range of herbicide doses on the population dynamics of annual weeds in soybeans.	Faccini, Delma
CIUNR	Characterization of resistance and virulence factors in host-pathogen interactions in cereal crops	González, Mirian del Pilar
CIUNR	Factors affecting arthropod abundance in agroecosystems	Lietti, Marcela María Magdalena
CIUNR	Impact of chemical and cultural management practices on annual weeds	Puricelli, Eduardo
CIUNR	Analysis of changes in the weed communities of the main soybean producing region in Argentina	Tuesca, Daniel
SECTEI Sta Fe	Integrated management of the cabbage moth, <i>Plutella xylostella</i> (L) in rapeseed: Population fluctuation, hosts and parasites	Lietti, Marcela María Magdalena
Animal Production		
Code	Project	Director
AGR166	Heat stress in Holando Argentino cows	Muñoz, Griselda
AGR170	Changes in sustainability in a group of dairy farms in the sphere of influence of the College of Agricultural Sciences (UNR) during the last three decades	Álvarez , Hugo Jorge
AGR176	Prospective study of beef cattle production systems	Ramírez, Liliana
AGR178	Pre-slaughter factors affecting the quality of swine meat and carcass	Campagna, Daniel
AGR190	Sustainability of integrated crop-livestock systems in the south of Santa Fe	Galli, Julio Ricardo
AGR204	Strategies for increasing forage availability in low-lying alkaline soils in the south of Santa Fe (Argentina) through the introduction of <i>Chloris gayana</i>	Martín, Beatriz
CIUNR	Productivity traits in sheep	Picardi, Liliana

SCIENCE AND TECHNOLOGY

College of Agricultural Sciences

ROSARIO NATIONAL UNIVERSITY
ZAVALLA - SANTA FE



Research lines

Agriculture and environment		
Code	Project	Director
AGR165	Multiplication of native species of economic and conservation value	Carnevale, Nélica
AGR168	Ecological aspects of the vegetation in the J. F. villarino Park	Franceschi, Eduardo Andrés
AGR169	Numerical methods for vegetation studies	Torres, Patricia Susana
AGR171	Phylogenetic and phytogeographical study of the genus <i>Shinopsis</i> (Anacardiaceae)	Prado, Darién
AGR174	Bioecology of <i>Eryngium eburneum</i> and <i>Dipsacus fullonum</i> in agroecosystems in the south east of Santa Fe	Montero, Guillermo
AGR192	Territorial management of a farming region in Santa Fe, Argentina	Montico, Sergio
AGR200	Ecological, floristic, and taxonomic studies on the vegetation of the Humid Chaco	Prado, Darién Eros
AGR210	Structure and dynamics of ecosystems in the "Chaco-pampeana" plains	Carnevale, Nélica Josefina
AGR212	Variability in production environments under site-specific and precision agriculture management	Di Leo, Néstor Cristian
CIUNR	Studies on late-acting self-incompatibility (LSI) in species from the <i>Bignoniaceae</i> and <i>Bombacaceae</i> families	Bianchi, Marta
CIUNR	Ecophysiology of halophyte communities in the province of santa Fe	Feldman, Susana Raquel
CONICET	Woody species regeneration in forests of the Wet Chaco	Barberis, Ignacio
CONICET	Vegetation in the Province of Santa Fe: dynamics and development of plant communities	Pire, Eduardo
CONICET	Critical analysis of the phytogeography of South America	Prado, Darién
CONICET	Reproductive biology of two woody communities in the province of Santa Fe	Vesprini, José
Socioeconomics		
Code	Project	Director
AGR155	Feasibility of achieving competitive advantage in small and medium flower production operations in the Rosario Belt	Zuliani, Susana
AGR158	Articulation of knowledge systems for finding alternatives for the problems of intensive agricultural operations	Rosenstein, Susana
AGR175	Influence of the U.S. monetary policy on the prices of agricultural commodities	Ramírez, Liliana
AGR202	Scope and challenges of a territorial pact aimed at local development: a case-study of an agricultural town in the south of Santa Fe	Propersi, Patricia
ANPCYT	Landscape transformation and technological innovation. The new challenges for urban-rural integration in southern santa Fe	Cloquell, Silvia
Education		
Code	Project	Director
AGR145	Study and comparison of different types of academic texts (Biological and Social Sciences) using multivariate statistical analysis	Beltrán, Celina
AGR160	Tutorship practices at the College of Agricultural Sciences, Rosario National University	Cavalli, Ada
AGR173	Learning approached through competence development in the Animal Nutrition subject at the College of Agricultural Sciences (Rosario National University): Introduction of problem-based learning (PBL)	Martínez, Stella Maris
AGR191	Study of the influence of classroom work on students' understanding	Liberatti, Ana María
Others		
Code	Project	Director
AGR162	Sustainable bioethanol production from rangelands	Feldman , Susana Raquel
AGR164	Bioremediation of diesel-polluted soils	Feldman , Susana Raquel
AGR206	Endophytic fungi in forage species: their potential as producers of bioactive metabolites	Felitti, Silvina Andrea
AGR182	Improvement of the immune system of <i>Apis mellifera</i> L using strains of Aerobic Actinomycetales	Puricelli, Eduardo



Horarios de visita / Open:

Viernes de 11:00 a 12:30 hs y de 14:30 a 16:00 hs.
on Fridays 11 a.m – 12:30 p.m, 2:30 – 4 p.m.

Consultas / Inquiries:

Ing. Agr. PhD PRADO, Darién Eros

HERBARIO

El Herbario de la FCA-UNR, inscripto en el Index Herbariorum, un registro internacional de colecciones botánicas, es uno de los pocos herbarios existentes con numerosas plantas de la Provincia de Santa Fe.

Desde su inicio en 1972 a la actualidad, ha logrado reunir unos 12.000 ejemplares, representados en 134 familias botánicas. Se han identificado y catalogado casi 9.000 ejemplares correspondientes a 1.500 especies. Esto representa la mayor parte de la flora de la provincia, convirtiendo a la colección en uno de los documentos más preciados de la naturaleza y biodiversidad de Santa Fe.

El herbario reúne también una colección de plantas del partido de Pergamino, que si se compara con la colección realizada a principios del siglo pasado por el profesor Lorenzo R. Parodi, constituye el único documento existente sobre la erosión de la biodiversidad botánica y las invasiones vegetales a la que está sometida la región pampeana.

Esta colección, administrada por las cátedras de Botánica y Ecología Vegetal, es además la base de importantes estudios florísticos desarrollados actualmente y ha servido en forma directa o indirecta a más de 60 publicaciones científicas y 10 tesis doctorales y de maestría.

HERBARIUM

The herbarium of the College of Agricultural Sciences, National University of Rosario, registered in the Index Herbariorum, is one of the few herbaria containing numerous plant specimens from the Province of Santa Fe.

Since it was established in 1972, a collection of nearly 12,000 specimens belonging to 134 plant families has been built up, and about 9,000 specimens belonging to 1,500 species have been identified and catalogued. Since the collection comprises most of the flora found in the province, it constitutes one of the most valuable records of nature and biodiversity in Santa Fe.

The herbarium also contains a collection of plants from the Pergamino District and, along with the collection made by Professor Lorenzo R. Parodi in the early twentieth century, it constitutes the only existing document on the plant biodiversity and on the plant invasions to which the pampas region is subjected.

The collection, managed by the Departments of Botany and Plant Ecology, is currently being used as the basis for important plant research works, and has been used directly or indirectly for more than 60 scientific papers and 10 PhD and Master Theses.

Facultad de Ciencias Agrarias

UNIVERSIDAD NACIONAL DE ROSARIO
ZAVALLA - SANTA FE

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College of Agricultural Sciences Foundation



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The College of Agricultural Sciences Foundation (FCA) was created with the purpose of providing financial support to the College of Agricultural Sciences, at the Rosario National University, to promote and communicate the teaching, research, and extension activities carried out by the institution, the mission of which is:

-To shape and develop human resources with a strong ethical basis

-To generate scientific knowledge and make it available to the community to foster regional and national development

The activities of our Foundation are conducted by an Administrative Council. For the fulfillment of our objectives, we need the economic and human support of companies, institutions, professionals, and farmers. We greatly appreciate their involvement in the Foundation. Donations for specific projects, aimed at undertaking different programs, are also accepted. These donations allow us to offer special programs with the highest degree of academic excellence.

The Foundation started its activities in 2006, when it was registered as a Technology Link Unit (Unidad de Vinculación Tecnológica, UVT) by the Federal Science and Technology Development Agency (Agencia Nacional de Promoción Científica y Tecnológica, ANPCyT).

WHY DONATE

Supporting the Foundation strengthens the bond between our College, our graduate students, the researchers, the production sectors and the society, and promotes actions aimed at fostering regional development.

Each year, corporate and institutional sponsorship accounts for a substantial revenue which is spent on teaching and extension activities, as well as on research, development and innovation in our college.

Supporters who have sponsored the Foundation for more than one year can be appointed to the Administrative Council.

Furthermore, your donation is deductible from your income tax.

WE ARE WORKING TO FULFILL THE FOLLOWING OBJECTIVES BY 2017:

Our Foundation is committed to contribute to the fulfillment of the following College's objectives:

- + Enlarge the academic offer through the implementation of new associate degrees, and graduate and postgraduate courses.
- + Promote the development of a virtual university.
- + Conduct research projects to meet specific regional demands.
- + Conduct research projects within the framework of institutional programs aimed at achieving sustainable food production chains.
- + Promote College involvement in the development of new technologies.
- + Transfer the results obtained to the community.
- + Set up a Diagnosis Unit.
- + Build up, validate, and set up an alert system for the appearance of weeds, pests, and diseases.
- + Create a germ-plasm bank for native species.

College of Agricultural Sciences

ROSARIO NATIONAL UNIVERSITY

Z A V A L L A - S A N T A F E

Mailing address:

Campo Experimental Villarino
C.C. Nº 14 (S2125ZAA)
Zavalla - Santa Fe - ARG
Phone/fax: +54 0341 4970080
e-mail: agro@unr.edu.ar
website: www.fcagr.unr.edu.ar





College of Agricultural Sciences Foundation



**TOGETHER WE
MAKE MORE**

WAITING FOR YOUR PARTICIPATION

HOW DO I DONATE?

+ In cash: in our College

+ Send us a check:

Please make your check payable to:
Fundación Ciencias Agrarias
Campo Experimental Villarino
CC Nº 14 (S2125ZAA) Zavalla

+ Make a bank transfer to:

Caja de Ahorro Nº 4870-0000006026/6
Nuevo Banco Bisel Sucursal Zavalla
To the name:
Fundación Ciencias Agrarias
CBU: 285-08700-40000000266-2
CUIT 30-70956524-5

Membership:

Companies and Institutions:

from \$2400 per year

Professionals and Producers:

from \$600 per year

MAIN ACTIVITIES

Technological link between the College of Agricultural Sciences and the Production Sector.

The Department for Science, Technology and Productive Innovation (SECyT) registered the College of Agricultural Sciences Foundation as a Technological Link Unit (UVT, from Spanish Unidad de Vinculación Tecnológica) able to promote social and productive development, and to communicate research results to meet needs of the community.

Management and Administration of Research Projects

The UVT manages and administrates the technological and scientific research projects financed by the public or the private sector, or both. Its main objective is to promote scientific and technological developments, especially those generated at our College.

Technology Link Services

Our College has specialized professional teams with experience in technology transfer, who can meet specific demands of companies and institutions. The work protocols and evaluation criteria are agreed upon by the participants in each project. Essays carried out in the field, in greenhouses, and in the laboratory follow strict quality standards and conform to the current regulations for the use of agricultural chemicals and genetically engineered organisms (GMOs).

Professional Internships

General Objective:

The Professional Internship program offers graduates the possibility of gaining first-hand experience in the situation of the agricultural sector, getting in touch with local companies and producers, and getting their first working experiences.

Management of fund-raising activities aimed at improving our College

The Foundation works to obtain the necessary resources to maintain and improve the College's infrastructure and equipment, to grant scholarships to students, to update specialized bibliography and to finance research and development projects. The increase in the number of researchers, scholarship holders, and students demands improvements in the College's infrastructure. The development of new disciplinary fields and the diversification of the academic offer through the introduction of associate degrees and new graduate and post-graduate programs require suitable facilities and equipment to fulfill quality expectations.

Organization of Courses and Seminars

The Foundation of Agricultural Sciences offers training courses on different subjects for graduates, companies, and producers. These courses are designed either in response to a specific demand or organized by the Extension Department at the College of Agricultural Sciences, Rosario National University.

SCHOLARSHIPS AND PROFESSIONAL PRACTICE PROGRAM

PROFESSIONAL PRACTICE PROGRAM FOR UNDERGRADUATE STUDENTS

The Foundation and the College of Agricultural Sciences have recently implemented a professional practice program for undergraduate students. The program provides the required legal frame to give our students the opportunity to gain research experience by participating in the research projects and technology transfer services in which the Foundation is involved.

Since our College was registered as a Technology Link Unit, the Foundation has been committed to launching these programs, which are financed by the projects themselves.

SCHOLARSHIPS FOR PROFESSIONALS

The Foundation has implemented a program that provides our graduates with the opportunity to gain research experience by participating in the research projects and technology transfer services in which the Foundation is involved.

As a Technology Link Unit, the Foundation supports the implementation of scholarships to enhance the professional development of our human resources.

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STANDARDISED SERVICES AND TECHNICAL ADVICE



Laboratories:

The College equipment and infrastructure are available for the development of services and technical advice:

- + Food Analysis Lab
- + Molecular Biology Lab
- + Research Lab
- + Soils Lab
- + Growth Chambers
- + Plant Ecophysiology Lab
- + Anatomy Lab
- + Crops Lab
- + Weeds Lab
- + Herbarium

LAB SERVICES

Quality control of inoculants

Viable bacteria count in inoculants.
Viable bacteria recovery on inoculated seeds.
Infectibility test in soybean seedlings
Agronomic performance trials
Head: Silvia Toresani (Ag.Eng.)

Microbiological analyses of soil samples

Microbial group count, microbial biomass carbon, microbial respiration activity, enzymatic activity.
Team:
Silvia Toresani (Ag.Eng.)
Laura Ferreras (MSc)

Soil and Water Analyses

Basic fertility analysis (Carbon %, organic matter %, nitrates, assimilable phosphorus, actual and potential pH, humidity %, conductivity)
Individual analyses
Head: Alfredo Ausilio (Ag.Eng.)

Diagnosis and identification of insects in urban and rural environments

Identification of insects that are detrimental to agricultural production or to human health
Head: Marcela Lietti (MSc)

Palynological analysis for the classification of honey types

Determination of plant sources of pollen
Head: María B. Lusardi (Ag.Eng.)

Anatomical analysis of higher plant materials

Anatomical and histological study on plant materials of higher plants
Head: Marta Bianchi (MSc)

Taxonomic determination of vascular plants

Identification of problem plants
Head: Dr. Darién Prado

Compost quality

Product composition: organic matter, total nitrogen, ash, humidity, pH, electric conductivity, phytotoxicity test and presence of weeds.
Head: Dr. Elena Gómez

Plant Clinic

Pathogen identification
Seed Pathology
Head: Dr. Miriam González

Food quality control laboratory

Summative analysis in plant foods: determinations of humidity, ash, proteins, lipids, fibers, and nitrogen-free extractives. Determinations of total nitrogen and proteins in samples of raw material, foods and food by-products. Determination of neutral detergent fiber, acid detergent fiber and lignin in samples of grains, forage and silage. Summative analysis of feed
Other determinations: analysis of raw materials, food, and animal by-products
Head: Carlos Perigo (Ag.Eng.)

In vitro plant tissue culture

Advice on the necessary equipment and facilities for the establishment of plant tissue laboratories. Training on diverse laboratory techniques used in plant biotechnology. Culture media preparation, isolation practices, disinfection, in vitro culture, explant analysis and behaviour. Theoretical and practical knowledge of the general methods of micropropagation.
Team:
Cecilia Severín (Ag.Eng.)
Miriam Bueno (MSc)

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STANDARDISED SERVICES AND TECHNICAL ADVICE



The Experimental Field

The Experimental Field of the College of Agricultural Sciences consists of 507 hectares mainly devoted to teaching, research, extension and production activities. It provides both undergraduates and graduates with the opportunity to gain practical knowledge and to be in direct contact and interact with the natural environment.

The experimental field facilities provide the ideal conditions for the development of field trials and their proximity to the research buildings facilitates data gathering and ongoing monitoring.

OTHER SERVICES:

Translation services: Spanish-English, English-Spanish

Team:

Gabriela Venturi
Virginia Cattolica
Carolina Diruscio

Weather information center

Team:

Dr. Alejandra Coronel
Marta Costanzo (Ag.Eng.)

R+D (RESEARCH + DEVELOPMENT) SERVICES AND TECHNICAL SUPPORT

Specific technological demands from external organizations such as companies and institutions can be satisfied by our faculty teams with ample experience in technological transfer.

The main services are: assessment of agrochemical effects on some of the components of crop yield; trials on the effects of diverse formulations, application timing, and agrochemical combinations on weeds, pests and diseases; assessment of the effectiveness of new genetic events and the effects of stubble and rainfall on agrochemical performance.

Faculties and members of the external organizations jointly decide on the work protocols and the assessment conditions for each project. Trials are conducted in the fields, in the greenhouses and/or in the laboratories, following strict quality control criteria and complying with current regulations on agrochemicals as well as on genetically engineered organisms (GMOs).

SERVICIOS DE ENSAYO A CAMPO

Assessment of maize, wheat, sorghum, soybean and sunflower cultivars

Assessment of agronomic (phenotypic) traits, yield and components.

Assessment of fungicides in wheat and maize. Assessment of fertilizers in wheat, sorghum, maize, soybean and sunflower.

Team:

Irene Rosbaco (Ag.Eng.)
Santiago Papucci (Ag.Eng.)

PERSONALIZED TRAINING PROGRAMS

This service offered by the faculty of the College of Agricultural Sciences aims at linking the teaching activities and scientific-technological developments with public and private institutions, companies, technicians, and the general public to bring them the knowledge and skills needed.

The topics are agreed on by the people requesting the program and the teachers-researchers according to the characteristics of the training required.

Participants get acquainted with the specific theoretical and practical knowledge suitable to their needs.

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