Annual Report 2022-2023

Submitted by:

Dr. Raúl E. Macchiavelli
Dean and Director

July 21, 2023
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A. Mission and Vision

1. Mission and Vision of the College of Agricultural Sciences

The College of Agricultural Sciences at the Mayagüez Campus of the University of Puerto Rico was founded with the establishment of the College of Agriculture in 1911, which became known a year later as the College of Agriculture and Mechanical Arts (CAAM). The University of Puerto Rico Law of 1942 created the College of Agriculture. According to the University of 1966 Law and Certification Number 13 of 1968 of the Higher Education Council, the College of Agricultural Sciences integrates formal education, research, and educational activities aimed at the community in various agricultural and complementary areas. These complementary and interdependent functions are carried out through a three-dimensional organizational scheme composed of the Faculty of Agricultural Sciences, the Agricultural Experimental Station, and the Agricultural Extension Service.

VISION - The College of Agricultural Sciences must be at the forefront in formal and non-formal education, as well as in research, seeking innovation in sustainable tropical agriculture systems and human and environmental sciences that benefit individuals, communities, and society in general.

MISSION - To develop new technologies through education, research, and extension to innovate in the production of agricultural inputs and products for humans and animals through economically viable, sustainable, safe, and global agriculture that contributes to the improvement of the quality of life of society.

2. Mission and Vision of units ascribed to the College of Agricultural Sciences

MISSION

Faculty of Agricultural Sciences

To develop through education, research, and extension new technologies that innovate in the production of inputs and agricultural products for humans and animals through an economically viable, sustainable, safe, and global agriculture that contributes to the improvement of the quality of life of society.

Agricultural Extension Service

Improve the quality of life of people living in socio-economic vulnerability through participatory action via a non-formal education process based on scientific research and focused on the aspirations and needs of families and communities.
Agricultural Experiment Station

Promote a research program in tropical agriculture that safeguards the sustainability of food production and environmental conservation in Puerto Rico and the Caribbean, improving the quality of life and conservation of natural resources.

VISION

Faculty of Agricultural Sciences

The College of Agricultural Sciences must be at the forefront of both formal and non-formal education, as well as research, seeking innovation in sustainable tropical agriculture systems and in human and environmental sciences that benefit individuals, communities, and society as a whole.

Agricultural Extension Service

Integrate the knowledge and know-how generated by the University System, governmental and non-governmental organizations, farmers, housewives, youth, and communities to address their aspirations and needs. Establish partnerships with our collaborators to achieve common goals through non-formal education and participatory action.

Agricultural Experiment Station

The Agricultural Experimental Station will be a leader in research that develops knowledge and technology in sustainable tropical agriculture for Puerto Rico and the Caribbean region.

B. Description and Functions

1. Description and Functions of the College of Agricultural Sciences

The College of Agricultural Sciences (CAS) of the University of Puerto Rico at Mayagüez is composed of three units, the Faculty of Agricultural Sciences, the Agricultural Experiment Station, and the Agricultural Extension Service. Each of these units has a function that contributes to the development of tropical agriculture. In addition to the aforementioned units, there is also the Office of International Programs. Through the Executive Board, composed by the Dean-Director of the College of Agricultural Sciences, the Associate Dean of the Faculty of Agricultural Sciences, the Associate Dean and Deputy Director of the Agricultural Experiment Station, the Associate Dean and Deputy Director of the Agricultural Extension Service, the Director of Planning and Budget, and the Director of the Office of International Programs, the plans and programs of the CAS are directed in accordance with Certification No. 174 of September 24, 1980, of the Council of Higher Education.
2. Description and Functions of the units under the College of Agricultural Sciences

The Faculty of Agricultural Sciences (FAS) is the unit of the College of Agricultural Sciences (CAS) in charge of formal education. The Faculty of Agricultural Sciences is responsible for offering undergraduate and graduate programs. It offers 13 undergraduate programs and 9 graduate programs. The undergraduate programs leading to a Bachelor of Science in Agricultural Sciences are: Agricultural Sciences (General), Agronomy, Crop Protection, Horticulture, Soils, Agricultural Education, Agricultural Extension, Agricultural Economics, Agribusiness, Animal Science, and Agricultural and Environmental Systems. In addition, it offers a three-year Pre-Veterinary program and a Bachelor of Science in Food Science. The graduate programs leading to a Master of Science are: Agricultural Education, Agricultural Extension, Agricultural Economics, Animal Science, Agronomy, Soils, Horticulture, Crop Protection, and Food Science and Technology. In addition, the online Master's degree in Agricultural Economics. Soon, the doctoral program in Tropical Agriculture will be offered.

The Agricultural Extension Service (PRAES) aims to educate individuals or communities through non-formal education. It has four (4) educational programmatic areas: Agriculture, Marketing and Natural Resources (AMNR), Family and Consumer Sciences (FCS), Youth and 4-H Clubs, and Community Resource Development (CRD). Within the AMNR and FCS programs, pesticide application and management certifications, and the food safety course are provided, respectively. In addition, the PRAES has the Plant Diagnostic Clinic.

The Agricultural Experiment Station (AES), whose main purpose is to conduct research in agricultural sciences, has seven research areas: Milk and Meat Production Systems, Plant Genetic Resources, Plant Breeding and Production Systems, Integrated Pest Management and New and Emerging Diseases, Natural Resources and Environment, Agricultural Economics, Marketing and Community Development, Food Safety, Science and Technology, and Renewable Energy.
C. Organizational Structure

1. College of Agricultural Sciences - Organizational Chart
2. Faculty of Agricultural Sciences – Organizational Chart

ORGANIGRAMA DE LA OFICINA DE LA DECANA ASOCIADA DE LA FACULTAD DE CIENCIAS AGRÍCOLAS

DECANO Y DIRECTOR CCA
(Dr. Raúl E. Macchiaveli)

DECANO ASOCIADO FCA
(Dra. Lynette E. Orrellana)

PROGRAMA GENERAL EN
CIENCIAS AGRÍCOLAS

OFCIAL DE ASUNTOS
ESTUDIANTILES I
(Melissa Girad Pino)

SECRETARIA
ADMINISTRATIVA V
(Orla G. Agüero Lara)

OFFICIAL EJECUTIVO I
(PRESUPUESTO)
(Yesenia González Vílchez)

ASISTENTE DE
ADMINISTRACIÓN I
(Maritely Pérez)

SUPERVISOR OPERACIONES Y
MANTENIMIENTO
(Ian A. Radillo)

JARDINERO I
(Pedro Méndez)

PROGRAMA
CIENCIA Y TECNOLOGÍA
DE ALIMENTOS

FINCA LABORATORIO
ALZAMORA

Asuntos FCA

DEPARTAMENTOS ACADÉMICOS
- CIENCIA ANIMAL
- CIENCIAS AGROAMBIENTALES
- ECONOMÍA AGRÍCOLA Y SOCIOLOGÍA RURAL
- EDUCACIÓN AGRÍCOLA
- INGENIERÍA AGRÍCOLA Y BIOSISTEMAS
3. Agricultural Extension Service – Organizational Chart

AES Organization Chart

- Agricultural Experiment Station
- Faculty of Agricultural Sciences
- Agricultural Extension Service

Academic Departments:
- Animal Science
- Agroenvironmental Sciences
- Agricultural Economic & Rural Sociology
- Agriculture Education and Extension
- Agricultural Engineering and Biocomputation

Administrative Offices:
- Finance
- Human Resources
- Budget
- Information Systems

Regional Offices (4):
- Local Offices (12)

Educational Programs:
- Community Development Resources
- Family and Consumer Science
- Agriculture, Marketing and Natural Resources
- Youth and 4-H Clubs
- Cada Administrador Regional tiene la responsabilidad de atender todos los asuntos administrativos de su Región y supervisar y apoyar el trabajo que se hace a través de una de las cuatro áreas programáticas.

- Cada Coordinador Regional tiene la responsabilidad de supervisar y apoyar el trabajo que se hace a través de tres de las cuatro áreas programáticas.

Aprobado en julio 2021
4. Agricultural Experiment Station – Organizational Chart

AEXS Organization Chart
Universidad de Puerto Rico
Recinto Universitario de Mayagüez

Colegio de Ciencias Agrícolas
Estación Experimental Agrícola
Organigrama
D. Profile of the Dean’s Office and Departments

1. Academic Programs

<table>
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<tr>
<th>Undergraduate Program</th>
<th>Graduate Program</th>
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</thead>
<tbody>
<tr>
<td>General Agricultural Sciences</td>
<td>M.S. in Agricultural Economics</td>
</tr>
<tr>
<td>Agronomy</td>
<td>M.S. in Agricultural Education</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>M.S. in Agricultural Extension</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>M.S. in Horticulture</td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>M.S. in Animal Science</td>
</tr>
<tr>
<td>Horticulture</td>
<td>M.S. in Agronomy</td>
</tr>
<tr>
<td>Animal Science</td>
<td>M.S. in Soil Science</td>
</tr>
<tr>
<td>Agricultural and Environmental Systems</td>
<td>M.S. in Crop Protection</td>
</tr>
<tr>
<td>Crop Protection</td>
<td>M.S. in Food Science and Technology</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>M.S. in Agricultural Economics (Online)</td>
</tr>
<tr>
<td>Soil Science</td>
<td></td>
</tr>
<tr>
<td>Pre-Veterinary (Three-year program)</td>
<td></td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td></td>
</tr>
</tbody>
</table>

2. Undergraduate and Graduate Enrollment by Academic Program

<table>
<thead>
<tr>
<th>Undergraduate Program</th>
<th>2022-2023</th>
<th>Graduate Program</th>
<th>2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Agricultural Sciences</td>
<td>94</td>
<td>Agricultural Economics MS</td>
<td>10</td>
</tr>
<tr>
<td>Agronomy</td>
<td>140</td>
<td>Agricultural Education MS</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>24</td>
<td>Agricultural Extension MS</td>
<td>17</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>29</td>
<td>Horticulture MS</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>26</td>
<td>Animal Science MS</td>
<td>32</td>
</tr>
<tr>
<td>Horticulture</td>
<td>66</td>
<td>Agronomy MS</td>
<td>8</td>
</tr>
<tr>
<td>Animal Science</td>
<td>499</td>
<td>Soils MS</td>
<td>27</td>
</tr>
<tr>
<td>Agricultural and Environmental Systems</td>
<td>59</td>
<td>Crop Protection MS</td>
<td>26</td>
</tr>
<tr>
<td>Pre-Veterinary</td>
<td>48</td>
<td>Food Science and Technology MS</td>
<td>42</td>
</tr>
<tr>
<td>Crop Protection</td>
<td>21</td>
<td>Agricultural Economics MS (Online)</td>
<td>9</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Science</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1057</strong></td>
<td><strong>Total</strong></td>
<td><strong>184</strong></td>
</tr>
</tbody>
</table>
3. Degrees Awarded by Academic Program

<table>
<thead>
<tr>
<th>Undergraduate Program</th>
<th>2022-2023</th>
<th>Graduate Program</th>
<th>2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Agricultural Sciences</td>
<td>11</td>
<td>M.S. in Agricultural Economics</td>
<td>4</td>
</tr>
<tr>
<td>Agronomy</td>
<td>13</td>
<td>M.S. in Agricultural Education</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>4</td>
<td>M.S. in Agricultural Extension</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>10</td>
<td>M.S. in Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>13</td>
<td>M.S. in Animal Science</td>
<td>8</td>
</tr>
<tr>
<td>Horticulture</td>
<td>15</td>
<td>M.S. in Agronomy</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science</td>
<td>99</td>
<td>M.S. in Soil Science</td>
<td>7</td>
</tr>
<tr>
<td>Agricultural and Environmental Systems</td>
<td>17</td>
<td>M.S. in Crop Protection</td>
<td>3</td>
</tr>
<tr>
<td>Crop Protection</td>
<td>6</td>
<td>M.S. in Food Science and Technology</td>
<td>4</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>8</td>
<td>M.S. in Agricultural Economics (Online)</td>
<td>--</td>
</tr>
<tr>
<td>Soil Science</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Science</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>196</strong></td>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
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4. Teaching and Non-Teaching Staff

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>PRAES</th>
<th>AES</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Professors</td>
<td>37</td>
<td>18</td>
<td>30*</td>
<td>85</td>
</tr>
<tr>
<td>Researchers</td>
<td>---</td>
<td>0</td>
<td>6**</td>
<td>6</td>
</tr>
<tr>
<td>Extension Specialists</td>
<td>---</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Other (Librarian I)</td>
<td>---</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Family and Consumer Sciences Educators</td>
<td>---</td>
<td>47</td>
<td>---</td>
<td>47</td>
</tr>
<tr>
<td>Agricultural Agents</td>
<td>---</td>
<td>55</td>
<td>---</td>
<td>55</td>
</tr>
<tr>
<td>Total Faculty</td>
<td>37</td>
<td>127</td>
<td>38</td>
<td>202</td>
</tr>
<tr>
<td>Total Non-Faculty Staff</td>
<td>36</td>
<td>172</td>
<td>232</td>
<td>440</td>
</tr>
<tr>
<td><strong>Total Faculty and Non-Faculty Staff</strong></td>
<td><strong>73</strong></td>
<td><strong>299</strong></td>
<td><strong>270</strong></td>
<td><strong>642</strong></td>
</tr>
</tbody>
</table>

*Retired Associate Dean
**Two Post Doc Researchers

Notes:

1. Data for teaching staff includes probationary, permanent, and special appointments.
2. Data for non-teaching staff includes “jornal”, special, and permanent appointments.
A. Executive Summary

For the fiscal year 2022-2023, we continued to face significant challenges caused by the COVID-19 pandemic and Hurricane Fiona, which passed through our island on September 18, 2022. The hurricane caused damage to both the infrastructure and crops of the Agricultural Experimental Station (AES), resulting in delays in achieving the projected objectives in research projects. However, thanks to the commitment of our human resources, both teaching and non-teaching staff, the Agricultural Experimental Station continued its research activities. Likewise, the Agricultural Extension Service (PRAES) continued to work diligently to fulfill its mission while improving Strategic Planning and Evaluation processes, restructuring its administrative reporting and monitoring system, and expanding initiatives to strengthen non-formal education. One of the most utilized tools by the Agricultural Extension Service to continue its outreach work have been virtual platforms, which have allowed for the continued assistance to the needs of farmers and Puerto Rican families, despite limitations imposed by the pandemic and atmospheric events. On the other hand, the Faculty of Agricultural Sciences (FAS), through its academic departments, continued its mission to train professionals who can contribute their acquired knowledge to the development of agriculture in our country.

This annual report presents the various initiatives, activities, and achievements accomplished during this fiscal year. We express our gratitude to all staff members and personnel for their demonstrated commitment during these challenging times.

Faculty of Agricultural Sciences

During the past year, the Faculty of Agricultural Sciences has been working diligently to assess all academic programs and promote them in collaboration with various offices within our college and other campus-wide offices. We have also been implementing new activities and forging partnerships to attract new students. Furthermore, we have continued to improve our physical facilities with the aim of enhancing our services, and we have established new collaborations with other faculties to introduce new academic programs and offerings.

Agricultural Extension Service

During the period covered by this report, the body of specialists from the Agricultural Extension Service (PRAES) played an important role within the Faculty of the College of Agricultural Sciences (CAS), offering 16 undergraduate courses with a total enrollment of 325 students and 11 graduate courses with a total enrollment of 56 graduate students. They also had a significant impact on the research program of the CAS. The faculty members of the PRAES served as chairs (n=25) or members (n=36)
of graduate thesis committees, impacting approximately 75 graduate students. They also supervised 6 undergraduate special projects. A total of 69 assistantships were awarded, totaling $295,711 for the specified period. During the reporting period, a total of 15 competitive proposals were submitted to various sources, including CORTEVA, USDA NRCS, MIDA, USDA-NIFA, Extension Foundation, USDA-FS, USDA-NIFA, Southern Research & Education, and National Agricultural Statistics Service. A summary table categorizing these is included. Of the 15 proposals, 11 were approved ($1,366,188), 1 was denied ($49,999) and 3 are pending ($254,998). In terms of income for a particular use, the Pesticide program generated $98,805, while the Food Safety program generated $27,344.

Several projects were developed to address community needs such as Community Gardens, Socially Disadvantaged Farmers & Ranchers, Divided by water, united by need: IPM programs for PR & USVI, Integrated pest and pollinator management, "Harvesting Our Future" Banco de Alimentos de Puerto Rico, Food Systems Resilience in Coastal Communities: Fisheries and Aquaculture in PR, Urban agriculture project developed by the "Centro Paso" in Aibonito and multiple educational activities of the Extension Community Resource Development Education Program. Initiatives to promote an entrepreneurial mindset and leadership among students included the Equity and Social Responsibility Training. Multiple activities aimed at students and young people of school age included 4-H Bug Camp, the educational event "Together... for the greater well-being of our communities" in Patillas, Service at Hogar Padre Vernard, Harvesting the well-being of our childhood, at the Aguada Community, Painting for Others, DropBox 4-H, Teen Leading Chan, Equity 4-H Challenges, 4-H Open House, among many others.

**Department of Agricultural Economics and Rural Sociology**

The Department of Agricultural Economics and Rural Sociology has integrated the three components of teaching among its faculty: formal teaching, extension or dissemination and research. In addition, the teaching staff of the Department has been characterized by offering services to the academic community, public and private sector and communities. The Department has faculty who have been successful in obtaining competitive external funding and collaborating in various projects of competitive external funds in other Departments of the College of Agricultural Sciences and the Mayagüez University Campus, promoting multidisciplinary research and extension projects.

The undergraduate and graduate programs in this Department are unique in their class in Puerto Rico. The curricula are designed with balanced preparation between the different disciplines. Malleability of the graduate in being able to perform in various
professional areas. The acceptance by our graduates in the job market has been excellent, both at the Baccalaureate and Master's level. The market recognizes the importance of agricultural economists. The need for agricultural economists is imperative for the agricultural sector of Puerto Rico, as well as in agribusiness (food processors, sellers of agricultural inputs and services, food wholesalers and retailers, economic studies and others). The program has updated and relevant courses. Excellent teaching staff with good preparation in the subject and recognized professional reputation.

Since August 2021, the academic offer for the Master of Science in Agricultural Economics began under the Online modality. During 2022-2023, 8 students were admitted for this new modality.

Department of Agricultural Education

The following initiatives, activities and achievements were carried out in the Department of Agricultural Education:

1. Graduate student Jonathan Irizarry created and worked on social media: Facebook, Instagram, and Twitter to give exposure to the department, promote the achievements of students, teaching and non-teaching staff.
2. Graduate student Bryan Hernandez, as part of his thesis research, managed to create and carry out the "Agriculture Week Challenge" camp that was a success in the College of Agricultural Sciences.
3. On February 17, 2023, Drs. Janitza Saavedra Lugo, Edly Santiago Andino, and a group of undergraduate and graduate students participated in the "CTE Career Expo and Career Show" at the Puerto Rico Convention Center. Activity that is celebrated as part of the activities of the Assistant Secretary of Career and Technical Education of the Department of Education in February, in the occupational month. They were representing the College of Agricultural Sciences RUM and Department of Agricultural Education - UPRM, informing students and teachers about our academic offerings.

B. Mission

The College of Agricultural Sciences (CAS) at the University of Mayagüez is where formal education, research, and outreach are integrated for the benefit of society. These three functions are mutually complementary and exist under a central three-dimensional organizational framework. Each of these units has a function that contributes to the work of tropical agriculture. The CAS with its three units is essential for economic and social development, especially the development of communities and Puerto Rican agriculture. The CAS is committed, as part of the UPR-Mayagüez
Campus, to providing our youth with the best university education in agricultural sciences, conducting research in agricultural sciences, non-formal teaching, and outreach for the development of society, youth, communities, and the agricultural sector, always ensuring responsible optimization of economic resources, which will be carried out responsibly, always caring for the investment and benefit of Puerto Rican society and the country, who place their trust in this institution. The Office of International Programs is the unit responsible for international liaison and promotion of the CAS.

C. To institutionalize a culture of strategic planning and assessment

To comply with the culture of strategic planning and evaluation, the CAS has the Strategic Planning and Evaluation Committee, which carries out the following functions: a) Develop and ensure the implementation of strategic and evaluation plans of the College of Agricultural Sciences; b) Develop integrated methods among all units and departments to track, support, and provide visibility to the activities and metrics of the CAS Strategic Plan; c) Develop integrated evaluation activities, guidelines, and/or recommendations to systematically assess the different processes outlined in the Strategic Plans; d) Review the results of the evaluation activities of the units and provide recommendations; and e) Present a semi-annual report to the Dean and Director on the work and activities carried out by the committee.

During this year, the committee met frequently to address priorities in the objectives of the CAS Strategic Plan and its implementation. As part of Objective 4 - Increase and Diversify Sources of Income for the CAS, the activity of establishing a training program for the ethical and optimal management of fiscal and human resources was carried out. Ms. Vanessa Alequín Báez, Administrative Officer for Equal Employment Opportunity (EEO) and American with Disabilities Act (ADA Law), collaborated with the committee in preparing a training plan aimed at personnel with managerial and administrative functions so that, in addition to acquiring knowledge, they could develop skills and abilities to assist them in the exercise of sound public administration. The following workshops were coordinated by Ms. Alequín and conducted during the fiscal year 2022-2023:

<table>
<thead>
<tr>
<th>Equal Employment Opportunity Office</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staff Training Plan (including faculty and non-faculty) – Fiscal Year 2022-2023</strong></td>
</tr>
<tr>
<td><strong>Theme</strong></td>
</tr>
<tr>
<td>Title IX, as amended</td>
</tr>
<tr>
<td>Microsoft - Get Started with Microsoft Teams</td>
</tr>
<tr>
<td>Webinar PRATP – Technological Assistance for labor inclusion</td>
</tr>
<tr>
<td>Microsoft Cloud Storage: OneDrive for Business and SharePoint Online</td>
</tr>
</tbody>
</table>
As part of the academic evaluation, the committee prepared an assessment instrument to provide to the students. The "Student Learning Outcome number 1 (SLO #1) - Demonstrates purposeful and continuous learning" was chosen for assessment. The assessment instrument was administered to approximately 400 first and fifth-year students via email (Basic CIAN courses, Basic CFIT courses, and seminars).

The achievements obtained in the CAS, according to the activities carried out for the fiscal year 2022-2023, are presented through the report.
Faculty of Agricultural Sciences

During the past month of April, a draft for the educational outcomes objectives for the academic programs of the College of Agricultural Sciences were established:

- Demonstrate knowledge to apply concepts and techniques for sustainable use of inputs and resources for commercial agricultural food systems.
- Demonstrate best practices to manage food production from plants or animals sustainably and environmentally responsible.
- Use and apply technology or engineering practices to achieve sound solutions.
- Demonstrate leadership and team skills to face relevant agricultural challenges.

These educational outcomes will soon be submitted for approval by the Faculty’s Academic Affairs Committee and the development of assessment activities.

Department of Agricultural Economics and Rural Sociology

1. Assessment activities (academic and/or administrative)

- Meetings during the semesters of the departmental Academic Affairs Committee. IMI’s and Quotas, departmental award evaluations were reviewed. The criteria to be established for Non-Traditional Admission were evaluated.
- Semi-annual meetings of the departmental Graduate Committee.
- Semi-annual meetings of the Assessment and Planning Committee
- Semi-annual meetings of the Staff Committee to deal with personnel actions:
  - Promotions
  - Recruitment
  - Part-time appointments for retirees,
  - Highlights
  - other
- Meeting with the Dean of Academic Affairs discuss the admission processes and low enrollment in the programs.

2. Five-year evaluations and recommendations.

The undergraduate and graduate programs in Agricultural Economics are been completed, but a final report is pending.

Department of Agricultural Education

The Department has eight (8) standing Committees: Staff Committee, Graduate Studies Committee, Publications Committee, Outreach and Promotion Committee, Academic Affairs Committee, Planning and Assessment Committee, Library Affairs Committee, and External Resources Committee.
Department of Agricultural and Environmental Systems

Department faculty administer assessment tools in their courses (e.g. initial and final surveys, pre- and post-tests) as an individual effort to improve teaching effectiveness. The Five-Year Evaluation Report (2016-2021) for the Agricultural and Environmental Systems program recognized the need to evaluate and update departmental academic and administrative assessment plans. This is one of the areas that will be addressed during the 2023-2024 academic year.

Food Science and Technology Program

1. Developing and updating metrics
   Since FST is a multidisciplinary program (instead of an academic department), it is not required to have a strategic planning and/or assessment committee. As agreed by its faculty, all issues are addressed at ordinary meetings or via referendums. Since 2018, strategic efforts have focused on expanding FST’s academic offer to include bachelor’s, professional master’s, and online master’s degrees. The BS program officially started in May 2022 and transfer students arrived in August, 2022. The first wave of freshmen should arrive in August 2023. All efforts have been directed toward degree inception and commencement. Thus, no strategic or assessment metrics have been developed yet.

2. Resources assigned to meet the objectives of the strategic plan
   Follow-up to all strategic issues is done by FST’s Coordinator and Administrative Assistant

Agricultural Extension Service

1. Developing and updating metrics
   a. Based on user’s feedback from SISE (Information System of Agricultural Extension Service), continuous improvement has been made towards production, efficiency, and achievement indicators in order to reduce duplication and enhance their specificity.
   b. Following the new NIFA reporting format (NIFA Reporting System; NRS), the format in SISE is being restructured to gather the work accomplished. For this purpose, the most relevant educational programs within each Program Area are being identified. Each of these programs will be defined in the NRS, and specific indicators will be created for them within SISE. Previously, each Program Area had hundreds of indicators, which made the reporting process and the extraction of achievements by federal contacts and supervisors challenging. By grouping the indicators under specialized programs, the number of indicators is significantly reduced, mitigating the aforementioned disadvantages.
c. This year, data collection platforms for our clientele in the program areas of CFC (FamiCo), Youth and 4-H Clubs (4-H Registration), and DRC were made available to Extension users. Assistance continues to be provided for the AMRN platform (PAGRI), which has been in use for over 5 years.

2. Improvement initiatives based on metrics

a. The CASEA committee, composed of Dr. Germán Ramos, Dr. María Rodríguez, and Dr. Jaime Curbelo, hired a graduate student specializing in statistics to analyze the CASEA digital data. All relevant analyses and meetings were conducted during the past semester, and we are now developing a publication for the faculty of the Agricultural Extension Service (PRAES). The publication will present the data interpretation along with descriptive graphs and tables that will enable PRAES faculty members to better identify needs at the municipal, programmatic unit, regional, and state levels.

3. Assessment of results

a. During the past 12 months, 38 evaluation reports were generated for educational activities offered by SEA faculty members.

b. Corresponding to FY2022, 21 personnel evaluations for promotion were conducted and subsequently administratively approved.

4. Resources allocated to address the objectives of the strategic plan:

a. Two students, one specializing in business administration and the other in electrical engineering, were hired under the OPE assistantship to maintain the SEA's online store and programmatic area platforms. This is in line with the recommendations of the strategic plan "Increase and diversify the revenue sources of the CCA."

b. During the period corresponding to the fiscal year 2021-2022, the pesticide program generated $98,805, while the Food Safety program generated $27,344.

Agricultural Experiment Station

Adjuntas Substation

At the Adjuntas Substation, a weekly work plan is prepared to evaluate the employees' performance and the achievement of goals and objectives outlined in the research projects. Each researcher submits written requests for the tasks required for their research project. At the end of each week, the group of agronomists meets to assess which tasks were completed and which ones did not meet the established work plan for that week. Each task is individually assigned to field workers, and each responsible party must explain the reasons if the expectations are not met.
Corozal Substation

At the Corozal Substation, we held a meeting for the Floury Crops company, where we received visits from floury crop farmers. During this meeting, researchers presented the results of their investigations in these crops and also addressed any issues related to pests or diseases that farmers may be facing. Training was provided on how to take samples of insects and diseases, and 19 Agricultural Agents were trained by Dr. Edda Martínez from the PRAES.

Throughout the year, several Continuing Education activities were carried out, such as:

- "Bed Bugs," attended by 30 exterminators, led by Dr. Edda Martínez from the PRAES.
- A one-day activity on pollinators, involving 131 people at the Corozal AES, with contributions from Dr. Dania Rivera, Dr. Edda Martínez, Prof. Manrique Planell, Prof. Pablo Jiménez, and Prof. Luis G Sierra from the PRAES.
- Pesticide licensing workshop for Corozal EEA employees by Agro. José Marrero from the PRAES.
- Visit by UPR-Utuado students to the Corozal AES.
- Visit by UPR-Rio Piedras students from the GPS-GIS course taught by Prof. Amilcar Vélez, conducting a historical sampling to observe the aftermath of Hurricane Maria.
- Insect taxonomy workshop, teaching mounting and preservation techniques to 6 4H students and 5 adults, led by Dr. Edda Martínez and Prof. José Marrero from the PRAES.

Additionally, in February of this year, Puerto Rico hosted the National Education Conference (NEC 2023) of the IR-4 Project, which was celebrating its 60th anniversary. Over 100 participants from the IR-4 Project across the United States, including Central and South America, visited the Corozal AES. Eight demonstration stations were set up around the Substation, showcasing:

- Papaya and root and tuber crop cultivation and diseases in Puerto Rico, presented by Dr. Sofia Macchiavelli from the PRAES.
- Pineapple application demonstration using the irrigation system, presented by Dr. Robert Welker (NCSU) and Jullie Coughlin (University of Hawaii).
- Carambola application demonstration using an airblast sprayer, presented by Luis E Almodóvar from the AES.
- Banana weevil trap and disease demonstration, presented by Dr. Edda Martínez from the PRAES.
- Dragon fruit foliar application and management practices demonstration, presented by Dr. Wilfredo Robles from the AES.
- Pollinator garden and bee colony demonstration, presented by Dr. Dania Rivera from the PRAES.
- Coffee diseases demonstration, presented by graduate student Daniel González from UPRM.
- Coffee preparation and tasting demonstration, presented by Professors Delvin Fernández and Salvador Baiges from the PRAES.

**Gurabo Substation**

At the Gurabo Substation, we have several active projects that serve investigative, educational, and self-sustainability purposes for the AES. During 2022-2023, we received visits from various students and researchers involved in these projects. Additionally, we offered a course on Agroecological Producers and Promoters in collaboration with El Josco Bravo, provided by Dr. Alfredo Aponte Zayas. We also welcomed farmers in search of agricultural products. Approximately $60,287.26 in funds were generated through the sale of compost, vegetables, bananas, hay bales, and animals. It is expected that additional funds will be generated next year through sales resulting from the surplus generated by the research projects carried out at the Gurabo Substation.

To achieve these objectives, we continue to promote and disseminate our mission and research results. For example, our social media followers continue to increase, generating interest from communities in our institution. Furthermore, the amount of land used for cultivation and research at our facilities has increased. In terms of cattle, a fattening group has been added, leading to the allocation of new grazing areas within our facilities. The H-372 project, part of the IR4 Project (Integrated Pest Management) led by Dr. Wilfredo Robles, has been reinstated. The "Center for Disaster and Philanthropy" project and the "Bean Seed Validation and Multiplication" project are also underway. Additionally, the H94-C and H94-D projects for the evaluation of taro cultivation, led by Dr. Martha C. Giraldo, have recently started.

To support the objectives of the Gurabo AES strategic plan, resources allocated include the hiring of two Farm Workers, two Scientific Research Technicians, and the acquisition of various equipment. We have also received administrative funds from some projects to cover maintenance, repairs, and sustainability expenses.
Isabela Substation

At the Isabela Substation, employees are evaluated annually, providing opportunities for personal improvement by identifying areas for improvement and each employee's strengths. Many research projects related to crops and forages have experiments been conducted at this Substation.

D. To lead higher education throughout Puerto Rico while guaranteeing the best education for our students

Faculty of Agricultural Sciences

1. New academic programs

The Bachelor in Science in Food Science was approved by the Board of Trustees according to the Certification 132 2019-2020 and received their first students in the academic year 2022-23.

2. Initiatives to strengthen teaching

   Teacher training activities – Please refer to Attachments I and II.

3. Collaboration Agreements

Annually, the University of Puerto Rico, Mayagüez Campus receives a variety of requests from institutions across the U.S. regarding our junior, senior, and master’s level students. The requests primarily take place during the fall term and involve the promotion of: fellowship opportunities, Ph.D. programs, funded campus visits, summer research internships, master’s programs, application fee waivers, research symposium invitations, new scholarships, online graduate degrees, graduate recruiting events, webinars and other academic endeavors.

   a. On April 2023 the College of Agricultural Science signed a collaborative agreement with AG-NGINE (Agriculture National Graduate Institutional Name Exchange). This national consortium was formed to recruit students by graduate programs at colleges of agriculture and related sciences from across the country (https://ag-ngine.cals.ufl.edu/). The following website lists the invited and participating institutions: https://ag-ngine.cals.ufl.edu/members.

   b. Organization: Centro de Microempresas y Tecnologías Agrícolas Sustentables de Yauco, Inc. (CMTAS); Effective date: 12/20/22-12/20/27; Purpose: Memorandum of Understanding with the College of Agricultural Sciences for the development of various initiatives in agricultural sciences, including student participation.
4. Strengthening of facilities for academic use

Improvements to facilities

Finca Alzamora at UPRM made an investment of around $5,300.00 for improvements to the teaching nurseries and “La Granja Experimental Agricola” at Lajas of around $34,500.00 for permanent infrastructure improvement.

5. Academic offerings

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6. Dissemination of academic achievements

Promotion is carried out through the College of Agricultural Sciences pages on social media platforms.

Department of Agroenvironmental Sciences

Recognition of teaching staff

- Dr. Angela Linares and Dr. Diego Viteri article in El Nuevo Día Newspaper. This was to recognize a new variety of pigeon pea developed by their research.
- Dr. Wilfredo Robles received the National Recognition of Excellence on behalf of the IR-4 Project.

Department of Agricultural Economics and Rural Sociology

1. Curriculum reviews

Updated undergraduate and graduate catalogs 2022-2023.

2. Initiatives to strengthen teaching
a. Development and implementation of teaching methodologies

Since November 2021, the modalities of in-person, hybrid, and distance formats have been approved for the offerings of the Registered Undergraduate Courses of the Department of Agricultural Economics and Rural Sociology.

b. Use of technology in the classroom

- Distance Courses (Hybrid, Distance)
- Courses with Assistive Technology
- Google Meet
- Facebook Live
- Institutional Moodle
- Zoom
- Teams

c. Teacher training activities

Distance Learning Certifications (CREAD) – Please refer to Attachments I and II.

3. Participation of students in competitions and academic activities

- NASS Boarding School – Agricultural Census 2022
  17 undergraduate and graduate students participated in National Agricultural Statistics Service (NASS) internship related to the 2022 Census of Agriculture. The institutional interest that the Census manages to obtain complete, correct and timely data to maintain current academic programs, services offered to farmers and the preparation of research proposals.

4. Strengthening of facilities for academic use

Upgrade 17 licenses of the STATA program. This programmed is downloaded electronically and installed in each computer located in the AP-202 room. Direct benefit for undergraduate and graduate students, both face-to-face and/or online.

5. Academic offerings

- The courses for First and Second Semester 2022-2023 were offered in three modalities: distance (asynchronous or synchronous), hybrid and face-to-face. The offer was according to course schedule and according to course demand.
- For the selection of courses and sections, students enrolled the courses according to the enrollment shift that corresponded to them.
- Students who are candidates for graduation received academic counseling to ensure they take the necessary courses to complete their degree.
• Assistance that students needed during the enrollment process or adjustments by staff in the Department was provided through the following link: https://ajustes.uprm.edu/ ("Service Ticket").

6. Dissemination of academic achievements

a. Honor Students Recognition
   • Agribusiness – 6 students
   • Agricultural Economics - 4 students
b. Recognition Graduating Class 2023
   • Master in Agricultural Economics
     ✓ December 2022 – 2 students
     ✓ May 2023 – 2 students
     • Bachelor’s Degree in Agricultural Economics
       ✓ December 2022 – 1 student
       ✓ May 2023 – 3 students
     • Bachelor’s Degree in Agribusiness
       ✓ Summer 2022 – 1 student
       ✓ December 2022 - 4 students
       ✓ May 2023 – 3 students
c. Departmental Awards Ceremony – June 8, 2023
   Andrea L. Almonte Ortiz – Best Student Award in Agricultural Economics and Rural Sociology 2022-2023

Department of Agricultural Education

1. Recognition of teaching staff

a. Dr. Janitza Saavedra - 2023, received recognition as a distinguished professor from the College of Agronomists of Puerto Rico.
b. Dr. Edly Santiago Andino was recognized with the FFA Honorary Degree for her work as a professor of Agricultural Education and her contribution to the FFA Organization, at the 88th State Convention of Future Farmers of America, last May 2023; under the slogan: Leading a new era in agriculture.
c. The National Organization of Future Farmers of America (FFA), awarded Dr. David Padilla Vélez, director of the Department of Agricultural Education, its highest distinction by exalting him as an Honorary American Degree. He is the first RUM professor to obtain this award that was granted at the ninety-fifth annual convention of the entity, which took place in Indianapolis last November 2022.

2. Initiatives to strengthen teaching:

a. On Friday, February 17, 2023, the Department of Agricultural Education of the College of Agricultural Sciences, participated in the CTE Career Expo and Career Show at the Puerto Rico Convention Center. The activity was carried out as part of the activities held by the Assistant Secretary of Career and Technical
Education of the Department of Education for the month of February, a month dedicated to occupational and technical education. There was participation from primary and secondary schools in the country.

The Department of Agricultural Education was represented by Drs. Edly Santiago Andino, Janitza Saavedra Lugo and undergraduate students of the department to inform teachers and students of public schools, on the offers that the department and the College of Agricultural Sciences have at the University of Puerto Rico, Mayagüez Campus.

b. During the first academic semester 2022-2023, the intern students of the Agricultural Education Program of the University of Puerto Rico, Mayagüez Campus (RUM) worked on the AGYTÚ Project, offering classes both face-to-face and online. The project is coordinated by Dr. Edly Santiago Andino, Professor of the Department of Agricultural Education; it seeks to publicize everything related to the agricultural industry, its interrelations with humanity and natural resources. The purpose of the program is "that the children and youth of Puerto Rico recognize the interrelationship of agriculture in their lives and can make informed decisions in the future."

The educational activities developed by the practitioners integrated various academic areas such as: science, mathematics, history, among other subjects. AgyTú practitioners worked for eight weeks, presenting live agricultural literacy lessons to varying degrees. The material used was prepared by the students of Teaching Practice of the Agricultural Education Program; reviewed and supervised by Dr. Santiago Andino. The lessons developed are creative and interactive so that participants learn without realizing it, because they work interacting and playing in the activities.

c. Students of the EDAG 4018 and EDAG 4019 courses visited different educational facilities to practice as agricultural education teachers.

- Using Technology in the Classroom
- Workshops and lectures were given to students from different programs using the electronic platforms.
- Moodle, Teams and Zoom platforms have been used in the classroom.
- Visited public schools that have the Agricultural Education Program and certified agricultural education cooperating teacher

d. Dr. Janitza Saavedra presented her respective research proposal plans at the Research Symposium for Faculty and Graduate Students UPRM that was held on May 17, 2023, at the College of Business Administration and had as its motto "Finding the Joy in Research"
3. Collaboration agreements

a. Dr. Edly Santiago has a collaboration agreement with EcoExploratorio. It offers Agricultural Literacy and its relationship with the Sciences
b. The Department of Agricultural Education has a collaboration agreement with the Department of Education of Puerto Rico and its Agricultural Education programs in public schools that offer vocational programs.
c. Dr. Ivys Figueroa has made collaborative contacts with the Department of the Family, Department of Health and the Judiciary.

4. Student participation in academic competitions and activities

a. Bryan Hernández (graduate student) Agro. Hernández is a graduate student of our department with an assistantship in the Department of Agro-Environmental Sciences. He was the only laboratory instructor who integrated the MUSA as part of the course and in addition made an exhibition of the end-of-semester works of the course at the MUSA.

- Bryan Hernández participated in the poster presentation in the Research Symposium for Faculty and Graduate Students UPRM that was held on May 17, 2023, at the College of Business Administration and had as its motto "Finding the Joy in Research"
- Dr. Janitza Saavedra and graduate students Agro. Bryan J. Hernández Aquino and Agro. Jonathan Irizarry-Soto carried out the coordination and logistics of the Undergraduate Open House 2022 and Graduate Open House 2023. Together with other undergraduate students, they offered guidance on the academic programs that the department has, dynamics were carried out and delivery of promotional items such as seedlings, seeds, pens and others to motivate visitors.
  ✓ In the Undergraduate Open House 2022, according to records, more than 174 high school students were oriented, mostly from twelfth grade from 41 different municipalities.
- Pre-University Program "Agriculture Week Challenge" – Agro. Bryan Hernández:
  ✓ As an initiative of the graduate student Agro. Bryan J. Hernández Aquino proposed to the Faculty of Agricultural Sciences the creation of the Pre-University Program "Agriculture Week Challenge" with the objective that high school students explore and can consider as an alternative of study one of the 12 academic programs offered by the College of Agricultural Sciences.
  ✓ The format of the program was a hybrid one using practical, creative and fun activities.
  ✓ Together with Dr. Janitza Saavedra, 25 private schools and colleges located in the western towns were visited in order to promote careers in agricultural sciences and the "Agriculture Week Challenge" program. In these visits, academic advisors received printed promotional material and were oriented
about the initiative. In addition, 208 public schools and 179 private schools were contacted by email.

- The program was held from June 12 to 16, 2023 at the facilities of the Faculty of Agricultural Sciences where 57 high school students from 31 municipalities throughout Puerto Rico participated. Of these participants, 46% of the students had completed tenth grade and 54% eleventh grade.

- The program was being led by graduate student Agro. Bryan J. Hernández Aquino where Dr. Janitza Saavedra and Agro. Lilliam Cardona collaborated strongly in the design of instructional material, coordination and logistics of the resources and personnel used.

- Agro. Jonathan Irizarry-Soto (graduate student of the department) offered support in the design of educational strategies used.

- It had the support of Dr. Lynette E. Orellana and all the staff working for the Office of the Faculty of Agricultural Sciences. Also, multiple directors, faculty and non-faculty staff, laboratory technicians, undergraduate students and graduates of all departments and academic programs attached to the Faculty of Agricultural Sciences were participating and collaborating.

- Dr. Edly Santiago Andino collaborated in the design phase of the evaluation instrument used in the program.

- He was invited to the Horticulture: Art Exhibition, by the organizers of the event, Prof. Sally González and Dr. Lizzette González to collaborate in the exhibition with the students of the HORT 4005-010 laboratory, lab which Bryan was offering this semester as a teaching assistant, who made an exhibition of their end-of-course works.

- He presented the poster: “Actitudes de los estudiantes de escuela superior participantes de la Casa Abierta del RUM 2022 con respecto a las alternativas para informarse sobre una carrera en Ciencias Agrícolas” en the Research Symposium, held on May 17, 2023 at UPR RUM, thanks to the assistance of Dr. Janitza Saavedra and Dr. Edly Santiago, who assessed him in this study.

b. Agro. Jonathan Irizarry-Soto: Agro. Irizarry is a graduate student of our department with an assistantship in the Department of Agro-Environmental Sciences.

- Coordination and logistics, together with Dr. Janitza Saavedra and Agro. Bryan J. Hernández of the Undergraduate Open House and Graduate Open House, as a strategy for orientation and recruitment of students in the programs of our department.

- Created Instagrams, Facebook and Twitter to establish the department's online presence on social media, including creating and maintaining profiles on various platforms.

- Development of relevant content and publications related to the events where department staff participated and created promotion of academic offer and important dates for active students and potential students.

- Educational Coordinator – MUSA – Museum of Art
Development of programming for visitors of all ages, promoting learning and appreciation of science, art and culture. Being able to provide a multidisciplinary environment and the naturalistic approach of the current exhibition integrates aspects of agricultural sciences, botany and the conservation of natural resources. Coordination with the MUSA project - In Your Community, where visibility of the entire campus is generated and not only the MUSA, in each school that is visited. Each visit bridges the gap that exists between the institution and the possibility of future young people to study regardless of the social, economic and disadvantaged background that precedes them.

He had collaborated with the courses of EDAG 3005 – Agricultural Orientation and Dr. Janitza Saavedra to integrate the exhibition Borinqueniana Flora: Three Centuries of Botanical Illustrations. Dr. Saavedra was the only professor in the Department who joined MUSA as part of her classes.

Collaboration with the laboratory of HORT 4005 – Ornamental Plants and Agro Bryan J. Hernández to integrate the exhibition Borinquenian Flora: Three Centuries of Botanical Illustrations.

c. Dr. Edly Santiago Andino

- In May 2023, Dr. Santiago participated in the activity entitled: All for the Meat Industry, in San Juan, together with doctors Katherine Domenech and Fernando Pérez, where farm owners of the Meat Industry of Puerto Rico were invited.

- Dr. Andino is responsible for analyzing the perceptions of people related to all lines of the Industry. Among the quantitative and qualitative analyses that must be done are to gather the needs they present, the barriers they face and the recommendations presented by sectors such as those in the area of cattle, poultry, rabbits, small ruminants and pigs.

- The analyses that are developed and those that are yet to be developed with other focus groups, will help to develop university academic programs and unique curricular sequences that will be presented not only in Puerto Rico, but also the Virgin Islands and Santa Cruz.

- The SWOT procedure is carried out to retrieve information from people in the slaughterhouses, public and private agencies, processing plants such as Carmela, producers and farm owners of the Meat Industry. Graduate and undergraduate students, as well as administrative staff and family members of the doctors participated in the workshop. Dr. Katherine Domenech, Dr. Edly Santiago Andino and Dr. Fernando Perez along with the entire staff composed of graduate and undergraduate students, as well as administrative staff and even relatives of the doctors.

- Doctor Domenech work is related to lead the project and meet the people of the Industry; Dr. Pérez is related to Food Quality and Dr. Santiago is responsible for the development of the curriculum and analysis of what is indicated by the population.
✓ Graduate students Mirelis Soto and undergraduate student Carola Ramallo both from the Department of Agricultural Education are in charge of collecting data that they will then analyze together with the mentoring of Dr. Santiago Andino.

✓ Dr. Santiago works with the Middle State accreditation of the College of Agricultural Sciences.

d. Dr. Ivys Figueroa

- Kick Off Initiative - "The power that unites us" - with the purpose of injecting positivism and an attitude to the new beginning of the courses offered by the Program.
- Educational seminar – "Guided by the passion to educate" – the purpose was to celebrate the achievements and goals achieved by our Teaching and Non-Teaching staff of the Program. The professional resources that complemented the educational part were, doctors José Ferrer López of U.P.R.- Mayagüez and Carlos Cañuelas of the Medical Sciences Campus.
- NutriTour 2023- "Sustainable food, fuel for the future" - with the purpose of disseminating information related to food and nutrition to all teaching staff of the Agricultural Extension Service.

5. Dissemination of academic achievements

a. The department's social networks: Instagrams, Facebook and Twitter; As well as the official website of the department, they keep students, the university community and the public informed about the administrative processes, outstanding news and achievements of the student body, teaching staff and non-teaching staff.

b. Support to students through distance and hybrid courses, visits to the administrative office or teachers are through appointments, phone calls or through online platforms.

c. Alternative methods of communication with faculty and students are strengthened using whatsapp, chats, teams, Meet, teams and hangout, collective email, Moodle and phone calls.

d. The department's website on the WordPress platform is kept updated: https://www.uprm.edu/edag, as well as social networks; Instagrams, Facebook and Twitter.

e. Among the academic achievements:

- About 10 students completed the Bachelor Degree in the Agricultural Education Program and 13 students in the Agricultural Extension Program for a total of 23 undergraduate students who completed the degree.
In Master's degree under the Agricultural Education program one (1) student completed their degree and in the Agricultural Extension Program, one (1) student for a total of two (2) Master's students who completed their degree.

It has been the largest graduating class (with 25 graduate students) that the department has had so far. An achievement without a doubt.

- In the honor list of Agricultural Science students, four (4) students of the Agricultural Education Program and two (2) undergraduate students of the Agricultural Extension Program were awarded honors for their academic performance, obtaining honors in their disciplines.
- Four job offers are under evaluation for assistant professors in the areas of: Specialist in Family Welfare and Human Development, Specialty in Positive Youth Development, Specialty in Gerontology, Specialty in Non-formal Education Programs and Methodologies.
- The first academic semester 2022-2023 had an enrollment of 171 students: 63 undergraduates, 21 graduates. New students were three (3) in Agricultural Education Program and three (3) in Agricultural Extension Program for a total of six (6) students.
- The department had two undergraduate students with daily wages, who were with Dr. Edly Santiago Andino, working on statistics for the accreditations that are being carried out; and a graduate student who developed and worked on the department's social networks: Instagram, Facebook and Twitter.

Department of Agricultural and Environmental Systems

1. Initiatives to strengthen teaching

a. Use of technology in the classroom

All the Department's classrooms are equipped with modern audiovisual equipment for the use of professors and instructors to offer their courses and laboratories. The Computerized Teaching Classroom has computers and software (MS Office, AutoCAD, ArcGIS, among others) to support course offerings and laboratories. In addition, three classrooms are equipped with the necessary technology for concurrent classroom and distance learning (HEERF proposal). These are equipped with speakers with integrated microphones, camera, projector, electric screen, computer with double monitor and television. Departmental faculty and instructors incorporated online activities in the Moodle platform as part of the course and to support the learning process. In addition, the course SAGA 5126-Food Safety was transformed and offered online during the Fall term.
b. **Teaching training activities**

Professors were trained, on an individualized basis upon request, on the use of the technology installed in the classrooms to offer face-to-face and distance courses simultaneously. Please refer to Attachments I and II.

2. **Strengthening of facilities for academic use**

   **Improvements to facilities**

   The installation of the equipment and materials necessary to replace the entire wired (ethernet) and wireless internet network in both buildings of the Agricultural Engineering Department was completed. A wireless antenna was installed in each of the classrooms and in the study area to increase the capacity. Internet speed increased from 100-400 Mbps to 1 Gbps. This project was funded by HERFF funds and installed by RUM CTI staff. The installation of 21 new computers and software in the Computerized Teaching Room (AM-102) was completed with HEERF funds. Floor tiles of classroom AM-104 were replaced. Communication was maintained with RUM personnel for the correction of leaks that arose after the temporary waterproofing of the roof by a private company.

**Food Science and Technology Program**

1. **Curricular reviews**

   During the 2019 summer, FST faculty conducted an academic assessment effort on the offered master's degree (with thesis). As a result of the activity, it was identified that the content of core courses required updating. Among those, the faculty decided to redesign the activities in CITA 6603, Food Processing Laboratory, merging them with Food Technology activities (CITA 6615) and increasing credit-hours from one (1) to two (2). During the fiscal year 2022-23, efforts focused on developing the activities of the revised course and preparing the educational materials.

2. **New academic programs**

   The Bachelor of Science degree in Food Science received final approval in May 2022 (Certification 2022-142 of the Post Secondary Institutions Board) and officially started in August 2022.

3. **Initiatives to strengthen teaching**

   The following activities were directed toward strengthening the teaching-learning process.
a. Two courses were offered in hybrid form during the Spring 2022-23 term.
b. A smart board and technology to offer online courses were installed at the Darlington facilities administered by the FST Program.
c. Four training events took place during the Spring 2022-23 term on the use of the smart board and its software.
d. Please refer to Attachment I and II.

4. Student participation in academic competitions and activities

   Every academic year, the FST Program and the student association organize an on-campus food product development competition. For the academic year 22-23, a total of 58 students representing three (3) courses participated in the event.

5. Strengthening of facilities for academic use

   The following improvements strengthened academic offerings.
   
a. The Pilot Plant was reorganized to better accommodate academic and research activities and eliminate obsolete equipment. Also, the food chemistry laboratory at the Chemistry Building was refurbished.
   b. An area at the Pilot Plant was fitted with a TV to allow projection from a computer for courses, meetings, and research activities. Also, available distance education technology in both rooms of the Darlington Building facilities was upgraded. The new technology includes smart boards, cameras, laptops with related software, and sound systems. Also, a rheometer and a new ultra-freezer were acquired to support food chemistry research.

6. Academic offerings

   The Bachelor of Science degree in food science was approved in May 2022. Transfer students started to arrive in August 2022 and the first wave of freshmen students should arrive in August 2023.

7. Dissemination of academic achievements

   The FST Program keeps a Facebook page (https://www.facebook.com/CITAUPRRUM/?locale=es_LA) to post FST-related activities and events.
Agricultural Extension Service

1. Initiatives to strengthen teaching

a. Training activities for faculty staff by programatic area

<table>
<thead>
<tr>
<th>Programatic Area - Agriculture Marketing and Natural Resources</th>
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<tbody>
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<td>Num.</td>
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<tr>
<th>Programatic Area – Family and Consumer Sciences</th>
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<td>3</td>
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<td>4</td>
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<tr>
<td>5</td>
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</tbody>
</table>
b. Collaboration agreements

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Validity</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in the Global Forum for Rural Advisory Services (GFRAS) meeting at the United Nations, Santiago de Chile</td>
<td>2022 to present</td>
<td>United Nations.</td>
</tr>
<tr>
<td>Invitation from the Latin American Network of Rural Extension Services (RELASER) to Puerto Rico to join the network. Progress made in the establishment of the Puerto Rico Forum.</td>
<td>2022 to present</td>
<td>Red Latinoamericana de Servicios de Extensión Rural</td>
</tr>
<tr>
<td>A cross-training session was conducted with NRCS (Natural Resources Conservation Service) to present the organizational structure of the Agricultural Extension Service (SEA), and vice versa. The purpose was to establish future collaborations for the benefit of farmers.</td>
<td>2022 to present</td>
<td>NRCS</td>
</tr>
<tr>
<td>Translation of educational material and participation in podcasts for Spanish-speaking audiences.</td>
<td>2023 to present</td>
<td>Universidad de Florida (IFAS)</td>
</tr>
<tr>
<td>Extension Educators offered educational activities about women's health and early detection of breast and cervical cancer. The CCC supported the activities by providing educational modules with</td>
<td>2022 to present</td>
<td>Puerto Rico Breast and Cervical Cancer Prevention and Early Detection Program</td>
</tr>
</tbody>
</table>
Agricultural Experiment Station

Adjuntas Substation

At the Adjuntas Substation, the facilities are used for courses in the Faculty of Agricultural Sciences and by graduate students to conduct their thesis research. Under the projects H-499, H-94-B, and H-94-F, we have graduate students conducting their thesis research at the Substation.

Gurabo Substation

To strengthen academic programs and promote a better environment, the facilities of the Gurabo AES have been used in collaboration with the Food Safety Project (PIA), the Pesticide Certification Educational Program, the Food and Nutrition Educational Program (PEAN), the Youth and 4-H Clubs Program of the PRAES, and the Boy Scouts of America Youth Program to offer their workshops and activities. Additionally, courses were offered for the professional improvement of agricultural agents through the SARE Project. This is done with the purpose of personal and professional enrichment of community members. Furthermore, for agricultural science students and farmers, a tour of the main work areas at the Gurabo AES was provided. Biannual meetings were also held for members of the dairy cattle and forage companies.

As part of the improvement of the communication system, the wiring of the main building at the Gurabo AES was updated. Furthermore, options are being evaluated to install fiber optics or wireless communication antennas to provide internet access to the Animal Reproduction Laboratory area. Improvements were made to the conference room, such as the acquisition of a second screen with projection system and 2 new air conditioning units. We also have a communication system, CB Radio KP4 with backup battery, which aims to maintain viable communication in the event of an atmospheric event that disrupts common communication channels. Dr. Alfredo Aponte Zayas continues his collaboration with Josco Bravo and offered the course "Agroecological Producers and Promoters." Dr. Verónica Negrón Pérez hosted a group from the Animal Science Student Association at RUM (University of Puerto Rico at Mayagüez), to whom a talk on artificial reproduction practices in cattle and genetic improvement of dairy
cattle was given. The ZDA-032 project (Center for Tropical Animal Research and Reproduction) in collaboration with the Department of Agriculture of Puerto Rico remains active (2019-2023). The overall objective of this project is to propagate the gene of the hairless cow in Puerto Rico's dairy cattle and create an assisted reproduction center for farm animals.

E. To increase and diversify the Institution’s sources of revenue

Faculty of Agricultural Sciences

Initiatives to obtain funds

Finca Alzamora have been raising funds through the rental of garden plants and flowers for activities.

Department of Agricultural Economics and Rural Sociology

1. Initiatives to obtain funds

   a. Hatch and other USDA RFPs
   b. SEA Grant
   c. DEG
   d. Others received electronically and/or online

2. Self-generated income and intended used

   Funds received for course offerings through RUMex. During 2022-2023, the department had the following courses on offer through RUMex:
   - ECAG 4025-001D (Seminar)
   - ECAG 3007-001D (Computer Use in Agricultural Sciences)
   - ECAG 4028-001D (Agricultural Finance).
   The department accumulates 20% of the surplus after the payment of salaries and fringe benefits to the teachers of the sections belonging to that department, as established by Certification 21-46 in Number XV, section B, point 3.

Department of Agricultural Education

1. Initiatives to obtain funds

   Dr. Roberto Rigau, extension specialist in our department, is Coordinator of External Resources of the PRAES, works with proposals from which he obtains funds for the College of Agricultural Sciences and PRAES.
2. External funds received

Doctors Janitza Saavedra, Edly Santiago Andino, Ivys Figueroa and María Rodríguez, work with external proposals to receive funds that benefit the College of Agricultural Sciences, PRAES and department.

Food Science and Technology Program

1. Initiatives to obtain funds

During the 2017-2020 period, the FST Program had an agreement with the then Puerto Rico Industrial Development Corporation to offer training, technical assistance, and analytical services to the food industry. As part of the academic year 2022-23 activities, efforts were directed toward reinstating the agreement. The new contract is currently being drafted.

2. External funds received

FST faculty submitted six (6) proposals for external funding during 2022-23. Three of those were approved, bringing in about $1.7 million. Also, the FST Program offers industry training on regulation compliance topics. During 2022-23, the faculty offered eight (8) courses impacting over 60 participants.

3. Self-generated income and intended use

Aside from funding from research projects, the FST Program has two (2) sources of income: the University’s General Fund to support academic and administrative activities, and a rotational account to manage funds from contracts, industry training, and other income-generating activities. The General Fund is used to cover salaries, laboratory materials, and other administrative expenses. The rotational account is used to cover materials for graduate student research, acquisition and repair of equipment, and infrastructure or technology improvements.

Agricultural Extension Service

1. Initiatives to obtain funding:

Ongoing improvements were made to the PRAES Online Store. Multiple training sessions were provided to the finance staff of the PRAES and AES on revenue collection and accounting through online financial platforms. Work is underway to create an intermittent product associated with an independent account that can be activated or deactivated to address matters such as camp payments or other recurring activities.
2. External funds received.

During the reporting period, a total of 15 competitive proposals were submitted to various sources, including CORTEVA, USDA NRCS, MIDA, USDA-NIFA, Extension Foundation, USDA-FS, USDA-NIFA, Southern Research & Education, and National Agricultural Statistics Service. A summary table categorizing these is included.

<table>
<thead>
<tr>
<th>Proposals</th>
<th>Status</th>
<th>Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Denied</td>
<td>$ 49,999</td>
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<tr>
<td>3</td>
<td>Pending</td>
<td>$ 254,998</td>
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<tr>
<td>11</td>
<td>Approved</td>
<td>$ 1,366,188</td>
</tr>
</tbody>
</table>

3. Self-generated income and allocated use:

During the fiscal year 2022-2023, the Pesticide program generated $98,805 in own revenue, while the Food Safety program generated $27,344. These funds were utilized to support and sustain the respective programs.

Agricultural Experiment Station

Adjuntas Substation

At the Adjuntas Substation, horticultural improvement practices for citrus and coffee crops are continuously carried out to optimize their production, generating income through the sale of fruits and coffee in flour. A collection of mother trees is maintained in a closed structure to provide disease-free material for grafting onto citrus trees. Certified disease and pest-free citrus trees are grafted in a closed structure for sale to farmers. Over 100,000 coffee seedlings are planted for sale to the Department of Agriculture.

Corozal Substation

At the Corozal Substation, we continue to sell clusters and seeds. Additionally, we have collections of starchy plants such as plantains, bananas, and yams. We use the sawmill to provide wood cutting services to the public, generating income.

Gurabo Substation

At the Gurabo Substation, plantings of taro, sweet potato, cassava, malanga, pumpkin, watermelon, cucumber, and plantain were established with the purpose of producing fruits and seeds. The production of round bales of improved grass continues, both for consumption by replacement cattle at the CIRAT and for sale. We have received cull
cows from the Lajas AES to be used in the Gurabo AES as breeding animals for fattening and meat sales in the near future. Currently, we have 25 pregnant females expected to give birth to calves for sale in 2024. The sale of compost continues as an additional source of income (approximately $1,280.00). We have sold 8 animals for meat production and consumption, 20 heifers for milk production to independent farmers, and 3 bulls (approximately $53,800.00). We have also sold 23 bales of 50-pound hay ($184.00 approximately).

<table>
<thead>
<tr>
<th>Initiative/Project Source</th>
<th>Type of Source (internal, external or own)</th>
<th>Agency</th>
<th>Amount</th>
<th>Purpose/Intended Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRAT (ZDA-032)</td>
<td>External</td>
<td>ADEA</td>
<td>$750,000.00</td>
<td>Development of an Animal Reproduction Laboratory</td>
</tr>
<tr>
<td>Compost Management Project</td>
<td>Own Income</td>
<td>AES</td>
<td>$1,280.00</td>
<td>Fertilization of Gurabo AES plots. (Reflected in A-021 Experimental IP)</td>
</tr>
<tr>
<td>Validation and Production of Improved Tropical Forages (H-502)</td>
<td>External Funds</td>
<td>AES</td>
<td>$184.00</td>
<td>Production of improved forages for animal feed (hay bales) (Reflected in A-021 Experimental IP)</td>
</tr>
<tr>
<td>Breeding and Sale of Holstein Cattle</td>
<td>Own Income</td>
<td>AES</td>
<td>$53,800.00</td>
<td>Development and management of the Gurabo AES herd (Reflected in A-021 Livestock IP)</td>
</tr>
<tr>
<td>Other Products</td>
<td>Own Income</td>
<td>AES</td>
<td>$5,027.00</td>
<td>Maintenance and expansion of the planting project (Reflected in A-021 Experimental IP)</td>
</tr>
</tbody>
</table>

**Juana Díaz Substation**

1. At the Juana Díaz Substation, improvements were made to the facilities, including the replacement of four "inverter" A/C units, leaving only two original "inverter" units in the offices.

2. To promote income generation, the first UPR Select Seed Fair was held in September 2022. In April 2023, the launch of the "Semillas Selectas" (Select Seeds) brand took place at UPRM.

3. **Specialized equipment acquisitions**
   - Precision Balance WL-213-00091 H-520, Dr. Irma Cabrera
   - Yomato Natural Convection Oven H-520, Dr. Irma Cabrera
   - I-340 Handheld Photosynthesis System H-520, Dr. Irma Cabrera
   - IML Resistograph F-Series Inspection Drill-Model F500S H-520, Dr. Irma Cabrera
- 3 Apple iMac Computers - A-21 Administrative Offices
- 4 inverter consoles (12k, 36k-3)

4. Achievements and other activities
- Field Day for Project H-516 in collaboration with Dr. Irma Cabrera and Dr. Consuelo Estévez.
- Continual increase and diversification of the institution's income sources.
- Planting of taro for the sale of fruit, seeds, and seedlings. Planting of pumpkin for the sale of fruit and seed collection for continued planting and sale.

5. Self-generated income and its use
The self-generated income for the AES-Juana Díaz until the first week of June 2022-23 is $112,525.23, which is $11,735.44 less than the income for 2021-2022 ($124,260.67), without concluding the month of June. From the funds raised in previous years, $112,213.23 was used for materials, goods, and services during the year 2022-23, including agricultural equipment parts, office supplies, maintenance, security, and other expenses.

Isabela Substation
At the Isabela Substation on April 20, 2023, the development of the Select Seed program of the AES was celebrated. Throughout the year, we increased botanical seeds developed by our Plant Breeding program. These seeds are adapted to our climatic conditions. Farmers have the opportunity to acquire this quality seed and propagate it throughout Puerto Rico. During the drought season, several farmers use our weeds as feed for their livestock. We identify plots that they can cut, and as a result, they have to pay us for each bale of silage. We do not allocate labor, equipment, or diesel for this activity. All resources are provided by the farmer.

Lajas Substation
At the Lajas Substation, the website semillas.eea@uprm.edu is maintained for the sale of seeds produced at the substations. This project started at our facility and will be extended to other substations in the future. This provides consumers with the opportunity to purchase seeds online and then pick them up in person. The reception and payment area, seed packaging areas, and refrigerators and freezers were reorganized to separate conventional seeds from organic ones. This initiative has been generating economic activity, increasing self-generated income, and meeting the demand for certified seeds from local farmers and consumers due to the lack of suppliers.
Two external activities were carried out to promote the concept and sell seeds to the general public. Additionally, a plan was initiated to sell seeds in envelopes through vending machines in high-traffic areas.

F. To implement efficient and expedient administrative procedures

Faculty of Agricultural Sciences

Department of Agricultural Economics and Rural Sociology

1. Automation of administrative processes

- Approval of Requisitions through SIA Prod (sia.upr.edu)
- R3 approval via upr.edu account
- Approval and processing of documents through Signrequest

2. New or revised processes

We continued to work on applications for graduate and/or undergraduate assistantships for research (R3) through Signrequest. This streamlines the administrative process, reducing the time of collecting signatures. It includes all official document procedures that require electronic signatures.

3. Improvement activities for administrative and support staff

- Professional Enrichment Center (CEP)
- Workshops sponsored by Government Ethics
- In coordination with the Office of Human Resources and the Equal Employment Opportunity and Reasonable Accommodation Officer, the participation of all staff was encouraged to comply with Article 3.3 of the Government Ethics Law, which establishes that all public servants must comply with a minimum of 20 hours of continuing education in ethics. of which 10 hours minimum have to be completed through training or any other method developed by the Center for the Development of Ethical Thinking (CDPE) and the remaining 10 hours through training offered by other public or private entities (validations)
- Workshops coordinated by the UPRM, PRAES an AES
- Registration Workshops
- Graduate Assistantship Training/Online Graduate Assistantship System

4. Recruitment of administrative staff

- The Department of Agricultural Economics and Rural Sociology only has an administrative staff that provides support to all areas, through emphasis. It is important to mention that this department is an integrated one that serves teaching staff of the three units of the College of Agricultural Sciences
(Agricultural Experimental Station, Agricultural Extension Service and the Faculty). Since August 23, 2022, Ms. Sonia M. García Torres returned to her work as Administrative Secretary III, after attending to medical situations. Due to the lack of additional personnel in this department, it has been necessary to grant additional tasks to his position in order to meet departmental goals.

Department of Agricultural Education

Administrative processes have been maintained with agile and efficient decision-making through communication, promoting collaboration and through faculty and administrative participation.

Department of Agricultural and Environmental Systems

1. Establishment and documentation of internal administrative procedures

- The Department has a digitized inventory with photos of the equipment with property numbers in the Microsoft Lists application. The inventory is updated periodically as equipment is added, decommissioned, or moved. This facilitates the inventory process and allows for greater control over location and users.
- To reduce the amount of paper and facilitate remote access, we continued with the digitization of academic and administrative records.
- The Sign Request platform was used for signing and tracking documents digitally.
- The Departmental group was used in the Microsoft Teams platform to share frequently used documents and hold departmental and committee meetings.
- Digital forms (Microsoft Forms) were used for borrowing equipment, requesting a change of location, updating student information in the academic program, general data on students with assistantships or work experience, information on the students' practicum center, among others.
- A digital record was kept up to date in Microsoft Lists for managing and tracking service and maintenance notes for the Department's buildings.

2. Improvement and recognition activities aimed at administrative and support staff

The Department's Administrative Assistant participated in the training courses offered on the use of Microsoft software and applications. The Laboratory Technician participated in the trainings offered by the Professional Enrichment Center related to laboratory safety.
Agricultural Extension Service

1. Automation of processes

Spaces were created on the Extensionist portal to provide access to updated official documents for all teaching staff. This ensures uniformity in PRAES procedures and prevents the use of unofficial or outdated documents.

2. Reviewed processes

In order to standardize and streamline the process of generating the annual NIFA report, a guide was created for the Federal Contacts of the Agricultural Extension Service (PRAES). The guide includes a summary of NIFA webinars and the approved report from the previous fiscal year. With this information, PRAES Federal Contacts will be able to make more informed decisions regarding the programs they will be reporting on, reducing the need for interventions with the Assistant Director of OPE.

3. Establishment and documentation of internal administrative procedures

a. The Graphic Identity Manual of the Agricultural Extension Service (PRAES) was developed and published.

b. Improvements were made to the interactive virtual map of the PRAES, which allows our audience to identify field personnel in their area and locality. All office coordinates were updated (using Google Maps) and confirmed with the staff to ensure accuracy.

c. Publications in print or image format were digitized to strengthen the PRAES repository on the website.

4. Evaluation of administrative processes (provide examples)

Every year, the teaching staff of the Agricultural Extension Service (PRAES) evaluates their administrators with special appointments through Appendix L.

5. Improvement and recognition activities aimed at administrative and support staff.

During 2022, multiple consultations were provided to agricultural agents and CFC educators through Support Windows. The Program Area Leader met monthly with field staff to provide recommendations aimed at the strategic improvement of each educational program within PRAES.
Agricultural Experiment Station

Adjuntas Substation

In the Adjuntas Substation, the "Sign Request" program is also utilized to streamline the signature process and greatly reduce the need to print and send documents through traditional mail. This results in cost savings for the institution and time savings in administrative and research tasks. The Office of the Associate Dean of the AES initiated the sale of citrus and coffee trees, as well as special coffee flour, through the "Semillas Selectas" website.

Corozal Substation

In the Corozal Substation, all administrative personnel have been relocated to share the same office and photocopier, eliminating the need for individual printers. Scanners are used to digitize documents and carry out procedures via email. Emphasis is placed on using the Sign Request tool to streamline processes and reduce paper usage.

Gurabo Substation

In the Gurabo Substation, virtual document processing is maintained to expedite administrative processes. Work plans for major projects are prepared on a monthly basis and delivered to the supervisor and research assistants to promote work efficiency and process automation. As evaluation mechanisms, the responsible personnel provide researchers with the collected data as coordinated. The conference room is utilized to offer governmental ethics workshops for administrative and support staff of the Gurabo AES as a training activity. Short social activities are organized (following health and institutional protocols) to promote employee well-being, interpersonal relationships, and teamwork. Workshops are also being coordinated to strengthen workers' skills in their respective areas.

Juana Díaz Substation

In the Juana Díaz Substation, the conference room is used for various meetings and workshops, including seed fairs, agricultural entrepreneurship courses, governmental ethics training, and more. There have been visits from professors, USDA personnel, and students, as well as meetings with agricultural experts and document deliveries to farmers.
Isabela Substation

In the Isabela Substation, we continue to utilize and implement the "Sign Request" program, which has been extremely useful for our institution. Using this platform allows us to acquire necessary signatures without having to send documents through traditional mail or deliver them in person. It translates into efficiency and, combined with other technological methods such as email, it has helped us focus and utilize fewer resources in these aspects. We continue to digitize documents whenever possible, reducing the use of paper for various procedures.

Lajas Substation

In the Lajas Substation, the implementation of online sales through the website semillas.eea@uprm.edu for the sale of seeds produced at the substation has allowed for the use of credit and debit card payments, making the payment and collection process easier. Additionally, we have made the products available electronically, providing real-time disclosure of available seeds for immediate purchase. This process automates the deposit of funds and facilitates electronic reporting. A new method of payment for sales has been added, including wireless systems for debit and credit cards, as well as the mobile ATH system. This aims to facilitate and automate the payment process for seed and product sales at the substation.

G. To strengthen research and competitive creative endeavors

Faculty of Agricultural Sciences

1. Number of research collaboration agreements and brief description (FAC, AES and PRAES)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Effective Date</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escuela Agrícola Panamericana, Inc.</td>
<td>12/05/22 – 09/30/23</td>
<td>Agricultural Experiment Station - 'Development and Release of bean cultivars for Central America and the Caribbean having multiple virus and bruchid resistance.'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prof. Abiezer González Vélez and Dr. James Beaver - Project Leaders</td>
</tr>
<tr>
<td>Fondo para el Fomento de la Industria Lechera</td>
<td>01/13/23 – 01/13/24</td>
<td>Agricultural Experiment Station - Analysis of milk samples from dairy farms in operation in Puerto Rico</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr. Esbal Jiménez Cabán and Dr. Jaime E. Curbelo – Project Leaders</td>
</tr>
<tr>
<td>Talam Biotech Holdings, Inc.</td>
<td>01/27/23 – 01/27/24</td>
<td>Agricultural Experiment Station – Rice cultivation trials in the EEA-Lajas. The proposed test is of interest and benefit</td>
</tr>
</tbody>
</table>
for the rice cultivation projects that are developed in the substation.

Prof. Anthony Rivera – Project Leader

World Coffee Research

03/01/23 – 08/31/25

Agricultural Experiment Station - 'Research Agreement between World Coffee Research and UPR-Agricultural Experiment Station' – Evaluation of high production coffee varieties provided by the company World Coffee Research.

Dr. Fernando Gallardo - Project Leader

Department of Agriculture

FIDA

02/10/23 – 09/30/23

Agricultural Experiment Station - “Protecting the fruit sector of Puerto Rico from the fruit fly” - Sampling of traps and fruits and monitoring of the fruit fly.

Prof. Irma Cabrera Asencio - Project Leader

2. Publications, presentations, periodic letters, and circulars

To strengthen formal teaching, non-formal teaching and research, the Faculty of the College of Agricultural Sciences submitted several submissions to journals, magazines and articles to different entities for publication. This includes publications in refereed journals, non-refereed journals, periodical letters and circulars. The researchers also made presentations in different forums related to agriculture. Attachment III contains the publications, Attachment IV shows the presentations and Attachment V breaks down the periodic letters and circulars.

3. Graduate assistantships for research, teaching and extension (Faculty of Agricultural Sciences, Agricultural Experiment Station and Agricultural Extension Service)

<table>
<thead>
<tr>
<th></th>
<th>First Semester 2022-2023</th>
<th>Second Semester 2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Graduate</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>Research (AES)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching (FAC)</td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>160</td>
<td>17</td>
</tr>
</tbody>
</table>

A total of 69 assistantships were awarded by the Agricultural Extension Service, totaling $295,711 for the specified period.
Department of Agroenvironmental Sciences

1. Origin of graduate students
   - Haití - 3
   - Costa Rica – 1
   - República Dominicana - 1
   - Honduras – 1
   - Colombia – 3
   - Puerto Rico -62

Department of Agricultural Economics and Rural Sociology

1. Impact results in research projects and creative work
   - Sustainable Risk Management and Insurance Benefits in the Agricultural Business
   - Training Property Administration (PAF) – Lares, Aguada, Maricao
   - Third Congress of Applied Economics in Puerto Rico

2. Initiatives to involve students in research projects and creative work
   - ECAG 4991-001# y ECAG 6991-001#:
     ✓ Summer Intership 2022 Censo Agrícola (USDA-NASS: 2022 Puerto Rico Census of Agriculture Agreement Number 58-3AEU-0048)
     Dras. Alexandra Gregory y Gladys M. González
   - ECAG 4993-001#:
     ✓ Comparison between locally produced food prices and imported food prices.
     Dr. Julio C. Hernández Correa
   - Course ECAG 6997-096H:
     ✓ Topics in Applied Economics: Agricultural Economics, Natural Resources, and Health
     Dra. Alicia V. Barriga
   - ECAG 6998-001#:
     ✓ Food System Resilience in Puerto Rico
     Dr. Robinson Rodríguez

3. Number of research collaboration agreements and brief description
   - USDA-NASS: 2022 Puerto Rico Census of Agriculture
   - Project Seeding Food Resilience Through Anchor Institutions (UPRM-UVM)
4. Origin of graduate students

- Haití
- Puerto Rico

Department of Agricultural Education

1. Initiatives to involve students in research and creative work projects

Dr. Janitza Saavedra contributed as collaborator for the participation of student Bryan Hernández in Research Symposium 2023 held on May 17, 2023 at the RUM. The student presented the poster: Attitudes of high school students participating in the RUM Open House 2022 regarding alternatives to learn about a career in Agricultural Sciences. Drs. Janitza Saavedra and Edly Andino were the advisors in the study presented.

2. Origin of graduate students

A student of Haiti, in general graduate students come from different municipalities of the Island.

Department of Agricultural and Environmental Systems

1. Quantity of external funds received, by source and creative work – 7
2. Total number of proposals submitted and approved by department – 7 proposals submitted as PI and 7 proposals submitted as Co-PI
3. Number of new research and creative work projects - 3 projects as PI and 4 projects as Co-PI
4. Number of ongoing research and creative work projects – 5 projects as PI and 11 projects as Co-PI
5. Brief description of new and ongoing projects with significant impact

- Through projects associated with soil erosion research (PI: Dr. Salvador F. Acuña-Guzman), laboratory experiments were developed to engage students into a more scientific approach of studying soil erosion processes in the course of Soil and Water Management (SAGA 4335). A rainfall simulator and an erosion plot were used to assess water losses and compare the results with hydrological models.

- Dr. Luis Perez Alegria is working on a collaborative project with the University of Illinois that brings together graduate and undergraduate students from both institutions to work with problems identified in special communities to propose solutions and implement them through community and participatory work.

- The NOAA RISA project aims to develop resiliency under increasingly severe weather in the Caribbean Region (PI Harmsen). Our department’s contribution to this project will be to adapt the Geostationary Operational Environmental Satellite-Puerto Rico Water and Energy Balance (GOES-PRWEB) model to the islands of St. Croix, St. John, and St. Thomas, USVI. The model provides 27 hydro-agro-climate map products to the public each day. Monthly and annual
averages and totals are also provided to the public via the website https://pragwater.com. Several model products are especially valuable for evaluating drought impacts, including the volumetric soil moisture saturation fraction, potential and actual evapotranspiration, and the crop water stress factor. The four models (PR, St. Croix, St. John, and St. Thomas) will be run under future climate conditions to evaluate future drought impacts on agriculture and water resources. Various meetings will be conducted with water resource stakeholders in the four islands to promote the use of the new products for drought and water resource evaluation.

- Dr. Francisco M. Monroig Saltar is working on a project to evaluate two commercially available alternative methods for harvesting coffee in Puerto Rico. Once the evaluation is completed, it is expected to be able to make recommendations and offer workshops on the correct use of these alternative harvesting methods.

6. Impact outcomes of research and creative work projects

The NSF CREST project, which is in its final year, has produced various impacts, including recommendations for the strengthening of the electrical infrastructure to enhance the resilience of the electric and water infrastructure under hurricane conditions.

7. Initiatives to involve students in research and creative work projects

There are three graduate students being supported by and involved in soil erosion research under the supervisory of Dr. Salvador F. Acuña-Guzman. The students are enrolled in the MSc in Soils program.

The projects of Dr. Harmsen (NSF CRISP, Hatch-402, and NOAA RISA) have involved the training of numerous students, including students from the City University of New York (CUNY).

8. Number of research collaboration agreements and brief description

NSF CREST is a collaboration with the City University of New York, New York University, and Arizona State University. We are also collaborating with the University of Alabama-Huntsville, Department of Atmospheric Sciences. The focus of the project is enhancing the resiliency of infrastructure in PR.

NOAA RISA is a collaboration with the University of Puerto Rico Medical Campus and numerous other universities including: CUNY, NYU, University Albany, University of the Virgin Islands, UPR-Medical Campus, and the University of Texas-Austin. The focus of this project is to enhance resilience to extreme weather hazards (flooding, drought, heat, landslide, etc.) within communities in the Caribbean Region.
Food Science and Technology Program

1. Quantity of external funds received, by source, for research and creative work
   Total funding from projects approved during 2022-23: $1,650,000.

2. Total number of proposals submitted and approved by department.
   Three (3) of the six (6) proposals submitted were approved.

3. Number of ongoing research and creative work projects.
   Aside from the recently approved projects, FST faculty worked on 18 projects as PI or Co-PI.

4. Brief description of new and ongoing projects with significant impact
   - Projects H-495 and H-523 (Dr. Chavez through the Ag. Experimental Station) study the nutritional and value-adding characteristics of root and tuber flours. Furthermore, she strives to develop bread, pasta, and extruded products from the resulting flours.
   - Projects H-512 and H-518 (Dr. Huertas through the Ag. Experimental Station) seek to establish controlled fermentation methods for specialty coffees and develop value-added products from the resulting fermented coffee beans.
   - Projects RIIA-22 and HIS-23 (Dr. Domenech through the Ag. Extension Service) seek to develop formal and non-formal education curricula to prepare the next generation of farm-to-retail professionals for the meat industry.
   - Project H-501 (Dr. Ponce de León through the Ag. Experimental Station) studies the manufacturing and marketability of value-added products using goat milk (and cow-goat milk blends).
   - Project Z-330 (Dr. Pérez through the Ag. Experimental Station) converted in-classroom CITA courses to online versions, enabling the establishment of the online master’s degree.

5. Number of research collaboration agreements and brief description (purpose, validity period, and agency name).
   A 4-year collaboration agreement is being processed with the University of Virgin Islands at Saint Thomas and Saint Croix. The agreement is part of a USDA-NIFA-funded project to develop a professional workforce for the meat processing industry.
6. Graduate assistantships for research and teaching (quantity and amount awarded).

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of teaching assistantships</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Total value of granted teaching assistantships</td>
<td>$69,700</td>
<td>$45,784</td>
</tr>
<tr>
<td>Number of research assistantships</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Total value of granted research assistantships</td>
<td>$33,100</td>
<td>$66,012</td>
</tr>
</tbody>
</table>

7. Origin of graduate students (OPIMI)
A total of 42 students participated in the graduate program during the academic year 2022-23. This number includes nine (9) admitted students, four (4) graduated, and 29 returning students.

Agricultural Extension Service

1. Quantity of external funds received, by source, for research and creative work
During the reporting period, a total of 15 proposals were generated, amounting to $1,339,213 in requested funds. Out of these, 11 proposals (73%) were approved ($1,366,188), 1 proposal (7%) was denied ($49,999), and 3 proposals (20%) are still in the evaluation process ($254,998).

2. Total number of proposals submitted and approved by department

<table>
<thead>
<tr>
<th>Amount</th>
<th>Status</th>
<th>Sponsoring Agency</th>
<th>Title of the proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>$13,500</td>
<td>Approved</td>
<td>USDA-NIFA</td>
<td>RREA FY2021</td>
</tr>
<tr>
<td>$14,919</td>
<td>Approved</td>
<td>USDA-FS</td>
<td>Promotion of Pollinator in The Rio Piedras Botanical Garden</td>
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<tr>
<td>$71,843</td>
<td>Approved</td>
<td>USDA-FS</td>
<td>Integrated Pest and Pollinator Management in Forests (IPPM)</td>
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<tr>
<td>$45,449</td>
<td>Approved</td>
<td>2023 Southern Research &amp; Education</td>
<td>Education and Conservation Practices for a Sustainable Agriculture in Puerto Rico</td>
</tr>
<tr>
<td>$474,999</td>
<td>Approved</td>
<td>USDA-NIFA</td>
<td>PRAES ARP Technical Assistance Investment Program: A Collaborative Project Between USDA and PRAES Extension Faculty as Cooperators to Increase Accessibility to Opportunities</td>
</tr>
<tr>
<td>$237,358</td>
<td>Approved</td>
<td>USDA-FS</td>
<td>Enabling climate-smart decisions for agriculture and forestry in Puerto Rico</td>
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<tr>
<td>$5,000</td>
<td>Approved</td>
<td>CORTEVA</td>
<td>4-H Bug Camp 2023</td>
</tr>
<tr>
<td>Amount</td>
<td>Status</td>
<td>Sponsor</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>$13,500</td>
<td>Approved</td>
<td>USDA-NIFA</td>
<td>Caring for Puerto Rico’s urban trees</td>
</tr>
<tr>
<td>$299,383</td>
<td>Approved</td>
<td>USDA-NIFA</td>
<td>Rehabilitation of disturbed urban soils for vegetable production in Tropical regions</td>
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<tr>
<td>$149,070</td>
<td>Approved</td>
<td>SubAward University of Florida</td>
<td>TomSPOT - an integrated toolbox for managing tomato bacterial diseases in North America.</td>
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<tr>
<td>$45,000</td>
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<td>National Agricultural Statistics Service</td>
<td>Data Collection of 2022 Census of Agriculture</td>
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<tr>
<td>$149,999</td>
<td>Pending</td>
<td>USDA-NIFA</td>
<td>Empowering Socially Disadvantage Meat and Dairy Ruminant Farmers</td>
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<td>$33,000</td>
<td>Pending</td>
<td>2023 Southern Research &amp; Education</td>
<td>Puerto Rico 2023-2024 MSP - Program Assistant</td>
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<td>$22,000</td>
<td>Pending</td>
<td>2023 Southern Research &amp; Education</td>
<td>2023 Puerto Rico’s Sustainable Practices Outreach</td>
</tr>
</tbody>
</table>

3. Brief Description of new and ongoing projects with significant impact

a. Project H505: Automated Feeding of Hairless and Non-Hairless Calves
b. CIAN 4026/4027: 12 undergraduate students conducting research
c. CIAN 6999: 6 graduate students conducting graduate research projects

4. Number of ongoing research and creative work projects

The total number of research projects managed by the Agricultural Extension Service during fiscal year 2022-2023 is 19.

5. Impact outcomes of research and creative work projects

a. Project: Use of Artificial Light and Nutrient Solutions for Off-Season Flower Induction in Dragon Fruit.
   ▪ Artificial light produced with solar energy for 5 hours per day in winter stimulates dragon fruit flowering in 27 to 28 days. Flowering and harvest were advanced by 6 weeks (from early April to mid-February).
During the natural flowering season, 5 hours of artificial light increased the number of flowers by 27 to 32 percent. Application of nutrient solutions high in potassium before flowering increased fruit size by 21 to 24 percent.

- The TeatScrubber improved teat condition and teat hygiene compared to traditional milking methods.
- The use of the TeatScrubber significantly reduced the occurrence of delayed milk ejection, resulting in an economic benefit of $60,108 per 100 cows annually.

6. Publications, presentations, periodic letters, and circulars

As part of the H505 project, 4 publications were made:

a. Characterization of rumen and hindgut microbial communities in Holstein Slick and wild-type calves in a tropical climate.
b. Effect of space availability on health, weight gain, and skeletal development in Holstein calves.
c. Average daily gain and skeletal growth of Holstein slick and wild-type heifers raised in a semi-intensive rotational grazing system.
d. Effects of an accelerated growth feeding protocol on body weight, skeletal development, and health score in Holstein slick and wild-type calves from birth to weaning.

Poster publications at the Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA) and the 3rd UPRM Research Fair included:

a. Effect of a semi-automatic teat washing system on the condition, cleanliness, and milk flow in dairy cattle
b. Association between the facial thermal profile, rectal temperature and respiratory rate in Holstein bovine neonates
c. Association between facial thermal profile and milk production level in Puerto Rican Holstein hairless dairy cows.

To strengthen formal teaching, non-formal teaching and research, the Faculty of the College of Agricultural Sciences submitted several submissions to journals, magazines and articles to different entities for publication. This includes publications in refereed journals, non-refereed journals, periodical letters and circulars. The researchers also made presentations in different forums related to agriculture. Attachment III contains the publications, Attachment IV shows the presentations and Attachment V breaks down the periodic letters and circulars.
7. Graduate assistanships for research and teaching

The faculty members of the PRAES served as chairs (n=25) or members (n=36) of graduate thesis committees, impacting approximately 75 graduate students. They also supervised 6 undergraduate special projects. A total of 69 assistantships were awarded, totaling $295,711 for the specified period.

Agricultural Experiment Station

1. Quantity of external funds received, by source, for research and creative work

<table>
<thead>
<tr>
<th>Agency/Entity Name</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institute of Food and Agriculture (USDA-NIFA)</td>
<td>$10,281,443</td>
</tr>
<tr>
<td>Department of Natural &amp; Environmental Resources/EPA</td>
<td>$2,904,999</td>
</tr>
<tr>
<td>Department of Agriculture – USDA</td>
<td>$1,020,170</td>
</tr>
<tr>
<td>Forest Service Research &amp; Development</td>
<td>$995,591</td>
</tr>
<tr>
<td>Other</td>
<td>$575,722</td>
</tr>
<tr>
<td>Department of Agriculture - Puerto Rico</td>
<td>$80,998</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$15,858,923</strong></td>
</tr>
</tbody>
</table>

2. Total number of proposals submitted and approved by department

<table>
<thead>
<tr>
<th>Department</th>
<th>Number of proposals submitted</th>
<th>Number of proposals approved</th>
<th>Number of proposals pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Agroenvironmental Sciences</td>
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<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Food Science and Technology (CITA)</td>
<td>1</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>Agricultural Economics and Rural Sociology</td>
<td>7</td>
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<td>4</td>
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<tr>
<td>Agricultural Education</td>
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<td>1</td>
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</tr>
<tr>
<td>Agricultural and Environmental Systems</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Number of new research and creative work projects

The Agricultural Experiment Station has 31 new research and creative work projects for fiscal year 2022-2023.

4. Number of ongoing research and creative work projects

The total number of research projects managed by the Agricultural Experiment Station during fiscal year 2022-2023 is 120.
5. Impact outcomes of research and creative work projects

a. H-94C - Plant Genetic Resource Conservation and Utilization of Banana and Plantain Dr. Martha C. Giraldo Zapata USDA Hatch $1,500 (2022-2023)
d. H-488 - Implementation of novel reproductive biotechnologies and genomics for the multiplication and commercialization of genetically superior Slick cattle Dr. Melvin Pagán USDA Hatch $200,000 (2017-2022)
e. H-502 - Fertility, yield, quality, and persistence of tropical improved grasses Dr. Alfredo Aponte USDA Hatch $200,000 (2019-2023)
f. H-503 - Evaluation of selected crop varieties and weed management practices for organic farming systems: integrating environmental, social, and economic dimension impact assessments Dr. Alfredo Aponte Zayas USDA Hatch $200,000 (2019-2023)
g. H-505 - Effects of using an automated milk feeder to deliver an accelerated growth feeding protocol on weight gain, feed efficiency, skeletal development, health status, plasma proteins, rumen microbiome Dr. Guillermo Ortiz USDA Hatch $200,000 (2019-2023)
h. H-507 - Reproductive Endocrinology and Liver Physiology of Slick Hair Holstein Cows Dr. Esbal Jiménez USDA Hatch $200,000 (2020-2024).

Project Objectives: To determine estrus and pregnancy rates after estrus synchronization in slick hair and wild-type cows. To determine concentrations of ovarian steroids (estradiol 17-B and progesterone) after estrus synchronization and during pregnancy in slick hair and wild-type cows. To determine if there are gene expression differences in the liver of slick hair and wild-type heifers.

i. H-509 - Fertility and embryo characterization of slick hair Holstein cattle. Dr. Verónica Negrón Pérez USDA Hatch $200,000 (2020-2024)

Project Objectives: The main objective of this study is to compare the fertility of slick hair Holstein cattle with wild-type cattle. This will be achieved by comparing differences in hormone concentrations, ovarian structures, and embryo development between slick hair and wild-type Holstein cattle.

j. ZDA-032 - Model dairy cattle program adapted to the tropics (Puerto Rican Slick Hair Holstein) and the creation of the Research, Reproduction, and Genetic
Propagation Center for Tropical Livestock. Dr. Verónica Negrón ADEA $750,000 (2019-2023)

Objectives: Develop a research, reproduction, and genetic propagation center for tropical livestock at the former facilities of the Gurabo Dairy Farm. (1) Replacement of wild-type Holstein cows with Puerto Rican Slick Hair Holstein cows. (2) Generation of Puerto Rican Slick Hair Holstein bulls with different genetic profiles. (3) Establishment of model dairy farms with Puerto Rican Slick Hair Holstein cattle tolerant to heat stress. (4) Distribution of semen straws from the SINBA-PELON bull to 25 selected dairy farms to increase the number of slick hair cows through artificial insemination in heifers.

k. C-517 - Experimental Organic Farm. Dr. Alfredo Aponte USDA $11,000 (2011-Present)

Objectives: Demonstrate the certification processes for organic agriculture through USDA to interested farmers, improve crop management techniques under the organic system, and promote organic agriculture through publications, demonstrations, validations, field days, and sale of certified organic seeds.

l. A-021 Experimental - Sales of Products from the Gurabo Experimental Farm. Agro. Ramón A. Couto Marrero Gurabo Experimental Farm (2018-Present)

Objectives: Generate funds for the maintenance and sale of varieties, crops, and seed propagation material.


Objectives: Management of slick hair heifers from RUM to promote their development and genetic improvement of the herd.

n. Florida Organic Growers - Southeast Regional Center For Organic Transition Dr. Julia O'Hallorans USDA NIFA $75,000 annually Gurabo Experimental Farm (2023-2028)

Project Objectives: Build a collaborative infrastructure in the Southeastern US to support and assist transitional organic producers.

o. We also mention that a project with Extreme Weather has recently been approved, led by Dr. Daniel Bair and in collaboration with Dr. Julia O'Hallorans, who will be working on the purchase and construction of a High Tunnel valued at
$60,000.00 for the development of indoor agricultural products in a controlled and protected area.

6. Number of research collaboration agreements and brief description

Isabela Substation has a collaborative agreement with the Medical Sciences Campus (Dr. Nicolas Linares) to offer therapies to children at the AES-Isabela through Agrotherapy. It also has an agreement with JoscoBravo for crop planting and educating farmers about ecological cultivation.

7. Publications, Presentations, Periodic Letters and Circulars

To strengthen formal teaching, non-formal teaching and research, the Faculty of the College of Agricultural Sciences submitted several submissions to journals, magazines and articles to different entities for publication. This includes publications in refereed journals, non-refereed journals, periodical letters and circulars. The researchers also made presentations in different forums related to agriculture. Attachment III contains the publications, Attachment IV shows the presentations and Attachment V breaks down the periodic letters and circulars.

H. To impact our Puerto Rican society

Faculty of Agricultural Sciences

Department of Agricultural Economics and Rural Sociology

1. Participation in community initiatives

Community service is an integral part of the work of our department staff. Again, during 2022-2023, the teaching staff continued to work on training and research initiatives to serve the most disadvantaged sectors with support from institutions such as NIFA, HATCH, Smith-Lever, PRPH Trust, OPPE, SARE, Women in Agriculture Initiative, among others. Our department offers different services for the benefit of the community through the Agricultural Extension Service by promoting the economic development of communities and the development of leadership and sustainable self-management initiatives.

100% of all faculty affiliated with CCA departments working in the Community Resource Development Programmatic Area (including the current Program Area Leader) come from our department. In collaboration with the Institute for Community Development of the RUM, we work integrated initiatives that pursue community development through service-learning initiatives.
Department of Agricultural Education

1. Participation in community initiatives

To offer the best of services to our university community, Mrs. Marie L. Rodríguez, participated along with other colleagues from the College of Agricultural Sciences in a Sign Language Training offered by the Dean of Students and the Office of Liaison with the Staff of the Mayagüez Campus, from May 16 to June 27, 2023, culminating one of the most important challenges, providing inclusion to the deaf community of Puerto Rico in university life, with the professional resource of Yamilette Luciano.

2. Projects developed to address community needs

As an initiative of the graduate student and his direction, the Agro. Bryan J. Hernández Aquino, proposed to the Faculty of Agricultural Sciences the creation of the Pre-University Program "Agriculture Week Challenge" with the objective that high school students explore and can consider as an alternative of study one of the 12 academic programs offered by the College of Agricultural Sciences; was held from June 12 to 16, 2023 and was attended by 57 high school students from 31 municipalities throughout Puerto Rico. Of these students, 46% of them had completed tenth grade and 54% eleventh grade.

- The format of the program was a hybrid one using practical, creative and fun activities.
- Faculty, non-teaching staff and undergraduates and graduates participated; uniting all the staff in one of the most successful camps the College of Agricultural Sciences has ever had.

3. Initiatives to promote an entrepreneurial mindset and leadership among students

a. Agro. Bryan Hernández as teaching assistant; motivated the students of the laboratory of HORT 4005-010L, to participate in Horticulture Exhibition: Art and Science, carried out in the second semester 2022-2023, where they exhibited their end-of-course works in MUSA, motivating the students to participate in activities in the university community.

b. Information and Photos in https://www.facebook.com/edaguprm/

4. Activities aimed at students and young people of school age

The AgyTu Visita tu Salón program, led by Dr. Edly Santiago, carried out activities in different public and private schools in the country and extracurricular activities for the promotion of the department. In the courses offered in the department, public schools are visited where students acquire knowledge and leadership.

During this academic semester 2022-2023, the students practicing the Agricultural Education Program, worked on the AGYTÚ Project, offering classes both face-to-
face and online. The project is coordinated by Dr. Edly Santiago Andino, Professor of the Department of Agricultural Education; it seeks to publicize everything related to the agricultural industry, its interrelations with humanity and natural resources. The educational activities developed by the practitioners integrated various academic areas such as: science, mathematics, history, among other subjects. AgyTű practitioners worked for eight weeks, presenting live agricultural literacy lessons to varying degrees. The material used was prepared by the students of Teaching Practice; reviewed and supervised by Dr. Santiago Andino. The lessons developed are creative and interactive so that participants learn without realizing it, because they work interacting and playing in the activities.

5. Dissemination of the institution's achievements and initiatives that benefit the community.

Through the official website of the department: uprm.edu/edag/; Instagram, Facebook and Twitter are promoted, the achievements, activities and work done in the department are presented. Through community leaders, identify, train and educate them, that they be that bridge to education in the field.

Department of Agricultural and Environmental Systems

1. Participation in community initiatives

- Dr. Eric Harmsen maintains and has improved the Geostationary Operational Environmental Satellite-Puerto Rico Water and Energy Balance ES-PRWEB. GOES-PRWEB provides daily values of thirty hydro-climatic variables in Puerto Rico (1-km spatial resolution) to the public at the web site: https://pragwater.com/goes-puerto-rico-water-and-energy-balance-goes-web-algorithm/.
- Dr. Eric Harmsen serves on the Puerto Rico Drought Scientific Committee. Estimates of soil moisture saturation, plant water stress, and rainfall deficit maps are provided to the Committee on a weekly basis to help assess the impact of drought in Puerto Rico.

2. Projects developed to address community needs

- Z-384 - Identification of critical contaminant sources and determination of nutrient import loads into the Carraízo Reservoir (CO-PI: Dr. Luis R. Pérez Alegria)
- Z-369 - Project based education via community engagement for disaster relief and resiliency. (Sub-contract: Dr. Luis R. Pérez Alegria)
- Z-355 - Implementation of a Water Quality Restoration Strategy at the San Juan Bay Estuary Watershed and the Rio Loíza (below dam) Estuary Contributing Zone (CO-PI: Dr. Luis R. Pérez Alegria)
- CRISP 2.0: Integrated Socio-Technical Modeling Framework to Evaluate & Enhance Resiliency in Islanded Communities (CO-PI: Dr. Eric W. Harmsen)
Agricultural Extension Service

1. Projects develop to address community needs

a. Project: Under the Community Gardens, 7 grants were awarded totaling $56,000 to community organizations for the construction, organization, and implementation of community gardens, food conservation and preservation, and training on solidarity economy.

b. Project: Socially Disadvantaged Farmers & Ranchers
   - Provided non-formal education and outreach in Spanish for farmers, ranchers, and fishermen.
   - In the period from 2020 to 2023, the following individuals were impacted:
     - Agribusiness - 3,646 people impacted and 127 hours of workshop contact
     - Grantmanship - 2,863 people impacted and 105 hours of workshop contact
     - USDA Programs - 1,489 people impacted and 24 hours of orientation contact
   - Provided technical assistance to approximately 100 farmers and fishermen to complete proposals such as the Re-Grow Program and Writing Business Plan.

c. Projects - Soil Resource (USDA NIFA)
   - Rehabilitation of disturbed urban soils for vegetable production in tropical regions.
   - Rapid response program to extreme weather events in food and agricultural systems.
   - Protecting urban Puerto Rican communities from food scarcity during and after hurricanes by facilitating urban garden development.

d. Project: Divided by water, united by need: IPM programs for PR & USVI
   - Presentations at SOPCA, APS.
   - Sweet Potato IPM Field Days.
   - Use of drones to estimate forage biomass in dairy farms.
   - Identification of whitefly species in ornamental nurseries.

e. Project: Integrated pest and pollinator management
   - Sampling of beetles in state forests.
   - Seed exchange fair.
   - Training for Forest Service personnel.

f. Project "Harvesting Our Future" Banco de Alimentos de Puerto Rico
   - Zero Hunger Initiative
   - Grant: $164,000
   - Completed kitchen and food storage area rehabilitation.
   - Purchased a transportation truck.
   - Distribution of over 17,000 hot meals to vulnerable families.
   - Distribution of over 3,600 boxes of agricultural products from farmers in the western region.

g. Project: "Food Systems Resilience in Coastal Communities: Fisheries and Aquaculture in PR" NOAA - SEA Grant
- Grant: $150,000
- Collaboration with the University of Vermont.
- Completion of consumer interviews on willingness to consume and pay for underutilized fish species and aquaponic products.
- Interviews with leaders of fishing villages on challenges and opportunities for establishing a non-formal education program on product and brand creation ("branding"), distribution, marketing, resilience planning, and support networks in the fisheries and aquaculture system.

h. As part of the educational strategies offered by PRAES, such as the workshop for the Pro Bienestar Association in Bo. Marias de Aguada
- Participants had the opportunity to see the cooking process and taste healthy recipes based on the foods from the "green box.
- This educational process led to the creation of 3 different recipe books.

i. Urban agriculture project developed by the "Centro Paso" in Aibonito
- 18 volunteer leaders were certified to develop the work plan and build the project.

j. Through the Agricultural Agents and Community Resource Development Educators participating in the Community Resource Development Education Program, the following achievements were reached:
- 78 leaders actively participated in designing and developing community projects.
- 23 communities took actions to meet their needs and improve their quality of life through community empowerment and self-management.
- 21 government agencies or other organizations collaborated in community development and organization.
- 204 individuals volunteered their time.
- 245 hours dedicated to voluntary work as community leaders.
- 2 communities organized for the preservation and conservation of coastal resources and other natural resources.
- 10 action plans developed and updated by community members to address a problem.
- 10 coalitions or support networks established in the community.

k. Project: Composting and Agricultural Water Management according to FDA's FSMA Law:
- 40 farmers, 34 agronomists from the Department of Agriculture, and 15 agricultural agents were trained in compost management according to the FSMA law.
- 90 farmers, 47 agronomists from the Department of Agriculture, and 15 agricultural agents were trained in agricultural water management according to the FSMA law.
- 13 friendly audits were conducted on participating farmers' farms.
- Participants were provided with 36-inch compost thermometers, water sampling equipment, pH meters for water, and other materials.
2. Initiatives to promote an entrepreneurial mindset and leadership among students

Career Exploration and Entrepreneurship:

a. 82 4-H members were trained in career exploration. These experiences were coordinated by teaching staff from the program units.
b. Through the Explora Project, 56 participants were trained. This project was created by extensionists to empower young people in making decisions related to education and the world of work.
c. Vive y Convive: First Volunteer Day of the Agricultural Extension Service with the participation of over 15 communities, a keynote conference through Facebook Live, and the edition of the PRAES magazine dedicated to our volunteers.

3. Activities aimed at students and young people of school age

a. Equity and Social Responsibility Training: 106 young people were trained in leadership and community service.
b. 3rd Edition 4-H Bug Camp 2022:
   - Mission: To educate young people about the importance of insects and their ecological role on the planet, creating awareness about the importance of conserving and protecting nature.
   - 15 young people from different parts of the island participated.
c. Educational event "Together... for the greater well-being of our communities" in Patillas:
   - 75 families benefited from hot meals and essential items.
d. Service at Hogar Padre Vernard:
   - 75 homeless individuals received essential items, youth leaders offered a handwashing workshop as a preventive measure, and volunteered time to serve food and organize the pantry.
e. Project: "Harvesting the well-being of our childhood, Barrio Marías de Aguada Community":
   - Puerto Rico Food Bank: ✓ Zero Hunger initiative and a grant of $10,000.
   - 15 family gardens were established, led by children from the Aguada community.
f. Painting for Others:
   - 10 young people completed a course in interior design with the aim of putting their skills into practice in social responsibility initiatives, particularly in homes for the elderly, child care centers, blind and deaf populations.
g. DropBox 4-H:
   - Drop boxes were established in various municipalities. The collected items were shared with homeless individuals and other vulnerable audiences.
h. Teen Leading Change:
   - Food Access and Wellness: 4-H College Students Working Together on Health Equity:
National Council approved $1,500.


i. Equity 4-H Challenges:
The Programmatic Area is invited to validate a guide for national equity, diversity, and inclusion work.

j. 4-H Open House:
  - Participation of 125 4-H members and young people. This activity provided an opportunity to learn about the academic offerings of the PRAES.
  - University students and university partner members are recruited during the open house to support various mentoring initiatives, peer education, and vocational exploration.

k. 4-H Science, Engineering, and Technology Educational Program:
  - 1,274 participants acquired knowledge in food safety systems.
  - 697 participants in the plant curriculum area.
  - 303 participants in the animal curriculum area.

l. 4-H Participation in STEM Events:
  - Educational Program at the Eco-Exploratory, Science Innovation Week.
  - Bug Camp, Bee Team.
  - Ignite 4-H.
  - 4-H visits to innovative agricultural technology companies.
  - International Day of Forests - El Yunque.

m. Pollinators Garden
   4H Youth participated in the fair as educators in the community

n. 4-H Bee Team
   - 15 youth completed 45hrs of non-formal education in beekeeping
   - This initiative is supported by a multidisciplinary team of specialists from the PRAES, agricultural agents, CFC educators, and volunteers from the beekeeping company.

o. 4H Bug Camp
   Fifteen young people completed non-formal education in entomology, and two students decided to continue their studies at university in fields related to this field.

p. Career Exploration and Entrepreneurship
   - 82 4-H members were trained in career exploration. These experiences were coordinated by teaching staff from the program units.
   - Through the Explore Project, 56 participants were trained. This project was created by extensionists to empower young people in making decisions related to their studies and the world of work.

q. 4-H Open House
   - Participation of 125 4-H members and youth, this activity offered the opportunity to learn about the academic offerings of the SEA.
   - During the open house, university students and 4-H university members are recruited to support various mentoring, peer education, and vocational exploration initiatives.

r. Healthy Lifestyles
This educational area includes topics such as early prevention of alcohol and drug use, and personal hygiene: 944 participants.
Nutrition and Physical Activity: 1,196 participants.
Food production for individual and family consumption: 414 participants.

s. 4-H Pathway:
- 1,294 participants completed non-formal education in healthy lifestyles.
- 35 youth leaders were trained to expand educational outreach in healthy lifestyles.
- Five (5) youth leaders represented Puerto Rico at the 2022 Healthy Living Summit.
- Three (3) youth leaders (4-H Pathway) participated in the 2023 Ignite 4-H event in Washington, DC.
- Two "Farm to Table" events were held with the 4-H Pathway.

OYE...Opportunity for Youth in Equity
- This initiative was created to include the deaf community in 4-H educational work.
- The OYE-PR teams have participated in the True Leaders Equity Institute (TLEI), sponsored by the National 4-H Council. The 2022 team received $1,500 to develop an inclusion project within 4-H. Amanda Pérez, a member of the OYE team, was invited to deliver a motivational presentation at TLEI 2022.
- Currently, 7 new 4-H members are undergoing certification in a basic sign language course.
- OYE Projects:
  ✓ OYE Filmmaking team
  ✓ OYE+...more than signs
  ✓ OYE...Kids, teens, and more

Agricultural Experiment Station

Adjuntas Substation

In the Adjuntas Substation, since the opening of the Experimental Stations in July 2020, and throughout the year, the Substation is accessible to be visited by students and the general public, who are provided with guidance on various matters related to coffee and citrus cultivation in the mountain region. Two workshops on coffee cultivation for farmers have been held. Additionally, we have received groups of 4H students who have been oriented on beekeeping methods.

Corozal Substation

In the Corozal Substation on February 9, 2023, more than 90 people from various universities in the United States and South America gathered at the Corozal Agricultural Experimental Station.
During February 7-9, 2022, the "2023 National Education Conference" was held at the Embassy Suites Hotel in San Juan. The IR-4 program was part of the conference. As part of the conference, a guided tour of the Corozal Agricultural Experimental Station was organized by Dr. Wilfredo Robles in coordination with Agro. Luis Almodóvar, the station's administrator. The guided tour included educational interventions by Dr. Edda Martínez, Dr. Dania Rivera, Dr. Sofia Macchiavelli, Prof. Delvin Fernández, and Prof. Salvador Baiges from the Agricultural Extension Service.

a. USDA PPQ technicians visit us throughout the year to monitor pests in the area, and the Corozal Agricultural Experimental Station is a strategic location where traps are undisturbed, allowing them to continue monitoring pests.

b. USDA TARS has a presence at the Corozal Agricultural Experimental Station for evaluating tropical crops in the mountain region, such as breadfruit, rambutan, and cocoa, among others.

c. The Mayagüez University Campus Seismic Network maintains new sensors for the seismograph located at the Corozal Agricultural Experimental Station.

d. NRCS maintains a satellite meteorological station at the Corozal Agricultural Experimental Station, where the soil in the area is characterized.

**Juana Díaz Substation**

In the Juana Díaz Substation, initiatives were carried out to promote values of ethics, justice, and honesty, such as:

a. The use of our facilities for workshops, talks, and training for farmers and extension agents.

b. The Disease Diagnosis Clinic continues to provide important services by conducting tests for the benefit of farmers throughout the island.

c. The Disease Diagnosis Clinic, the Entomology Laboratory, and the experimental farm at the Agricultural Experimental Station continue to receive graduate and undergraduate students to conduct research and fulfill semester and summer internship requirements.

**Gurabo Substation**

In the Gurabo Substation, Project ZDA-032 involves three important components: faculty, the Agricultural Experimental Station, and the Agricultural Extension Service of UPRM, to address the needs of students, researchers, and farmers. This project includes activities aimed at benefiting the community. In April 2023, the 2023 Dairy
Cattle and Forage Companies Meeting was held, organized by PRAES at the Gurabo AES facilities, where students and researchers presented their findings from substation projects. Discussions were held with farmers and members of the Puerto Rican Dairy Industry. Additionally, Dr. Alfredo Aponte and Dr. Verónica Negrón attended and participated in the aforementioned meeting held in Hatillo and San Sebastián to impact other regions. Furthermore, Station researchers presented their projects at the Select Seed activity held at UPRM. As an informative method for showcasing achievements and research carried out at the Gurabo AES, pamphlets and informational materials were distributed. Also, as part of this activity, fruits and seeds produced at the substation were sold. We are working on the "Center for Disaster and Philanthropy," the Habichuelas Seed Validation and Increase Project, and the Sustainable Agriculture Course for agricultural agents and farmers. These are collaborative projects between AES and PRAES, directed by Prof. Nicolás Cartagena and Dr. Alfredo Aponte.

To promote values of ethics, justice, and honesty, and to engage in activities with students and young people of school age, the Gurabo AES collaborates with the Boy Scouts of America organization and the 4H Agricultural Extension Service Group, lending its facilities and offering workshops (Sponsored by Troop 432 - Gurabo; Collaboration with Pack 241 Bayamón - Pack 591 Caguas - Troop and Pack 317-San Juan). Various Eagle Projects, such as the installation of signs and garbage cans in different areas, have been carried out as leadership activities. Additionally, handwashing stations have been installed in work areas such as the dairy, workshop, and activity ranch, among others.

Isabela Substation

In the Isabela Substation on January 11, 2023, we hosted a group of agrotherapy led by Dr. Nicolas Lynares. On February 2, 2023, we hosted a group of students from the Juan Lino Santiago School 4H Club in Aguada, led by teacher Kaila Ruiz. On February 7, 2023, we received the President of the University of Puerto Rico, Dr. Luis Riau. We had the opportunity to visit different experiments and explain our goals. On February 10, 2023, we conducted a tour of the ongoing experiments with participants from the agrotherapy workshop. On March 8, 2023, we received around 75 farmers from all over Puerto Rico and offered a workshop on bean cultivation from the Hortalizas y Granos Básicos company. We had the opportunity to visit the bean research plots. On March 24, 2023, a workshop related to the cultivation of taro was held, impacting dozens of farmers. The use and implementation of the "Sign Request" program is a highly useful process for our institution. Using this platform helps us acquire the necessary signatures without having to send documents through mail or deliver them in person.
It translates into efficiency and, combined with other technological methods such as email, has reduced the need to focus and utilize fewer resources in these aspects.

**Lajas Substation**

In the Lajas Substation, the following activities were carried out, impacting the community:

- July 8-10, 2022 - Camp of Boy Scouts Crew 276.
- August 1 - activity of the College of Agronomists - recognition of women agronomists.
- December 16-18 - camp of Troop 276 from Sabana Grande.
- February 8 - visit from students of the Inmaculada Concepcion Academy in Mayagüez, 19 students.
- February 13, 2023 - Visit from professionals and professors from Cornell, New York, to learn about our facilities, 25 people.
- February 24, 2023 - visit from students of the Bautista College in Yauco.
- March 17, 2023 - visit from students of the Ponce School.
- May 5, 2023 - visit from students of the Segundo Ruiz Belvis School in Hormigueros, 40 students from ninth and tenth grade.
- May 24, 2023 - Visit from Ramon Olivares School in Lajas, where students aged 8 to 12 with an interest in agriculture and livestock visited. A tour and talk were offered to 50 students that day.
- On June 9, we will have a visit from 20 people from the Department of Justice, from the Mayaguez Court, where we will attend young people who have been released from prison and are in a community restoration program. The visit includes the Judge, prosecutor, social worker, and other professionals from the project.

I. To strengthen school spirit, pride, and identity

**Faculty of Agricultural Sciences**

**Freshman Week 2022-2023.** On Friday, August 5, 2022, in P-213, the students participated in various academic and university student life orientations. They had the opportunity to meet the board of directors of the College of Agricultural Sciences, directors of academic departments, academic advisers, and staff. Following that, the students were grouped by departments to receive tailored academic orientation with the specifics of each academic program.

**Recruitment activities.** As part of the promotional and recruiting efforts of the University of Puerto Rico at Mayagüez (UPRM), the Faculty's Student Affairs Officer
actively participated in orientations and school visits with the UPRM Admissions Office during the first semester of 22-23.

**Seniors EXPO Portal del Sol.** The event, targeting high school students, took place on November 2-3, 2022, at the Mayaguez Sports and Recreation Coliseum. Coordinated by Central Administration, the activity involved various universities within the system. The UPRM Admissions Office facilitated the participation of the faculties of ADEM, INGE, ARCI, and CIAG. Over the course of the two-day event, professors, students, and staff from the Faculty of Agricultural Sciences provided information about the academic programs offered by the College of Agricultural Science.

**UPRM Open House.** This event took place on November 10, 2022, and attracted approximately 3,200 visitors, including 2,900 students. The Faculty of Agricultural Sciences was well-represented with its five departments and 13 academic programs. High school students had the opportunity to engage with and receive guidance from directors, professors, graduate students, and staff regarding the faculty's programs, extracurricular activities, employment opportunities, and graduate studies.

**The SUMM: Students Experience Summit 2022.** This special event was held on November 30 and December 1, 2022, at the Puerto Rico Convention Center. The Faculty of Agricultural Sciences actively participated with representatives from the departments of Agricultural Economics and Rural Sociology, Agricultural and Biosystems Engineering, and Animal Science. The primary objective of the activity was to offer students dynamic experiences where they could interact with professionals from various careers related to their interests and academic aspirations.

**Honor Students 2022-2023.** On January 26, 2023, the Faculty of Agricultural Sciences held an event to acknowledge and honor 157 students who had fulfilled the requirements set by the Academic Senate to be recognized as honor students at the conclusion of the 2021-2022 academic year.

**Associations**

**Associations Fair.** On February 2, 2023, an initiative led by the Student Council of the Faculty of Agricultural Sciences (CEFCA) aimed to promote awareness of the various student associations within the faculty. The primary objective was to highlight the benefits and extracurricular experiences these associations offer to the students.

**Open House-4H Clubs.** In collaboration with the Agricultural Extension Service, the Faculty of Agricultural Sciences organized an open house on February 10, 2023, specifically aimed at young individuals affiliated with 4-H Clubs. The objective of the event was to provide guidance to high school students regarding potential career paths
in the field of agricultural sciences. Approximately 170 students from elementary, middle, and high schools attended the open house.

**Graduate Studies Fair.** On March 17, 2023, in coordination with the UPRM Graduate Studies Office directors, professors, graduate students, and staff from the Faculty of Agricultural Sciences provided comprehensive information about the master's programs and opportunities (internships, financial aids, among others) offered by the faculty of the College of Agricultural Science.

**Graduating Class 2022-2023 Faculty of Agricultural Sciences.** On June 8, 2023, the Faculty of Agricultural Sciences will hold a ceremony to honor and recognize the achievement of 231 students who have successfully fulfilled the requirements to obtain their bachelor's and master's degrees.

**Agriculture Week Challenge.** An interactive summer camp for high school students is scheduled to take place from June 12 to 16, 2023. Approximately 55 students from both public and private schools will be participating in the camp. The primary objective of this program is to provide students with the opportunity to explore the vast diversity and various career opportunities within the field of agricultural science.

1. **Collaboration Agreements with government agencies, the private sector, and various entities (FAC, AES and PRAES)**

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<td>Department of Agriculture (ADEA)</td>
<td>07/28/22 – 06/30/23</td>
<td>Agricultural Extension Service – Certified Course for the Application of Restricted Use Pesticides Prof. Raúl A Pérez Rivera – Program Coordinator</td>
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<td>Fondo de Innovación para el Desarrollo Agrícola de Puerto Rico (FIDA)</td>
<td>12/14/22 – 06/30/23</td>
<td>Agricultural Experiment Station – Initiative for training farmers on issues of compost and water use. Prof. José Zamora – Project Leader</td>
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<td>Centro Parroquial de Ayuda Social (PASO), Incorporado</td>
<td>12/05/22 – 06/24/24</td>
<td>Agricultural Extension Service - ‘Community Gardens Project 2022’ USDA, NRCS Dr. German Ramos Cartagena – Project Leader</td>
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<td>Producir, Inc. Una Corporación de Desarrollo Comunal y Económico para Cubuy y Lomas</td>
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<td>05/22/23 – 05/29/24</td>
<td>Agricultural Extension Service - ‘Community Gardens Project 2022’ USDA, NRCS Dr. German Ramos Cartagena – Project Leader</td>
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### Department of Agroenvironmental Sciences

#### 1. Activities of student organizations

Horticulture Student Association and Crop Protection Student Association conducted their Initiation ceremony. In addition, the students for both associations were involved in the organization and participation of the 2023 Seed Exchange Fair. The Seed Exchange Fair is open to the community and was in the Pollinator Garden located at the Alzamora Farm, University of Puerto Rico at Mayaguez. The Horticulture Student Association organize a conference open to the university community on Recycling and Residues Management.

### Department of Agricultural Economics and Rural Sociology

#### 1. Improvement in services offered to students.

- Enrollment process: orientation and academic counseling through different platforms: Google Meet, TEAMs, email, phone, etc. Enrollment settings through ajustes@uprm.edu.
- Other platforms and assistive technology: Institutional Moodle, Facebook Live
We continued to update the information on our website so that the academic curricula for agricultural economics and agribusiness are up-to-date and serve as a guide for students.

2. Activities of Students organizations

- **Third Congress of Applied Economics**
  The Department of Agricultural Economics and Rural Sociology and the Association of Agricultural Economics and Agribusiness (AECAG) organized the **Third Congress of Applied Economics**, on Friday, May 5, 2023, in the Tarzan Room of the Student Center, Mayagüez University Campus. Under the theme: "Fiscal Crisis: Challenges and Opportunities in Family Markets", the congress provided a meeting place for academics, students and other professionals to share and present recent research in applied economics.

  Prensa RUM shared the following report:  
  [https://www.uprm.edu/portada/2023/05/25/celebrantercercongresodeeconomiaaplicada/](https://www.uprm.edu/portada/2023/05/25/celebrantercercongresodeeconomiaaplicada/)
  - Workshops coordinated by the Association of Agricultural Economics and Agribusiness
    - Taller de Permisos Básicos Agrícolas – November 22, de 2022
  - RUM Open House - November 10, 2022
  - Open House 4 – H – February 10, 2023
  - Initiation Ceremony and New Board Election – Agricultural Economics and Agribusiness Association - April 19, 2023
  - Graduate Studies Fair 2023 - March 17, 2023
  - Agriculture Week Challenge - June 12-16, 2023

3. Activities to promote links with alumni

- Through the Association of Students of Agricultural Economics and Agribusiness we try to maintain links with alumni in different educational activities.
- Through Summer Internship, we contact alumni who are currently working in agricultural agencies or companies.
- Through our website, several alumni have called us to ask about departmental projects and initiatives.
- We maintain contact and communication with graduates who are currently working in the United States.

4. Donations received from alumni

- Agro Services – Agro. Peter Vivoni - $200
- Brain Freeze LLC. – Agro. Samuel Pérez - $200
5. Collaboration agreements with government agencies, private sector and various entities

- Supermercado Selectos donates $10,000 to UPR-RUM to promote Selected Seeds and research

As part of the commitment of Supermercados Selectos has established a campaign to strengthen the food security of the people of Puerto Rico and support the College of Agricultural Sciences University of Puerto Rico, Mayagüez Campus in several strategic projects that will contribute to the health and well-being of the population in general. The projects supported were the following:

- Agricultural Experimental Station Select Seed Project: $10,000.
- The Third Congress of Applied Economics under the slogan "Challenges and Opportunities of Family Markets: $3,000.
- The research "Food Security in Puerto Rico" by Dr. Julio César Hernández, Professor Attached to the Agricultural Experimental Station: $7,000.
- Review by Press RUM: https://www.uprm.edu/portada/2023/05/25/selectosofrecedonativoalrum/
Puerto Rico and the Virgin Islands should receive after implementing conservation practices. There is a need for these values to be more real and consider Puerto Rico's idiosyncratic factors. The results were very favorable and the possibility of working on a pilot plan in Puerto Rico was opened, with a view to scaling to the rest of the territories and perhaps in the future at the national level. In addition to Dr. Barriga, Dr. Julio César Hernández and Dr. Héctor Tavárez participated. From NRCS Nacional we were visited by Sheila Scott Boykin and Douglas Vik with their working group (3 to 5 officials) and from NRCS PR, Mario Rodríguez and Francisco Rivera. Also present was Julian Lamadrid, graduate student of Agricultural Economics.

- Professional Practices in Agricultural Economics and/or Agribusiness
  Thirteen (13) undergraduate students did professional internships in private companies and/or agencies.

- Project Z-373: Using Distance Education to Enhance Aquaponic Production in PR's Model
- Project Food Systems Resilience Coastal Communities: Fisheries & Aquaculture.
- Project Seeding Food Resilience Through Anchor Institutions (UPRM-UVM)

**Department of Agricultural Education**

**Activities of student organizations**

- **FFA:**
  - The FFA Alumni Collegiate chapter the New Members Initiation 2023, on Friday, May 19, 2023, at 5:30 pm, at the San Romualdo Community Activities Center in Hormigueros. The activity had the purpose to motivate new members and that active members renew their commitment to the organization.
  - On April 16, the CAAM Parents Association (APCAAM) received the members of the Collegiate Chapter of the Future Farmers of America, FFA Collegiate UPRM, where they demonstrated how the FFA chapter contributes on being a the positive influence on the members and the community, contributing to the development of skills, leadership, academic and professional development through agricultural education.
  - They participated on February 2 on the Agricultural Sciences Association Fair with the purpose that students discover all the opportunities and benefits that the chapter has for them.
Department of Agricultural and Environmental Systems

1. Activities of student organizations
   - During the second semester, Prof. Héctor O. López began the reorganization of the departmental student association AESA (“Asociación de Estudiantes de Sistemas Agroambientales”)
   - A confraternization was organized with the students and professors of the department on the occasion of Valentine's Day.

2. Activities to promote links with alumni
   A meeting was organized with alumni Ramón A. Rodriguez and the College of Agricultural Sciences directors to discuss employment opportunities in the Nationals Appeals Division of the USDA.

3. Activities aimed at the community in general
   - Participation in the “Feria Seniors” at the Puerto Rico Convention Center on September 28, 2022 to promote College of Agricultural Sciences academic programs.
   - Participation in the UPRM Open House on November 10, 2022 to promote the academic program.
   - Participation in the 4H Open House held at the Jesus T. Piñero Building on November 29, 2022.
   - Orientation to a group of 19 high school students from the Inmaculada Concepción Academy about the academic program at the Department of Agricultural and Environmental Systems.

4. Activities aimed at the university community
   The Department participated in the College of Agricultural Sciences Honors Students Recognition Activity on Thursday, January 26, 2023.

5. Improvements to infrastructure and buildings
   - Replacement of illumination in classrooms, offices and laboratories.
   - Roof temporary impermeabilization repair (leaks)
   - Department exterior painting including windows and doors (interior/exterior).
   - Replacement and upgrade of internet infrastructure (wired and wireless) from 400 Mbps to 1 Gbps.
   - Replacement of 21 computers in the computer center
   - Floor tile replacement in classroom and professors' offices.

Food Science and Technology Program

1. Improvement in services offered to students
   Continued facilitating access to facilities and technology in support of students' research projects. Establish a distribution list to facilitate the dissemination of jobs, internships, and other opportunities, as well as administrative information.
2. Activities of student organizations
At least one confraternization event per semester at the FST facilities to close bonds between the FST community (i.e., students, faculty, and other personnel).

3. Activities to promote links with alumni
Maintain a Facebook page to post FST events, achievements, and job opportunities.

4. Improvements to infrastructure and buildings.
Refurbishing of the food chemistry laboratory located at the Chemistry Building.
Replacement of A/C unit on the second floor.

Agricultural Experiment Station

Corozal Substation
At the Corozal Substation, the staff is kept informed about the protocols to follow during the COVID-19 pandemic, and the necessary safety materials and equipment are provided.

Juana Díaz Substation
At the Juana Diaz Substation, a Thanksgiving lunch was held, involving all staff members following the COVID-19 protocol. The sale of fruit trees, fruits, and seeds to the general public continues.

Gurabo Substation
In the Gurabo Substation, to promote a sense of belonging and to work directly with UPRM students, a visit and tour of a group of students from the Animal Science Program was organized in March 2023. As an activity aimed at the general community, we share examples of activities, meetings, and projects carried out at the AES Gurabo on our social media platforms on a weekly basis. Gurabo AES members have also participated in other activities and forums where they have presented their projects and achievements, fostering their college pride. Weekly, members of the community visit seeking information on various agricultural topics and the work carried out at the AES. Additionally, as part of promoting and strengthening local agricultural pride, sales of agricultural products harvested at the Gurabo AES are conducted. We collaborate with the Boy Scouts of America, specifically with Troop 432, based at the Gurabo Substation. To maintain connections with alumni, they are kept informed and contribute their ideas to the research staff at the substation. Some of the AES customers and buyers are alumni who choose us because they are familiar with the quality of the Gurabo Substation's products. We maintain active collaboration with the Department
of Agriculture of Puerto Rico through Project ZDA-032, which promotes the genetic improvement of tropical dairy cattle through the use of the identified and studied "pelona" cow by professors and researchers from the Animal Science Program at UPRM. We work with the NRCS through the Improved Tropical Forage Validation and Production Project. We also have the Certified Organic Farm of the University of Puerto Rico (Project C-517) where different varieties of agricultural products are developed.

As part of infrastructure and building improvements, two air conditioning units were acquired for the Conference Room in the Administration Building. The office of the Reproduction Laboratory was furnished. The roof of the Sample Processing Laboratory was waterproofed, and the area was optimized for more efficient operation. Additionally, as recent improvements, a project with Extreme Weather, led by Dr. Julia O'Hallorans with Dr. Daniel Bair, has been approved. They will be working on the construction of a $60,000.00 "High Tunnel" for the development of indoor, controlled, and protected agricultural products.

Isabela Substation

In the Isabela Substation on February 2, 2023, we attended a group of students belonging to the 4H club from Juan Lino Santiago School in Aguada, led by teacher Kaila Ruiz. On February 7, 2023, we received the president of the University of Puerto Rico, Dr. Luis Riau. We had the opportunity to visit the different experiments and explain our goals to him. On May 3, 2023, we received a visit from the 4H club led by Professor Yolanda Muñoz Guevara from Castillo Bilingual School with volunteer Mrs. Maricruz Roig Bernardi.

Lajas Substation

At the Lajas Substation, the "High Tunnel" greenhouse, which was affected by Hurricane Fiona, was repaired. It is used for vegetable projects in our substation. The polypropylene roof of the plant and tree nursery, used for seedling propagation for sale and plants for seed extraction in the Select Seeds program, was reconstructed. The automated system of the milking room in the Dairy Farm was updated, including its software program.
J. International Activity

Faculty of Agricultural Sciences

1. Number of international students in the department/faculty

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<tr>
<th>Department/Program</th>
<th>Undergraduate</th>
<th>Graduate</th>
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<td>Food Science and Technology</td>
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<td>Agricultural Economics</td>
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<td>Animal Science</td>
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*Data collected from OPIMI

2. Number of international faculty in department/faculty

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<tr>
<td>Agricultural Engineering</td>
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<tr>
<td>Agricultural Economics</td>
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</table>

*Data collected from OPIMI

Department of Agroenvironmental Sciences

1. Number of international students in the department
   - Graduate students from Colombia, Costa Rica, Haití, Honduras and Dominican Republic - 9

2. Number of international faculty in department - 8

Department of Agricultural Economics and Rural Sociology

1. Number of international students in the department - 2 international students (Haiti)

2. Number of international faculty in department – 1

3. Publications with international co-authors


4. Collaborations resulting in internships or exchanges in other countries

- Project Seeding Food System Resilience in Puerto Rico

As part of the work scheduled in this Project, on Wednesday, June 7, 2023, in room 216 of Building C at UPRM, the visit of R. Leah Pryor, Executive Chef Manager and Co-Founder of the Culinary Medicine Program at the University of Vermont Medical Center, was coordinated. Leah was sharing her experiences as a manager of "Farm to Table" and "Farm to Institution" initiatives. Under these initiatives, UVM Medical Center has become a leader not only in an institutional food model based on food as a source of well-being, but also as the main precursor of agroecological agriculture in the State of Vermont through supporting local food production.

5. Participation in international conferences, symposiums, forums, or seminars

- Conference: “Overcome the emergency by protecting your agribusiness”
The Project “Risk Management and Emergency Preparedness in Puerto Rico Phase II” sponsored this conference, which was held on Wednesday, June 14, 2023, at the Holiday Inn facilities in Mayagüez. Several Faculty personnel from our department participated.

Dr. Alicia V. Barriga made presentation entitled “The Brazilian Health Care Reform and Malaria in the Amazon”
12-15, April 2023, in New Orleans, Louisiana

- Development Studies Association (DSA) Annual Conference 2023, University of Reading, Reading, UK.
Dr. Alicia V. Barriga made presentation entitled “The role of community energy projects post-disaster”

6. Study trips to other countries organized by the department

- Study trip to the Republic of Mexico

Ana Sofia Torres Sifre, an undergraduate student of Agribusiness, she was participating in a study trip to the Republic of Mexico as part of the CIAN 4027
course. The trip took place from May 3 to 7, 2023. The activity was part of an educational project funded by USDA-NIFA.

- **National Competition *Future Farmers of America* (FFA) – Oct. 27, 2022**

Paola M. Santiago Santiago, an undergraduate student of Agribusiness, she was participating and accompanying the student delegation of Puerto Rico at the 95th National Convention and Exposition of the student organization Future Farmers of America in Indianapolis, Indiana. In the Dairy Cattle Evaluation and Management competition they won silver as a group and individually, Paola won gold. In addition, he represented the chapter of the Soller Agricultural Vocational School. I attach the link of the two reports:

- [https://www.metro.pr/noticias/2022/11/03/se_destacan_estudiantes_de_escuelas_publicas_en_competencia_de_futuros_ganaderos_en_estados_unidos/](https://www.metro.pr/noticias/2022/11/03/se_destacan_estudiantes_de_escuelas_publicas_en_competencia_de_futuros_ganaderos_en_estados_unidos/)
- [https://wipr.pr/educacion_reconoce_a_estudiantes_ganadores_de_competencia_de_futuros_ganaderos_en_eeuu/?fbclid=IwAR16o0qwyCb0-b80g20eh-sre8clxbRjWi4Xprh67fO0SnlKiqILctD38hU](https://wipr.pr/educacion_reconoce_a_estudiantes_ganadores_de_competencia_de_futuros_ganaderos_en_eeuu/?fbclid=IwAR16o0qwyCb0-b80g20eh-sre8clxbRjWi4Xprh67fO0SnlKiqILctD38hU)

- **Official trip project closure enhancing food resilience as disaster preparedness**

Trip of Dr. Robinson Rodríguez, Drs. María C. Rodríguez and Alexandra Gregory, graduate students Neishaly Serrano Cortés and Valéry Desravins, as well as the farmer advisors of the project, Ms. Vanessa Ramirez and Eng. Neftalí Lluch to the conference mentioned in the matter, which was held in the cities of Burlington and Montpellier, Vermont from July 9 to July 16, 2022.

7. **Courses with international collaborators**

- **INTD 4000-001P: CONGRESSIONAL INTERNSHIP CORDOVA PROGRAM**
- **INTD 4010-001P: ACADEMIC SEMINAR - WASHINGTON CENTER**

Jean L. Rodríguez Ruiz, an undergraduate student of Agribusiness, was selected to participate in the Córdova y Fernós Congressional Internship in Washington DC, during the Second Semester 2022-2023. The Internship lasted fifteen (15) weeks, during the Second Semester 2022-2023. The three (3) main components of the program are: a work experience of four (4) days of the week, seminars one (1) day of the week and an academic course that met once a week. In addition, the student performed social service hours during the semester and presented a Wellness Project for Puerto Rico at the end of the Internship.
Department of Agricultural Education

1. **Number of international students in the department** – one graduate student from Haiti.

2. **Participation in international conferences, symposiums, forums, or seminars**
   
   
b. Dr. Roberto Rigau Llorens attended the 2022 Society of Research Administrators International (SRAi) Annual Meeting, an annual conference held from October 31 to November 5, 2022 in Las Vegas, Nevada.
   - The External Resources Unit of the Agricultural Extension Service (SEA) is an active part in obtaining and administering competitive funds in the SEA. In addition, he advises the office of Dean Director of the College of Agricultural Sciences, the Office of Research of the Agricultural Experiment Station and administrative offices among others on matters related to federal funds.
   - The trip is based on the Work Plan submitted to USDA-NIFA that includes from 2022 to 2026 where the administration of the College of Agricultural Sciences incorporates not only the administration of the "Capacity Grants" but also of competitive proposals being USDA-NIFA the main source of these external funds.
   - The conference provided an opportunity to participate in presentations, workshops, roundtable discussions, and share management best practices in the areas of budgeting, finance, proposal management, human resource management, civil rights, and diversity; Professional development, guidance and information shared by resources and participants from different institutions of higher education in and outside the United States.
Department of Agricultural and Environmental Systems

Participation in international conferences, symposiums, forums, or seminars

ASABE Soil Erosion Research Symposium, Dr. Eric Harmsen, Dr. Salvador F. Acuña-Guzman

Food Science and Technology Program

1. Number of international students in the department/faculty - 3
2. Number of international faculty in department/faculty - 1
3. Participation in international conferences and similar events - 2

Agricultural Experiment Station

Corozal Substation

At the Corozal Substation, a poster titled "Approaches to support new herbicide tolerances and registration on tropical fruits and vegetables" was presented at the HDD 2023 2nd Herbicide Discovery & Development conference at Curtin University in Perth, Australia. Additionally, courses were conducted with international collaborators. A Good Laboratory Practices (GLP) course was organized for professors from the University of Bogota in Colombia. They visited us for a week and received intensive training on equipment calibration, handling of test substances, handling, and processing of samples after harvest, and shipment of samples with dry ice.

Isabela Substation

At the Isabela Substation, on January 7, 2023, we received a visit from the Farm Bureau. Conferences were offered to the participants, and we conducted a tour of the ongoing experiments. On January 11, 2023, we received another group of participants from the Farm Bureau. On February 28, 2023, we received a visit from researchers from Ag New Hampshire, and a tour was provided of the different research areas.
### Attachment I – Training on online educational methodologies in which the teaching staff participated (includes AES, PRAES and FAS)

<table>
<thead>
<tr>
<th>Professor’s Name</th>
<th>Training Title</th>
<th>Date</th>
<th>Contact hours</th>
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<tr>
<td><strong>Department of Agroenvironmental Sciences</strong></td>
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<tr>
<td>Alfredo Aponte</td>
<td>Identidad Gráfica del SEA</td>
<td>28-Feb-23</td>
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<td>José P. Morales Payán</td>
<td>Transitioning back to campus (Innovative educators)</td>
<td>16-Aug-22</td>
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<td>José P. Morales Payán</td>
<td>Conéctate con tu Ciudadanía Digital</td>
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<td>The learning ecosystem - what role technology plays and doesn’t play (Intertek)</td>
<td>21-Oct-22</td>
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<td>José P. Morales Payán</td>
<td>Tableau: Intuitive, visual analytics for academia (CEDIBI, RUM)</td>
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<td>José P. Morales Payán</td>
<td>La telaraña como método educativo probado que mejora las discusiones en clase (CEP RUM)</td>
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<td>José P. Morales Payán</td>
<td>Listening To Students: Creative Strategies To Connect &amp; Engage (Innovative Educators).</td>
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<td>Using Online Videos To Help Learners Recover From Pandemic Learning Habits (Innovative educators)</td>
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<td>Oscar J. Abelleira Martínez</td>
<td>Manejo de Pagina Laboratorio de Silvicultura, Wordpress-Sr. José Bencosme, CTI-RUM</td>
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<td>Edda L. Martínez Cález</td>
<td>Cloud Storage: One drive for Business and Share</td>
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<td>Edda L. Martínez Cález</td>
<td>Research in sweetpotatos</td>
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<td>Edda L. Martínez Cález</td>
<td>&quot;Conceptos básicos de catación y degustación de café&quot;</td>
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<td>Ag Pest Management</td>
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<td>Edda L. Martínez Cález</td>
<td>IR-4 Project Research Symposium: Food Crops</td>
<td>11-Apr-23</td>
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<td>&quot;Neuroliderazgo&quot;</td>
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<td>María L. Plaza</td>
<td>Explorando el uso de la Inteligencia Artificial y ChatGPT en la Educación a Distancia</td>
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<td>María L. Plaza</td>
<td>La calidad de los materiales educativos para cursos en línea</td>
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<td>María L. Plaza</td>
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**Department of Agricultural Economics and Rural Sociology**

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<td>Dr. Alwin J. Jiménez Maldonado</td>
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<td>Dr. Germán Ramos Cartagena</td>
<td>What is CRD? Southwest Region</td>
<td>14-Sep-22</td>
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<td>Dr. Germán Ramos Cartagena</td>
<td>What is CRD? Northeast Region</td>
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**Department of Agricultural Education**

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<th>Professor’s Name</th>
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<tr>
<td>Dra. María del C. Rodríguez Rodríguez</td>
<td>Traer la Finca a la Escuela: Producción de Pescado y</td>
<td>1-Feb-23</td>
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<td>Dra. María del C. Rodríguez Rodríguez</td>
<td>Productos de Pescado para las Escuelas</td>
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<td>Dra. María del C. Rodríguez Rodríguez</td>
<td>(Food &amp; Nutrition Service, USDA)</td>
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<td>Prof. Gloriselle Negrón</td>
<td>Digital accessibility</td>
<td>23-Feb-23</td>
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<td>Prof. Gloriselle Negrón</td>
<td>Designing effective poster presentations</td>
<td>23-Mar-23</td>
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<td>Prof. Gloriselle Negrón</td>
<td>Technological assistance for labor inclusion</td>
<td>6-Dec-22</td>
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<td>Monkeypox prevention</td>
<td>8-Sep-22</td>
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<td>Dra. Ivys Figueroa Sánchez</td>
<td>Healthy habits for flu prevention</td>
<td>16-Nov-22</td>
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<td>Dra. Ivys Figueroa Sánchez</td>
<td>Safe cleaning during emergencies</td>
<td>2-May-23</td>
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### Training on online educational methodologies in which the teaching staff participated

#### Academic Year 2022-2023

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<th>Professor's Name</th>
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<tr>
<td>Dra. Lorna Campos Muñiz</td>
<td>Certification on effective supervision</td>
<td>Sep-22</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Certification on SMART Objectives</td>
<td>Sep-22</td>
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<td>Nov-22</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Spiderweb as an educational method.</td>
<td>Nov-22</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Desing of digital educational materials accesibles for distance education.</td>
<td>Apr-23</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Quality of educational materials for virtual education.</td>
<td>Mar-23</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Google arts and culture From Museum to the classroom.</td>
<td>Apr-23</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>ReDesConecta: The relationship between mental health and social media.</td>
<td>Apr-23</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Certification How to be more creative.</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Webinar New Youth cuestionary of EFNEP (9-12)</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>The web as a proven educational method that improves class discussions</td>
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<td>Dra. Lorna Campos Muñiz</td>
<td>Virtual Conference: Brain-Based Learning: From Theory to Practice</td>
<td>26-Apr-23</td>
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**Roberto Rigau Llorens**

| Dr. Roberto Rigau Lloréns    | Nuevos Formularios de Viaje                                                 | 17-Jul-22       | 2.5           |
| Dr. Roberto Rigau Lloréns    | Using Census Data for Grant Writing                                         | 9-Aug-22        | 1             |
| Dr. Roberto Rigau Lloréns    | Talleres NEA NEH IMLS UAGM Gurabo                                          | 17-Aug-22       | 3.5           |
| Dr. Roberto Rigau Lloréns    | Reunión Annual Society of Research Administrators International            | 31-Oct to 4-Nov-22 | 32 |
| Dr. Roberto Rigau Lloréns    | Seminario PEAN-EFNEP 2022                                                   | 12-Dec-22       | 7.5           |
| Dr. Roberto Rigau Lloréns    | Taller: "Increase collaboration with MS Teams"                             | 28-Feb-23       | 1.5           |
| Dr. Roberto Rigau Lloréns    | Presentación Identidad Gráfica del SEA                                     | 28-Feb-23       | 2             |
| Dr. Roberto Rigau Lloréns    | Taller: Control Biológico y Microbiológico de Plagas Agrícolas              | 14-Apr-23       | 4             |
| Dr. Roberto Rigau Lloréns    | 2023 National Extension and Research Administrative Officers Conference (NERAOC) | 29-Apr to 4-May-23 | 31 |

#### Department of Agricultural and Environmental Systems

| Eric A. Irizarry Otaño | Cloud Storage | 25-Aug-22 | 1 |

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### Training on online educational methodologies in which the teaching staff participated

**Academic Year 2022-2023**

<table>
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<th>Professor’s Name</th>
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<tr>
<td>Eric A. Irizarry Otaño</td>
<td>Teams EDU</td>
<td>30-Aug-22</td>
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<td>Francisco M. Monroig Saltar</td>
<td>Online Learning Assessment</td>
<td>18-May-23</td>
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### Attachment II – Professional Development at the Center for Professional Enrichment (CEP) and others (includes AES, PRAES and FAS)

**Professional Development at the Center for Professional Enrichment (CEP) and others**

**Academic Year 2022-2023**

<table>
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<th>Course Title</th>
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<tr>
<td>Irma Cabrera</td>
<td>Microsoft Team, how to use this tool</td>
<td>Nov-22</td>
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<td>Alfredo Aponte</td>
<td>El Dilema de Proyectos Industriales de Energía Solar en Terrenos Agrícolas</td>
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<td>José P. Morales Payán</td>
<td>The tantalizing challenge of agrovoltaics (ASHS)</td>
<td>31-Aug-22</td>
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<td>José P. Morales Payán</td>
<td>Breaking down biologicals for in-field benefits (Crop Life)</td>
<td>15-Sep-22</td>
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<td>José P. Morales Payán</td>
<td>Staying ahead of pesticides residue analysis challenges (ThermoFisher)</td>
<td>16-Sep-22</td>
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<td>Fall Back to basics- Part 1: Chemistry</td>
<td>29-Sep-22</td>
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<td>Environment Office Hours Live: Weather data (Meter)</td>
<td>29-Sep-22</td>
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<td>Biopolymer advantages vs synthetic chelates (CropLife)</td>
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<td>The global diversity trust: Conserving crop diversity forever (ASHS)</td>
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<td>José P. Morales Payán</td>
<td>Sample prep and IC-MS/MS workflows for anionic and cationic pesticides (ThermoFisher)</td>
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<td>Protecting N with thiosulfates (CropLife)</td>
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<td>José P. Morales Payán</td>
<td>Taller de manejo de ansiedad (OSEIRUM)</td>
<td>1-Nov-22</td>
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<td>How to create an Ag imagery pipeline (CropLife)</td>
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<td>Combining soil amendments and varietal developments to prevent pathogens and heavy metal uptake</td>
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<td>Soil tests (eOrganic)</td>
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<td>Understanding laboratory soil health test (eOrganic)</td>
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<td>José P. Morales Payán</td>
<td>Crisis climatica en PR- Donde estamos y a donde vamos?</td>
<td>18-Nov-22</td>
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<td>Sustainability 2100, day 2</td>
<td>24-Jan-23</td>
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<td>Biochar for greenhouse nursery production</td>
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<td>Sustainability 2100 day 3</td>
<td>26-Jan-23</td>
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<td>Bereding in tune with nature (Danziger)</td>
<td>14-Feb-23</td>
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<td>José P. Morales Payán</td>
<td>Recent dynamics and future drivers in the biostimulant market</td>
<td>22-Feb-23</td>
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<td>Fluorescence-free Raman at 785 nm (Metrohm)</td>
<td>27-Feb-22</td>
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<td>José P. Morales Payán</td>
<td>Advances in atomic spectroscopy virtual symposium day 1</td>
<td>1-Mar-23</td>
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<td>José P. Morales Payán</td>
<td>Laying the groundwork for better yields</td>
<td>31-Mar-23</td>
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<td>Rethinking developmental biology with cellular reprogramming (Bit.Bio)</td>
<td>4-Apr-23</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Identificación de Briófitas en el Bosque Comunitario de Río Hondo, USDA-FS</td>
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<td>Tree nursery and disaster management, USDA-FS</td>
<td>25-Oct-22</td>
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<td>Oscar J. Abelleira Martinez</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Manejo de Ansiedad-Lcda. Jackeline Rios-CEP</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>IRB-Basic Training/Refresher in Social Sciences-CITI</td>
<td>19-21/Nov/22</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Webinar: Destrezas Sociales para un Mejor Desempeño-Oficina de Ética Gubernamental, ELA-PR</td>
<td>15-Feb-23</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Webinar: Redes Sociales: Convivencia Ética Virtual-Oficina de Ética Gubernamental, ELA-PR</td>
<td>21-Feb-23</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Light scattering of forest-based materials; Dra. Nayomi Plaza-raduate Seminar in Materials Science &amp; Engineering - CIIIM 6027</td>
<td>1-Mar-23</td>
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<td>Oscar J. Abelleira Martinez</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Webinar: Oportunidades para bosques urbanos en Puerto Rico, ISA- Agro. Christian Torres Santana</td>
<td>4-May-23</td>
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<td>Oscar J. Abelleira Martinez</td>
<td>Webinar: Agroforestry and USDA Webinar Series: USDA Forest Service Community Forest Program</td>
<td>5-May-23</td>
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<td>Dania Rivera Ocasio</td>
<td>Social Networks: Virtual Ethical Coexistence</td>
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<td>Comercial production of beans</td>
<td>8-Mar-23</td>
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<td>Introduction to Microsoft Teams</td>
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<td>Citrus greening alternatives</td>
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<td>Briofites on the forests</td>
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<td>Starch Commodity Annual Meeting</td>
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<td>Puertorrican Society of the Agricultural Science Annual Meeting.</td>
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<td>Pollinators Conference</td>
<td>9-13/Oct/22</td>
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<td>Yaniria Sánchez de León</td>
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<td>27-Jun-22</td>
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<td>Yaniria Sánchez de León</td>
<td>Institutional Responsibilities as They Affect Investigators</td>
<td>27-Jun-22</td>
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<td>María de L. Plaza</td>
<td>PSA Advance Trainer Workshop</td>
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<td>María de L. Plaza</td>
<td>Sensibilidad y Trato Digno a las personas con impedimento</td>
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**Department of Agricultural Economics and Rural Sociology**

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<tr>
<td>Dr. David Pérez Jiménez</td>
<td>Introduction to qualitative data analysis through the NVIVO program</td>
<td>29-Nov-22</td>
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<td>Dra. Leticia Gayol Santana</td>
<td>Microsoft Cloud Storage: Onedrive for Business and Sharepoint</td>
<td>Aug. 25, 2022</td>
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<td>Dra. Leticia Gayol Santana</td>
<td>Calling and Meetings in Microsoft Teams</td>
<td>Sept. 16, 2022</td>
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<td>Dra. Leticia Gayol Santana</td>
<td>Get Started With Excel</td>
<td>Oct. 27, 2022</td>
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<td>Dra. Leticia Gayol Santana</td>
<td>“Eso no fue lo que me enseñaron”: Cinco mitos de puntuación y cómo combatirlos</td>
<td>Oct. 31, 2022</td>
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<td>Microsoft Powerpoint</td>
<td>Nov. 11, 2022</td>
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<td>Dra. Leticia Gayol Santana</td>
<td>Comunicación Efectiva Escrita en Español: Conciso, preciso y sencillo: técnicas del periodismo al servicio del texto académico</td>
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<td>Charla sobre Acomodo Razonable</td>
<td>Jan. 31, 2023</td>
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<td>Adiestramiento sobre las leyes federales y estatales vigentes relacionadas a los acomodos razonables en el ambiente universitario</td>
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<td>May 8-12, 2023</td>
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<td>LGBTQ+ Student' Rights</td>
<td>Sept. 1, 2022</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
<td>Law #130: “Labor Relations of PR and Illegal Work Practices</td>
<td>Sept. 9, 2022</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
<td>UPR Travel Expense Regulations and new Forms</td>
<td>Oct. 1, 2022</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
<td>Forum: The Dilemma of Industrial Solar Energy Projects on Agricultural Land</td>
<td>Oct. 27, 202</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
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<td>Dec. 6, 2022</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
<td>Workshop: Academic Program and LD-T002</td>
<td>Feb. 2, 2023</td>
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<td>Feb. 16, 2023</td>
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<td>Workshop: “Knowing about Intellectual Property&quot;</td>
<td>Mar. 21, 2023</td>
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<td>Workshop: MSCHE - Accreditation Process</td>
<td>Apr. 14, 2023</td>
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<td>Dr. Alwin J. Jiménez Maldonado</td>
<td>3rd Congress of Applied Economics</td>
<td>May 5, 2023</td>
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<td>SOPCA Field Day</td>
<td>May 19, 2023</td>
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<td>Dr. Germán Ramos Cartagena</td>
<td>Southern Region Program Leader Network (PLN) Joint Meeting, Fort Worth, Texas. Minnesota State University. Southern Region Program Leader Network (PLN)</td>
<td>22 to 25 Aug. 2022</td>
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<td>Dr. Germán Ramos Cartagena</td>
<td>Puerto Rico Dam Safety CTA - La Plata Dam Earthquake Tabletop Exercise (TTX) (In-person). FEMA. Negociado para el Manejo de Emergencias Estatal</td>
<td>7-Jul-22</td>
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<td>Janitza Saavedra Lugo</td>
<td>Donde publico? Factores a considerar antes de someter tu manuscrito (Ofrecido por el CEP)</td>
<td>15-Nov-22</td>
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### Professional Development at the Center for Professional Enrichment (CEP) and others

#### Academic Year 2022-2023

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<td>Janitza Saavedra Lugo</td>
<td>Apéndice de Evaluación para Ascenso Permanencia (ofrecido por el CEP, Academia de Investigación)</td>
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<td>Janitza Saavedra Lugo</td>
<td>La telaraña como método educativo probado que mejora las discusiones en clases (ofrecida por el CEP)</td>
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<td>Janitza Saavedra Lugo</td>
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<td>Janitza Saavedra Lugo</td>
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<td>Janitza Saavedra Lugo</td>
<td>Leyes federales y estatales vigentes relacionadas a los acomodos razonables en el ambiente universitario (Ofrecido por el CEP y OSEI RUM)</td>
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<td>Janitza Saavedra Lugo</td>
<td>Ética para Agrónomos (Ofrecido por el CAPR)</td>
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<td>Janitza Saavedra Lugo</td>
<td>Introducción al Manejo de Equinos (ofrecido por el CAPR)</td>
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<td>Janitza Saavedra Lugo</td>
<td>Princípios de Plantas Ornamentales (Ofrecido por el CAPR)</td>
<td>27-Mar-23</td>
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<td>Janitza Saavedra Lugo</td>
<td>Uso del equipo de Protección Personal en Tareas Agrícolas (Ofrecido por el CAPR)</td>
<td>20-Jun-23</td>
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<td>Janitza Saavedra Lugo</td>
<td>Preparación de Propuestas federales para agricultores (ofrecido por UPR RUM Y CAPR)</td>
<td>8, 15, 22 y 29-Jun/23</td>
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<td>Gloriselle Negrón Ríos</td>
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<td>Flooding and its impact on indoor air quality</td>
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<td>Dra. Lorna Campos Muñoz</td>
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<td>Social aspects of the elderly.</td>
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### Professional Development at the Center for Professional Enrichment (CEP) and others

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<tr>
<td>Dra. Lorna Campos Muñoz</td>
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<td>Dra. Lorna Campos Muñoz</td>
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<td>Dra. Lorna Campos Muñoz</td>
<td>Political and management aspects on the elderly.</td>
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<td>Health Intervention on the elderly.</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
<td>Webinar: Connect with your Digital Citizenship</td>
<td>Aug 23, 2022</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
<td>Webinar: Household and Community Resilience</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
<td>Workshop: Coffee cupping and tasting basics</td>
<td>Dec 16, 2022</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
<td>Program Specializing in Spirituality</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
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<td>Jan 23, 2023</td>
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### Professional Development at the Center for Professional Enrichment (CEP) and others

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<td>Dra. Ircha Martínez Rodríguez</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
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<td>Dra. Ircha Martínez Rodríguez</td>
<td>HHS- Equidad y Preparación para Huracanes</td>
<td>May 2, 2023</td>
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#### Department of Agricultural and Environmental Systems

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<td>Salvador F. Acuña Guzmán</td>
<td>Assessment Appendix for Promotion and Tenure</td>
<td>Nov. 16, 2022</td>
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<td>Salvador F. Acuña Guzmán</td>
<td>Soil erosion research under a changing climate</td>
<td>Jan. 13, 2023</td>
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<td>Salvador F. Acuña Guzmán</td>
<td>Symposium of Strategies for Student Success</td>
<td>Feb. 16-17, 2023</td>
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<td>Eric A. Irizarry Otaño</td>
<td>LGBTQ Student Rights,</td>
<td>Sept. 1, 2022</td>
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<td>Eric A. Irizarry Otaño</td>
<td>Training Workshop in Food Preservation (Mylar Bags and Pailas)</td>
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<td>Training on the procedure for renewal of lease contracts</td>
<td>Jan. 19, 2023</td>
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<td>Basic Neurobiology Workshop on addictive disorders due to the use of psychoactive drugs</td>
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<td>Academic Management Face-to-face - New Travel Forms</td>
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<td>Eric A. Irizarry Otaño</td>
<td>Law No. 130, “Puerto Rico Labor Relations Law” and Illicit Labor Practices</td>
<td>Sept. 9, 2022</td>
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<td>Eric A. Irizarry Otaño</td>
<td>Hierarchical Composite Porous Materials for the Adsorption of Contaminants of Emerging Concern from Water</td>
<td>March 7, 2023</td>
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<tr>
<td>Eric A. Irizarry Otaño</td>
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<td>March 28, 2023</td>
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<tr>
<td>Luis R. Pérez Alegria</td>
<td>How to clean rivers and streams? Resilient strategies for river and stream management.</td>
<td>May 17, 2023</td>
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<td>Francisco M. Monroig Saltar</td>
<td>Basic Concepts of Photovoltaic System Design and Construction</td>
<td>Aug. 26, 2022</td>
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<td>Francisco M. Monroig Saltar</td>
<td>EXPO CUMBRE 2023: Excel for Engineers, Sargassum: causes and possible management and, Measuring for Management</td>
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### Attachment III – Publications (includes AES, PRAES and FAS)

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<td>Morales-Payan, J. P. 2022. Biostimulants and nitrogen affect pomegranate flowering and fruiting.</td>
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<td>Entomological Society of America (Southeastern Branch). San Juan, Puerto Rico. March 2022. (H-484)</td>
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<td>Viteri, D., and Linares, A. 2022. Timely application of four insecticides to control corn earworm and fall armyworm larvae in sweet corn. Insects. (H-484)</td>
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<td>Cortez, M. (Host), (2022, February 10). Evaluación a corto plazo de cinco especies de plantas de cobertura sobre la calidad agrícola de un Ultisol. [Audio podcast episodio] In Evaluación a corto plazo de cinco especies de plantas de cobertura sobre la calidad agrícola de un Ultisol by Yomaries Gonzalez. Production desde laeeea. (Z-NRCS-023)</td>
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<td>Ortiz-Uriarte, Bianca (June 2022) In part of UPR Mayagüez, Master’s Thesis. (H-509)</td>
<td>Thesis Dissertation</td>
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<td>Cabrera I., R. Tirado, J. Salinas, C. Reyes. 2022. Outbreak of scale insect in Mangifera indica, Annona muricata and Carica papaya after atmospheric event.</td>
<td>Submitted</td>
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<td>Chong J.A. and J.A. Dumas, 2022. Woodchip Pathogen Decontamination with a Beneficial Microbial Mixture. J. Agric. Univ. P.R.</td>
<td>Submitted</td>
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<tr>
<td>Báez Rivera, G., A.R. Sanfiorenzo Gil de Lamadrid, Y. Sánchez de León. Estatus de suelos en Puerto Rico y retos de uso y manejo agrícola. (Status of the soils in Puerto Rico and challenges in their agricultural use and management). Revista del Servicio de Extensión Agrícola, Num, 2, Jun 2022, p. 36-37.</td>
<td>Submitted</td>
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<td>Báez Rivera, G., A.R. Sanfiorenzo Gil de Lamadrid, Y. Sánchez de León. Indicadores observables de la salud de agroecosistemas (Observable indicators of agroecosystem health). Revista del Servicio de Extensión Agrícola, Num, 2, Jun 2022, p. 48-51.</td>
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<td>Báez Rivera, G., A.R. Sanfiorenzo Gil de Lamadrid, Y. Sánchez de León. Retos del cambio climático para el manejo de suelos.</td>
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<td>Báez Rivera, G., A.R. Sanfiorenzo Gil de Lamadrid, Y. Sánchez de León. Interpretación de análisis de suelos (Soil analysis interpretation). (Z-332)</td>
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<td>Báez Rivera, G., A.R. Sanfiorenzo Gil de Lamadrid, Y. Sánchez de León. Manejo agroecológico de la fertilidad del suelo (Agroecological management of soil fertility). (Z-332)</td>
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<td>Abelleira Martínez, O.J., J. Rivera San Antonio, G. Túa Ayala, R. Cruz Aguilar, G. Báez Rivera, A. Marengo Casul, M. del R. Suárez, and A. Pérez Méndez. 2022. Towards a Forest Management and Products Laboratory in UPR, Mayagüez. Oral (on-line) presentation in the Forum on Forest Management and Social-Ecological Systems sponsored by the Environment and Extreme Climate Programmatic Area of the Agricultural Experiment Station, UPRM, held on May 5-6, 2022, via Zoom. (Z-358)</td>
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<td>the US Virgin Islands. Workshop held in collaboration with USDA Forest Service International Institute of Tropical Forestry's Forest Stewardship Program in the Conference Room of the Company Hotel in Christiansted, St. Croix, U.S. Virgin Islands, from 9AM to 12PM on July 26, 2022. (Z-358)</td>
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<td>Hernandez, E. Empresa de Hortalizas UPRM. (2022, September 29). Insectos vectores en plántulas de sandías y una guía de insectos en hortalizas especiales en PR [Video]. YouTube <a href="https://www.youtube.com/watch?v=qERJTSDGwhs">https://www.youtube.com/watch?v=qERJTSDGwhs</a> (H-492)</td>
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<td>Román Zea, D., Merari Feliciano Rivera. 2022. LOOP-MEDIATED ISOTHERMAL AMPLIFICATION FOR THE DETECTION OF PSEUDOCERCOSPORA FIJIENSIS. College of Agricultural Sciences, University of Puerto Rico, Mayagüez Campus. (H-486)</td>
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<td><a href="https://hdl.handle.net/20.500.11801/2906">https://hdl.handle.net/20.500.11801/2906</a> (H-486)</td>
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<td>Carro-Figueroa, Vivian. 2022. “Logros y desafíos en el desarrollo de un programa de investigación en agricultura orgánica en la Universidad de Puerto Rico: el caso de las fincas orgánicas de la Estación Experimental Agrícola”. Oral presentation in the 9th Latin American and Caribbean Social Science Conference, National Autonomous University of Mexico (UNAM), Mexico City, June 10. (H-503)</td>
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<td>Vázquez, R., D.M., Viteri, A. Linares-Ramírez, and Z. Miranda. 2022. Reaction of Newly Developed Common Bean Germplasm to Natural Infections and Mechanical Inoculated of Two Macrophomina phaseolina Isolates. 44a Reunión Científica Anual de la Sociedad Puertorriqueña de Ciencias Agrícolas. Coamo, PR. (H-487)</td>
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<td>Rodríguez Carías, A.A., M. Mas, A. Rivera Serrano y S. Duckett. 2022. Ganancia en peso y rendimiento de la canal y cortes mayoristas de corderos enteros y castrados alimentados con dietas altas en granos en condiciones de estrés por calor. Annual meeting, Latin American Association of Specialist in Small Ruminant and South American camelids. Revista MVZ Cordova. pp. 44 (H-490)</td>
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<td>Romero N. y A. A. Rodríguez Carías. 2022. Días en alimentación para alcanzar el peso al sacrificio en corderos enteros y castrados alimentados con raciones totales y su efecto sobre parámetros productivos y el rendimiento de la canal. Latin American Association of Specialist in Small Ruminant and South American camelids. Revista MVZ, Cordaba, pp. 52 (H-490)</td>
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<td>Abelleira Martínez, O.J., J. Rivera San Antonio, G. Túa Ayala, R. Cruz Aguilar, G. Báez Rivera, A. Marengo Casul, M. del R. Suárez, y A. Pérez Méndez. 2022. Hacia un Laboratorio de Manejo de Bosques y</td>
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<td><strong>Productos Forestales en el RUM. Presentación oral en línea en el foro Manejo de Bosques en Sistemas Social-Ecológicos de Puerto Rico del Área Programática de Climas Extremos, Recursos Naturales y Energía Renovable de la Estación Experimental Agrícola de la UPR llevado a cabo el 6 de mayo de 2022 vía Zoom. (H-489)</strong></td>
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<td>Ireliz Colón Rodríguez y Héctor L. Sánchez Rodríguez, 2022. Comparación y relación entre la temperatura rectal y tasa respiratoria durante las primeras 8 semanas de vida en becerras Holstein pelonas y de pelaje regular. Feria de Investigaciones UPRM 2022. 6 de abril de 2022. (H-496)</td>
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<td>Tavárez, H., Cortés, M., &amp; Gregory, A. Preferencias de los consumidores por leche producida asegurando el bienestar animal en Puerto Rico. Journal of Agriculture of the University of Puerto Rico</td>
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<td>Tavárez, H. Using cost-benefit analyses to determine the economic viability of developing recreational opportunities in the Rio Hondo Community Forest of Puerto Rico. Journal of Forest Economics (MS-025)</td>
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<td>Tavárez, H., &amp; Abelleira, O. Environmental awareness and willingness to pay for increasing biodiversity in the Rio Hondo Community Forest of Puerto Rico. Ecological Economics (MS-025)</td>
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<td>Morales-Payan, J. P. 2022. Yellow passion fruit conservation for the fresh market as affected by postharvest wax and cytokinin</td>
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<td>Ruiz-Cortés, Marieli, Natalie M. Meléndez-Vázquez, Mariela Torres-Rivera, Guillermo Ortiz-Colón, and Filipa Godoy-Vitorino. 2022. Characterization of rumen and hindgut microbial communities in slick and wild-type</td>
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<td>Cabrera I, E. Melendez. 2022. INSECTS VISITORS ON THE FLOWERS OF FOUR CULTIVARS OF MANGIFERA INDICA IN THE AGRICULTURAL EXPERIMENT STATION OF JUANA DIAZ, PUERTO RICO. J.Agric.Univ.PR. (will be publish this semester)</td>
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<td>Vera J., I.Cabrera.2022.Hurricane and phytophagous insects: Disturbance effects on</td>
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<td>the abundance of an invasive insect. J.Agric.Univ.P.R. (saldrá en este semestre)</td>
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<td>Robinson Rodríguez-Pérez, Neishaly Serrano-Cortés, María C. Rodríguez, David Conner, and Jane Kolodinsky (2023). Building Food System Resiliency in Puerto Rico: Findings from Focus Groups with Food System First Responders. Journal of Agriculture, Food Systems, and Community Development.</td>
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<td>María C. Rodríguez &amp; Robinson Rodríguez-Pérez (2022). Educación a Distancia para la Producción Acuapónica Comunitaria. Revista del Servicio de Extensión Agrícola, Número 4, diciembre 2022, pp 8-10.</td>
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<td>Robinson Rodríguez-Pérez &amp; María C. Rodríguez (2022). Asociación Pro-Bienestar Barrio Marías de Aguada: Una Historia de Éxito. Revista del Servicio de Extensión Agrícola, Número 4, diciembre 2022, pp 13-14.</td>
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<td>6 key questions about MPOX (Figueroa-Sánchez, I., SEA del Oeste, 27th edition)</td>
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<td>Campos, L. (septiembre, 2022). Sana alimentación mientras estudias ¡Animate y prepae tus alimentos!</td>
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<td>Barriga A. (2023). Does environmental conservation have unintended consequences in public health?, Oxford Development Studies</td>
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<td>Tavárez, H., &amp; Cortés, M. (2023). Device effects: Results from choice experiments in an agritourism context.</td>
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**Attachment IV – Presentations (includes AES, PRAES and FAS)**

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<tr>
<td><strong>Perez B.Y, I. Cabrera. 2022. Abundance of Tephritidae in Mangifera indica in southern Puerto Rico</strong></td>
<td>SOPCA</td>
<td>Dec. 2022</td>
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<td><strong>Maldonado P.N., Cabrera I.,Relative Preference of Batocera rufomaculata (De Geer) (COLEOPTERA:CERAMBYCIDAE) in mango (Mangifera indica) Cultivars.</strong></td>
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<td><strong>Merced K., I. Cabrera. 2022.Insect Vector in Watermelon Seedlings.</strong></td>
<td>Empresa Hortalizas (Vegetable Meet) UPRM</td>
<td>Dec. 2022</td>
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<td><strong>Cabrera I. 2022. A Field Guide to Insects on Special Vegetables in P.R.</strong></td>
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<td><strong>Alfredo Aponte. Food Sovereignty</strong></td>
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<td>Abelleira Martínez, O.J. 2023. A Table of Attributes for Common Tree Species in Puerto Rico and US Virgin Islands. Presentación oral en la Reunión Mensual del Grupo de Trabajo de Agricultores y Custodios de Terrenos Privados; State and Private Forestry, USDA Forest Service, el 27 de abril de 2023 vía Zoom.</td>
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## Presentations (oral or posters)

### Academic Year 2022-2023

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<td>Sánchez de León, Y. “Mujer en las Ciencias y la Academia” (Women in Science and Academia)</td>
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<td>University of Puerto Rico at Mayaguez</td>
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<td>Alejandra Varela, Maria Plaza, Leyda Ponce de León, Abner Rodríguez. CARACTERIZACIÓN QUÍMICA DE LA LECHE DE CABRA PRODUCIDA EN DIFERENTES REGIONES DE PUERTO RICO</td>
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<td>Amarilys Velez, Maria Plaza. Desarrollo de bebida estimulante a base de Sandía [Citrullus lanatus (Thunb.) Matsum. et Nakai.]</td>
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<td>Michelle H. Álvarez Beauchamp, EVALUACIÓN DE VARIEDADES DE CÁÑAMO INDUSTRIAL (CANNABIS SATIVA L.) BAJO CONDICIONES DE CAMPO Y DE INVERNADERO</td>
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<td>Barriga A. (2023) The Brazilian Health Care Reform and Malaria in the Amazon</td>
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### Department of Agricultural and Environmental Systems

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<tr>
<td><strong>Acuña-Guzmán, S.F.</strong> 2023. Ignite talk. UPRM - Research Symposium for Faculty and Graduate Students. Mayagüez, PR.</td>
<td>Research Symposium for Faculty and Graduate Students</td>
<td>May 17, 2023</td>
<td>Mayagüez, PR</td>
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<td><strong>Irizarry Otaño, E.A.</strong> 2022. Workshop on Infiltration Tests and Water Table. Gurabo, PR</td>
<td>Extension Agricultural Agents Field day</td>
<td>August 9, 2022</td>
<td>Gurabo, PR</td>
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<td><strong>Irizarry Otaño, E.A.</strong> 2023. Associate Dean Achievement Report. Juncos, PR</td>
<td>Annual Meeting of Agricultural Extension Service Teaching Staff</td>
<td>April 28, 2023</td>
<td>Juncos, PR</td>
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<tr>
<td>Reference</td>
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<td>Harmsen, E.W. 2022. Recharge Estimates for Puerto Rico’s South Coast Aquifer under Climate Change Conditions.</td>
<td>SOPCA Annual Meeting 2022</td>
<td>December 2, 2022</td>
<td>Coamo, PR</td>
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<td>Mathanker, S.K. 2022. Reflections while Developing a Precision Agriculture Technology Course.</td>
<td>SOPCA Annual Meeting 2022</td>
<td>December 3, 2022</td>
<td>Coamo, PR</td>
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<tr>
<td>Reference</td>
<td>Department of Agricultural Education</td>
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<td>Output with a Hydrologic Model in the Añasco Watershed.</td>
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<td>Robinson Rodríguez, María C. Rodríguez, Neishaly Serrano. Producción Acuapónica Comunitaria (Comunidades Fundación Bucarabón, Maricao y Agrosairam, Las Marías)</td>
<td>Field day offered to students and teachers of the course CDAE 295, Food Systems Resilience in Puerto Rico de la Universidad de Vermont</td>
<td>Mar. 16, 2023</td>
<td>Maricaco and Las Marías</td>
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<tr>
<td>Janitza Saavedra. Oral Presentation: Ignite Talks</td>
<td>Research Symposium for faculty and graduate students</td>
<td>May 17, 2023</td>
<td>Amphitheater ADEM UPR RUM</td>
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<td>G. Negrón Ríos. Resilient solutions for water scarcity</td>
<td>&quot;Ecoexploratorio&quot; educational activity</td>
<td>Oct. 8, 2022</td>
<td>&quot;Ecoexploratorio&quot;, San Juan</td>
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<tr>
<td>G. Negrón Ríos. NonPRASA aqueducts source water protection</td>
<td>NonPRASA water system operators and community leaders training</td>
<td>Mar. 29, 2023</td>
<td>“Terra Campestre”, Guaynabo</td>
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<td>Torres, L., Figueroa, I.. PA and obesity among children (urban vs. rural) in PR</td>
<td>7th Student Congress of Creation and Graduate Research</td>
<td>Feb. 21, 2023</td>
<td>UPR-RP Campus</td>
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<tr>
<td>Lorna Campos. Training on Food Intake and EFNEP Food and Physical Activity Questionnaire.</td>
<td>Training for CFC Educators &amp; EFNEP Public Health Assistants.</td>
<td>Feb. 2023</td>
<td>EFNEP State Office Caguas, PRAES</td>
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<tr>
<td>Reference</td>
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<td>Lorna Campos. ESBA Course for Adults - Review and Offering of 9 Lessons.</td>
<td>Training for CFC Educators &amp; EFNEP Public Health Assistants.</td>
<td>May 2023</td>
<td>EFNEP Unit Office in Toa Baja</td>
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<td>Martinez-Rodriguez, I. I. [SEAUPRM]. (September, 26, 2022). In this time of recovery from a hurricane... avoid getting scammed. [Images]. <a href="https://www.facebook.com/sea.uprm/photos/2043257792729871">https://www.facebook.com/sea.uprm/photos/2043257792729871</a></td>
<td>Post on Facebook &amp; Twitter</td>
<td>Sept. 26, 2022</td>
<td>Facebook &amp; Twitter @SEA.UPRM <a href="https://www.facebook.com/sea.uprm/photos/2043257792729871">https://www.facebook.com/sea.uprm/photos/2043257792729871</a></td>
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Presentations (oral or posters)
Academic Year 2022-2023

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<th>Reference</th>
<th>Forum</th>
<th>Date</th>
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<td>Actions to address personal finances. [Power Point].</td>
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Program of Food Science and Technology


Attachment V - Periodic Letters and Circulars (includes AES, PRAES and FAS)

Periodic Letters and Circulars
Academic Year 2022-2023

<table>
<thead>
<tr>
<th>Reference</th>
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<tr>
<td>Department of Agroenvironmental Sciences</td>
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<tr>
<td>Department of Agricultural Education</td>
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<tr>
<td>Importance of the biodiversity</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>House Bill 474 of 2022: Environmental standing</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>About wind power</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>House Bill 1454 of 2022: Exclusion of the franchise payment for NonPRASA aqueducts that use groundwater, from the beginning of the extraction</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<td>Senate Joint Resolution 318 of 2022: Pet food as basic necessities</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
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<td>NonPRASA Aqueducts: Low-cost solar systems to improve their operation</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>The maritime-terrestrial zone in Puerto Rico</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>NonPRASA Aqueducts: Shiga-toxin detection en drinking water sources in Puerto Rico</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>Law Number 81 of 2022: NonPRASA Aqueducts: Water Issues Committee participation and free access to drinking water systems</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>Senate Project 937 of 2022: Water reuse for non-agricultural purposes</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>Senate Project 939 of 2022: Rainwater harvesting</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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<tr>
<td>Desertification and the African green wall</td>
<td>Profa. Gloriselle Negrón Ríos</td>
<td>PRAES</td>
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