

**PLANT BREEDING AT THE
UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ**
Department of Agronomy and Soils - Department of Horticulture
Information compiled by Linda Wessel-Beaver, Dept. Agronomy and Soils

Part 1. Breeding efforts by crop.

Crop	Person Years	Releases in past 5 years	
		Germplasm	Cultivars
Common Bean	1.0	5	2
Corn	0.2	0	1
Squash/ Pumpkins	0.5	0	1
Pigeonpea	0.6	0	1
Tuber Crops	1.1	0	1
Turf	0.3	0	0
Ornamentals	0.4	0	0
Tropical Tree Fruits	1.4	0	0
Pineapple	0.2	0	0
Cherry Peppers	0.2	0	0
TOTAL	5.9	5	6

Part 2. Breeding efforts by activity.

Activity	Person Years	% of total effort
Plant Breeding Research	0.8	12%
Germplasm Enhancement	3.78	55%
Cultivar Development	1.12	16%
Biotech. Research and Development	0.2	3%
Plant Breeding Education	1.0	14%
TOTAL	6.9	100%

**Part 3 (right). Graduates in plant breeding
(2000-2006) and current plant breeding students.**

Total*	M.S. Domestic	M.S. International
<u>Graduates from 2000 to 2006:</u>		
18	13	5
<u>Current Students:</u>		
11	9	2

*UPR-Mayaguez offers only a M.S. degree in Agriculture

Part 4. Job placement of recent graduates

Among the 18 students who graduated since 2000, 10 are either pursuing their Ph.D.s at other institutions or have completed their Ph.D. degree (the two who have completed their degrees have taken university positions).

Many of the major seed companies (Monsanto, Pioneer, Mycogen, Syngenta, among others) have winter nurseries in Puerto Rico. This industry employs a large number of graduates from the University of Puerto Rico. The demand for graduates with M.S. degrees in plant breeding or related areas far exceeds the supply. Among the 18 students who graduated since 2000, three are working in the local winter nursery industry.

Part 6. Other comments

The UPR at Mayagüez (UPRM) is the only Spanish-speaking land grant university in the U.S. Its location in the American tropics, along with its special cultural association with Latin America and political association with the United States, make UPRM unique among U.S. institutions. The island is home to winter nurseries of a large number of international seed companies. In an area only 100 miles long by 35 miles wide, 9 soil orders and many ecological zones can be found. Highly divergent field environments for field trials can be found without traveling great distances. Field-oriented plant breeding activities can be conducted year-round. Breeding programs at UPRM are very field-oriented. Laboratory facilities are quite limited. Number of faculty is also limited, and only about half of all faculty members have a Ph.D. degree.

Part 5. Plant breeding course offerings.

Only a M.S. degree is offered in the College of Agricultural Sciences. A total of 24 credits of course work (about 8 courses) plus a research thesis is required.

We strongly encourage all plant breeding students to take the following courses:

- Plant Breeding (undergraduate)
- Advanced Plant Breeding (Breeding for Quantitative Traits)
- Biometry
- Advanced Biometry
- Molecular Markers
- Introduction to Genomics

The remaining credit requirements are typically met by choosing among the following courses, depending on a student's particular interests:

Plant Molecular Biology, Molecular Genetics, Plant Transformation, Population Genetics, Diagnosis and Control of Crop Diseases, Virology, Advanced Plant Pathology, Advanced Entomology, Environmental Physiology, Biochemistry

UPRM-North Dakota Collaborative PhD Program

In 2005 the University of Puerto Rico at Mayagüez signed an agreement with North Dakota State University to establish a collaborative Ph.D. program in plant breeding and genetics. This program will allow a student to carry out research and some coursework at UPRM while working on a Ph.D. degree that will be conferred by NDSU. The program will benefit UPRM by allowing its faculty members an opportunity to mentor students at the Ph.D. level and to collaborate with faculty at NDSU.

