



## EDUCATIONAL EXPERIENCES IN AGRICULTURAL SCIENCES: A DISCOVERY CALL TO HIGH SCHOOL STUDENTS ON THE OPTIONS AND POSSIBILITIES OF THE FIELD OF STUDY

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**ABSTRACT:** A two-week summer experience in Agricultural Sciences was offered to 11 high school students during summer 2009 with the objective of exposing them to various areas of the Agricultural Sciences that go beyond the "planting the farm" stereotype. It is expected for this awareness to spike student's interest in pursuing higher education studies in Agricultural Sciences. Hands-on activities focused on Entomology, Biotechnology, Environmental Horticulture, Waste Management, Dairy Farm Management, Extraction of Essential Oils, Meat Processing, Dairy Processing, Agricultural Meteorology, Hydroponics, Home Gardening and Agricultural Machinery were planned for day or half-day sessions, depending on the subject, so as to provide variety, promote interactivity and avoid saturation. A day was dedicated to tour the Campus and laboratory facilities of the College of Agriculture, and counsel students on the admission process and University life. Participants filled out an exit questionnaire to rate their impressions on the various activities, overall logistics and impact of the activity over their interest towards studies in Agricultural Sciences. Collected data showed that 64% percent of participants had not considered Agricultural Sciences as a field of study before the activity. Yet, by the end of the two weeks, the same amount was clear on their interest to pursue higher education in the area. Students liked many of the activities, especially those in Biotechnology, Dairy Farm Management, Extraction of Essential Oils, Meat Processing and Dairy Processing. The event was part of a project sponsored by the USDA-CSREES Residence Instruction Grant for Insular Areas.

### INTRODUCTION

Undergraduate enrollment in Agricultural Science programs of the University of Puerto Rico – Mayagüez Campus (UPR-RUM) grew from 6.0% of the total Campus enrollment in 1995 to 8.5% in 2004. Since 2005, enrollment has remained constant at about 7.8% of Campus total (OIPP-UPR-RUM, 2008); a trend that must be changed to its previous increasing condition. Last year, the College of Agricultural Sciences (CAS) initiated several efforts aimed to increasing recruitment and retention. One such effort brought ten middle and high school science teachers for a two-week summer camp (Rivera et al., 2008). The summer camp attempted to increase recruitment of undergraduate students in the food, agriculture, natural resources and related fields at the UPR-RUM by providing teachers with relevant hands-on activities that they could take back and integrate into their courses.

During summer 2009, the CAS organized a two-week summer experience in Agricultural Sciences. Eleven high school students from various locations in Puerto Rico participated in the event. The objective of the activity was to expose participants to the various areas of study within Agricultural Sciences. It is expected for the activity to spike student interest in pursuing higher education in areas related to Agricultural Sciences.

### MATERIALS AND METHODS

A two-week summer experience for high school students sponsored by USDA-CSREES Residence Instruction Grant for Insular Areas was organized from July 13 to 24, 2009 at UPR-RUM. Eleven high school students were selected from various locations of the island of Puerto Rico based on grade point average, recommendation letters and seniority. Hands-on experiences covered the areas of Entomology, Biotechnology, Environmental Horticulture, Waste Management, Dairy Farm Management, Extraction of Essential Oils, Meat Processing, Dairy Processing, Agricultural Meteorology, Hydroponics, Home Gardening and Agricultural Machinery. Activities were planned for half a day (3.5 hours) or full day (7 hours) to provide variety, promote interactivity and avoid saturation. Materials on concepts and laboratory practices were prepared by faculty members of the College of Agricultural Sciences of the UPR-RUM, specialized in each discipline. A day was dedicated to tour the Campus and laboratory facilities of the College of Agriculture, and counsel students on the admission process and University life. A five-point scale questionnaire was used to rate their impressions on the various activities, overall logistics and impact of the activity over their interest towards studies in Agricultural Sciences. In addition, participants made comments in writing regarding their experience.

### RESULTS AND DISCUSSION

Eleven high school students (5 female & 6 male) were selected from around the island (Aibonito, Añasco, Arecibo, Caguas, Coamo, Gurabo, Lajas & Mayagüez ) from the pool of 41 applicants. Each day, participants were exposed to one or two activities that included a minimum of theory to allow plenty of time for the interactive event. Figure 1 shows participants engaged in some of the planned hands-on activities. Since the group was small, group dynamics developed easily and resulted in strong bonds. In fact, some participant comments on event logistics, praised the goodness of the small group and how this helped them overcome the initial shyness. Group size positively pre-disposed students to face the daily activities.

In general, gathered data (Table 1) shows that students liked most of the activities, especially those in the non-traditional areas of the Agricultural Sciences. Also, 64% percent of participants had not considered Agricultural Sciences as a field of study before the activity. Yet, by the end of the two weeks, the same amount was clear on their interest to pursue higher education in the area (Table 2).

In terms of event duration, most participants stated it could be three weeks long instead of two, and that individual activities were appropriate in terms of timing and duration. Overall, the experience was unique for many of the participants. Ultimately, it is expected for this experience to enhance recruitment of undergraduate students in the food, agriculture, natural resources and related fields at the UPR-RUM CAS.



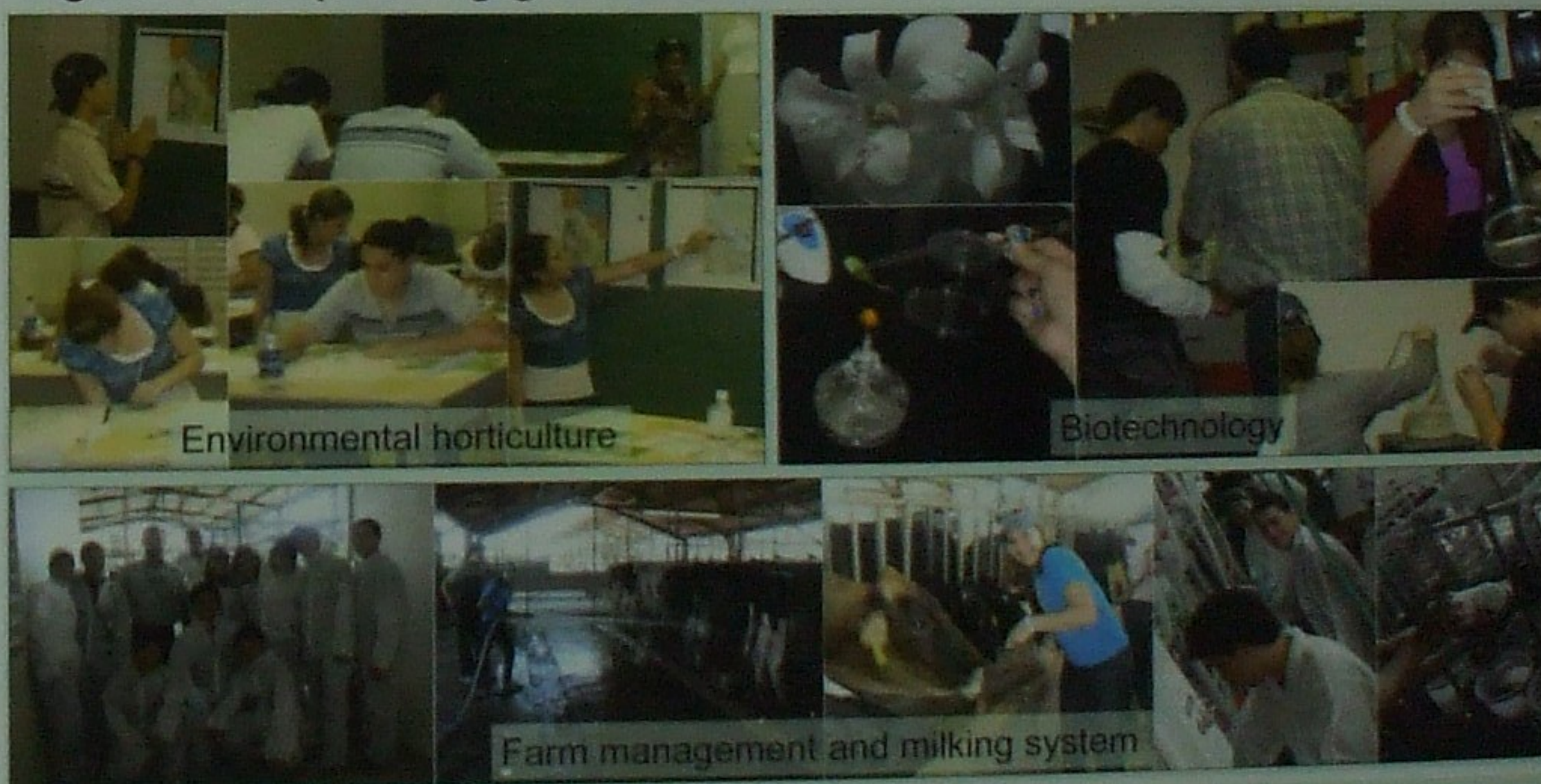
Table 1: Participant feedback on individual activities

	Didn't like it	Not bad	Neutral	It was Ok	Excellent
Entomology		30%	10%	40%	20%
Biotechnology			9%	27%	64%
Environmental Horticulture	9%	18%	18%	37%	18%
Admission process and university life		11%	11%	33%	45%
Waste management		10%	40%	20%	30%
Dairy farm management					100%
Extraction of essential oils		9%	18%	27%	46%
Meat processing			9%	27%	64%
Home gardening	9%	36%	19%	36%	
Hydroponics	8%	27%	27%	27%	9%
Agricultural Meteorology	9%	27%	46%	9%	9%
Agricultural machinery		36%	18%	46%	
Dairy processing		9%	27%	9%	55%

Table 2: Participant reaction to survey statements

	Totally disagree	Disagree	Neutral	Agree	Totally agree
I was considering to study something related to agricultural sciences prior to my participation in the summer camp.	18%	46%	36%		
My participation in this activity widened my vision on the employment opportunities in the field of agricultural sciences.				27%	63%
The activity helped to define my interest in pursuing higher education in areas related to agricultural sciences.			36%	55%	9%
The field of agricultural sciences is lots more than planting the farm or care for farm animals.					100%
The field of agricultural sciences is not a proper employment source for women. It is for men.	91%		9%		

Figure 1: Participants engaged in hands-on activities under faculty supervision



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