FRESNO STATE
Jordan College of Agricultural Sciences and Technology

FRESNO STATE
Plant Science

Recruiting Young Students from Underrepresented Groups into Agricultural Sciences

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Abstract: Undergraduate plant science volunteer students of California State University, Fresno (Fresno State) had an opportunity to help educate underrepresented minority (URM) students with the Migrant Institute of Science, Technology, Engineering, and Mathematics (STEM) and Leadership Program. This program is a collaboration between the Fresno State Outreach and Special Programs, and the Education Leadership Foundation of Fresno. The goal of the program is to expose students to science, agriculture, careers and college life. Undergraduate students participated throughout the two-week summer session and educated 89 high school students from the Central Valley region of California. The members presented various lectures in agricultural science and gave hands-on laboratory and field experience. The topics ranged from soil science, including texture, structure, morphology and taxonomy, integrated pest management, pathology, horticulture, agricultural mechanics and careers in agriculture. The students learned about the importance of furthering their education, and the career opportunities available to them in the agricultural industry. Plant science student volunteers identified with the social and educational barriers they face by mentoring them with their own personal stories, knowledge and enthusiasm for agriculture. Students gained a broader understanding of agriculture, career opportunities and the sustainability of our future in agriculture.

Introduction

Undergraduate students recognized, through first-hand experience, the need to provide further information in agriculture to change the misconceptions of the agriculture industry as a whole. A group of first generation underrepresented minorities Plant science undergraduate students reached out to migrant high School students through resources made available by the California State University, Fresno (Fresno State) and community organizations. This group mentored high school students in (Spanish and English languages) and had discussions as they understood the social, economic adversity they faced when choosing to go to college, or pursue a career in agriculture. The group successfully collaborated in a two week agricultural education program focusing on the industry and its components.

Objectives

- To collaborate with Migrant Institute of Science, Technology, Engineering, and Mathematics (STEM) and Leadership program.
- To recruit 89 high school students from underrepresented minorities throughout the Central Valley of California.
- Change the perception of agriculture.
- Expose students to science through agriculture.
- Show different career opportunities in agriculture
- Emphasize the importance of furthering education and sustaining agriculture.

Materials and Methods

- Developed a one week Lesson Plan focusing on Agricultural Plant Science and its components.
- Discussed “What is Agriculture and Careers in Agriculture.”
- Plant science student demonstrated:
  - Entomology and Integrated pest management (Fig. 1a-1e)
  - Soil Science (Fig. 2a-2c)
  - Agricultural Mechanics (Fig. 3a-3e)
  - Horticulture and Agronomy (Fig 4a-4c)
  - Plant Pathology (Fig 5a-5c)
- Engaged in conversation with students about the future and agriculture.
- Interacted with students and assisted them with daily journals of their experience.

Figure 1a-1e: Students learned about biodiversity by releasing and following lady bird beetles (1a). Julie Pedraza teaching economic entomology; and insect behavior (1b). Students practiced pinning insects and identifying them with Elizabeth Mosqueda and Crystal Espindola (1c, 1d). Students tried to catch dragonflies after learning how to sweep insects with nets and integrated pest management (1e).

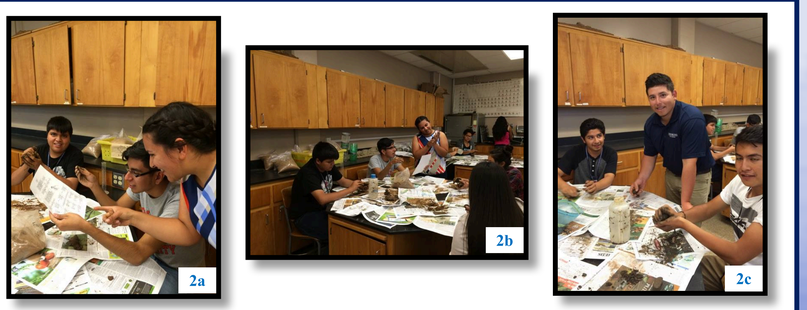

Figure 2a- 2c: Georgina Reyes Solorio and Aldo Garcia taught a soils lab where students learned about how to identify the texture, structure, morphology, taxonomy, chemistry and physics of the soils found in Fresno County.

Figure 3a-3e: Luis Toledo demonstrating different farm equipment used to plant, manage and harvest crops. He oversaw students adjust seeders and demonstrated welding and innovations in custom designs in agriculture mechanics.

Figure 4a- 4c: Calliope Correia talking with students about horticulture, agronomy and greenhouse management. Elizabeth Mosqueda and Calliope Correia teaching students how to transplant succulents.

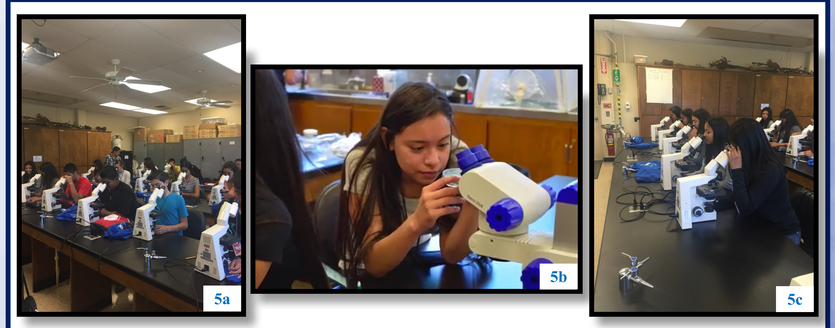

Figure 5a- 5c: Elizabeth Mosqueda and Jessie Brazil had students capture and imprint pathogens on culture plates. Students incubated plates for five days and observed fungi and bacteria under the microscope.

Results and Discussion

- Eighty-nine high school students from under-represented minorities of California’s Central Valley were exposed to agriculture as a science.
- These students were made aware of the opportunities they had to succeed beyond high school and in STEM.
- The students were provided hands-on laboratory and field industry experiences in agriculture.

Conclusion

- The workshop helped high school students from under-represented minority groups discover their role and pathway in agriculture.
- The workshop introduced the students to agricultural careers and education broadening their opportunities for their future.
- Plant science volunteers had the opportunity to participate in an extension and education event by being agricultural ambassadors and mentors to sustain the next generation of agriculturalist.

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