Science Research in Agriculture Education

USDA Future Scientists Program
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DIVISION OF CAREER & TECHNICAL EDUCATION (CTE)
Research in Agriculture Education

- Host Site: USDA/ARS Subtropical Horticulture Research Station
- Focus: Ecology/Entomology, energy flow through corn plants and food chains/webs; the life cycle of the corn earworm
- Actual research on the LIFE CYCLE of the corn earworm (*Helicoverpa zea*), and global research currently being conducted at Mayaguez USDA/ARS
EMPHASIS ON GRADE LEVEL CONTENT

- Life cycles
- Invertebrates
- plant science
- water cycle
- erosion
- food chains/web
- niches
- predator-prey
- interaction
- Survival

- Diapauses
- Migration
- Interdependence of organisms
- Relationship between organisms
- Population change
- Diversity
- Adaptation
- Behavior
SCIENCE RESEARCH IN AG ED

BENEFITS

- Participation in actual hands-on, inquiry-based research on agricultural insect pests.
- Teachers strengthen capacity to facilitate academic & scientific integration and improve student performance.
- Project-based curriculum, aligned with State & National Standards.
- AgriScience Literacy & program promotion
MORE BENEFITS

- Introduction to collaborative opportunities with USDA research scientist/exposure to cutting-edge research and curriculum.
- Training in the use of scientific equipment and the scientific method in the classroom.
- In-school support, access to interactive program web page, curricular & lab materials, lesson plans, and pre & post testing/analysis.
APPLICATION
TEACHERS COLLABORATE WITH NASA ON THE
CORN EARWORM PROJECT
Reduced Gravity Educational Flight Project - unique academic experience, educators successfully propose, design, fabricate, fly and evaluate a reduced gravity experiment.

Overall experience includes: scientific research, hands-on investigation, design & test operations.

Investigations will adhere to the same regulations governing NASA research and test flights.
Teacher devised experiment based on concepts acquired (T. Gantt, C. Veiga, T. Doucimo, and E. Abramoff of JFK Middle)

PURPOSE - To determine if corn ear worms can survive a zero gravity space flight, and if so will the pupation rate be affected? - To investigate an interplanetary colonizing.
STUDENT GAINS

• Classroom introduction of the scientific inquiry process and experiential learning through real world experiences.

• Adds credibility to AgriScience program & expose high caliber students to opportunities in the Agriculture Sciences

• Special Guests & Presenters at Student Research Presentation Day at USDA/ARS
MORE STUDENT GAINS

- Exposure to scientific research that is fun & engaging, by the ‘James Bond of Scientists’
- Develop FFA AgriScience CDE & Science Fair research projects using scientific inquiry
- Recognition for excellence and access to further USDA initiatives
- Students interact with teachers on NASA flight via updated blog postings, until the flight returns
TEACHER & STUDENT RESOURCES

- http://www.hsi.usda.gov/CornEarWorm/presentations
Thank You!

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