Promoting Science Through the Food and Agriculture Research Experiences for Teachers (RET) Program

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THE NEED FOR SCIENCE LITERACY

- Strong STEM foundation is essential for continuing America’s competitiveness in a global economy (National Science Board, 2006).

- The two highest priority actions for the nation, in the view of the Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5 (2010) committee members are:
  - teachers in every classroom qualified to teach the subject they teach
  - double the federal investment in research — universities as opposed to government facilities.
THE NEED FOR FOOD AND AGRICULTURAL LITERACY

Reasons:

- By 2050 there will 2.4 billion more people on Earth
- Confusion among consumers and voters about food
  - Children think that milk comes from stores
  - In the U.S., less than 1.5% of people live on farms
- Few understand or appreciate the role of agriculture in the U.S. economy and trade
  - In Nebraska, 1 in 3 jobs is agriculture-related
Model for Improving Science and Food/Agricultural Literacy
This project focuses on…

- Developing a transformative model of education and professional development that focuses on:
  - a systems approach to instruction
  - science as an on-going process of discovery and inquiry
  - supports the integration of food and agriculture as vehicles for science instruction

Soybeans as the vehicle for teaching science …
OVERVIEW OF MODEL

Research Experiences for Teachers (RET)

- Focus on:
  - Systems-approach
  - Nature of science
  - Integration into K-12 classrooms

- Partnership between science educators & scientists
  - Research experience - scientists
  - Integration of soybean model – science educators
  - Classroom support
OUTCOMES

- Promotes science literacy
- Promotes food and agricultural literacy
- Provides teachers the tools and knowledge necessary to communicate and educate their students on the role of science, soybeans, and agriculture in
  - their lives
  - the lives of their families
  - the impact on the state, region and nation
OUTCOMES: TEACHERS IMPACTED

- Teachers’ use their new knowledge as a basis for integrating the nature of science into their teaching.
- Teachers’ use their new knowledge to create new experiences for children in their classrooms that focused on the soybean as a system.
- Teachers’ were not asked to create "new" curricula, but utilized existing curricular objectives by incorporating soybean as the focus organism (system).
- Teachers’ have applied the soybean system to mathematics, computer technology, music, and art.
OUTCOMES: CHILDREN IMPACTED

- Children have developed an understanding of the nature of science and key science concepts

- A key experience for the students during this project is seeing and learning that science is a journey, a process...not a destination
OUTCOMES: CHILDREN IMPACTED

- Children have developed an understanding of the soybean system
- Children have developed an understanding of the importance of soybean and agriculture
CONCLUSIONS

- Using model systems – explore other plant systems, animal systems, etc.
- Promoting science literacy using model systems that are local and important
- Promoting food and agricultural literacy
- Unique model – science educators and scientist working together
FUNDING OPPORTUNITIES

- Primary funding source – United Soybean Board and Nebraska Soybean Board
- Model for education/outreach focus for AFRI REE
- Model provides unique funding opportunities for NIFA and partnerships among funding agencies
  - K-6 students
  - Professional development for teachers
  - Food and agricultural models as vehicles to teach science
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Questions