RICECAP New Project

Laboratory Encounters in Plant Genomics
Summer Workshop

5th-12th grade Teachers of Science and Agriculture

June 27th - June 28th
Arkansas Ag Extension Lab in Lonoke, Arkansas

PIs: Ken Korth and Rick Cartwright, Univ. of Arkansas
Peggy Lemaux, UC-Berkeley
Jan Stephens, Colorado State Univ.

Objectives

➢ Importance of rice
➢ Applications for genetic studies
➢ Basics of plant and molecular biology
➢ Provide implements for teachers
The Basics...

- 2-day workshop in Lonoke, AR
- Classroom and hands-on activity
- Modular design
- "Lab-in-a-box"

Activity 1. DNA isolation using household items

Classroom discussions...

- DNA structure
- DNA role as a code
- cell organization
- mutations in life and science
Activity 2. DNA analysis via electrophoresis

Classroom discussions...

- principles of electrophoresis
- power of restriction enzymes
- PCR
- DNA fingerprinting

Equipment (including DNA samples, agarose, dye) will be provided for teachers to use and share...
Activity 3 – Power of plant mutations as a breeding and research tool

Classroom Discussions...
- genomics
- green revolution
- plants have hormones

Will also used mutant gene as a model in computer-based activities...
- BLAST searches
- compare mutant and w.t. seqs
- simulated PCR and fingerprinting

Seed provided by Bruce Bugbee
Utah State University

Considerations for workshop design
- held in rice-growing region
- topics will address national science standards
- assess workshop and ultimate implementation
- model for future workshops