

**Rice Research and Promotion Board  
2006 Research Proposal**

**Project Title:** Automated Non-Destructive Machine-Vision System for Inspection of Rough Rice

**Investigators:** Carl L. Griffis, Professor, Bio&Ag Eng. Univ of Arkansas  
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**Priority Area:** Post-Harvest

**Status:** Year 3 of 3

**Progress Report:**

During the last year of the project the following steps have been accomplished.

1. Equipment has been mounted in the light-proof chamber to be used for image capture.
2. Alternatives to the two-camera system have been investigated. Research has shown that improved detection of damaged kernels may be achieved with only one camera, reducing the cost of the prototype.
3. A mechanism for singulating kernels of rough rice has been selected and is being mounted in the light-proof chamber.
4. Mechanisms for sorting the inspected kernels into bins for those which are damaged and those which are undamaged are under development.
5. The user-friendly software package purchased last year is in use. Custom software is being developed to interact with the commercial package and should enable the investigators to complete the turn-key prototype system for use by scientists at Stuttgart.

**Value to the Growers:**

The improved assay system developed by this project will enhance the overall rice research program by providing to rice breeders a better high-speed non-destructive scientific tool to evaluate rough rice samples for resistant rice variety lines and to quickly assess a variety of shape and size properties. The imaging system uses a modified back-lighting technique combined with digital imaging techniques, to provide accurate quantitative data that will allow scientists to evaluate rough rice samples for susceptibility to discoloration caused by such problems as the rice stink bug (*Oebalus pugnax*) and the kernel smut fungus. The imaging system can also provide accurate measurement of kernel dimensions as well as variance analysis, which will accelerate progress in pathology, entomology, variety development, and genetic research programs. More efficient programs will result in a faster release of highly desirable rice cultivars.