

TITLE: Race identification, genetic characterization, and screening for resistance
(December 17, 2004)

PRINCIPAL INVESTIGATORS: Dr. J. C. Correll and Dr. F. N. Lee
Department of Plant Pathology

COOPERATORS: Dr. Rick Cartwright, Plant Pathology Specialist
Drs. Karen Moldenhauer and James Gibbons

PRIORITY AREA: Management Strategies for Rice Pests

STATUS: Ongoing (2004)

VALUE OF RESEARCH TO THE RICE FARMER:

Monitoring and screening efforts to characterize blast races are critical to continue to assist breeding efforts to maintain high levels of resistance to blast in commercial cultivars.

PROGRESS REPORT AND UPDATE

Approximately 200 entries from the Uniform Rice Regional Nursery (URRN 2004) have been screened against 9 rice blast isolates representing various races. Several promising selections with resistance to all or most of the races have been screened in additional tests to confirm the level of resistance. A total of 75 entries were rated as highly resistant (resistant to all 9 reference isolates) or highly resistant (resistant to 8 of the 9 reference isolates). The screening efforts continue to identify the more resistant germplasm being evaluated.

Rice blast has been prevalent in the 2004 growing season and a large number of isolates have been collected thus far. Over 70 fields have been sampled from 13 counties, from ten different cultivars. The collection of isolates for 2004 is approximately 600 single-spored isolates. The majority of the samples collected thus far have been from neck blast samples. The collected isolates along with isolates we have maintained in our collection are used routinely to screen primitive germplasm, advanced breeding lines, and commercial varieties for resistance to rice blast disease. The isolates have been stored and are currently being characterized for race and their DNA fingerprints using molecular markers we have developed.

Although most of the isolates collected have belong to a single fingerprint group (Group A), a number of isolates in DNA fingerprint group B have proven to be novel in their virulence phenotype and can overcome *Pi-ta* type resistance.