Comparison of IR8 from Two Different Sources in Genetic Diversity and Phenotypic Traits. (C02-peng031356-Poster)

Authors:

- J.Huang - *International Rice Research Institute, Philippines*
- S.Peng - *International Rice Research Institute, Philippines*
- R.C.Laza - *International Rice Research Institute, Philippines*
- J.Wu - *International Rice Research Institute, Philippines*
- H.Leung - *International Rice Research Institute, Philippines*

Abstract:

In recent years, experiments conducted at IRRI farm showed that IR8 yielded 1.0-2.5 t ha-1 less compared to 9.5-10 t ha-1 reported 30 years ago. Several hypotheses were given to explain the decline in yield potential. One of them was genetic modification that might have occurred within the seed itself. To test this hypothesis, we compared two sources of IR8 seeds in terms of genetic diversity and phenotypic traits. The two sources of IR8 seeds are: new IR8 that has been continuously grown for the past 30 years and old IR8 that has been stored in the gene bank for 30 years. One 28-day-old seedling was transplanted in each pot filled with 3 kg dry soil. Before transplanting, the topmost fully expanded leaves of 35 seedlings from each seed source were sampled for DNA extraction. Genetic diversity among the individual seedlings was evaluated based on simple sequence length polymorphisms (SSLP). Plant growth, physiological parameters, yield and yield components were measured in each pot. SSLP detected DNA variation in 10% of new IR8 seedlings and none in old IR8. No difference was observed in photosynthetic rate, chlorophyll meter reading, yield or yield components between new IR8 and old IR8. The IR8 seedling with SSLP variation did not differ significantly from the normal IR8 seedling in morpho-physiological or yield traits. The results suggested that genetic changes in the new IR8 seed have unlikely caused any phenotypic difference. Yield decline in IR8 was not associated with any genetic change within the seed itself.

Corresponding Author Information:

Shaobing Peng phone: 63-2-845-0563

International Rice Research Institute
IRRI, DAPO Box 7777
Metro Manila
Philippines

fax: 63-2-891-1292
e-mail: s.peng@cgiar.org

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 1029R

Keywords:

Rice, Yield decline, Yield potential, Agronomic trait