

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
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Keyword 1	: Hybrid rice
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Title of Entry	: IDENTIFICATION OF HETEROTIC GROUPS OF PHILIPPINE INBRED AND IRRI HYBRID PARENTAL RICE GERMPLASM
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: The concept of parental heterotic groups and patterns has been identified as one of the key approaches to enhance heterosis in hybrid rice. It increases the hybrid breeding efficiency since it aids in choosing the parent to cross that will give high yield and heterosis. However, no such information is available in rice breeding pool utilized at the PhilRice. Thus, this study was done to 1) evaluate degree of yield heterosis among hybrids between PhilRice inbred lines and IRRI hybrid parentals grouped by SNP markers, 2) identify possible heterotic group generated through SNP marker-based grouping, and 3) identify the inbreds and hybrid parents in discrete germplasm pools and construct a set of core heterotic groups to provide a reference for the Philippine hybrid rice breeding programme. From grouping generated, 26 parents representing the identified groups were used for the combining ability test using the line x tester analysis. Twenty-six parents from PhilRice and IRRI hybrid lines, 135 derived hybrids, and a hybrid and inbred check were evaluated in 5 environments. Results showed that hybrid yield, heterosis and combining ability were statistically significant among the parents and hybrids. Mean yield advantage of hybrids was 32%, 20% and 9% against the means of the parents, inbred check and hybrid check respectively. For this set of lines, three IRRI parental groups form heterotic hybrids with PhilRice inbred lines and four promising hybridization patterns were identified based on the marker grouping and the field testing done. The study also confirmed that the grouping identified in the PhilRice and IRRI lines by SNP markers are indeed heterotic groups and is useful in choosing parents in hybrid rice breeding.

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