

## **Breeding of High Yield Rice of Long Grain Indica Adaptable to Tropical Region in South-East Asia**

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The long grain indica rice varieties adaptable to South-east Asia tropical regions were developed in Cambodian Agriculture Research and Development Institute (CARDI), Cambodia. The final goal is to develop rice varieties which can culture in diverse environmental conditions of tropical regions of South-east Asia under climate change. The 131 rice germplasm collected from Cambodia, China, India, Indonesia, Myanmar, Philippines and Vietnam were evaluated for agronomic traits and resistance to biotic stresses in CARDI and Vietnam. The core germplasm including leading varieties of target countries for seed-exporting were crossed with promising germplasm of high yield potential, resistance to biotic/abiotic stresses, aromatic rice, and so on. Out of 607 F<sub>1</sub>s evaluated to heading date, plant type, agronomic traits, and grain type, 106 F<sub>1</sub>s selected and advanced to F<sub>2</sub> populations. 106 F<sub>2</sub> populations were evaluated to major agronomic traits, grain type and yield-component traits, and selected 2,560 plants in 62 F<sub>2</sub> populations. During six seasons in 2014~2016, the lines of F<sub>3</sub> subsequent-generation were cultured a total of 6,256 lines. In yield trial for promising lines in F<sub>5</sub> generation, the growth duration from sowing to harvesting was 97~114 days. These lines were 88~129 in number of grain per panicle, an average of 84.6% in the range of 79.3~91.9% in the percentage of ripened grain and 17.5~22.8g in 1000-brown rice grain weight. The rough rice yields were in the range of 4.33~6.06 ton/ha with an average of 5.23 ton/ha. The yield was increased to 5~47% than Chulsa and 12~41% than IR66. Six lines, KR50-18-2-3, KR52-44-3-1, KR55-69-2-3, KR104-48-5-2 and KR126-32-3-1 were 4.85~6.27 ton/ha in rough rice yield. These high yield potential lines would be evaluated to adaptability in Cambodia, Laos, Myanmar and Vietnam during 2017.

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