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A Rice (*Oryza sativa* L.) Breeding for Field Resistance to Blast Disease (*Pyricularia oryzae*) in Mountainous Region Agricultural Research Institute, Aichi Agricultural Research Center of Japan

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Abstract: Mountainous Region Agricultural Research Institute (MARI), Aichi Agricultural Research Center(AARC) was established in Inabu town (later Toyota city), Aichi Prefecture, in 1933. MARI is situated in latitude 35 degrees 13 minutes north and longitude 137 degrees east and located 505 m above the sea level. The mean yearly temperature is 11.8°C, it has about 1,500 sunshine hours a year, and rainfall in a year is about 2,100 mm. These environmental conditions are suitable for blast. We have been breeding rice with blast resistance in these areas where outbreak of rice blast often occurs. MARI has contributed to rice cultivation in Japan by breeding scores of rice blast resistant cultivars. In particular, the rice cultivars bred by introducing blast field resistance of the upland rice cultivar, Sensho, are being cultivated not only in mountainous regions of a temperate district where outbreak of rice blast often occurs, but also at rice breeding laboratories all over Japan as mother plants for breeding. Since 1967, MARI was assigned by the Ministry of Agriculture and Fisheries as the experimental station for breeding superior cultivars for mountainous regions in the temperate district in Japan. The main cultivars bred by this project are Mine-asahi which have good kernel quality and good eating quality, Chiyonishiki and Mine-hibiki, which are resistant to rice blast, and others. At present, we are introducing the chromosomal region of field resistance to blast from Sensho by QTL (Quantitative trait loci) analysis and various genes from Yunnan cultivars and native gene sources into the cultivars with good eating quality, and breeding highly rice blast resistant lines.

Keywords: Blast, Breeding, Field resistance, Gene sources, Rice

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