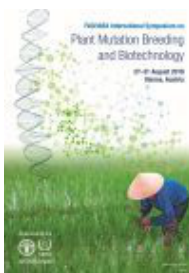


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GENETIC ANALYSIS AND CORRELATION OF GROWTH AND YIELD COMPONENTS OF RICE MUTANT LINES UNDER THREE DIFFERENT ALTITUDES.

The primary environmental factor which causes weather damage is basically temperature, whether low and high temperature. It causes yield loss through decreasing yield components. This study was aimed to evaluate the phenotypic correlation and broad sense heritability related to low temperature stress as a result of varying altitude. Experimental design was randomized complete block design with three replications. The experiment was conducted in the rainy season at three different altitudes (Banjaran with 700 m above sea level, Ciburuy with 900 m above sea level and Boyongbong with 1,200 m above sea level) and examined 20 rice mutant lines and their parents. The result indicated that there was a similar positive correlation of agronomic trait which highly significant for all locations, i.e. tiller number with grain yield, panicle length with flag leaf length, flowering date with grain weight and grain filled percentage with grain filled number as well grain yield. Most of the yield components had broad sense heritability with high category ranged from 0.51 for filled grain numbers to 0.86 for flowering date. The crucial factor to improve grain yield in highland conditions is how to reduce the unfilled grain number which is the main limiting factor affected by low temperature stress during flowering and fertilization. Since the filled grain number trait has high heritability, a low yield could be improved by optimizing the cold tolerance and planting time to escape the low temperature injury during flowering and fertilization.

Country or International Organization

Indonesia, National Nuclear Energy Agency of Indonesia

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