

Fertility Expression of TGMS-Genes in the Backgrounds of indica CMS-lines, B-lines and R-lines of Hybrid Rice [PDF]

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摘要: The generation fertility of 51 F1, 19 F2 and 6 BC1 between 3 thermo-sensitive genic male sterile lines (TGMS-lines) Pei' ai 64S, 6311S and 360S, and the three lines of hybrid rice including 7 indica cytoplasmic male sterile lines (CMS-lines) and their corresponding maintainer lines (B-lines) and 3 indica restorer lines (R-lines) were investigated to study the expression of TGMS-genes in the backgrounds of the three lines of hybrid rice. Pei' ai 64S has stronger fertility restoring (Rf) genes for CMS-lines and its TGMS trait is governed by 2 pairs of independent recessive genes; The TGMS trait of 6311S is governed by a single recessive gene with weaker Rf-gene in 6311S and the TGMS trait of 360S is governed by a single recessive gene with no Rf-gene in 360S. The investigation on the fertility of F1 plants between 5 CMS-lines and 4 TGMS generations selected from F2 plants of 4 CMS-lines × 6311S confirmed that the expression of TGMS-gene was controlled by Rf-gene in the genetic background of cytoplasm of CMS-lines, but not affected by Rf-gene in the genetic background of normal fertile cytoplasm. The potential breeding strategies of TGMS-lines with cytoplasm of CMS-lines and CMS-lines with the nucleus of TGMS-genes were discussed.

关键词: thermo-sensitive genic male sterility-gene; three-line system; genetic background; gene expression; *Rice Science*. 2006, 13(4): 243-249

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