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研究论文

不同硼水平下小麦育性与结实率的基因型差异研究

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摘要 以低硼反应不同的小麦基因型为材料， 研究了硼水平对小麦雌雄蕊育性和结实性的影响。 结果表明，在低硼条件下（B0）， 花粉育性和结实率基因型之间差异显著。 低硼敏感基因型SW41表现自交完全不育， 自然异交可育， 但结实率较低； 人工杂交时以其为父本的各种组合均不结实， 为母本的各种组合虽然可育， 但它们的育性显著低于低硼不敏感基因型为母本的杂交组合， 表明缺硼不仅影响雄性器官发育， 对雌性器官也有明显的不良作用。 本文就低硼诱发的小麦不育性在杂交种子生产和育种实践上的意义进行了讨论。

关键词 小麦 硼营养 育性 基因型

分类号

扩展功能

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Studies on Wheat Genotypic Difference in Fertility and Grain Set under Different Boron Levels

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Abstract Fertility and grain-set percentage of three wheat genotypes with different sensitivity to B deficiency were studied. Under the condition of lower B level(B0), wheat genotypes showed significant difference in pollen fertility and grain-set percentage. Boron inefficient genotype SW41 had no grain-set in self-pollination and had lower grain-set percentage in out-crossing. Moreover, in the crossing combinations with SW41 as male parent, there was no grain-set, but with SW41 as female parent, higher grain-set had been found, though being lower than those of crossing combinations with B efficient genotypes as both males and females. It is suggested that B deficiency cause impairment on both male and female development. It is worthwhile to note that local cultivar Zhemai 1 had high tolerance to low B level in term of grain-set percentage, showing its potential application in B efficient breeding. Significant implication of Boron deficiency-induced male sterility in wheat seed production and breeding are discussed in this paper.

Key words Wheat B nutrition Fertility Genotype

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