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研究论文

外源抗虫基因对棉花杂种优势的影响

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摘要 利用3种不同外源抗虫基因棉及其受体和同一常规棉杂交，研究外源抗虫基因对棉花杂交F1的抗虫性和主要农艺性状的影响。结果表明，3种外源基因对杂交F1的优势影响较一致。杂交F1的抗虫性没有杂种优势，不同发育阶段叶片的抗虫性均不高于其抗虫亲本，但和其抗虫亲本有相似的时间变化规律。在花铃期杂交F1的不同器官的抗虫性差异较大，杂交F1叶片的抗虫性低于抗虫亲本，花蕊、幼蕾、幼铃等生殖器官的抗虫性好于其抗虫亲本。Bt毒蛋白含量测定结果和室内抗虫性鉴定表现基本一致。外源抗虫基因对杂交F1的产量性状和纤维品质性状总体上无影响。外源抗虫基因可提高早熟性，第一果枝节位的中亲优势或竞争优势有显著差异。

关键词 外源基因 抗虫性 Bt毒蛋白 杂种优势 农艺性状

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Effect of Different Foreign Genes on the Heterosis in Upland Cotton

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Abstract In order to study the effect of foreign genes on the main agronomic traits and insect-resistance in hybrid F1, the crosses were made by using three different foreign-gene cotton and their receptors with the same conventional female. The results showed that, there were relatively similar changes affected by different gene in hybrid F1. There was no advantage in hybrid F1. At different stage, the insect resistance in leaves was no higher in hybrid than that in its insect-resistant parent, but they had the similar spatio-temporal distribution compared with insect-resistant parent. During the flowering-boll stage, the insect resistance of small squares, small bud and stamen in hybrid F1 was apparently higher than that in the parents. The measurement results of Bt toxin protein were familiar with the identification result of insect-resistance in laboratory. Foreign genes have no effect on yield traits and fiber traits on the whole.

Key words Foreign gene Insect-resistance Bt toxin protein Heterosis agronomic traits

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