

陆地棉产量性状的遗传效应及其与环境互作的分析 Analysis of Genetic Effect* Environment Interactions for Yield Traits in Upland Cotton

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摘要 本研究根据加性-显性与环境互作的遗传模型, 分析了陆地棉10个杂交亲本和20个F1皮棉产量、单株铃数、单铃重、衣分和前期收花率的两年资料, 估算了各项遗传方差分量和成对性状间各项遗传效应的相关。方差分析结果表明, 衣分受基因型×环境互作效应影响较小, 其它4个性状受基因型×环境互作影响较大, 其中皮棉产量、单株铃数和前期收花率受显性×环境互作效应影响较大。遗传相关分析表明, 皮棉产量与单株铃数、衣分和前期收花率加性相关系数值较大, 皮棉产量与单株铃数、单铃重和前期收花率间存在较强的加性与环境互作负相关。皮棉产量与单株铃数、单铃重和前期收花率间存在显著的显性正相关, 但与单株铃数、单铃重间存在显性与环境互作相关。

Abstract: Ten parents and their 20 F1s of upland cotton were analyzed for five yield traits in two years by a genetic model of additive-dominance with interaction effects. Genetic variance components and correlations were estimated. It was indicated that the gene by year effects interaction were small for lint percentage, but large for the other four traits, the dominance by year effects interaction were very large for lint yield, boll number and first picking percentage, especially. The additive correlation between lint yield with boll number, lint percentage and first picking percentage were significantly and high. The dominance correlations between lint yield and boll number, and between boll weight and first picking percentage were significantly too. The correlation of additive by year interaction between lint yield and boll number, boll weight and first picking percentage and those of dominance interaction by year between lint yield and boll number, boll weight were significant and large. The dominance correlation between boll number and boll weight were large too.

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Abstract

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