

研究论文

长江流域杂交早稻品质性状的表现及配合力研究

邓华凤, 何强, 毛友纯, 徐庆国, 舒服, 张武汉, 杨飞, 袁隆平

湖南农业大学, 湖南长沙410128

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摘要 在探索我国长江流域杂交早稻品质改良的育种手段, 为其品种选育提供理论依据。选用长江流域生产上大面积应用的6个早籼稻不育系和5个早籼稻恢复系及NC II 设计配制了30个杂交早稻组合, 对各组合的12品质性状进行了测定和分析。结果表明, 各品质性状的杂种优势表现普遍介于双亲之间, 垩白和整精米率是长江流域杂交早稻品质改良的主要限制因子。12个主要品质性状组合间方差均达极显著水平, 存在极显著的遗传差异; 各品质性状基因的加性效应和非加性效应对杂交早稻的品质存在极显著的影响。各品质性状狭义遗传力为长/宽>粒长>垩白度>粒宽>整精米率>糊化温度>直链淀粉含量>垩白率>垩白面积>出糙率>胶稠度>精米率。出糙率与精米率, 整精米率与糊化温度, 粒长与长/宽, 粒宽与垩白粒率、垩白面积、直链淀粉, 垩白粒率与精米宽、垩白面积、直链淀粉含量, 垩白面积与粒宽、垩白粒率、垩白度、直链淀粉含量等性状间存在显著或极显著正相关。整精米率与垩白粒率、长/宽与粒宽、垩白粒率、垩白面积、垩白度、糊化温度、直链淀粉含量等性状间呈显著或极显著负相关。对杂交早稻品质性状之间的内在联系、遗传以及品质改良也进行了讨论。

关键词 [杂交早稻](#) [品质性状](#) [配合力](#) [遗传力](#) [相关性](#)

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Quality Characters and Their Combining Abilities of Early Hybrid Rice in Yangtze River Area

DENG Hua-Feng, HE Qiang, MAO You-Chun, XU Qing-Guo, SHU Fu, ZHANG Wu-Han, YANG Fei and YUAN Long-Ping

Hunan Agricultural University, Changsha 410128 Hunan

Abstract The objective of this research was to establish the quality breeding theory of hybrid early rice in Yangtze River area through exploring the breeding means of the quality improvement of hybrid early rice. The hybrid early rice combinations between 6 sterile lines(A) and 5 restorer lines(R) of early indica rice grown in large area of Yangtze River basin were used with NC II genetic design, and 12 quality traits of them were measured and analyzed in this research. The result showed that the values of most grain quality traits were between their parents, chalky and milled rice rate were main limiting factors of the hybrid early rice quality in Yangtze River area. The statistical analysis revealed that there were a highly significant genetic difference among combinations and a highly significant influence of the quality-gene additive and non-additive effects on the hybrid early rice quality. The narrow-sense heritability of quality traits was ranged as follows: Length/Width > Length > Chalkiness > Width > Head Rice > Gelatinization temperature > Amylase Content > Chalky Grain > Chalky Area > Brown Rice > Gel Consistency > Milled Rice. Simple analysis of correlation showed that there existed significantly positive correlation between brown rice and milled rice; head rice and gelatinization point; grain length and grain length/grain width; grain width and chalky grain, chalky area, amylose content; chalky grain and milled rice width, chalky area, amylose content, chalky area and grain width, chalky grain, chalkiness, amylose content. There existed remarkably negative correlation between head rice and chalky grain; grain length/grain width, chalky grain, chalky area, chalkiness, gelatinization temperature, amylose content. The internal relationship, genetics and their improvement in 12 quality traits of hybrid early rice were discussed also.

Key words [Early hybrid rice](#) [Quality characters](#) [Combining ability](#) [Heritability](#) [Correlation](#)

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通讯作者 邓华凤 denghuafeng@sohu.com

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