几个小麦亲本主要农艺性状的配合力评价及遗传力分析
Combining Ability and Heritability Analysis of Main Agronomic Traits in Wheat

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中文摘要：

为了解小麦品种（系）主要性状的配合力，为杂交育种选择优良亲本和最优杂交组合提供依据，选用西农979、郑366、西农9871、周麦18等表现优良的小麦品种（系）为材料，采用Griffing不完全双列杂交法，配制了35个杂交组合，对小麦亲本及杂种F_1的旗叶面积、穗粒数、千粒重、穗下节长、穗颈长5个性状进行了田间考察，并在基因型方差分析显著的基础上进行了配合力方差分析、配合力效应的估计及遗传力分析。结果表明，周麦18和许农5号是综合性状优良的亲本，其多数性状的一般配合力均较大。陕麦94和周麦18千粒重的一般配合力比较突出，是提高千粒重的理想亲本。结合特殊配合力效应值分析，组合（郑366×郑9694）、（西农9871×周麦18）、［02（6）9 5 10×04中36］、［02（6）9 5 10×浚99 7］、（郑366×许农5号）、［02（6）9 5 10×郑9694］可作为高产育种的重点组合，在品种选育中应加以重视。遗传力分析表明，旗叶面积、穗下节长、穗颈长、千粒重4个性状的广义遗传力较大，但狭义遗传力均偏小，低于50%，说明加性遗传效应较小，显性效应和上位性效应较大，应该适当推迟选择的世代（$F_5 \sim F_6$）。

英文摘要：

In order to study the combining ability of newly selected varieties in main characters,and select excellent parents and combinations for breeding,Xinong 979,Zheng 366,Xinong 9871 and Zhoumai18 etc. which are excellent and newly selected wheat varieties were selected.The experiment adopted Griffing incomplete diallel crossing design,compounded 35 cross combinations.Five wheat traits of flag leaf area,kernel per spike,thousand kernel weight,length of uppermost internode under the section and neck length of spike were investigated.Combining ability variance analysis,combining ability effect evaluation and heritability analysis were conducted on these traits on the basis of the remarkable genotype variance analysis.The results indicated that Zhoumai 18 and Xunong 5 were both parents with excellent comprehensive characters,whose GCA was comparatively large in most characters.The GCA of Shaanmai94 and Zhoumai18's 1000 grain weight was remarkably high,which were ideal parents for improving grain weight. SCA analysis showed that (Zheng 366×Zheng 9694)，（Xinong 9871×Zhoumai 18），［02（6）9 5 10×04 Zhong 36］，［02（6）9 5 10×Jun 99 7］，（Zheng 366×Xunong 5），［02（6）9 5 10×Zheng 9694］，could be utilized as key cross of high yield breeding,and emphasis should be given to these combinations during wheat breeding.The heritability analysis indicated:the broad sense heritability of 4 traits of flag leaf area,length of uppermost internode,neck length of spike,thousand kernel weight was comparatively large,while narrow sense heritability was smaller,beneath 50%,it showed that additive genetic effect was small,dominant effect and epistatic effect were comparatively large,so it was better to delay selective generations appropriately($F_5 \sim F_6$).

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